

**Culture of Wilderness Retreat in the Algoma Region:  
Decompostable Architecture Along the Agawa River**

By

Evan Lavallee

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Architecture (M. Arch)

The Faculty of Graduate Studies  
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## Abstract

The Canadian Wilderness has the potential to create social, mental, spiritual and physical advantages within modern culture. The study of these advantages associated with the context of the Wilderness and the city has led to a proposal that explores the habitable space in between. This thesis proposes a better balance between the Wilderness and the City. With the creation of a retreat; a place to escape the city and live simply in the landscape. Inhabiting the Wilderness without the distractions of technological communication will allow the inhabitants to "enjoy the freedom from the grip of the external world,"<sup>1</sup> a necessary step to better establish a relationship with the landscape. The Retreat is a place that is situated deep in the Wilderness in order to gain the benefits from its context until the inhabitant's eventual return to the city. Programmatic characters are meshed together informing habitation, form, material and construction. Creating a space that is directly shaped by the flora and topography and satisfies the essential elements of survival. Camps or in-between spaces are part of Canadian culture and act as a resource for rest, creation and exploration, rather than a resource for economic growth. This change can be seen in the Algoma region of Ontario where infrastructure built for resource extraction and transportation has been transformed to include opportunities for Wilderness exploration, interpretation and escape. Communities of people living and working in the Wilderness of Algoma as

well as Canadian artists have created spaces in between for themselves, in doing so, they created a culture of Wilderness habitation.

The Agawa Retreat is an exploration in Wilderness habitation. Situated along the Agawa River the Agawa Retreat acts as a prototype where human occupants and the Wilderness interact on a personal level. This is achieved with the use of modern mapping and modeling techniques and a unique approach to material selection. The Wilderness acts as both the site context and occupant, resulting in an approach to a building life-cycle that considers habitation one phase of decomposition and renewal. The Agawa Retreat is a unique building typology that is adaptable and repeatable in almost any Wilderness setting. Its site placement, material choice and construction procedure all consider the Wilderness as a character that inhabits the proposal alongside and human occupants. Doing so creates a space in between the Wilderness and the city where occupants can escape, create and live simply surrounded by the Canadian landscape.

1. Marx, L. (1967). *The machine in the garden: Technology and the pastoral ideal in America*. New York, New York: Oxford University Press. Page, 22.

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To my parents who supported me every step of the way, I would like to thank them for the consistent emotional and financial support. They acted as my advisors socially, financially and provided a sympathetic ear when I didn't know I needed it. I owe them a great deal of love in return for all the love they provided me during this very challenging and stressful period in my life.

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I could not have completed this thesis without the support of my fiancée, Sarah, who pushed me to keep working hard even when there was no end in sight. Her love and support over the years allowed me to focus on this challenge and I thank her for encouraging me to continue consistently developing my projects. I love and thank you for being my day to day support system because I know it wasn't easy, I hope I get the opportunity to return the favour.

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“There is pleasure in the pathless woods.  
There is rapture in the lonely shore;  
There is society where none intrudes;  
By the deep sea, and music in its roar;  
I love not man the less, but nature more...”<sup>2</sup>  
- Lord Byron

1.1: The Wilderness, The City and the In-Between

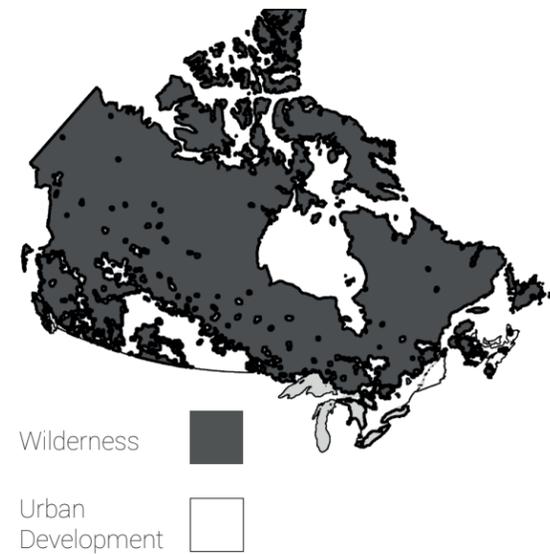
↓  
PART 1  
A RELATIONSHIP WITH THE WILD

## The Wilderness

The rain which soaked the floor of the Wilderness the day before and the gentle breeze from the river brings out the rich and fresh aromas that seem to coat the lungs with a deep breath. The pleasantness of the quiet, and the purity of the landscape, create an escape for the mind and the soul. The bright blue sky and warm rays of sun provide an opportunity for exploration and wonder; a beauty that entertains the senses and uplifts the spirit while allowing the mind to rest. The Wilderness gives the opportunity to gain a proper perspective on the human living condition.<sup>3</sup> A context humans now find themselves in, situated somewhere between the unexplored and awe-inspiring, and the development of the modern living condition. "The land is the appointed remedy for whatever is false and fantastic in our culture... The land, with its tranquilizing, sanative influences, is to repair the errors of a scholastic and traditional education, and bring us into just relations with men and things."<sup>4</sup> Neglect of the whole picture of the world in favor of urban and economic growth is often at the expense of the Wilderness. Nature which provides the world with the resources for this expansion is not considered as a place to cultivate alongside and in opposition to, urban centers. But rather to accept it as a place of regeneration, becoming new, better, happier; to be reborn in the Wilderness.<sup>5</sup> Components of nature and their variety create a place that is rich in life as well as in beauty and thus must be cultivated in the lifestyle of every person. As Leo Marx puts in his book,

*The Machine in the Garden: Technology and the pastoral ideal in America,* "The clearness and brightness of the sky, add new vigour to their spirits, and perfectly remove all splenetic and sullen thoughts. Here they enjoy all the benefits of the warm sun, and buy their shady groves, protected from its inconvenience. Here all their senses are entertained with an endless succession of [inherent] pleasures. Their eyes are ravished with the beauties of naked nature."<sup>6</sup> The Canadian wilderness, its flora and fauna, are at the base of this country's identity, it contributes to the culture of Canadians. It creates a "realization of freedom born of sensuous delight and liberation of instinct,"<sup>7</sup> something that every person can afford to integrate into his or her lives.

fig. 1  
*This Is How Empty Canada Really Is*  
Huffpost, 2016



## **Canadian Psychogeography**

Psychogeography which was defined as "the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals"<sup>9</sup> in 1955 has been modified in this text. Originally the term was concerning the urban environment and its inhabitants. The context of *Canadian Psychogeography* which is used here is slightly different, as it refers to the effects of the natural environment and the emotions of the individual who forms part of Canadian culture. The emotions present when experiencing nature are self - transcendent and "include; awe, gratitude, wonder, and the sense that you are part of something greater than yourself."<sup>9</sup> These positive emotions focus attention towards others, and away from the interests of the individual.<sup>10</sup> The Wilderness has effects on the people of Canada and these effects have created a culture where Canadians feel a sense of belonging within the Wilderness. It has become part of the Canadian identity, connecting spiritually to nature, to understand its rhythms and seasons. And this is the psychogeography of Canadians.



fig. 3  
Northland Lake (November)  
Author, 2020

## The City

The constant development of urban environments has pushed the wilderness farther from the people of North America. Both in terms of geography and mental state. When compared to nature, the *Machine*, used by Leo Marx in *The Machine in the Garden* to describe the city and its modern development of technologies, "is associated with crude, masculine aggressiveness in contrast with the tender, feminine and submissive attitudes traditionally attached to the landscape."<sup>11</sup> The developed city does not represent the whole existence of the human condition. "There is nothing inherently ugly about factories and railroads; what is ugly is the dislocation and detachment from the whole which they represent when seen only from the limited perspective of the understanding."<sup>12</sup> Marx is describing a narrow understanding of how people have lived, and a disconnection from the entire process of how things are created, transported and disposed of. The city is a fast-paced environment with technologies that crave constant attention and mental focus. The uniqueness of the urban environment is stressing and actively strives to disassociate with raw Wilderness.<sup>13</sup>

The city is a physical manifestation of a mindset based on the assumption of infinite wealth. Resource extraction and urban expansion in the minds of capitalists is infinite. Meaning the wilderness is used as a means to further develop and grow an economy infinitely. This mindset has

created a culture that takes from the Wilderness without considering its effect. Leo Marx describes how the English, who first traveled to North America, were corrupted and led into temptation by the incredible bounty and charm of the new country.<sup>14</sup> Using its resources to alter their existence for their benefit without any consideration for the Wilderness itself. And this created a civilization of violence towards nature. The results of which are present in modern cities, which continue to expand further and further into the realm of the wild.



fig. 4  
Sault Ste. Marie, Ontario and Michigan  
Expedition 28 crew, 2011

## The In - Between

The In-Between embodies the necessary comforts known in the city within the natural realm of the Wilderness. Being close enough to both, to gain the benefits from both. This presents itself as a camp, either in a permanent or non-permanent structure, a manifestation of living a rich life with simple means.<sup>15</sup> The culture of retreating to camp is part of who many Canadians are, and this is a trend in many regions of the world. People strive to escape from the city and immerse themselves in opportunities to experience the Wilderness. It satisfies an essential element of human survival; shelter and offers the opportunity to return to a state of nature, where inhabitants can connect to the Stone Age within themselves.<sup>16</sup> Living a simple lifestyle without the stresses and technologies of a complex urban society,

people can enjoy the straightforward pleasures of living outdoors. Providing inhabitants a glimpse into Canadian ecology.

"Increasing urbanization and heavy traffic creates a major need for areas in which humans can find rest, recreation, peace and nature experience. This will demand a significant adjustment in our entire way of thinking about area planning. Thriving areas must be chosen after a quality evaluation of nature. In our legislation we must draw the conclusion that these thriving areas must be protected."<sup>17</sup> The camp represents living between the wilderness and the city, "located as far as possible from the social realm, yet close enough to suggest various household schemes for management of nature and

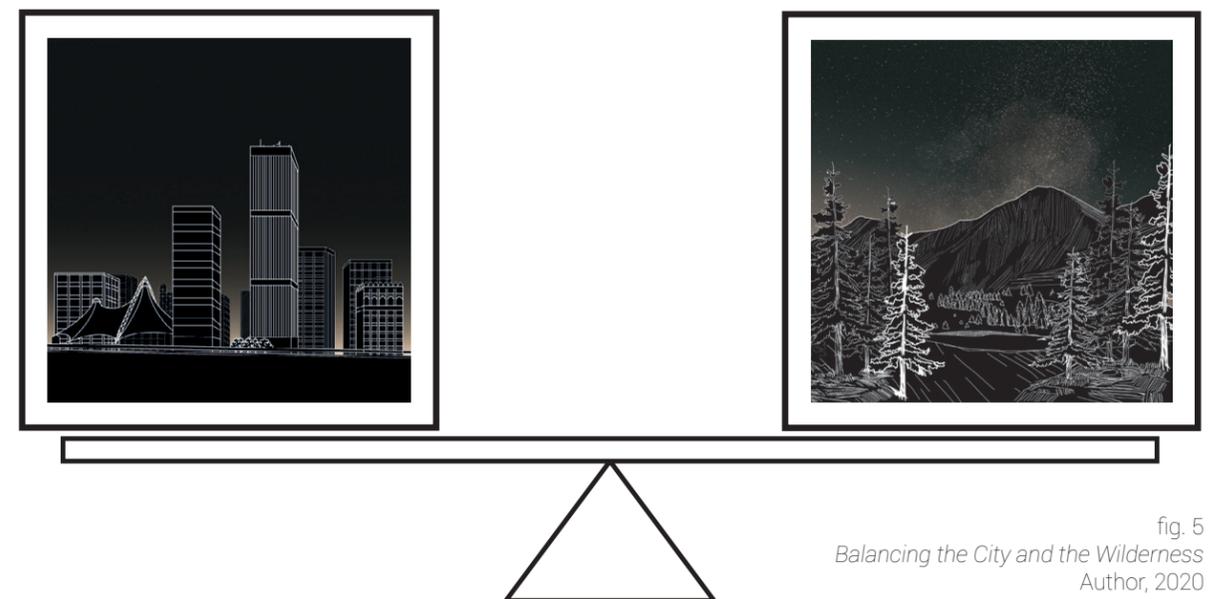


fig. 5  
Balancing the City and the Wilderness  
Author, 2020

society."<sup>18</sup> Immersion into the landscape has become part of the North American conscience especially in the Algoma Region where rewilding has become part of the culture. Interaction with natural settings and the species that inhabit them allows the viewer to better understand his or her own life and where they belong in the cosmos.

The typical camp or retreat in Northern Ontario holds value within its minimal design solutions, fulfilling the basics for survival before the addition of providing comfort options. Camps and buildings, in general, have been created as a reaction to the feeling of vulnerability that the Wilderness creates when situated in it. Camps create a safe place to rest, free from harsh weather conditions, bothersome creatures and hungry predators. Providing a place for relaxation, planning, eating, storage, and release. Situated at the symbolic center of the camp is the campfire or cooking fire. Warming and burning as a signal of life at a camp, focusing the attention of inhabitants. "It seems to be a complete and natural contemplative relaxation"<sup>19</sup> Humans have been staring into campfires for millennia, it is only recently that this trend has slowed. People have tried to replace the campfire with modern television but it lacks the same meditative qualities that the wood-burning campfire provides.<sup>20</sup> Indigenous peoples "have always believed that the campfire is the mirror through which we see ourselves,

a revelation through some improbable angles you're supposed to keep staring until you see ways to smooth out your image."<sup>21</sup> The fire is visually entrancing but requires little attention from the brain. Thus it allows the mind to wander, to think and to rest. It is a contemplative signifier that restores the viewer.

The physical camp is thus a minimal representation of the city, situated within the Wilderness. It allows its inhabitants to bear witness to the changing seasons first hand and up close. To take in the fresh air and smell the raw earth beneath their feet. To slow down and experience the freedom of time and place. Retreating to the Wilderness supports and strives for the natural experience, to gain mental clarity and rest until the eventual return to the mindset of the city. This is a necessary step for establishing a better relationship with the landscape. City life can be challenging, and dissociating from urban life and its technologies is unrealistic. With the continued incorporation of the Wilderness into the culture, and with the continued development of the retreat, the nature deficit caused by the city (and its detachment from the wild) can be improved. It must continue to do so in order to reduce the continued expansive development of urban centers and improve our connection to the natural world.



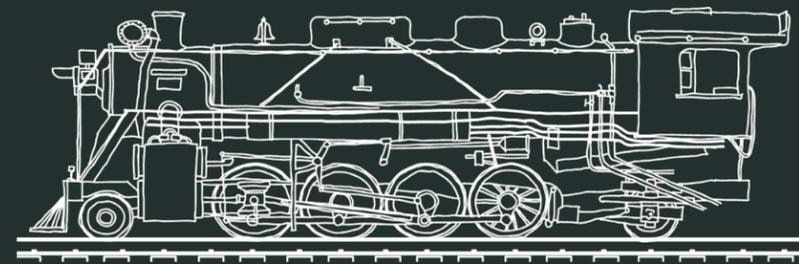
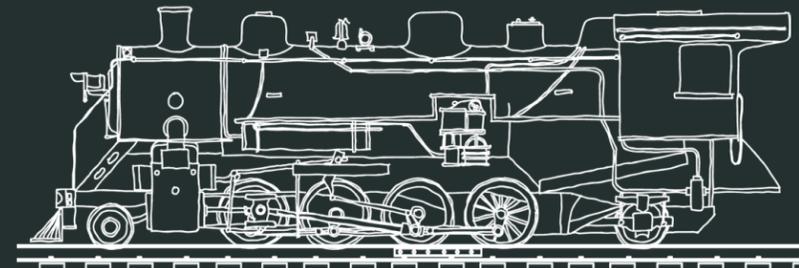
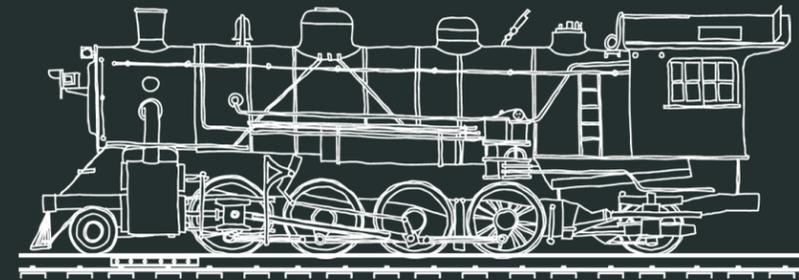
fig. 6  
Still Frame "Where the City Can't See"  
Liam Young, 2016



fig. 7  
Still Frame "Where the City Can't See"  
Liam Young, 2016

## EndNotes

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1.2: The Wild Algoma

↓ PART 1  
A RELATIONSHIP WITH THE WILD

## CPR + CNR

The Canadian economy has benefited at the expense of nature. The natural resource industry has driven the Canadian economy for generations, and the rail lines throughout Canada support industry by providing transportation of raw material at a very low cost. The Canada Pacific Railway (CPR), and the Canadian National Railway (CNR) provide long-haul transportation from coast to coast. These two main lines and more than 40 other small lines create a network of over 41 000 kilometers of track.<sup>22</sup> Moving exports and imports totaling \$328 billion worth of goods coast to coast.<sup>23</sup> Its industrial roots mean that it travels through areas of the landscape almost unchanged by human hands. The train and the tracks which traverse through dense forest areas are a manifestation of the technology of the city in the Wilderness, exploitation and destruction of natural resources for the benefit of the city. A capitalist mindset that has proven to be one-sided, that being; the city is of greater value than the Wilderness. A different approach is necessary to decrease the nature deficit in modern times.



fig. 9  
*Algoma Central Railway Tressel*  
Rod Roddick, 1984



fig. 10  
*Number 5*  
Rod Roddick, 1984

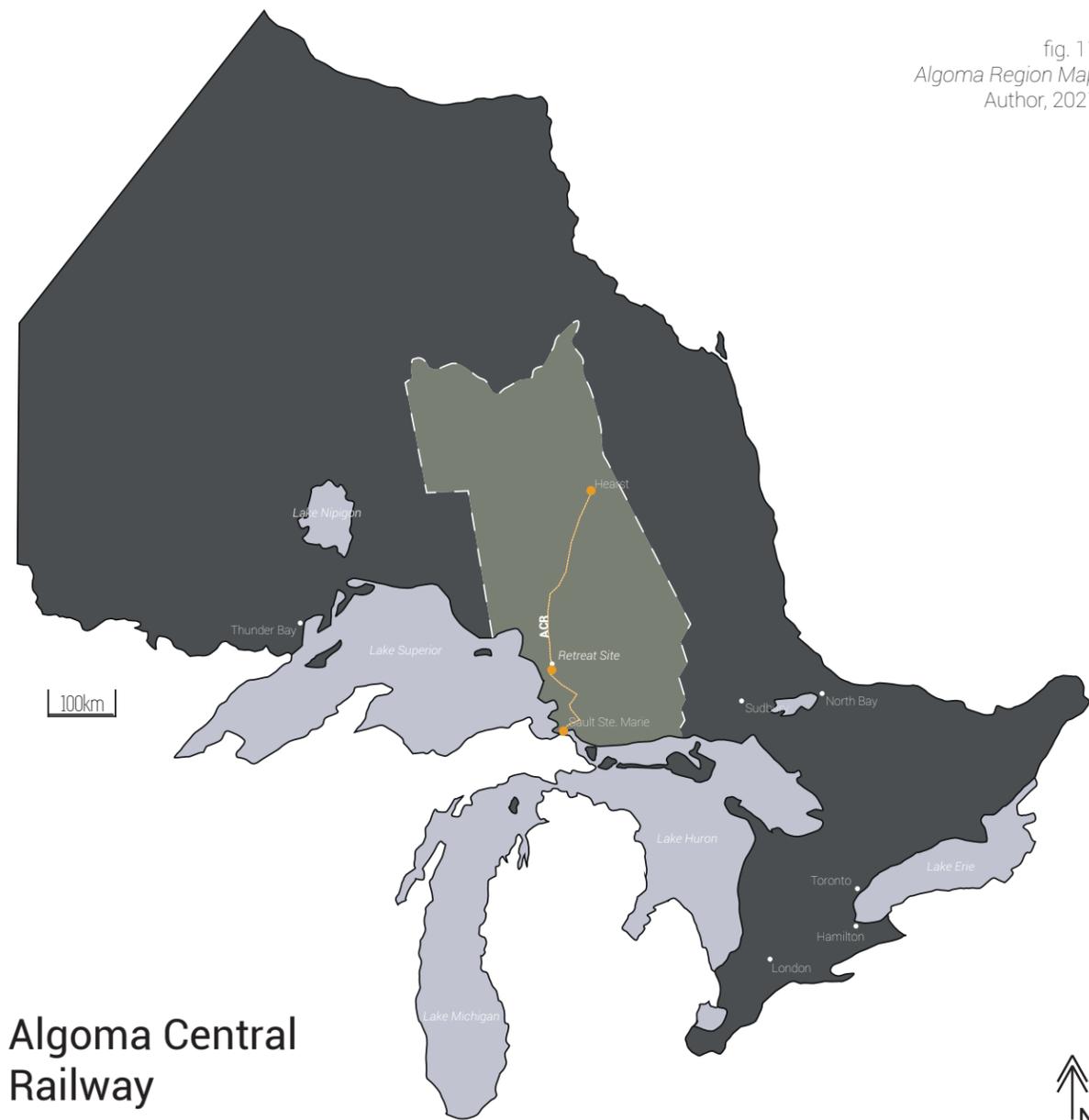


fig. 11  
Algoma Region Map  
Author, 2021

## Algoma Central Railway

The Algoma Central Railway (ACR) serviced the Algoma region of Ontario hauling natural resources (logs and iron ore) from the Algoma wilderness to Clergue industries in Sault Ste. Marie, Ontario (SSM). It was created for the same reasons as many other rail lines, for economic growth and resource extraction. The line completed construction in 1914 and stretched from Sault Ste. Marie 296 miles (476 kilometers) North to Hearst Ontario where it connects to a long-haul

line.<sup>24</sup> Algoma Central was originally built into the heart of the Algoma wilderness in order to access areas for logging, supporting the pulp and paper mill in Sault Ste. Marie. Francis H. Clergue was the original owner of the line as well as many other early industries in the city including the hydroelectric dam and Algoma Steel.<sup>25</sup> Again, to the benefit of the city, economic growth overshadowed the hidden values of the Wilderness. The slow but relentless expansion of the city into nature shows



fig. 12  
St. Mary's Paper Mill in 1992 from the  
International Highway Bridge  
Nell Vanderheide, 2018

a mindset that under appreciates the scientific and cultural benefits of the Wilderness. The connection between the ACR and St. Mary's Paper in Sault Ste. Marie is strong and the infrastructure behind both was the economic force behind the growth of the city. Currently, St. Mary's Paper has shut down its operations as a paper mill and operates as a developing cultural center in the core of the city. Some of the infrastructure remains on the site as historic buildings and new projects continue to be developed.

More recently the ACR with the support of the former St. Mary's Pulp and Paper mill has developed its use to accommodate passengers traveling to Agawa Canyon. This change of purpose from resource extraction to Wilderness exploration is a start in a movement decreasing the nature deficit in Algoma. Providing access for passengers to explore the Algoma region from the interior of a passenger train car and on foot, at Agawa Canyon. The effect of and adjacent to the canyon is the Agawa River. Watershed into the canyon from the interior of Algoma flows softly, with the

exception of some rapids and waterfalls, into Agawa Bay, where it forms part of Lake Superior. In 1960 the ACR opened the line to passengers, arranging one-day train tours from the core of Sault Ste. Marie to Mile 114, Agawa Canyon.<sup>26</sup> The tour train traverses past lakes and rivers, over tressels before descending into the canyon, where it stops so that passengers can enjoy the beautiful scenery from the canyon floor.<sup>27</sup> The Agawa Tour Train provides an opportunity for all kinds of characters to enjoy, create and explore the wilderness, even if only for a short period, the tour train is only stopped at Canyon Station for a total of 90 minutes.<sup>28</sup> Still, this period, along with the journey to and from the canyon, can create a lasting impression on the passenger, perhaps enticing the characters to want to stay longer, to see and experience more. Though not a necessary step for experiencing Algoma, the ACR and Agawa Tour Train has created an experience that showcases the beauty of the wilderness present in Algoma, generating a desire to interact with the wilderness for longer periods, and on a more personal level.

## The Group of Seven

The Wilderness can be a source of inspiration for creative characters, like authors, photographers, musicians and painters. Indeed, the Group of Seven took a trip to the Algoma Region to create works of art that are now very well known and staples of Canadian artistic culture. The group was seduced by the colour and drama of the Algoma landscape and produced many notable Canadian pieces, including J.E.H. MacDonald's *The Solemn Land* (1921) (figure 16). This painting of the Montreal River was part of an expedition that extended from Sault Ste. Marie to the North Shore of Lake Superior. Taking many stops along the way, (including an extended stay in Agawa Canyon) to rest and explore new landscapes to paint. Their trip was an exploration of the Northern Ontario Wilderness, the result of which provided Canadians with a glimpse of what the Algoma Region had to offer. The landscape interpretations in the form of paint and letter are unique to the experience of each member of the group. J.E.H. MacDonald describes the leaves of fall as, "notable little graces of the bush, daintily hung in every shade from palest yellow to deep crimson against the big blue-gold hills of the Montreal Valley."<sup>29</sup> The paintings that developed from the sketches are interpretive, but the subject matter remains the same; the Wilderness of Algoma. A.Y. Jackson's *First Snow Algoma* (1920) (figure 17) showcases a change of season from fall to early winter, set in the context of rolling hills and valleys. Interpreting the colours,

forms and textures of their view, creating documentation of the journey and the untamed landscape with oil on canvas. "The black Agawa flows quietly below bordered with deep yellow birch and ash and grey-green alder; and the pine-topped rock walls of Agawa Canyon go up into the mist on either side."<sup>30</sup> The paintings and writings produced from their experience describe the untamed beauty of the region. What the Group of Seven accomplished is a way to experience the Wilderness through a different medium. One that is accessible to all, and can be interpreted by the people who view and experience it. The brush strokes and colour palettes are the medium for which the Wilderness is experienced. The group created a way in which artists, critics, and everyday folk can immerse themselves in the setting of the Algoma Wilderness.



fig. 13  
*Going up and down the Line*  
Robert Guertler, 2017



fig. 14  
*A.Y. Jackson, Frank Johnston and Lawren Harris Next to the Algoma Boxcar*  
unknown, 1918.

(right) fig. 16 - 30  
 Group of Seven Paintings of Algoma  
 Varies, 1918 - 1934

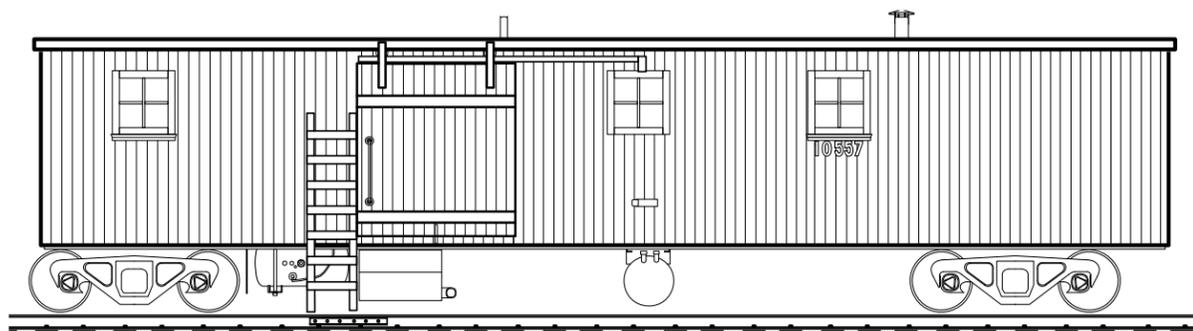


### ACR Boxcar 10557

To gain access to the remote areas of the landscape the Group of Seven created a partnership with the Algoma Central Railway. In the spring of 1918, Lawren Harris contacted the ACR in order to rent and outfit a boxcar to use as a living quarters and rolling studio.<sup>31</sup> ACR Boxcar #10557 was fitted with bunks, a stove, water tank, sink, kitchen bench, shelves, a box of coal and a large cupboard for supplies.<sup>32</sup> All the program elements for a comfortable and safe stay in the Wilderness as well as the necessary tools for creation. In the center of the car was a dinner table and chairs, where the group would eat, discuss and present the day's work, which was in the form of rough painted sketches.<sup>33</sup> Hitched to the ACR in Sault Ste. Marie and unhitched along the track, most notably at Agawa Canyon, the group was left to fend for themselves.<sup>34</sup> The remoteness of the area provided the group with just the right conditions

for sketching the landscape, by limiting distractions and engaging in a creative environment. The boxcar created a hub for the artistic explorers to feel safe and return to after a day engaging with nature. J.E.H. MacDonald in his essay describing the bold white text on the side of the boxcar said "That figure (#10557) became our street number on the long way of the Wilderness."<sup>35</sup> Using the boxcar as the only place for comfort and rest forced the group to venture further outwards into the Wilderness to experience and interpret the landscape. This is shown within the work that the group produced during this period.

fig. 15  
 ACR Boxcar 10557  
 Author, 2020



## The Bucherons

Members of the Algoma community have also created partnerships with the Algoma Central Railway, facilitating trips deep into the Algoma wilderness for hunting, fishing and camping. No partnership is more noteworthy than a community known as the Bucherons, described by Robert Cuerrier in his book *Canadian Bushwacker: A Lifetime in the Wilderness*. The Bucherons are a community of people who live and work in the Wilderness of Algoma.<sup>36</sup> Robert goes into detail about his lifelong experiences growing up in the woods. Telling stories of his life alongside nature and the relationship created between his community and the ACR. Using the rail lines as their method of transportation the Bucherons traveled to and from Sault Ste. Marie, being dropped off alongside the rail line where they began their journey into the wilderness to build a retreat for themselves. The Wilderness became their home, a place to escape the city and retreat from the anxieties of city life, only returning to stock up on supplies and visit with their friends who lived there. When the city became too much for them, they again retreated to the Wilderness on the ACR and returned to the simple lifestyle that the Bucherons enjoyed.

The camps which were built by the Bucherons were often pioneer-style log cabins with the exception of Less Perrine, better known as Snowshoe Man, who raised his camp from the surface of the wilderness high up on stilts for safety from predators (figure 31).<sup>37</sup> This developed

from a deep understanding of the Wilderness, relying on it for shelter, food and for solace. Living off the land, hunting, fishing and gathering all the essentials for a simple lifestyle in the Algoma Wilderness. The Bucherons people felt a real connection to the Wilderness and were in tune with its rhythms.<sup>38</sup> "There is deep and real spirituality in the bush. The Earth is my cathedral, the stars my guiding spirits."<sup>39</sup> This culture of retreating to the Wilderness is present in Algoma and is shown in this example of the Bucherons. Their lifestyle is extreme, residing mainly off the grid, far from the social realm of the city. Today this trend of escaping the city to find peace and connection to nature can be adapted in order to better suit the lifestyles of modern city dwellers who reside mainly in the city and retreat to the Wilderness for a much shorter period.



fig. 31  
Snowshoe Man's Camp  
Robert Cuerrier, 2018

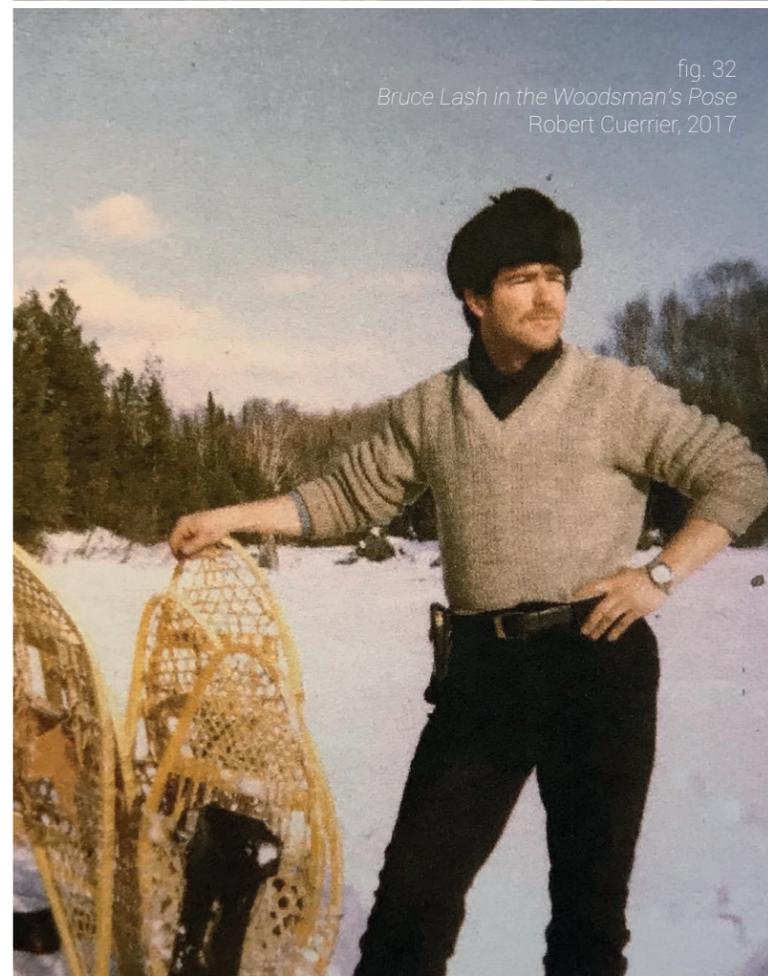


fig. 32  
Bruce Lash in the Woodsman's Pose  
Robert Cuerrier, 2017

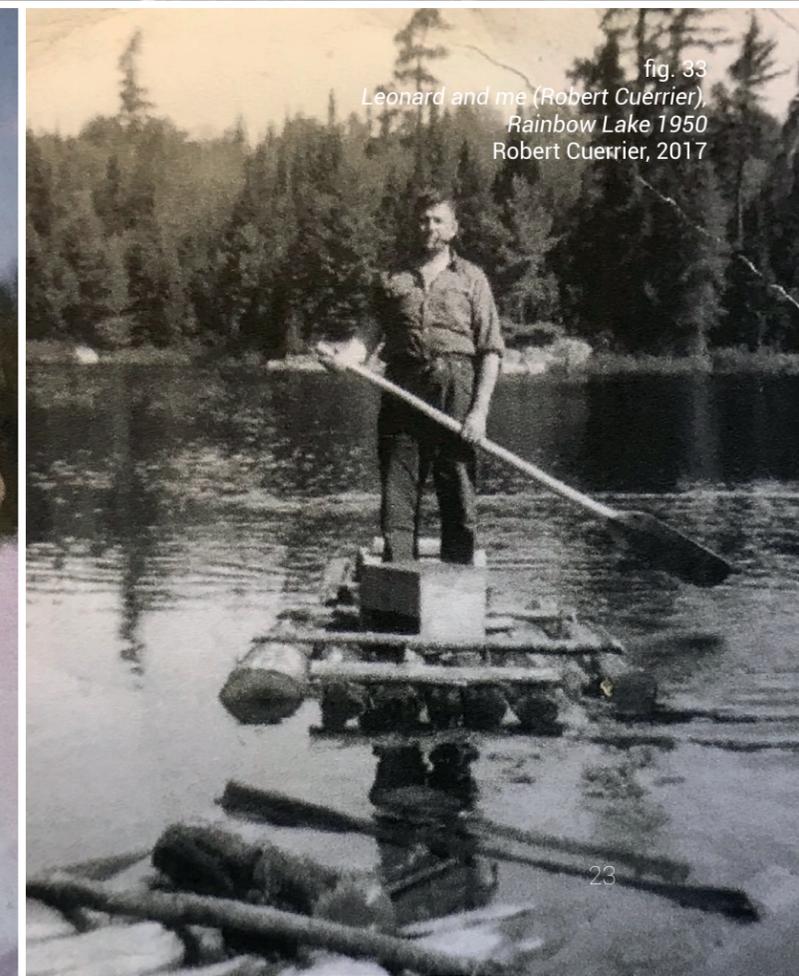
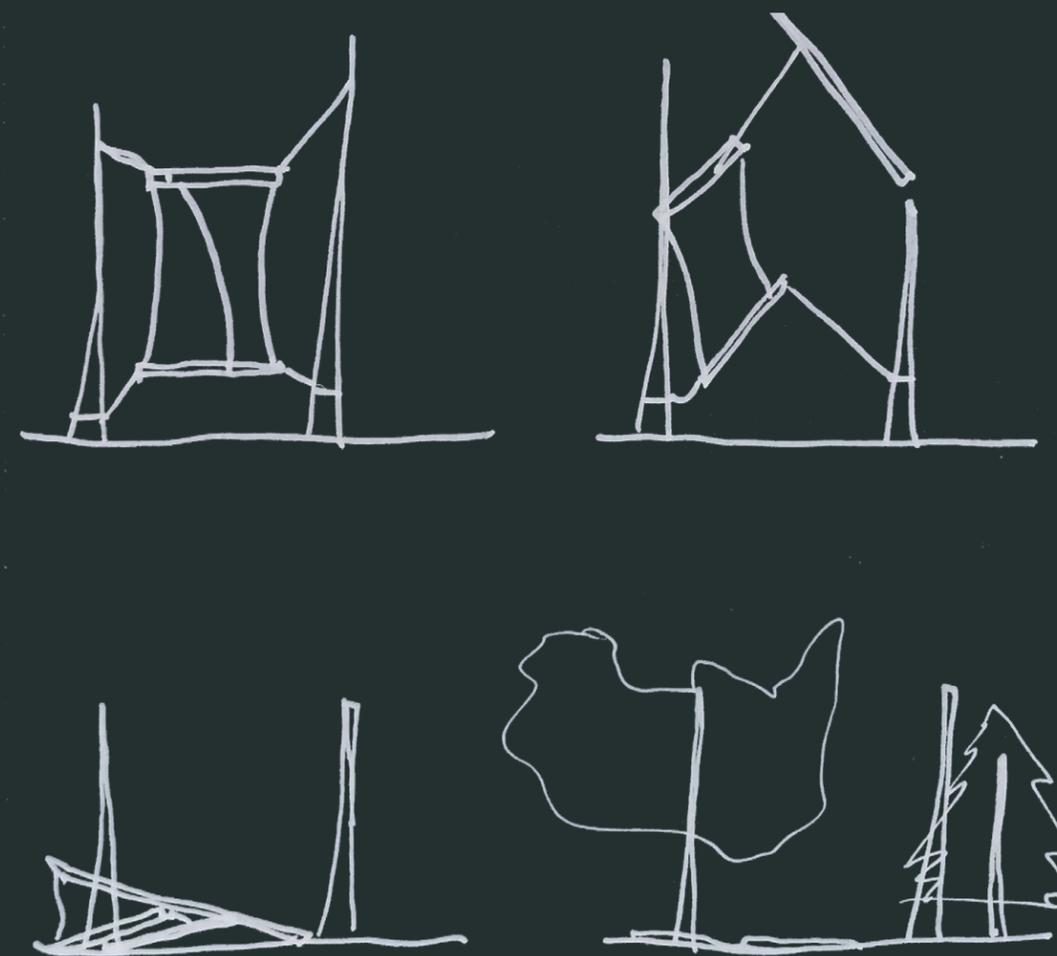


fig. 33  
Leonard and me (Robert Cuerrier),  
Rainbow Lake 1950  
Robert Cuerrier, 2017

## EndNotes

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2.1: Concept and Experience

↓ PART 2  
AGAWA WILDERNESS RETREAT

## Concept

To develop a space In - Between the city and the Wilderness. To create a site that people can interpret, explore and create within. Life in harmony with the Wilderness, allowing the Wilderness to become a part of the program. Much like the camps created by the Bucherons and Boxcar 10557 used by members of the Group of Seven the Agawa Retreat is a place totally engaged with the natural world while maintaining the three essential elements of human survival; food, water, shelter. A Wilderness Retreat that acts as a tool mediating a relationship to nature. Creation of a structure within the heart of the Algoma Wilderness that is beneficial for the inhabitant without destroying the ecology of that place. To understand the ecology of the area and to live alongside it in harmony. To be able to feasibly accomplish this within the real world, on a real site. A site specific approach to design creates a village of programming for both survival and Wilderness interpretation directly shaped by the flora and topography. Building a relationship with the landscape that could extend into the culture of the city. Leaving behind modern technologies allows inhabitants to experience nature without interruption. Moving away from the city to a more ancient self, rewilding our culture. An off-grid Wilderness Retreat which embeds nature its culture, where the mental and physical benefits of the landscape can be fully utilized. A prototype for wilderness habitation, with repeatable, flexible and degradable details

the Agawa Retreat's design solutions can be adapted to a suitable site anywhere in the Wilderness. Its small scale keeps the retreats carbon footprint down as well as limits continued site destruction. At the end of the retreat's life, the structure can be left to the Wilderness to fully take over once again, making it semi-permanent. The abandonment of the Retreat by humans allows the Wilderness to inhabit the structures, until it fully decomposes on-site leaving behind little evidence of human habitation.

### Inhabitation

- How to live remote
- to find peace and simplicity
- Solitude / self Reliance
- shows how we live in a material world
- provides educational value to a simpler lifestyle
- gain experience in an alternate form of living
- appreciation for contemporary lifestyles

### Construction

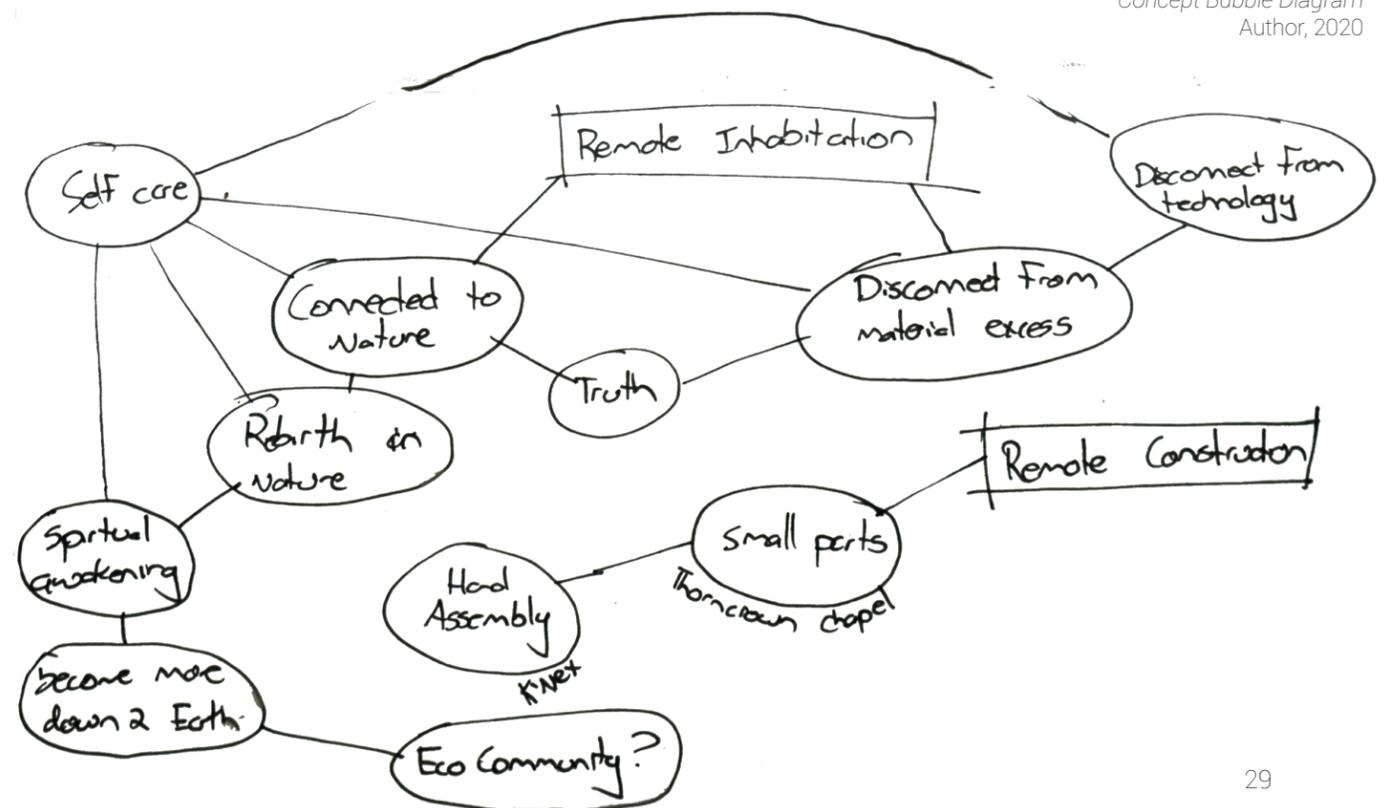
- How to build remote
- transfer of material
- building with small scale materials

fig. 35  
What does the Retreat Answer? Diagram  
Author, 2020



fig. 36 - 39  
Northland Lake (November)  
Author, 2020

fig. 40  
Concept Bubble Diagram  
Author, 2020



## Narrative of Experience

The Agawa Retreat experience is lent out to visitors who have the physical capability of arriving and maintaining the main shelter and its supporting structures. Access to the site is provided through a hiking trail known as the Towab Trail, an 11.75km long one-way hike up the picturesque Agawa River. <sup>40</sup> A moderately difficult terrain with 693 meters of elevation <sup>41</sup> provides views onto the river and into the untouched landscape of the Algoma Region. Towab Trail is popular for hikers, bird watchers and campers making the hike a well-established footpath. Designated camping sites are present along the trail at various locations, where people can tent camp and make temporary shelters for themselves. Currently, the Towab Trail ends at Agawa Falls, the visual and sensorial "prize" signifying the turning point for many, except for the Agawa Retreat inhabitants. People who wish to venture further into the domain of the wild and are staying at the Agawa Retreat, travel one kilometer further upstream along a more discrete trail. This signifies the end of the hiking journey and the beginning of the immersive Wilderness experience. Passing the falls, over two bridges and up a hill before arriving at the Agawa Retreat. Residing on site for up to a week and living simply; exploring, harvesting, creating and connecting to the Wilderness. Inhabitants will live without electricity for lights, or gas for heat. The experience is intended to challenge the inhabitants, as well as give them mental clarity and insight into the human



fig. 41  
Towab Trail Section Sketch  
Author, 2021

condition. An experience of a lifestyle with simple challenges to overcome and simple pleasures to enjoy. The Agawa Retreat is freeing; freedom of time, space, technology and anxiety. Inhabitants can use their time as they wish and are free to explore everything the area has to offer, whether that be swimming in the Agawa River, hiking the Agawa region. Afterward returning to the city, bringing with them the experience of the Agawa Retreat, as well as the objects of creation and their personal and mental developments, with the intention of returning or creating a new retreat for themselves.

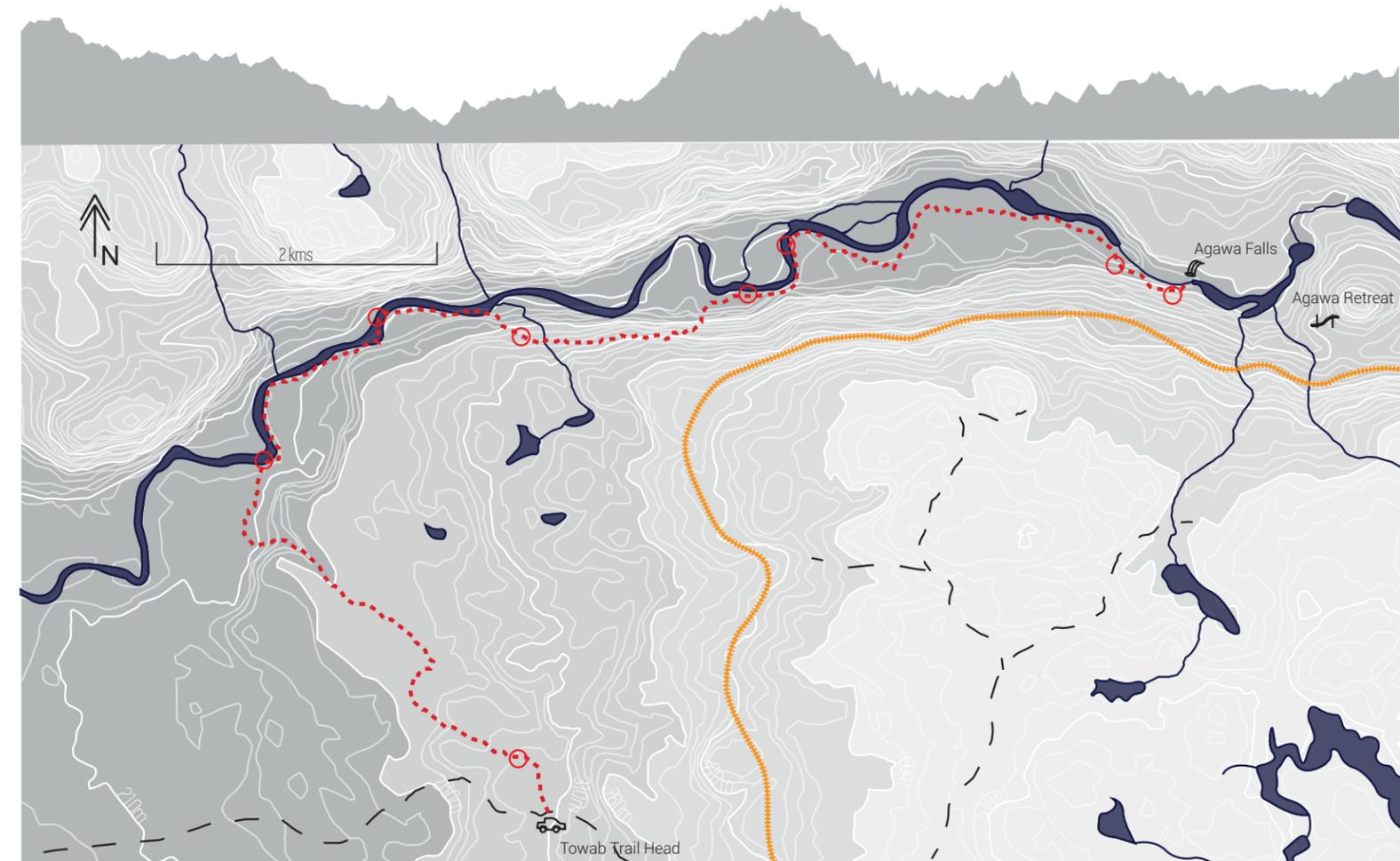
-  Camping Spot
-  Existing Towab Trail
-  Existing Backroads (Limited Access)
-  Algoma Central Railway

Hiking  
11.75 kilometers

Elevation Gain  
311 meters

Moving Time  
~ 4 hours 30 minutes

42



## EndNotes

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41. Ibid.,

42. Ibid.,



fig. 43  
Hike to Agawa Falls in Northern Ontario  
Leigh McAdam 2019

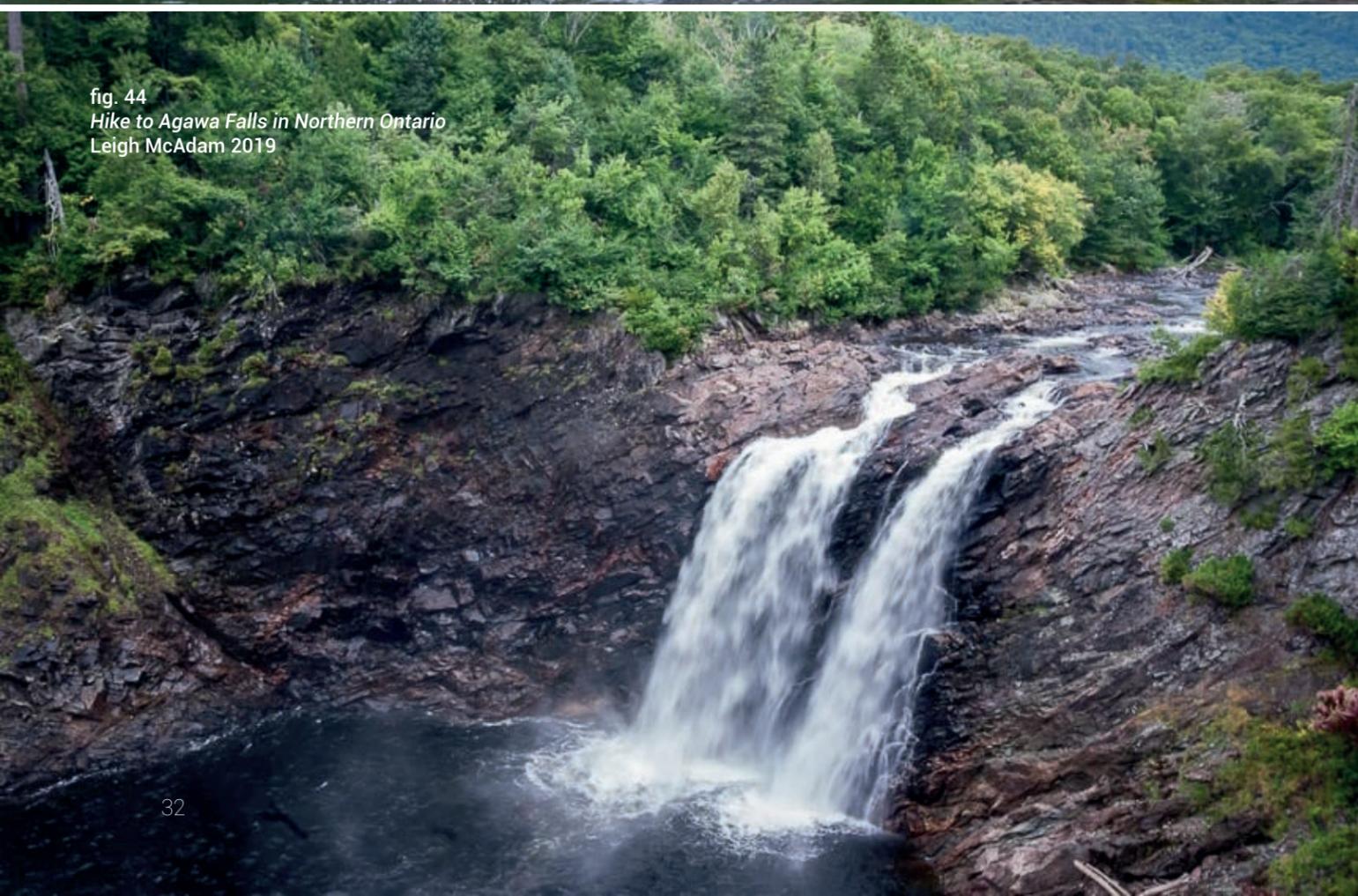


fig. 44  
Hike to Agawa Falls in Northern Ontario  
Leigh McAdam 2019



**Agawa Falls**  
End of Towab Trail beginning  
of Agawa Retreat trail

**Agawa River**  
Species Include:  
Speckled Brook Trout, Beaver,  
Otter, ducks, Herons

**Retreat Site**  
Looking over the Agawa  
River into the valley  
47° 22' 37.7004" N  
84° 31' 29.2728" W



**ACR**  
The railway is adjacent to  
Agawa River for 42.5 kms.

**Towab Trail Extension**  
Additional km to end of Towab  
Trail before reaching the Agawa  
Retreat

**Material Drop Off**  
Building materials dropped  
at the side of rail line for  
transportation to site

## Program Characters

The Agawa Retreat is intentionally designed to be a place of seclusion, a place to reflect and create in the context of nature, without the distractions from technology and modern life. The characters which inhabit the site will have a specific relationship with the landscape. Experiencing it in ways that are individual to the inhabitant. Each character's Wilderness experience will have different processes and outcomes.



A creative character will feel inspired by the landscape and interpret it. Staying on-site will have the same effect it did on the Group of Seven and their experience in the Algoma Region. The remoteness and seclusion provide this character with the focus to create unique pieces of art in any medium. The site acts as a studio space, a place to work and create while exposed to nature. Wilderness provides the inspiration or subject for creation and the Retreat provides the essential elements for survival as well as a tool for creation.

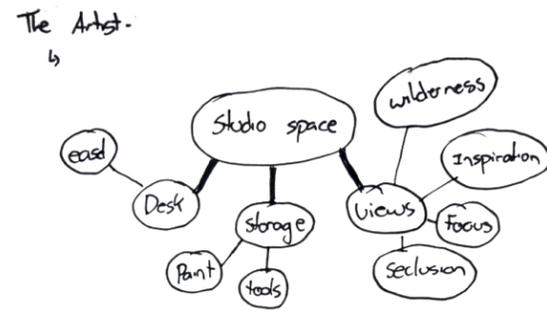


fig. 46  
Creative Character Bubble Diagram  
Author, 2020



The explorer, an inhabitant who wishes to venture out into the Wilderness to see new places and new things. To experience Algoma first hand and up close. Hiking, climbing, traversing over the landscape exploring the flora and fauna, this adventurer uses the Agawa Retreat as a hub to return to after a day in the woods. It acts as a place to plan, strategize and rest.

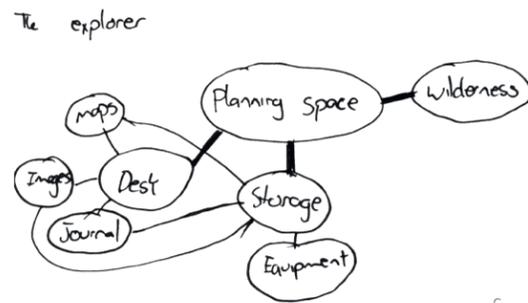
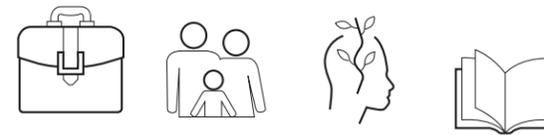


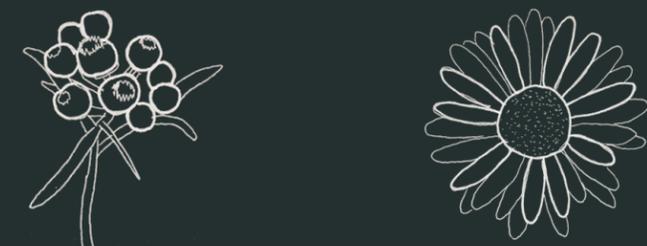
fig. 47  
Explorer Character Bubble Diagram  
Author, 2020



Many who venture into this experience may be looking for something new and the urban dweller is no exception. An escapee looking for a Wilderness experience in Algoma as a reaction to the city, its complexity and its fatigue. Desiring an experience of simple living, the urban dweller is looking to experience the new challenges of life in the Wilderness, as well as enjoy the simple pleasures of nature.



Another character who will always be present on-site is the Wilderness itself. A character whose influence has shaped the experience of all others. It is thought of in terms of sustainability and site placement, in terms of flora and fauna and even in its living creatures who fly, crawl and jump over the landscape. Creatures on-site live alongside the human inhabitants, with minimal separation. The habitation of all the characters on-site at the same time is the purpose of this proposal, to see and experience the Wilderness. It provides the programming for each of the previous characters, the freedom, seclusion and subject or creation. As well as the infrastructure to support them.



2.2: Site and Material

↓ PART 2  
AGAWA WILDERNESS RETREAT

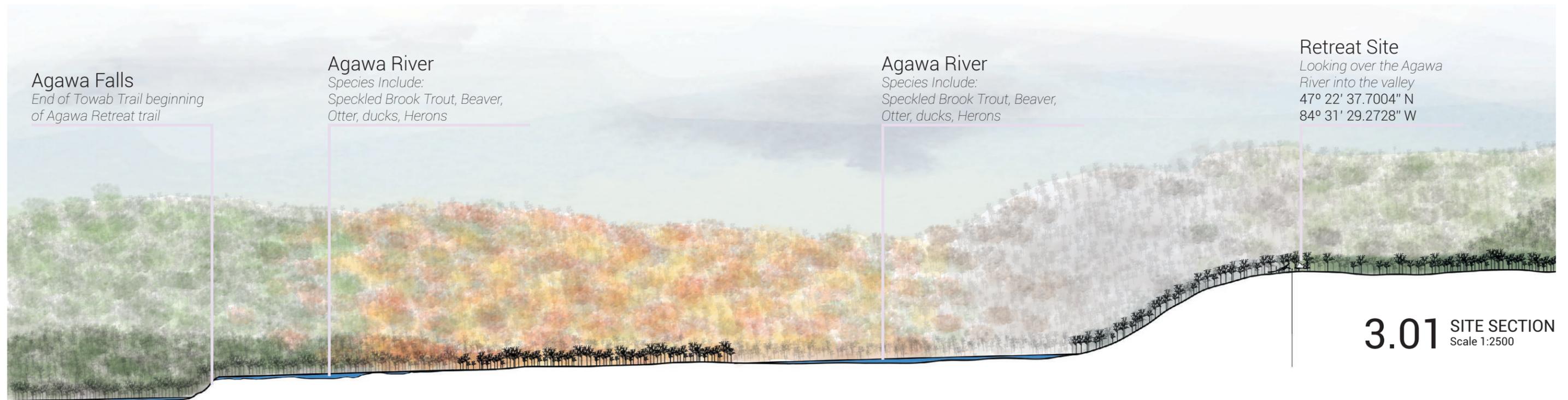
## Site

Positioned between the Agawa River and the Algoma Central Railway, nestled between the trees the Agawa Retreat experiences a remote landscape. A place where few people have truly understood its rhythms or interpreted them as paintings and stories. This is the place where creative impulse exists. Within the landscape, exposed to natural elements and living in the trees with the robins or swimming in the river with the otters, inhabitants can experience a feeling of awe. Providing the truest form of Wilderness experience because of its positioning in an area with limited access. A forest of White Ash, Red and Silver Maple, Yellow Birch and Aspen create the canopy that covers the

landscape.<sup>43</sup> Places like this site are lived in by the Bucherons, and painted by the Group of Seven, making it the perfect place to regain mental clarity, search for growth and create. The Agawa region is home to many types of ducks, as well as ravens, grackles and grouse.<sup>44</sup> Cranes have been known to hunt in pools in the Agawa River<sup>45</sup> just a few dozen meters below the Retreat site. The spring and summer bring plants and flowers; orange hawkweed, daisies, bunchberry and nodding trillium<sup>46</sup> contributing to the forest with vibrant colour and deep greens. Warm summer air and long hours of daylight create the perfect conditions for any outdoor activity. The leaves on the trees rustle through

the wind, and as the cold nights become colder, the leaves begin to change. In the fall the trees go from deep green to every shade of red, yellow and orange before drying out in the cold air and frosty mornings. Leaves that are now underfoot pile up, and crunch. Vipers bugloss, pearly everlasting, yarrow, evening primrose and plenty of asters<sup>47</sup> poke through this layer of organic material. As time moves on and the cold nights have turned to cold days the trees become bare. The only shade of the forest is now grey and white. On average the first few months of snowfall will gradually build to a depth of 23 cm before heavy snowfall, centered around December 29th, adds another 68 cm.<sup>48</sup>

Cold winds and harsh conditions make the wilderness even more challenging and the snow continues to fall for another two and a half months. The rhythm of the wilderness is inevitable and Spring weather has returned to the site. The snow begins to melt away, draining off the hillside into the Agawa River, carrying with it nutrients feeding the ecosystem.





## Materials

Creating a structure that is beneficial for the inhabitant without destroying the ecology of the place has influenced material selection and programming. This philosophy utilizes materials that contain low embodied energy, are organic and compostable and can easily be carried between one or two people. The combination of these material parameters creates a completed structure that is truly sustainable and lives alongside the wilderness, causing it as little harm as possible. Since the wilderness is a character itself, it needs to be thought of and cared for just as all the other inhabitants are.

Strategies for sustainable design like passive house are effective at reducing the operational energy (energy consumed heating, cooling, lighting and operating appliances<sup>49</sup>) of a building. It does this at the cost of indirect energy, in the form of the manufacturing of the material or components.<sup>50</sup> Building materials that have high energy performance often have very high embodied energy (energy consumed in all processes of production, construction and demolition<sup>51</sup>) because the production process is lengthy and uses many pollutants and fossil fuels. Using materials with a reduced production time helps to lower the embodied energy of the whole system. The Agawa Retreat operates within a heat-dominated region, and wood heat allows the retreat to be independent of electricity and gas, eliminating operational energy on-site.

The construction of the project has also achieved a level of zero energy consumption. The off-grid nature of the site eliminates any potential use of electric power tools or equipment. Without the use of fossil fuel-burning machinery, the energy consumed during the assembly phase is zero. Only during the production phase does the Agawa Retreat consume energy, either as electricity or gas. After material extraction, production and transportation the Retreat consumes no energy. Resulting in a truly sustainable system within the Wilderness and not fighting against it.

The full life cycle of the retreat is considered in terms of energy and site preservation, from material extraction to disassembly. The process of disassembly is simple and requires no energy consumption, leaving the Agawa Retreat in the wilderness to decompose back into the Earth. The materials used to construct the system are organic, with the exception of some fasteners. The fasteners left on-site can be retrieved and recycled into a new Agawa Retreat or used to expand the existing site with new structures. The organic materials are left on site to decompose and rot away. Leaving behind little to no trace of human intervention. Disassembly by decomposition is simple and natural. As the trees that support the system age and begin to die the Agawa Retreat falls to the wilderness floor, decomposing back into the Earth. The Wilderness will take over these structures as they decompose.

fig. 59  
Retreat Energy Consumption Table  
Author, 2021

maintenance / servicing during life cycle (operational energy)	retreat energy consumption	total building life cycle (embodied energy)
energy consumed heating and cooling building interior	✗   ✓	energy consumed in the production of building material
energy consumed lighting building spaces	✗   ✓	energy consumed in the transportation of building material
energy consumed operating building appliances	✗   ✗	energy consumed in the assembly of building form
	✗	energy consumed in the demolition / disassembly of building form

Bugs, animals and plants will begin to take over the interior spaces and rot away at the structural members. The abandonment of a structure by humans allows the Wilderness creatures to reinhabit the space or use it as a resource of their own. A low embodied energy approach to material selection has resulted in a total life cycle energy cost to exist only in the material production and transportation phase. Meaning 100% of the total energy used to produce, inhabit and disassemble the Agawa Retreat is consumed off-site. The remote area of the site and the design being elevated from the landscape floor, weight is a factor that has been considered. The materials which create the Agawa Retreat must be carried to their final destination via a hiking trail linking the Algoma Central Railway and the construction site. Smaller and lighter pieces of the retreat are brought into the site on foot by one or two people. Using more manageable scale materials will allow this transportation method to be possible. High surface area to weight ratio materials will further increase this carrying capacity, making this method even more plausible.

The materials chosen are a combination of these parameters and their properties have helped to shape the design. The sourcing of materials has also been considered here. Choosing material suppliers on a provincial scale, ideally with adjacency to Canadian railways.

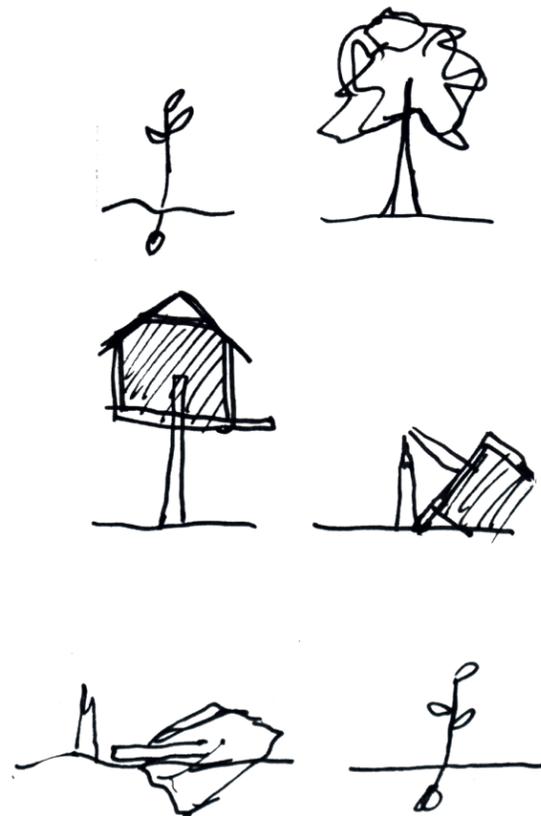


fig. 60  
Early Decomposition Sketch  
Author, 2020



Canvas - High surface area to weight ratio

Canvas (cotton) - 55 MJ/Kg<sup>52</sup> (2.35 Kg CO2 /Tonne<sup>53</sup>)

Lavignes Canvas - North Bay, ON.



Rope - Canvas tensioner

Hemp conventional - 32.6 MJ/Kg (5.5 Kg CO2 /Tonne<sup>54</sup>)

ULINE - Milton, ON.



Straw Bale Insulation - Organic Insulating Material

Straw Insulation (1.45 R/inch<sup>55</sup>) - 0.24 MJ/Kg<sup>56</sup> (0.01Kg CO2/Kg<sup>57</sup>)

Mockingbird Hill Farms - Sault Ste. Marie, ON.



White Ash -Rib Structure 30cm x 3.8cm

Hardwood- 2.00 MJ/Kg<sup>58</sup> (0.3056 Kg CO2 /Tonne<sup>59</sup>)

Thayer Lumber - Sault Ste. Marie, ON.



Galvanized Steel -Rib Bolts / Turnbuckles

Galvanized Steel- 38.00 MJ/Kg<sup>60</sup>

K2 Fasteners - Mississauga, ON.

fig. 61  
Material List (EE, EC + Sourcing)  
Author, 2021

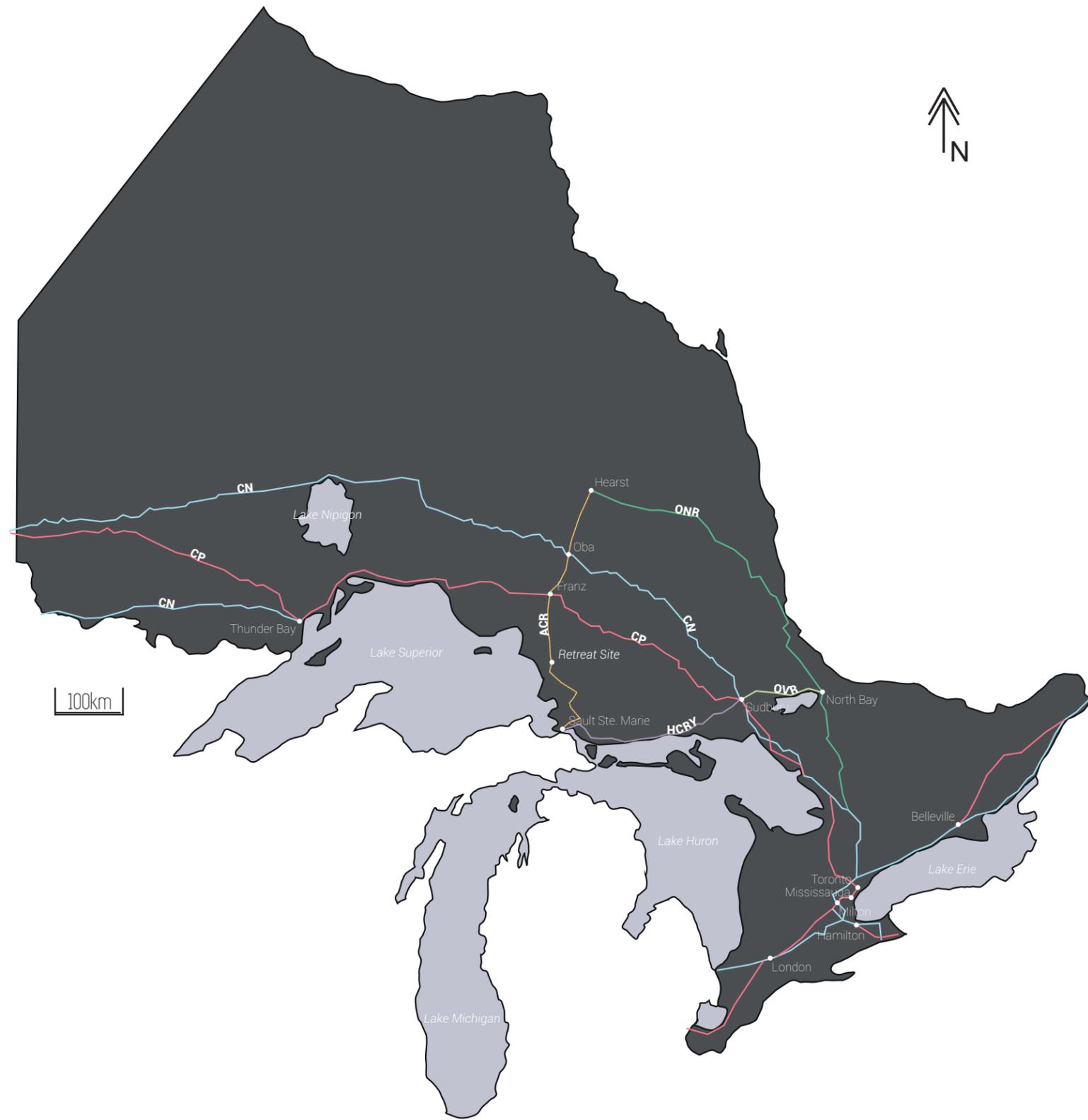
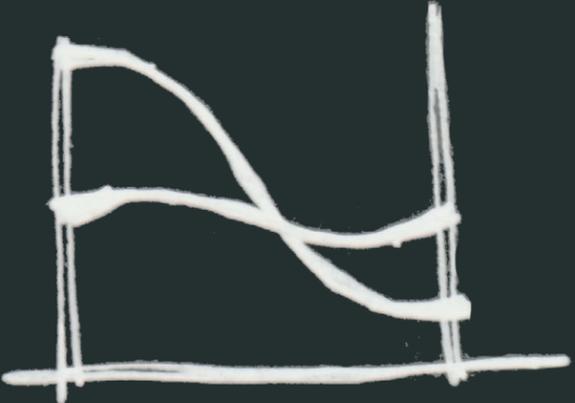


fig. 62  
 Ontario Rail Map, Material Sourcing  
 Author, 2021

## EndNotes

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2.3: Design Process

↓ PART 2  
AGAWA WILDERNESS RETREAT

## Study Model Series 1

The design process has been challenging, with every solution came many new challenges to overcome. Parameters establishing location, materials, form and construction created a design solution that is unique to the site and follows the retreats philosophy. Each component of the design is a solution to these parameters and establishes one another's limits and possibilities. A hands-on approach to design resulted in sets of models that studied form and material properties. Physically building models, the design and tectonics can be represented in three-dimensional form and thought of in full scale. Designing in this way is a tactile way to represent ideas quickly, determining form and space. Material selection determined by the Retreats parameters leads to the first set of models. Stretching nylon fabric, which represented the canvas, over wood ribs creating interior forms, showcasing a ribbed approach for the canvas. Different ribbed elements in these models determined the behaviour of the canvas, where peaks and valleys can create form.

## Study Model Series 2

The second set of models added rope to the material palette. The rope is attached to anchor points and stretched between them. The nylon fabric is then pulled over the ropes. This showcases how the rope can have the same effect on the fabric as the ribs in the previous model set. The rope pulls the fabric tight, creating forms that could not be achieved with conventional building techniques. Multiple layers of stretched fabric create a void, a place that acts as an air barrier and has insulating potential. This development of using rope led to the third set of study models.



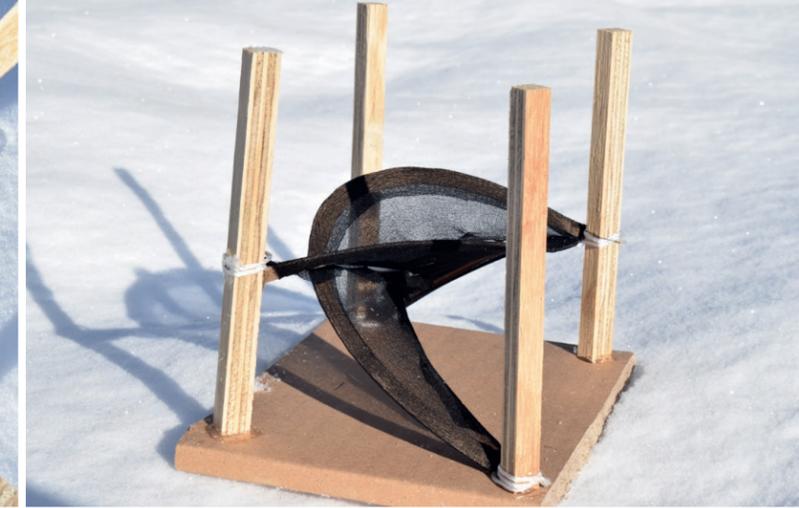
(top right) fig. 64 - 69  
Model Series 1  
Author, 2021

(bottom right) fig. 70 - 73  
Model Series 2  
Author, 2021

## Study Model Series 3

Here site context begins to be considered. The ribs and ropes from the previous iterations are now attached to vertical anchor points which represent trees. The ribs themselves are inspired by Jake Chakasim and his work done on the Laurentian University Campus. Flowing curved wood forms that highlight and create space between and below. The material palette of the final proposal is seen here as; trees, which act as the anchor system connecting the structure to the Wilderness, bentwood, creating structural stability and form, rope, acting as a tensioning device, and finally canvas, creating a series of planes separating space.

This is an experiment in further bending the ribbed forms. Again the use of ribs and rope stretch the canvas over another. Creating layers in plan that could be inhabited like a hammock. Elevating the structure above the ground plane allows the hammock-like design to be soft and bouncy while below remains undisturbed.



(top right) fig. 74 - 77  
Model Series 3a  
Author, 2021

(bottom right) fig. 78 - 81  
Model Series 3b  
Author, 2021

## Final Massing Model

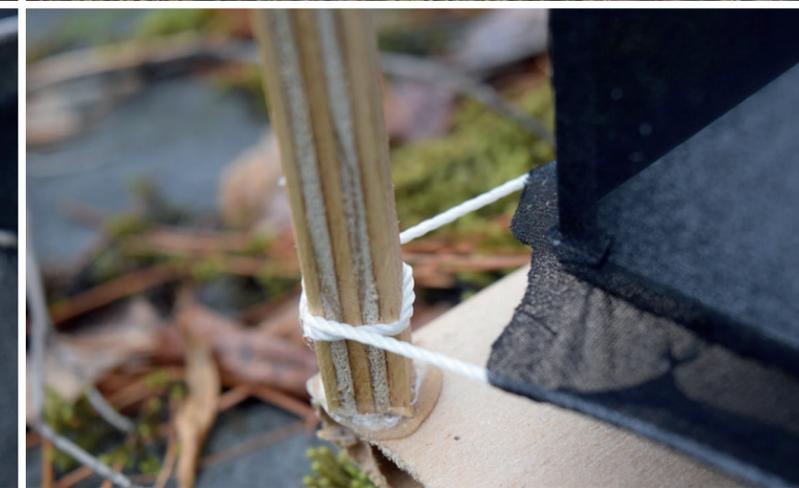
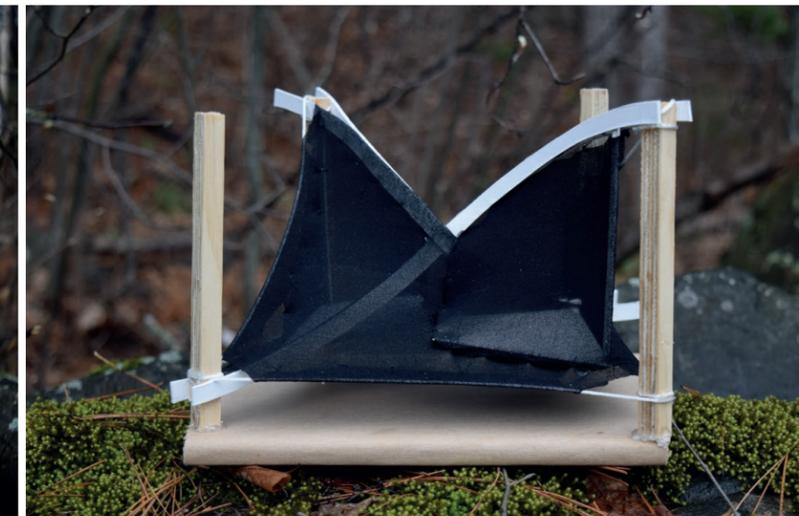
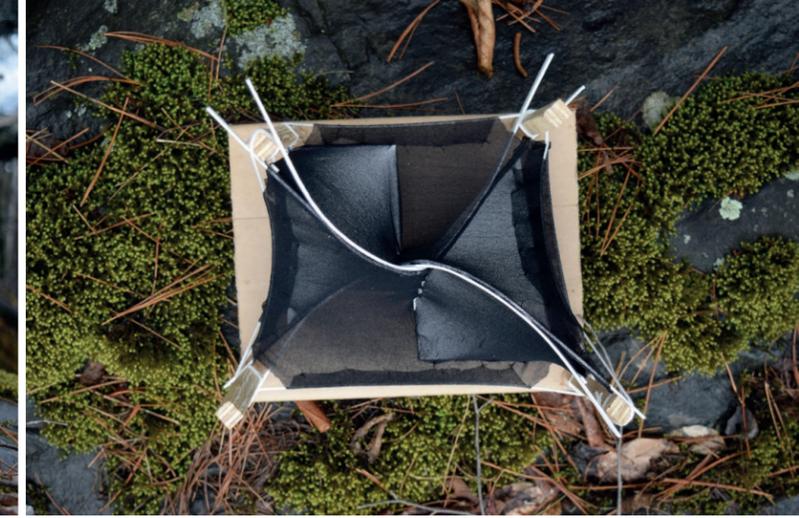
Temporary winter closure of the Towab Trail prevented access to the Agawa Retreat site and wanting to provide real-world feasibility a test site would have to be studied with similar characteristics and tree types. Using scaled maps, many forests were considered as test forests for the proposal. Sherwood Forest in Sault Ste. Marie shared many of the characteristics that the forest region of the Agawa River has. Including regions primarily dominated by deciduous trees, with a similar scale and tree displacement. Both forests are young to middle-aged and house similar tree species. The test forest provided a real-world site to take measurements from and challenges to build around. Hiking through the area looking for an ideal location to situate this proposal with conditions that can support human survival. Using the conditions provided from the test forest and the previous models has led to this final massing model. These conditions being; four anchor trees, 20 - 25 feet apart that have a circumference large enough to support heavy loads, an area open enough to allow free movement around the site, and an area that can be built on with limited site destruction, meaning limited tree felling. Sherwood Forest provided a few options that could suit the Agawa Retreat and these options would further shape the design proposal.

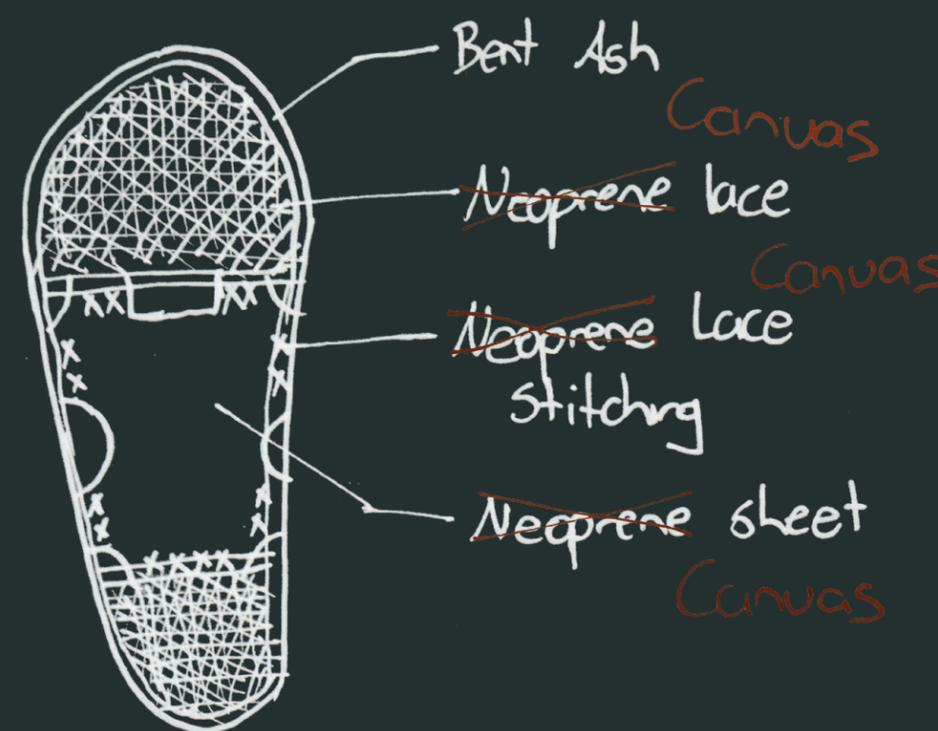
The final models were designed using the test forest site, scaled down to a manageable size. These models

showcase the proposals massing and structure. Many iterations were made both physically and digitally which finally resulted in this model. These iterations considered typical OBC structure systems and connections that limited the playful nature and softness of the proposal. The abandonment of these common solutions allows the proposal to be truly unique and exploratory, innovating on structure and habitation experience. Using dimensions taken from the test site the final models present interior program spaces and structural intentions. The ribs and nylon fabric established in these designs carry forward into the final building proposal where more detailed elements are created and showcased. The details shown here are simple, repeatable, flexible and compostable, allowing the proposal to be an example for potential growth. They showcase design thinking as well as techniques for connections, stitching and structure. The capability to repeat these details allows the architectural interventions on-site to expand outward with the same techniques. This rough site model uses trees and string to find the form for the support structures present on site. These structures provide the necessary elements for survival.

(top right) fig. 82 - 85  
*Final Massing Model*  
Author, 2021

(bottom right) fig. 86 - 89  
*Final Massing Model Details*  
Author, 2021





## 2.4: Design Proposal

# ↓ PART 2

## AGAWA WILDERNESS RETREAT

## Agawa Retreat Site

The Agawa Retreat does not consist of four walls and a roof, these represent the world from which the inhabitants are seeking refuge from. It offers a unique living environment that separates itself from the typical camping experience. Acting as a place where artists explorers and the average urban dweller can find peace and seclusion surrounded by the Wilderness. The Agawa Retreat is intended to house two individuals with the possibility of a third occupant, sleeping in the winter cookhouse, approximately 10 meters Northwest of the main shelter space. All structures and amenities support the main retreat space, the area of the site intended for rest and acts as the inhabitants' shelter. Protected from natural elements like wind, rain and bugs the main shelter supports occupants when they want to temporarily distance themselves from the wild.

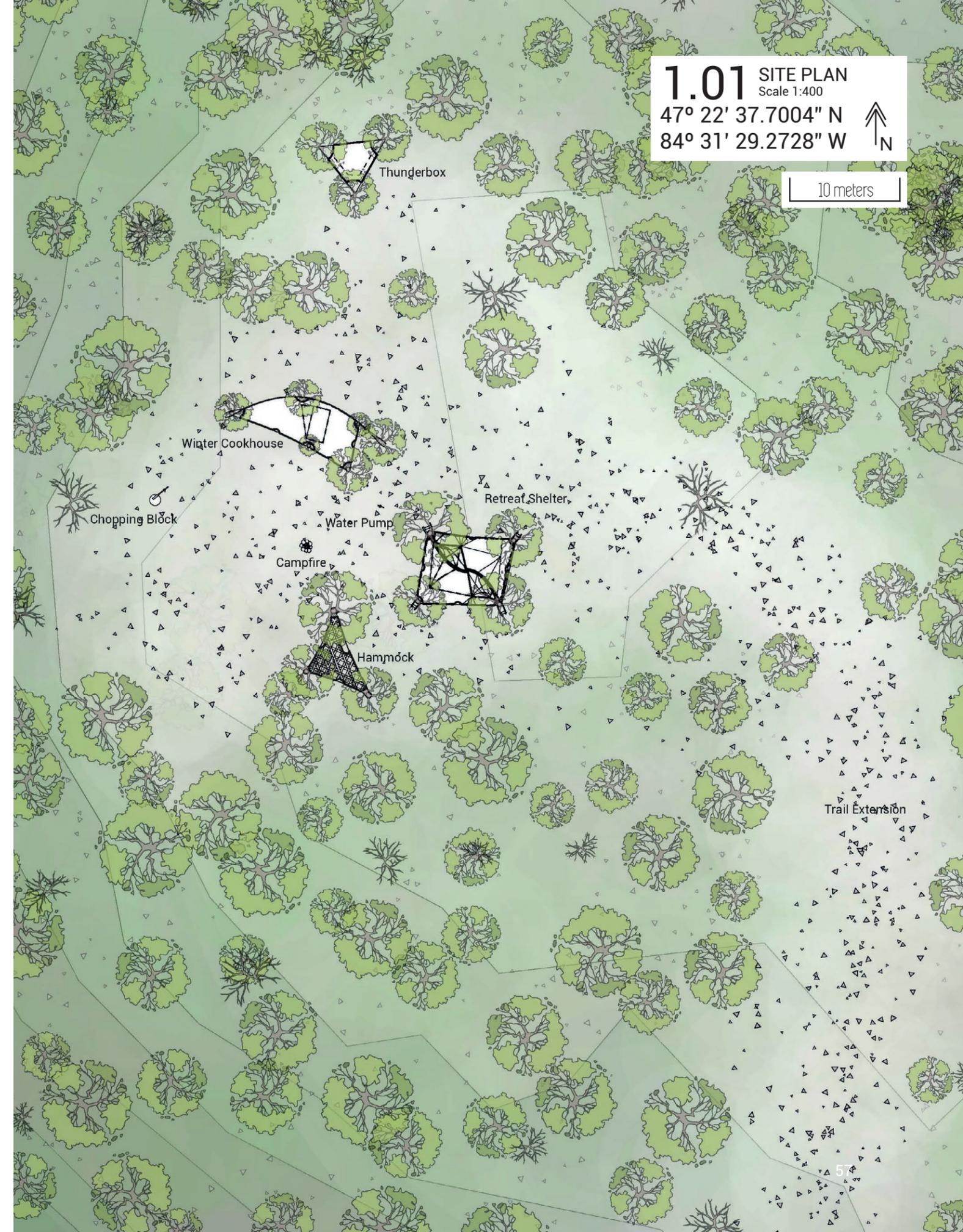
**"I did not need to go outdoors to take the air, for the atmosphere within had lost none of its freshness. It was not so much within doors as behind a door."<sup>61</sup>**

After hiking the Towab trail and the Agawa Retreat trail extension an inhabitant arrives East of the Agawa Retreat. Seeing first the Shelter space followed by the winter cookhouse, and the hammock. All structures and components on-site are to support the experience of the inhabitant safely and effectively. This includes a space for cooking, water access and sewer provided via the thunderbox. There are no

distinct paths for travel nor are there any explicit areas for creation, though there are hints in the form of framed views. The site and surrounding Wilderness are all part of the program and have been considered for exploration in plan.

Looking closer into this site plan we can see the amenities that are present on site. The water pump pumps fresh well water to the surface for drinking water and cooking. The chopping block so that inhabitants can chop wood for the cookstove and campfire. Under the shelter space is a shaded area that can be used as an outdoor studio, protected from the sun or rain. The more the Agawa Retreat is used the more established these areas will become. As trails, paths and areas begin to be patted down and exposed earth becomes more prominent signifying areas of use. These areas will be determined directly by the inhabitants who unknowingly create them through use. The architecture fosters views and provides comfortable spaces for creative work that are shaded while remaining connected to the wilderness context.

61. Thoreau, Henry David. *Walden "Life in the Woods"*. Boston, Massachusetts: Ticknor and Fields, 1854. Page, 78.



## Retreat Shelter

The roof from one side of the shelter space transitions downward creating the floor on the opposing side of the retreat. Where the roof and interior intersect is also where the two structural ribs intersect. Climbing inside the soft canvas hammock-like space using a wood and rope ladder, the shelter sags under the inhabitants' weight. Traversing over the plush canvas the inhabitant is forced to duck under this moment of intersection. The warm aesthetic and comfortable feel of the retreat's interior is the perfect place to lay surrounded by blankets and pillows, read a book, or simply rest your body and mind. With a subtle sway in the trees the inhabitant experiences being wrapped in fabric and rocked to sleep by the constant movement of nature. The shelter is elevated from the Wilderness floor, allowing the wild to reside beneath the interior of the retreat and alongside the inhabitants. One of the corners of the Agawa Retreat is anchored to and supported by a large mother Aspen tree. An elder tree in the area which has grown and spread, helping to develop this forest region.<sup>62</sup> Below the forest floor is undisturbed. The shelter now overhead, one can imagine experiencing a summer storm. With lightning flashing and thunder cracking, the shelter works as a canopy shedding water into a seemingly impenetrable waterfall over its surfaces and around its plan.

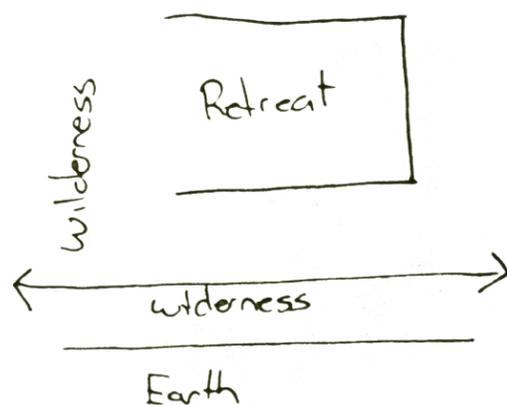
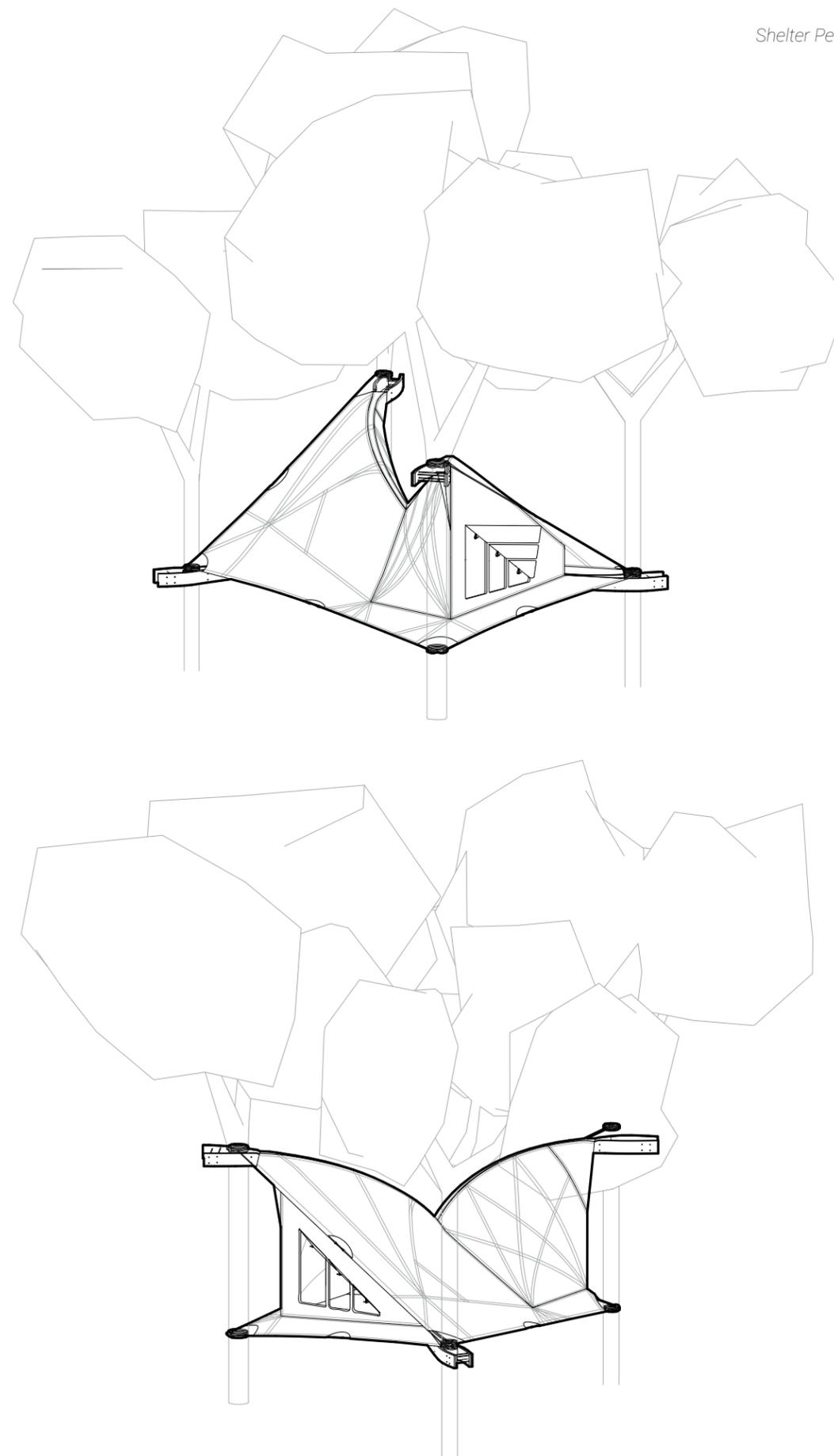


fig. 91  
Shelter Section Concept Sketch  
Author, 2021



**1.02** SHELTER PLAN  
 Scale 1:50  
 47° 22' 37.7004" N  
 84° 31' 29.2728" W  
 2 meters

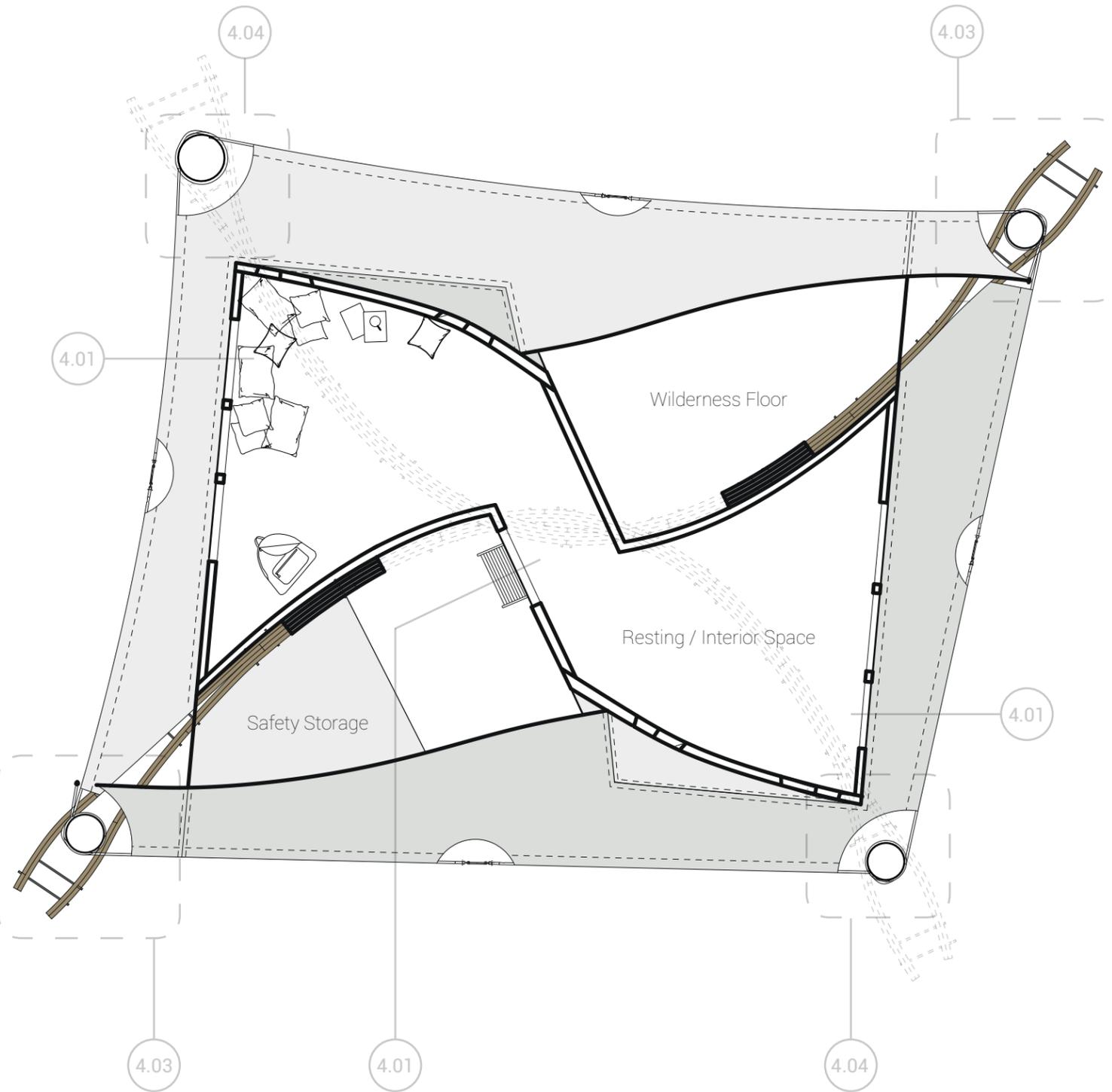


fig. 93  
 Arriving at the Agawa Retreat Render 1  
 Author, 2021

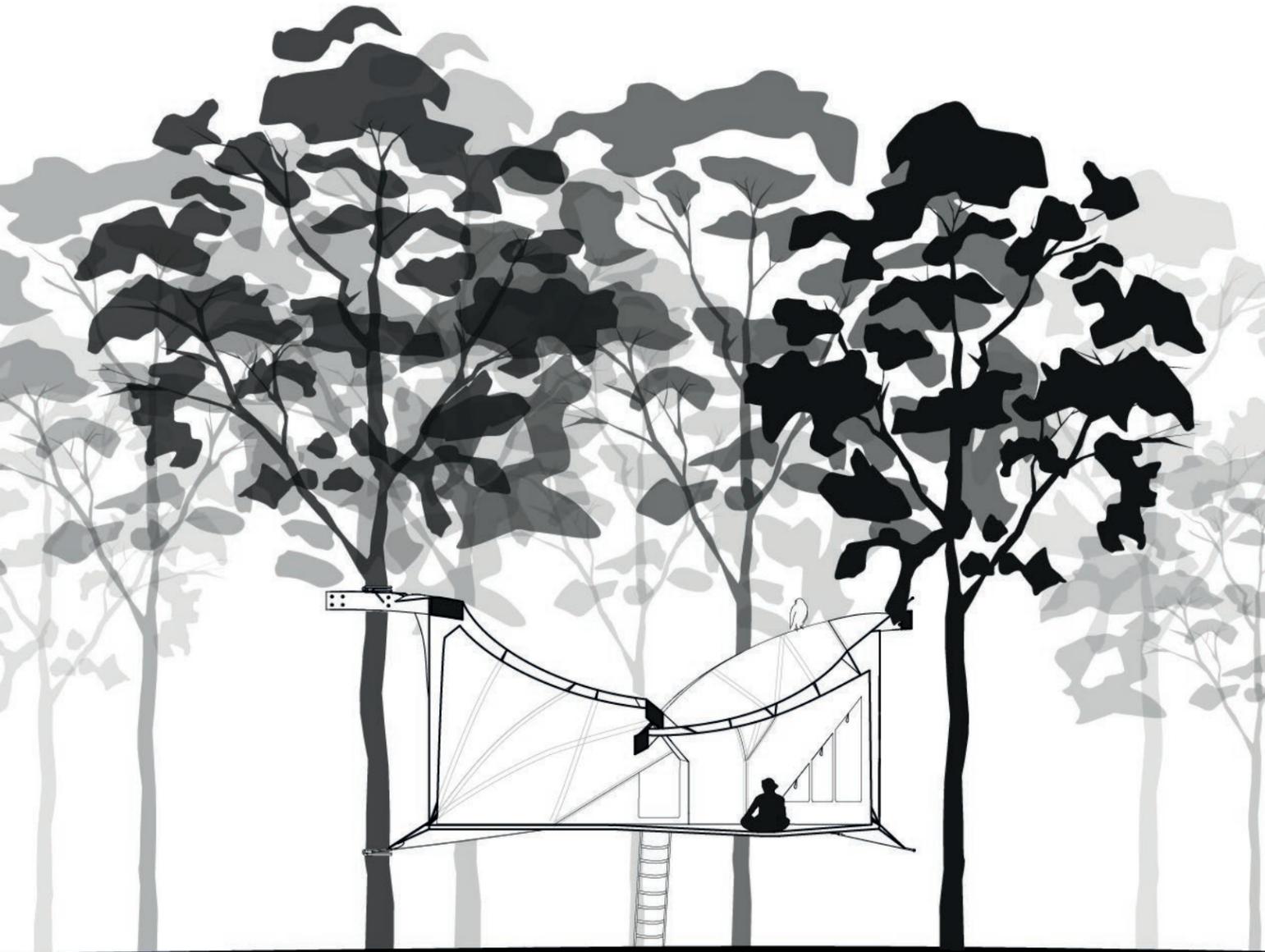


fig. 94  
 Arriving at the Agawa Retreat Render 2  
 Author, 2021

### 3.02 SHELTER NW - SE SECTION

Scale 1:100

5 meters



### 3.03 SHELTER NORTH - SOUTH SECTION

Scale 1:100

5 meters



In section we can see the interior space. The canvas surfaces slope to the central point of the shelter and outwards towards the tree anchors. Here we can see how the canvas floor begins to sag under the inhabitants' weight. This not only creates a unique living space but also tightens the whole system when inhabited.

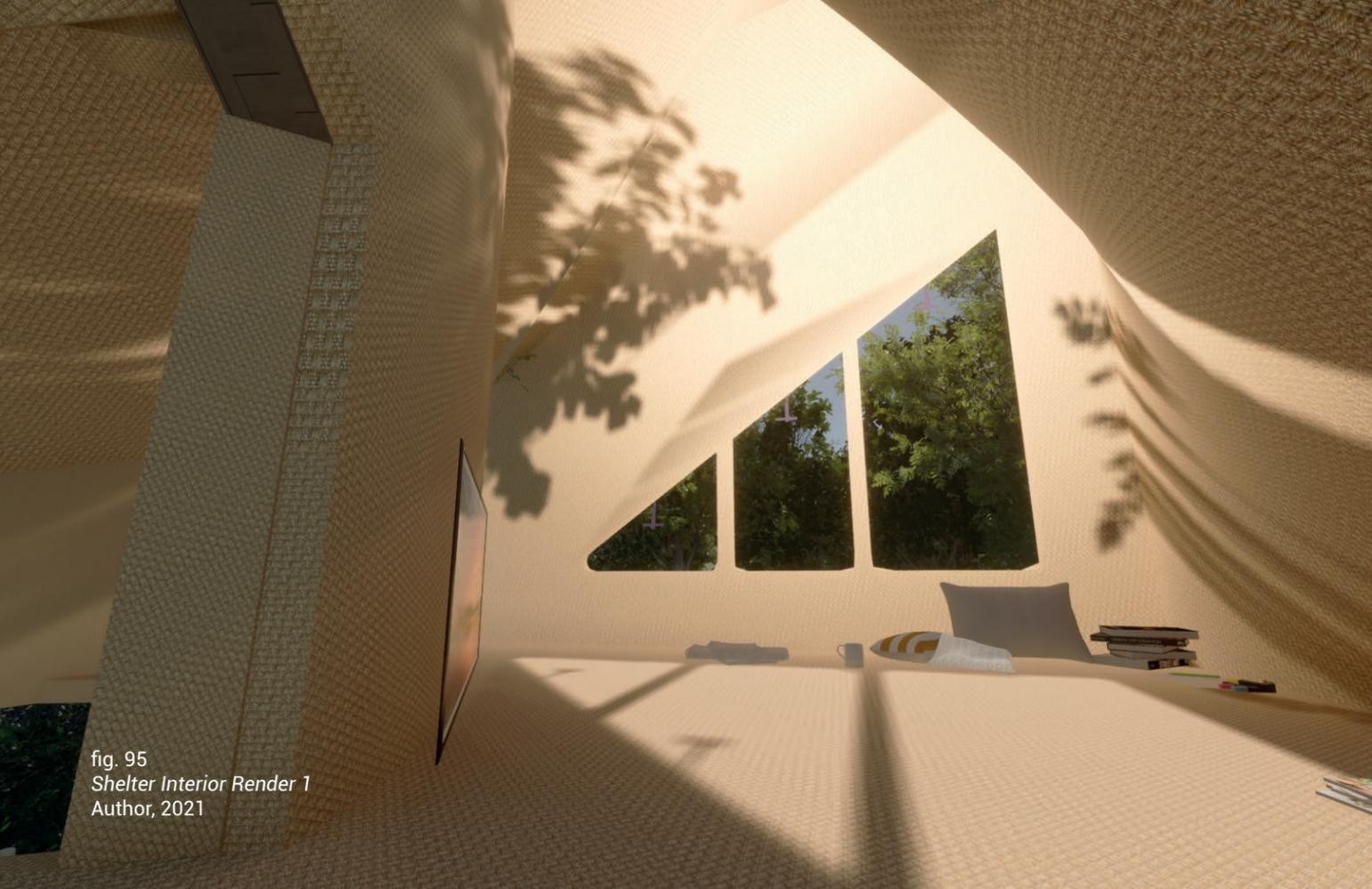


fig. 95  
Shelter Interior Render 1  
Author, 2021

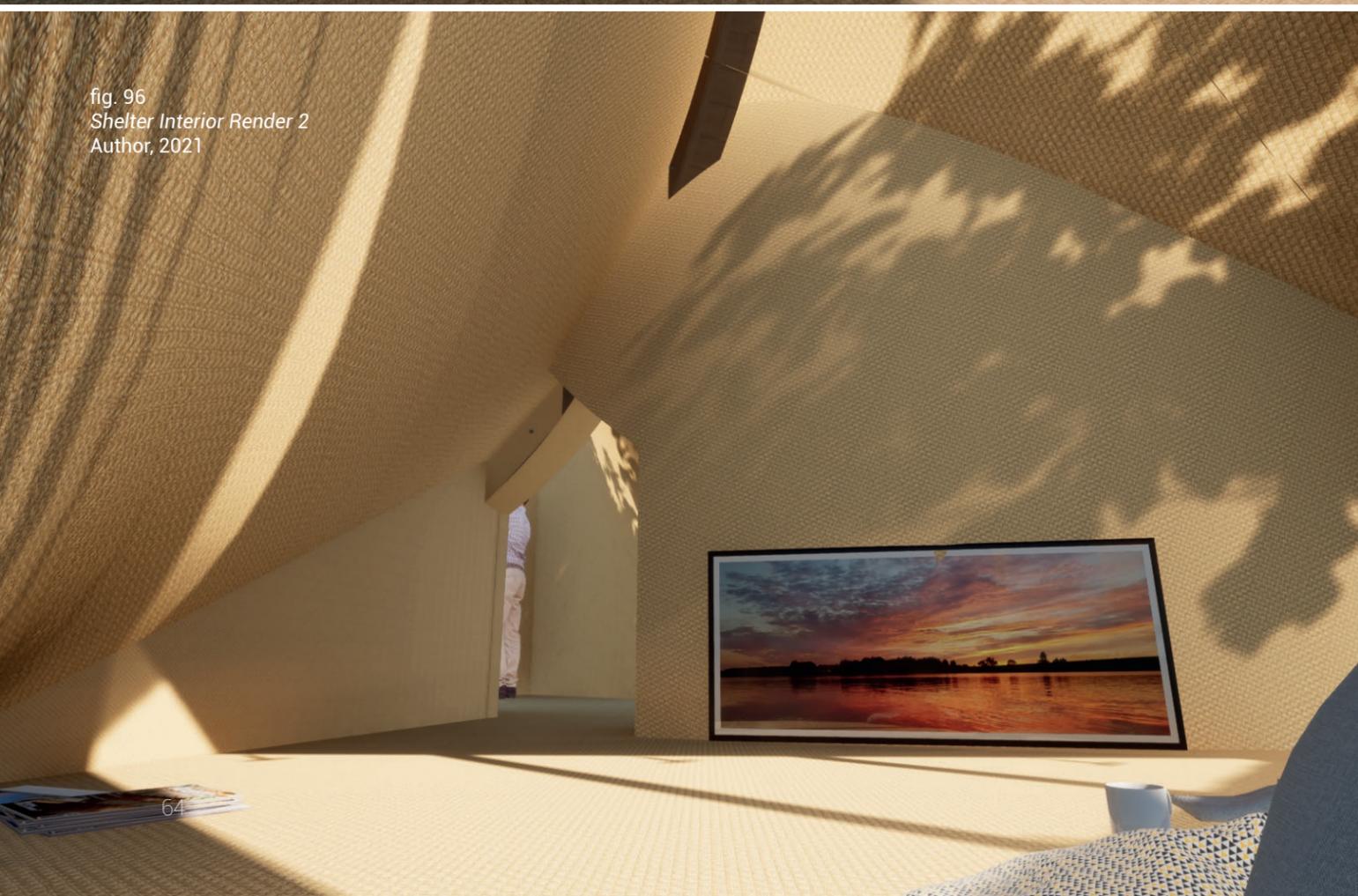


fig. 96  
Shelter Interior Render 2  
Author, 2021

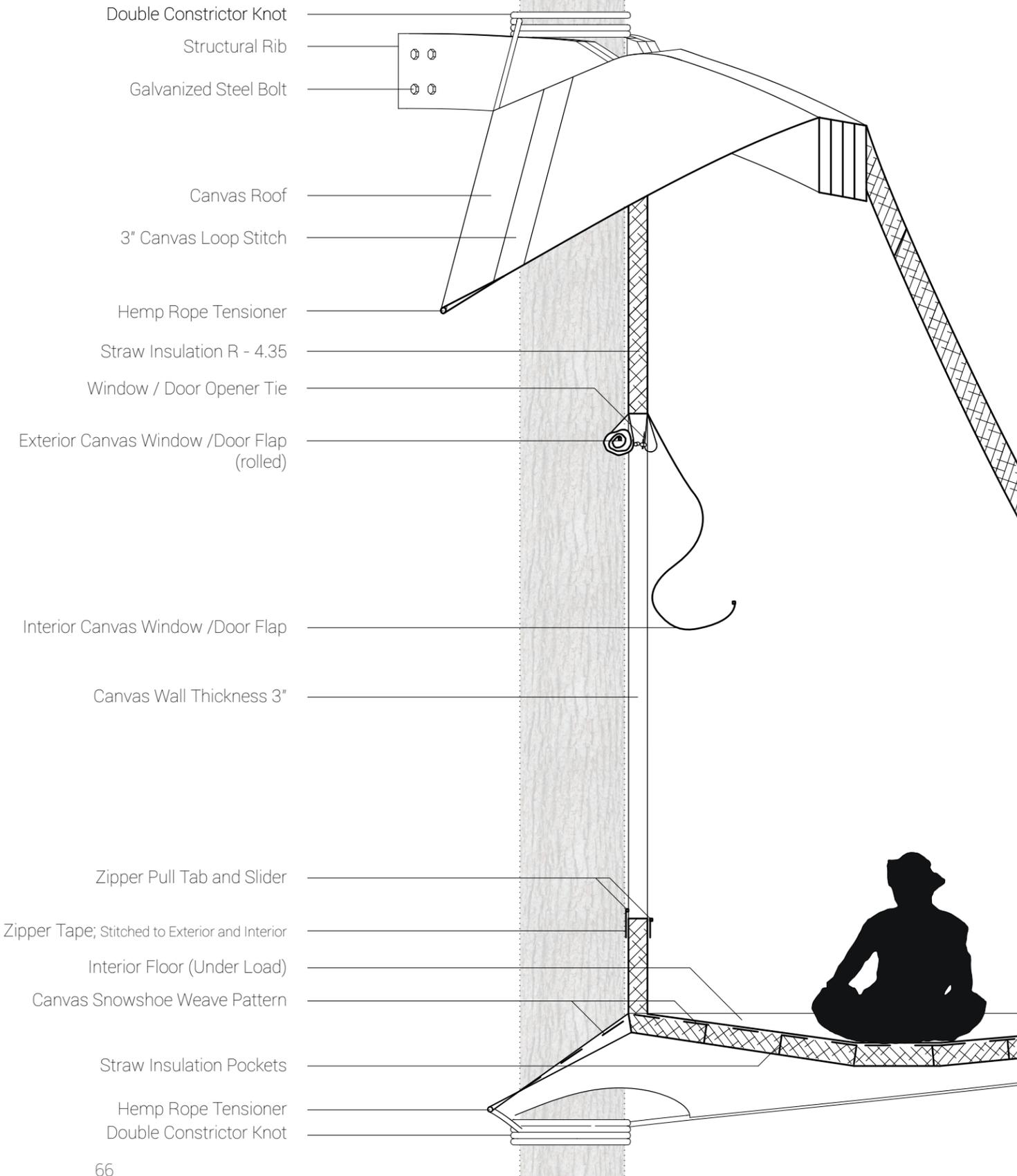
Looking closer at the wall section the straw bale insulation can be seen within the walls and floor. Sandwiched between and sewed into pockets the straw bale provides some insulating value to the interior. The reason for the minimal insulation value is to keep the inhabitant comfortable in the warmer seasons only. Here you can also see how the canvas is looped around and stitched to itself with the addition of a 3" canvas strip. This is how all of the canvas to canvas connections are fabricated. The door and window flaps, shown here as open, are cut from the canvas. There is one interior canvas and one exterior, both of which are accessible from the inside. Arrival and leaving the site an inhabitant would engage with the exterior flap opening it or closing it using the zipper that has been stitched to the flaps and the exterior surface

Detail 4.02, showcases the rib structure and how it engages with the canvas, rope and tree anchor. The structural rib made from white ash is clamped to the anchor tree essentially locking it into place without unnecessarily harming the tree. The rope wrapped around the anchor tree with a double constrictor knot continues to tighten with greater load. The elevation of this detail showcases a drip detail. Keeping rainwater from entering between the structural rib and canvas surface. This drip edge is only present at the highest points on the two ribs

# 4.01 WALL SECTION DETAIL

Scale 1:20

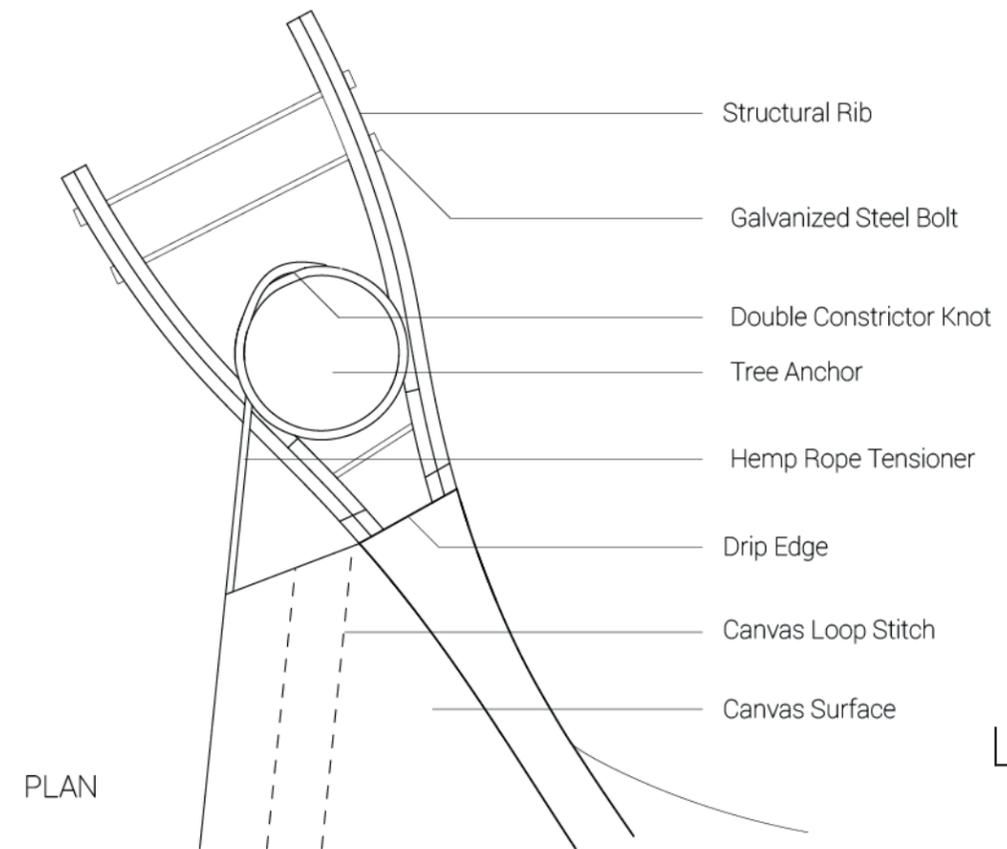
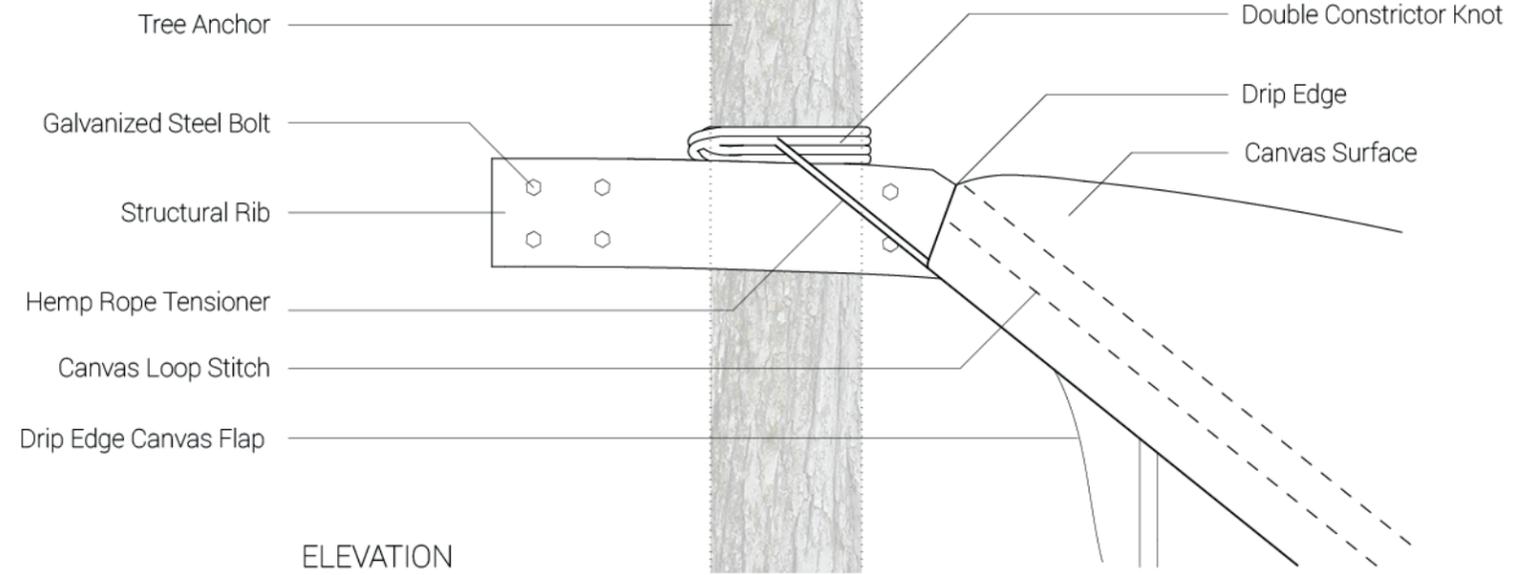
1 meter



# 4.02 DETAIL 2

Scale 1:20

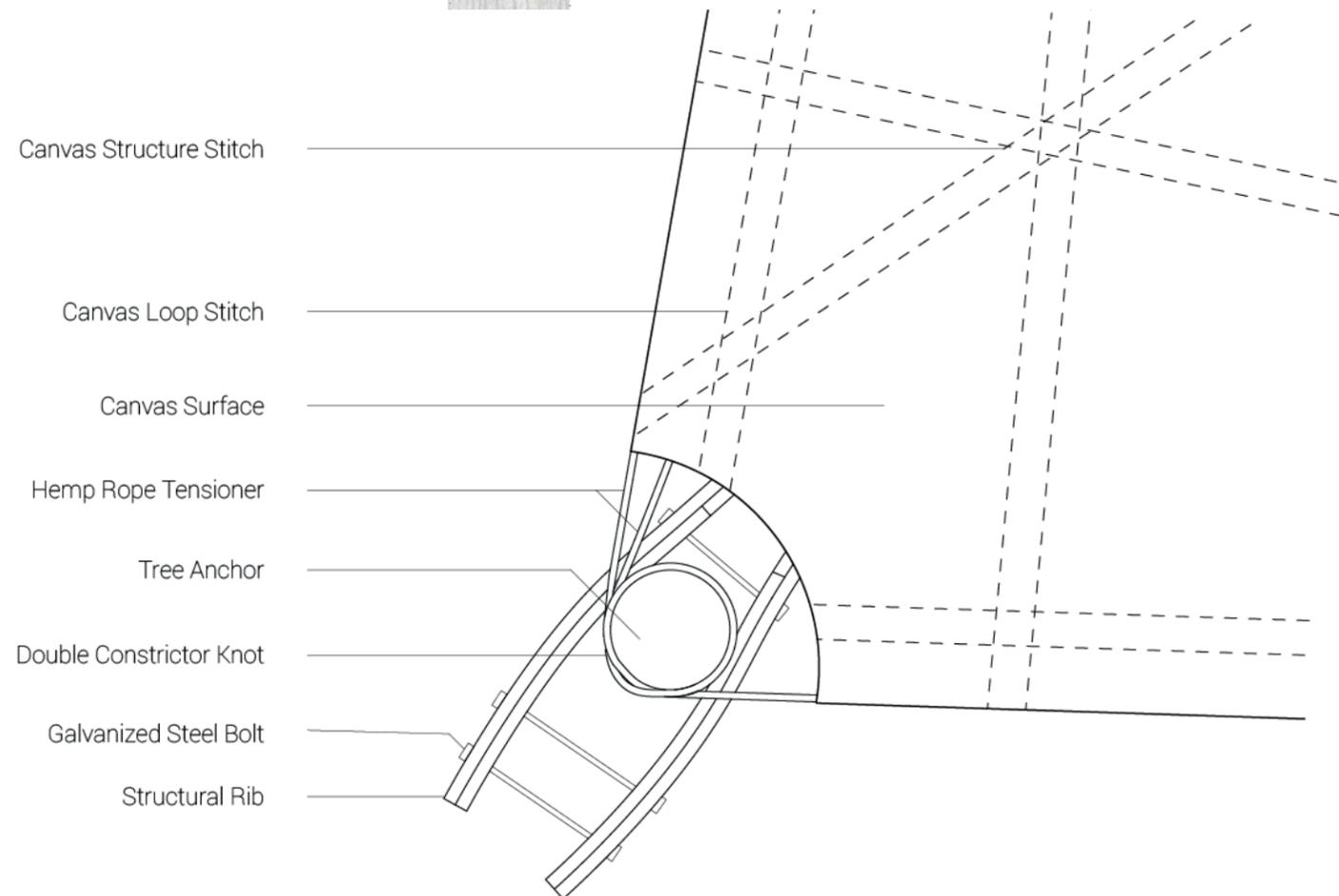
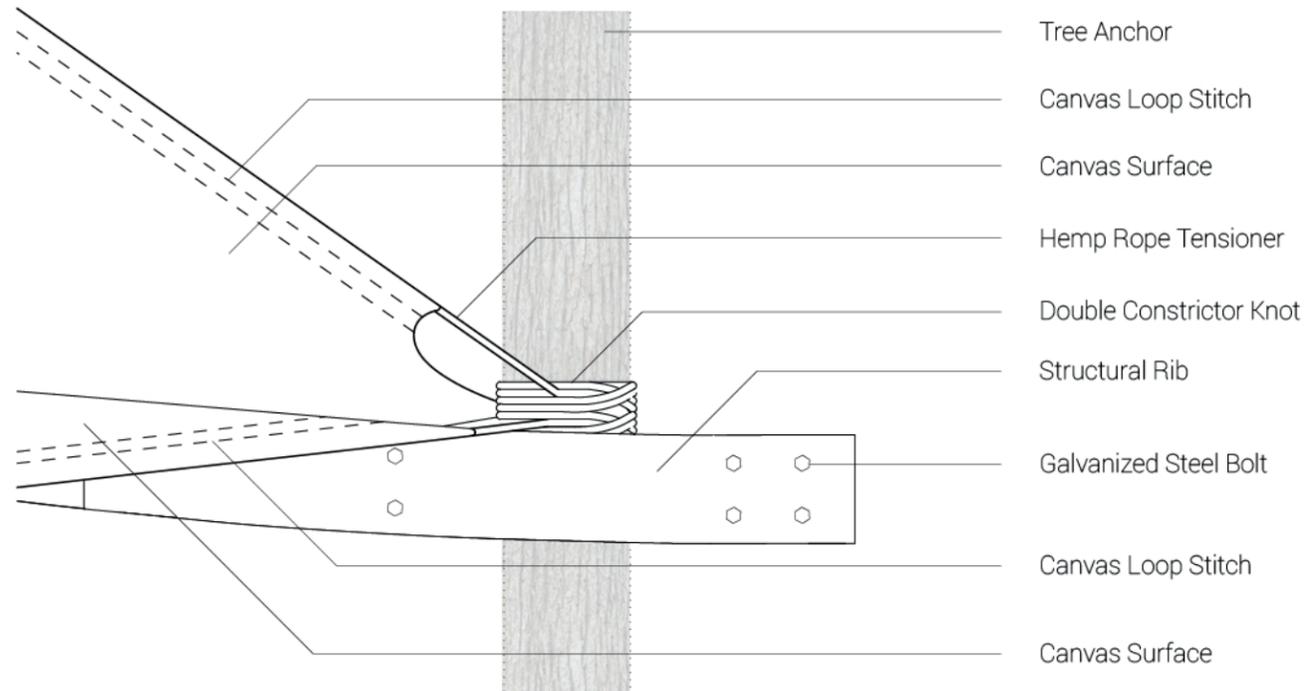
1 meter



1 meter

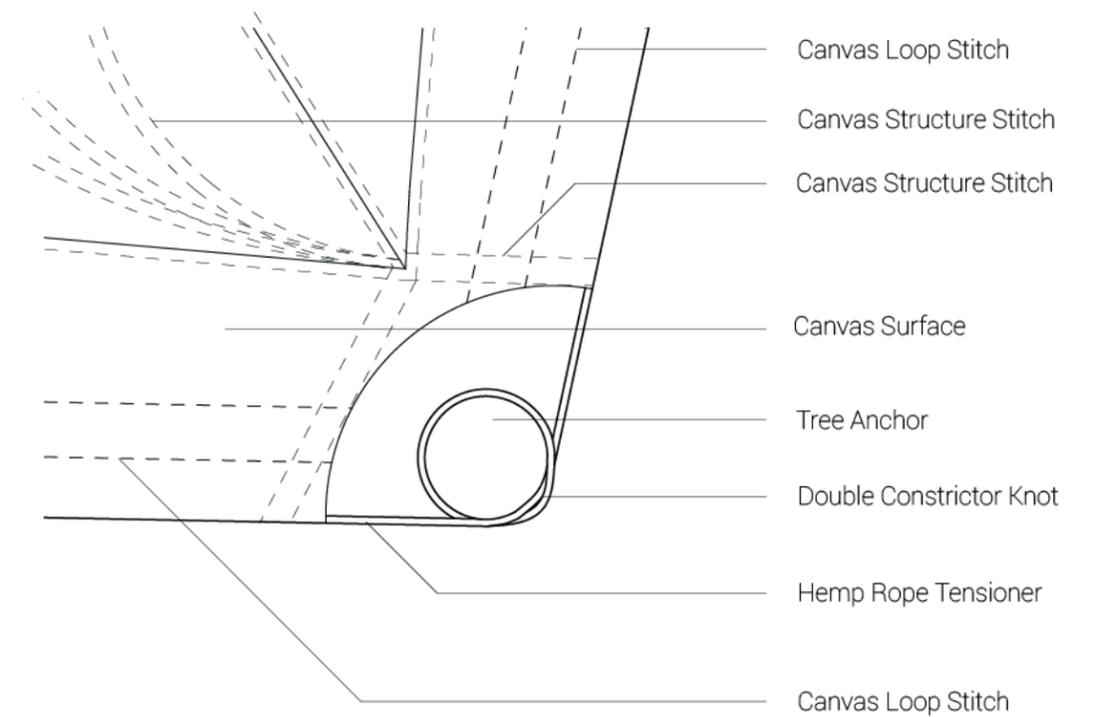
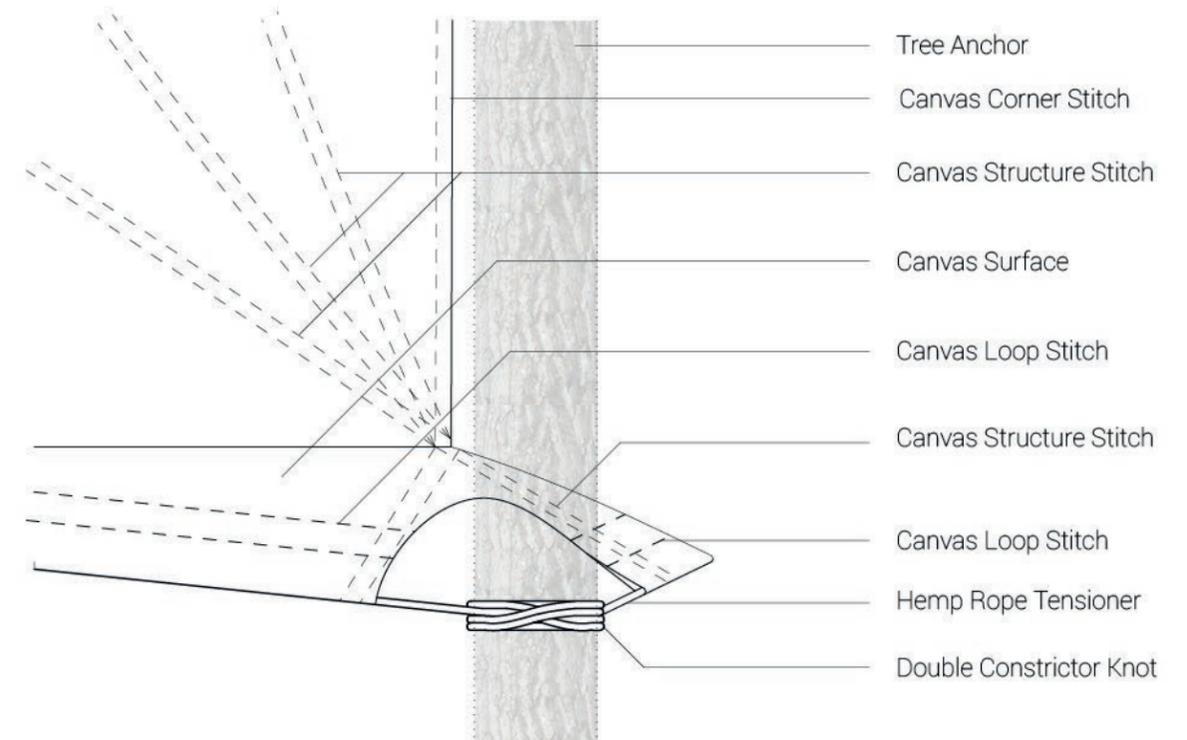
# 4.03 DETAIL 3

Scale 1:20



# 4.04 DETAIL 4

Scale 1:20

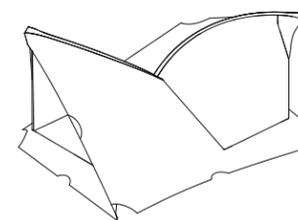


## Retreat Structure

These are the structural elements that support the inhabitant. The main canvas surfaces on the exterior and interior bring the other elements together and connect all the other components. The wood ribs are the main structural system that supports the majority of the load and lift the retreat above the wilderness floor. Keeping the shelter taut, the rope tensioners create the tension on the canvas's structural elements. The rope tensioners are adjustable with turnbuckles and may need to be tightened on arrival. The canvas structure is stitched between the layers of canvas. Creating an "A" frame around the main ribs down to the floor surface and out to the rope tensioners. Connected to the main canvas surfaces and canvas structure, the floor supports the inhabitant. The snowshoe weave pattern here allows the surface to be very strong and thin while being deformed under load. Rooted into the Earth the tree trunks, which the shelter resides, are the foundation of the project.

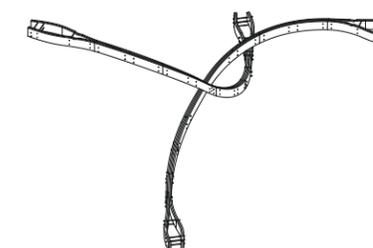
The primary structure supporting the load of the inhabitants and snow are the wood beams which bend around each other and clamp to deciduous trees 20 to 25 feet away. These two ribs are constructed of smaller segments laminated together and clamped to trees with steel bolts. Four layers of 30cm x 3.8cm dimension lumber form one rib, a cross-sectional dimension of 30cm x 15.2cm. The position where they are clamped in relation to others is

purposely triangulated, creating cross-bracing between all four anchor trees. The intersection of the ribs at the center also has the same effect in plan. Some of the loads presented on a rib are transferred through the other. The secondary structure with which the inhabitants have a much closer relationship is the canvas and rope tensioners. While the ribs lift the canvas and stretch it into the canopy of trees, the ropes pull the canvas down and outwards, towards the forest floor and tree trunks. The soft floor which the inhabitants rest on is also canvas and provides a great deal of structural support. In the roof plan, we can see the entire stitching pattern connecting each of these elements to form an entire system of intersecting canvas.



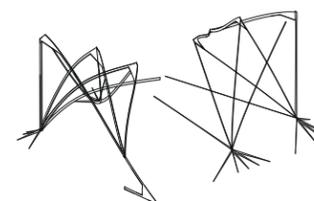
**Canvas Surfaces**

Canvas material acting as the surfaces protecting from the elements as well as act as a third structural system. The canvas brings the Retreat together and connects all other components.



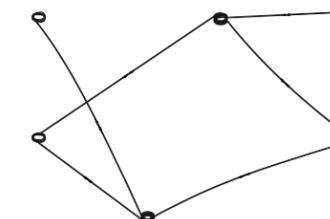
**Wood Ribs**

The laminated wood peices act as the main structural element. Supporting the entire shelter space the wood ribs are the primary structure, lifting the project off the wilderness floor.



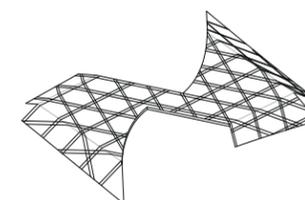
**Canvas Structure**

Stitched between layers of canvas the interior wall structure creates an "A" frame around the main ribs down to the floor surface and out to the rope tensioners.



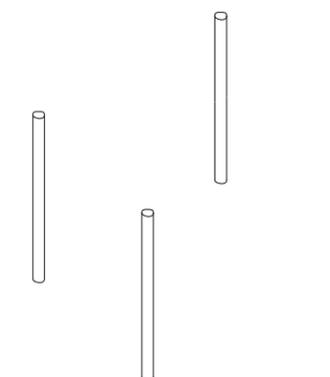
**Rope Tensioners**

Keeping the shelter taut the rope tensioners create the tension on the canvas structural elements. A necessary component both structurally and aesthetically. The rope tensioners are adjustable with turnbuckles and may need to be tightened on arrival.



**Floor Structure**

Connected to the main canvas surfaces and canvas structure the floor supports the inhabitant. The snowshoe weave pattern here allows the surface to be very strong and thin, while being deformed under load.



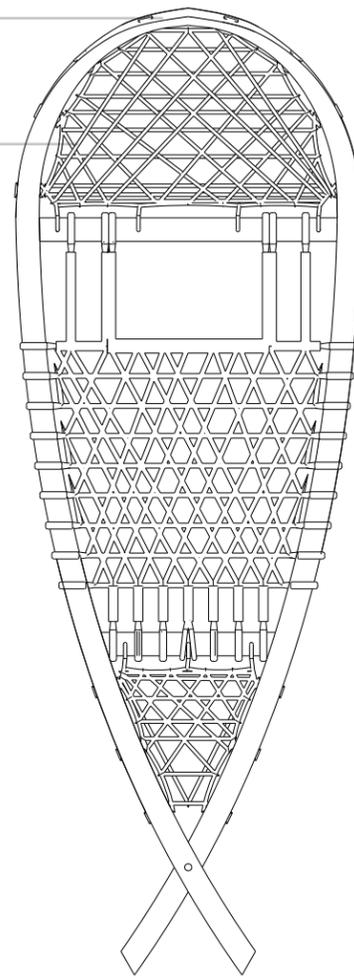
**Tree Anchor**

Rooted into the Earth the tree trunks which the shelter reside in are the foundation of the project.

Bent Ash  
 (Primary Structure)

Snowshoe Weave Pattern  
 (Secondary Structure)

In fabrication 2 when we were assigned to make an artifact for our thesis proposals and I decided to make a snowshoe. The design would be innovative and unique much like the shelter. The process of trying to build the shoes proved to be more difficult and lengthy than anticipated. This resulted in using the snowshoe as an example of how to both bend wood and create strong surfaces with minimal material. The bent ash of the Agawa snowshoe is the primary structure that supports the weave pattern. The pattern supports the user and disperses their weight over a larger surface area with minimal material and high grip.



Agawa Snowshoe

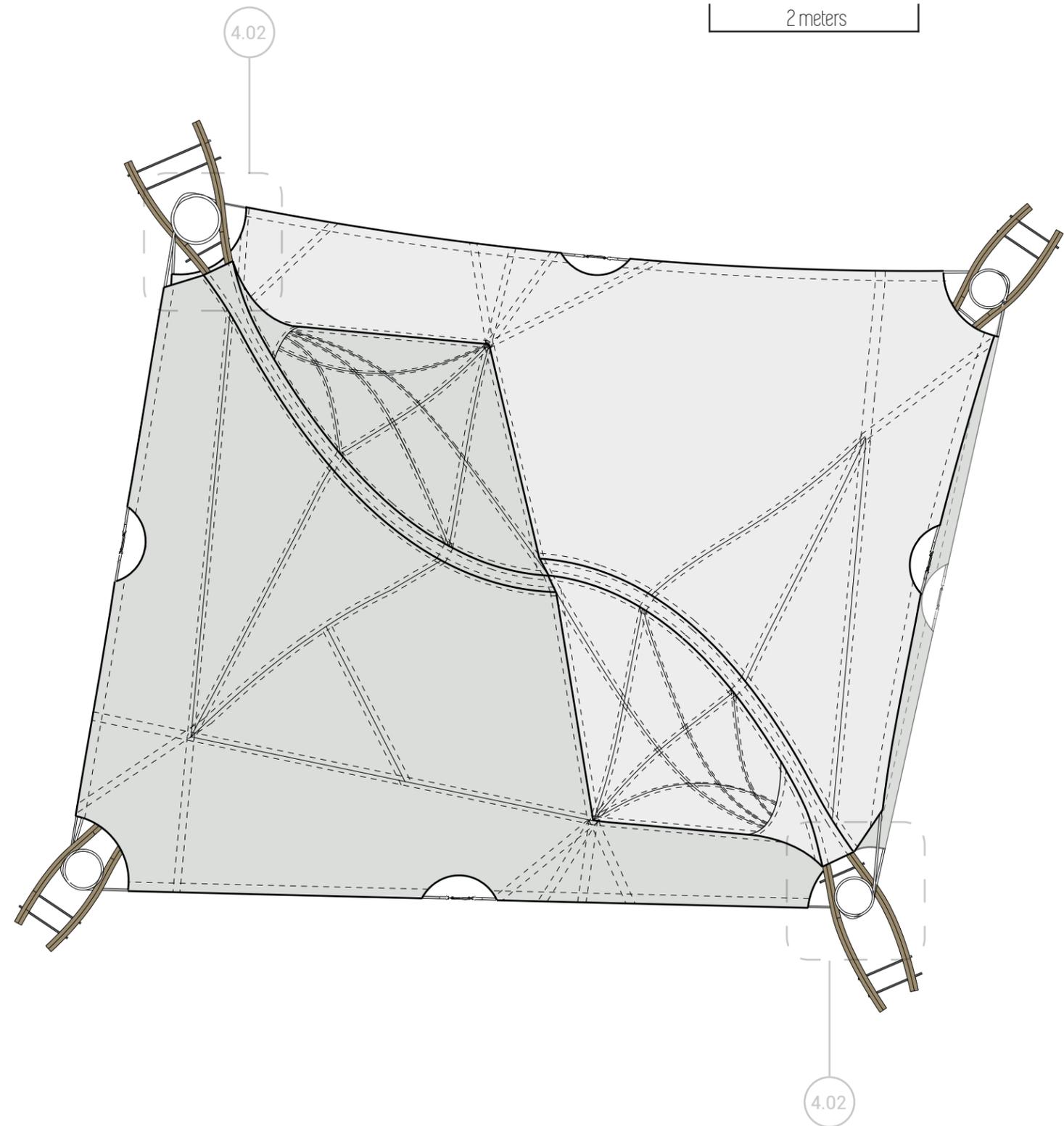
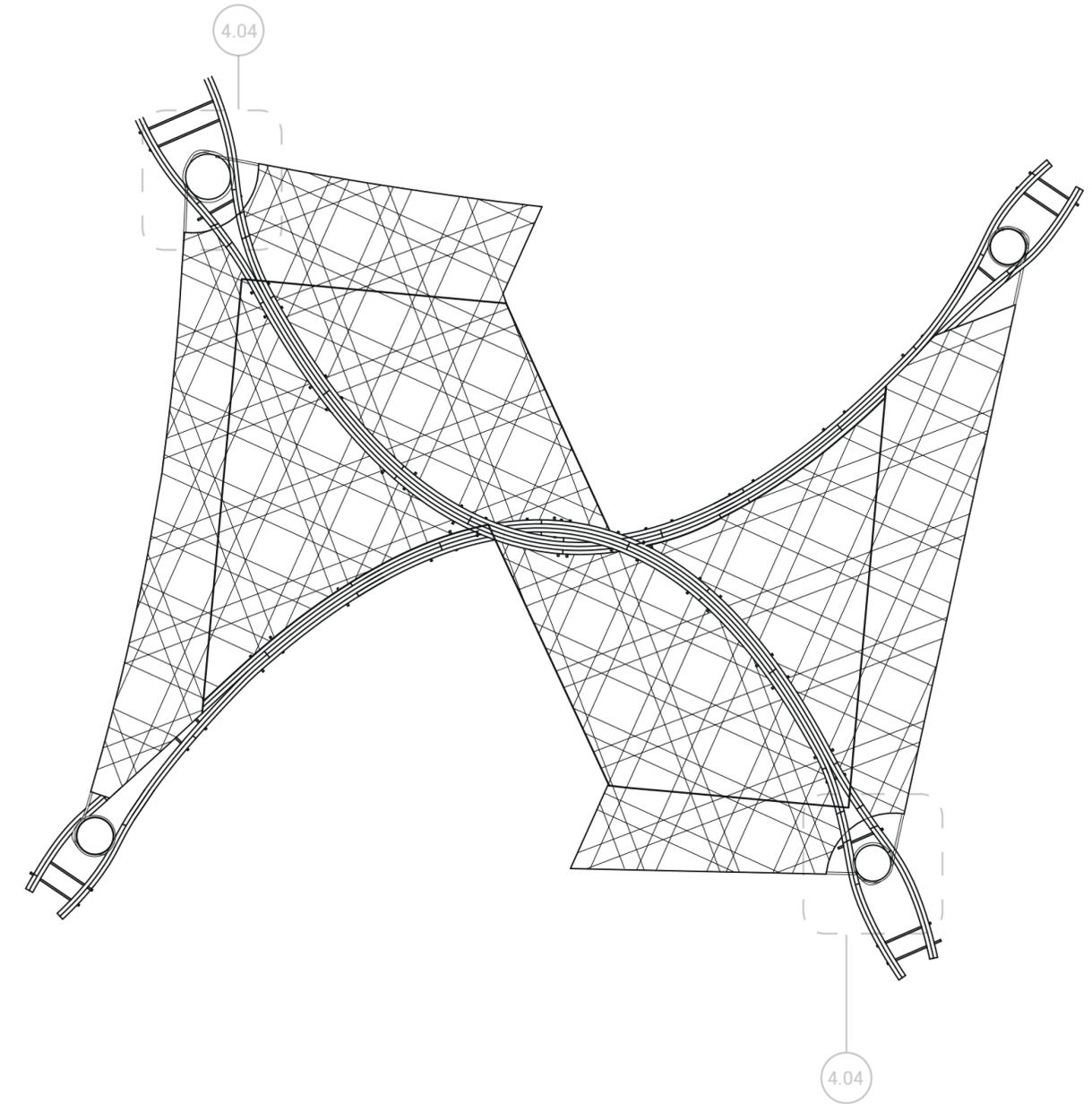
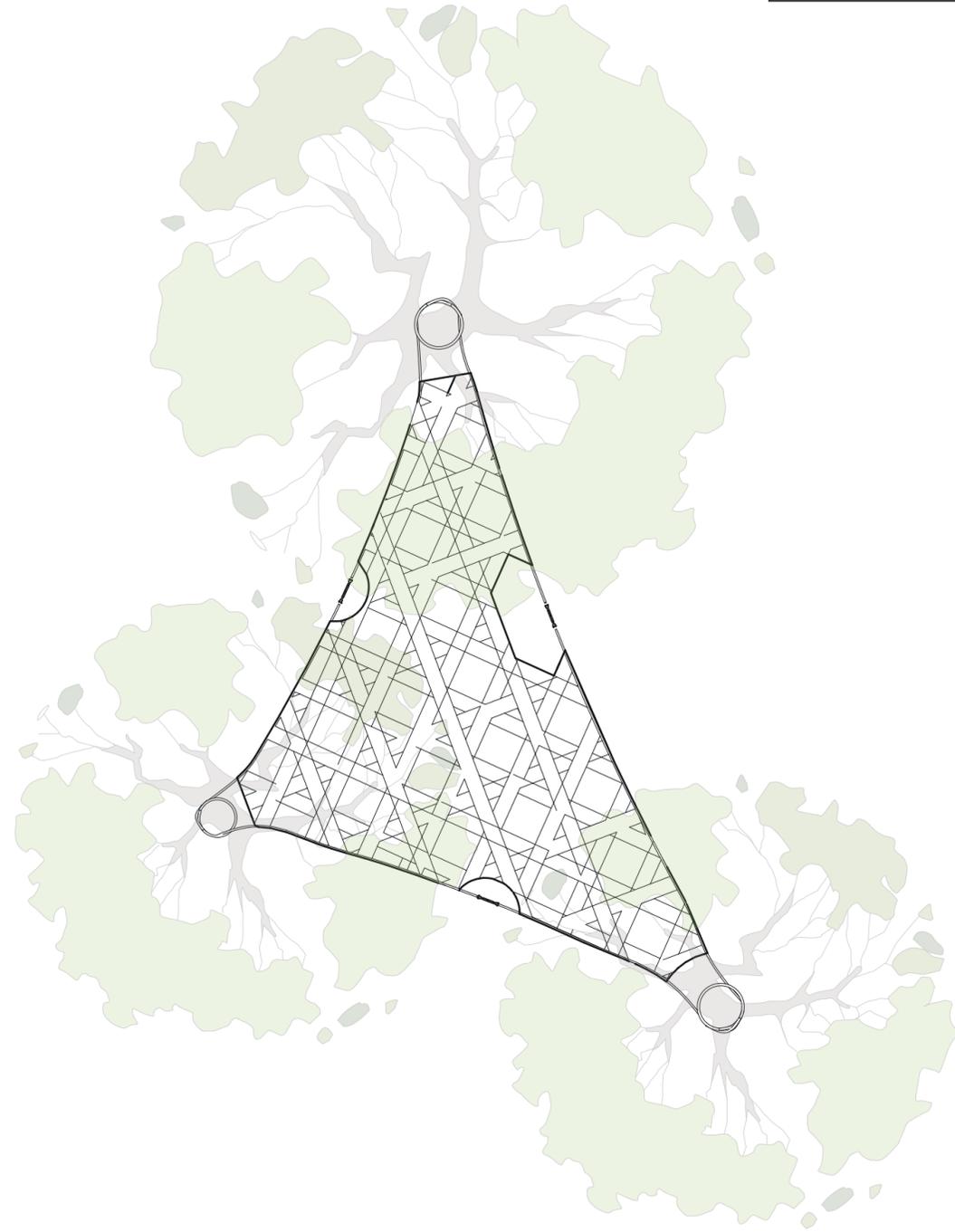


fig. 98  
 Agawa Snowshoe Plan Drawing  
 Author, 2021

The hammock and shelter structure also utilizes its intricate pattern; canvas strips weaved together like the body of a snowshoe. Snowshoes are constructed of a bentwood main structure with a secondary weave pattern that supports the foot and spreads the weight of the user over a larger surface. The shelter and snowshoes share many of the same techniques and design principles. A bentwood main structure in the trees supports the secondary structure, a canvas weave, that keeps the user from the forest floor. The hammock is created entirely of 3" canvas strips and is fully exposed to the outdoors. Tightened with rope and turnbuckles the hammock is suspended in the trees. The shelter has a more complicated system. To keep the wild out of the interior, the floor of the shelter has an exterior and interior surface. The weave pattern is under the interior canvas sandwiched between the interior and exterior. The weave pattern is present under all resting areas of the shelter and continues to spread outwards until it reaches the rope tension elements where it loops around then terminates at a stitch line over itself this is seen in many of the details.



2.01 WEST ELEVATION  
Scale 1:100

5 meters



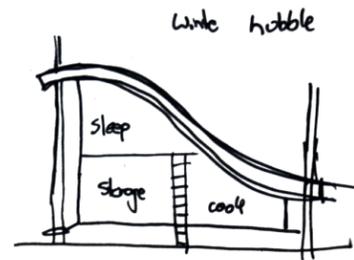
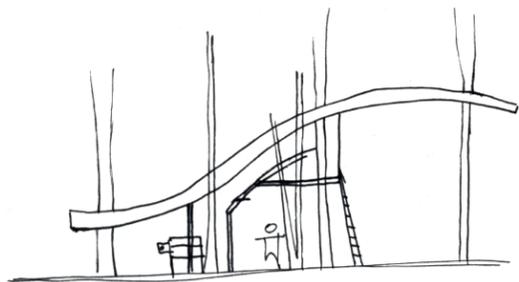
2.02 SOUTH ELEVATION  
Scale 1:100

5 meters



## Winter Cookhouse

The Winter Cookhouse is an example of programmatic growth using the same techniques and details as the shelter. Access to the Retreat is available in all seasons, and this creates challenges which more often arise in the cold season, where freezing temperatures can create health risks and heat is necessary for human survival. Snow and ice also present significant challenges; deep snow limits the rate and distance an individual can travel along the Agawa River and on-site. The winter cook house provides an answer to many of these cold-weather challenges. In order to satisfy an essential element of survival, food, a wood stove is placed under the winter cookhouse which acts as a roof for cooking in undesirable weather conditions as well as provides radiant heat upwards into the space's interior. The stove provides heat all day and night, provided it is being stocked with wood. The stove, acting as a thermal mass, radiates heat upwards into the sleeping area, where inhabitants enjoy a warm night's rest before emerging again from the canvas interior. Below, tools, supplies and survival gear are stored.



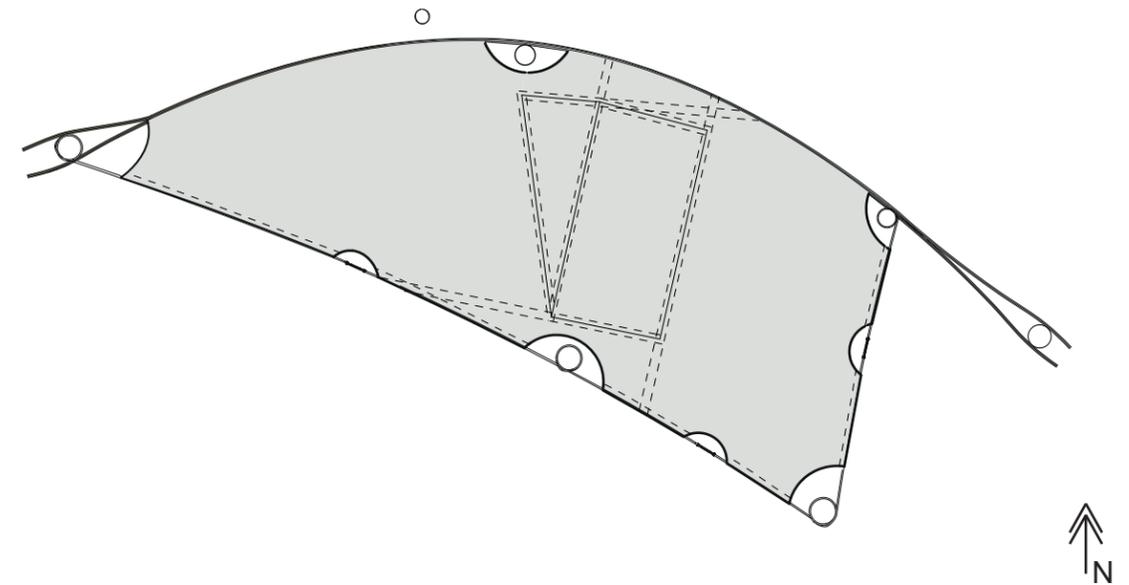
(Above) fig. 99  
Winter Cookhouse Program Sketches  
Author, 2021

(Left) fig. 100  
Winter Cookhouse Section Sketch  
Author, 2021

## 1.06 WINTER COOKHOUSE ROOF PLAN

Scale 1:100

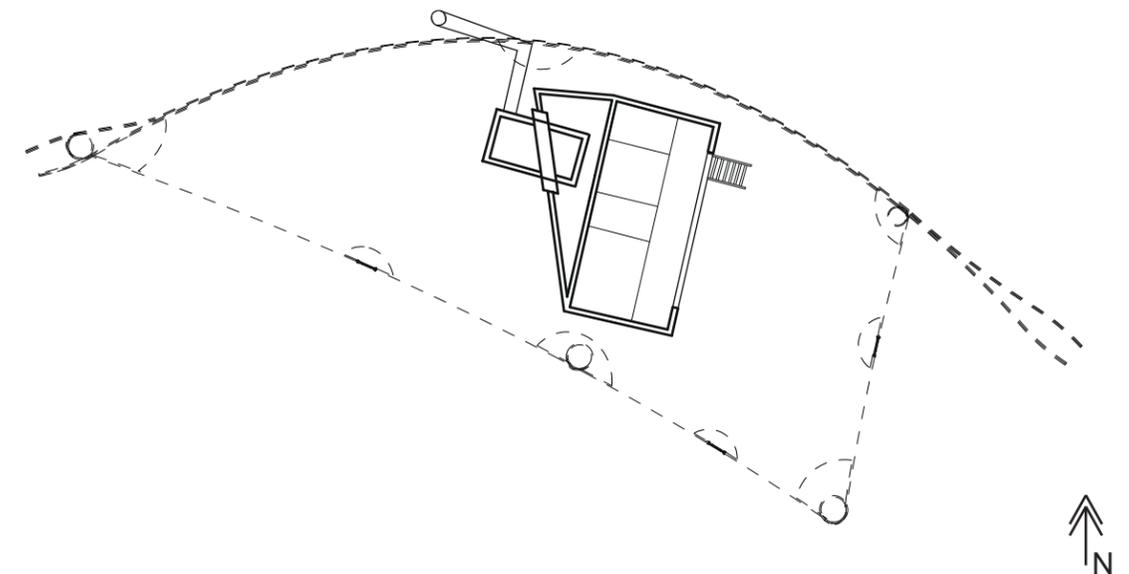
5 meters



## 1.07 WINTER COOKHOUSE PLAN

Scale 1:100

5 meters





In section we can see this in more detail. The cooking area is exposed on three sides and is covered with a canvas canopy. Wood harvested on-site by inhabitants provides heat for the cookstove. Heating stones collected on site create a consistent release of heat onto the cooking surface as well as into the cookhouse sleep area. The temperature of the stove can be controlled via the smoke flute; opening it releases this heat, and closed keeps it in. As the warm air rises from the back of the cookstove into the interior void where the inhabitant can open a small flap allowing the warm air to enter into the sleeping area. With the addition of this sleeping area, a maximum of three inhabitants can reside on-site.

The cooking and heating type is fueled by wood and this creates a need for a fairly consistent supply of wood material. Therefore a necessary task to be completed on-site is the acquiring and chopping of wood. The task is essential to the comfort of the inhabitant and provides a connection to the landscape not experienced in the context of the city, providing a direct connection and reliance on the Wilderness. This can be easily harvested closely to the Retreat as there are many standing dead trees in the area.

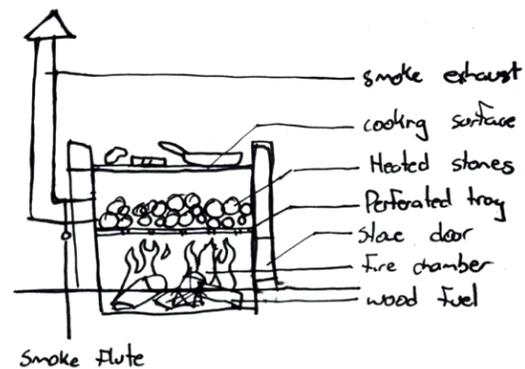


fig. 101  
Cookstove Section Sketch  
Author, 2021





fig. 102  
Sherwood Forest  
Author, [unreadable]

### On Site Equipment and Supplies;

- Saw
- Axe
- Matches
- Map
- Compass
- Cooking Equipment
- Knife
- Fishing Pole
- Fishing Tackle
- Shovel
- Blankets
- First Aid
- Gloves
- Water Bottle
- Flashlight
- Cooking Utensils
- Candles
- Rope
- Extra Canvas (patches)
- Needle and Thread
- Broom
- Winter Sled

### Safety Cache Supplies; (in case of emergency fire). Dry and secure place for extra equipment and dry food<sup>63</sup> - stitched into shelter belly.

- Extra Heavy Clothing
- Blankets
- Boots
- Matches
- Axe
- Cooking Utensils
- Fire Starter

## Campfire

At the center of the Agawa Retreat is the campfire. A space separate from the Winter Cookhouse with a different programmatic intention. The campfire is a social space, a place to gather, to talk and to get lost staring in the flames. During evenings spent around the campfire inhabitants laugh and begin to drift into contemplative relaxation.<sup>64</sup> It creates a space that is only revealed under the cover of darkness when the light from the flames and heat from the coals bring the inhabitants closer.

## Thunderbox

Under a canopy, North of the Winter Cookhouse is a thunderbox. A secluded toilet space where inhabitants can relieve themselves. The thunderbox can also be relocated if the area becomes no longer suitable for sewer usage.

## EndNotes

63. Cuerrier, R. (2017). *Canadian Bushwacker: A Lifetime in the Wilderness*. Sault Ste. Marie, Ontario: Robert Cuerrier. Page, 215.

64.



2.5: Construction Procedure

↓ PART 2  
AGAWA WILDERNESS RETREAT

## Site Selection

General area determines water availability, tree species, views, accessibility.

## Site Survey

To determine the Retreats feasibility for structure and human survival includes examining topographic changes, the age and species of trees, as well as the dimensions of trees which will be used for anchoring the Retreats structural components. Accurate mapping of the site will be required at this point in the construction procedure. This is done using laser scanning and photogrammetry techniques. This will create a digital model of the site. The model creates a highly accurate foundation for which the retreat is designed. Using photos from the ground and air as well as laser scanning; the topography, tree dimension, shape and location are catalogued in a three-dimensional model which is used to develop and grow the Agawa Retreat into physical form.

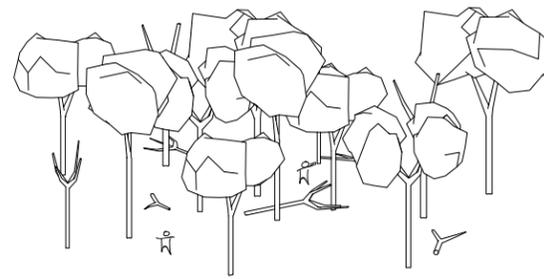


fig. 104  
Site Survey  
Author, 2021

## Retreat Design

The Retreat is then designed using this information from the site survey as well as the three-dimensional model. The structure's details and tectonics are designed to be adaptable to any site condition. Therefore the form of the structures will be determined directly by the tree's natural location on site. The design is established using the 3D model to create a structure that is both accurate and unique to the site.

## Prefabricated Manufacturing

The design of the retreat is then broken down into its individual parts digitally for physical fabrication. Parameters established by the mapping technique and design process determined all material shapes, sizes and dimensions. The manufacturing of these materials is accurately shaped, cut and sewed before arriving on site. The rough sawn lumber is shipped to the St. Mary's Paper Manufacturing facility where the lumber for the ribs is cut and shaped for the site specifications. Large canvas sheets are laid flat and precisely cut using a CNC laser technology to ensure the surfaces and structures remain tight and strong. The canvas elements once cut are then stitched together. These large systems of canvas are then folded and placed onto the ACR train car directly adjacent to the St. Marys Manufacturing facility, along with all the other building components; wood structural ribs, rope and turnbuckles and straw bale. The use of contemporary construction methods will ensure the success and feasibility of this project while shortening the construction time.

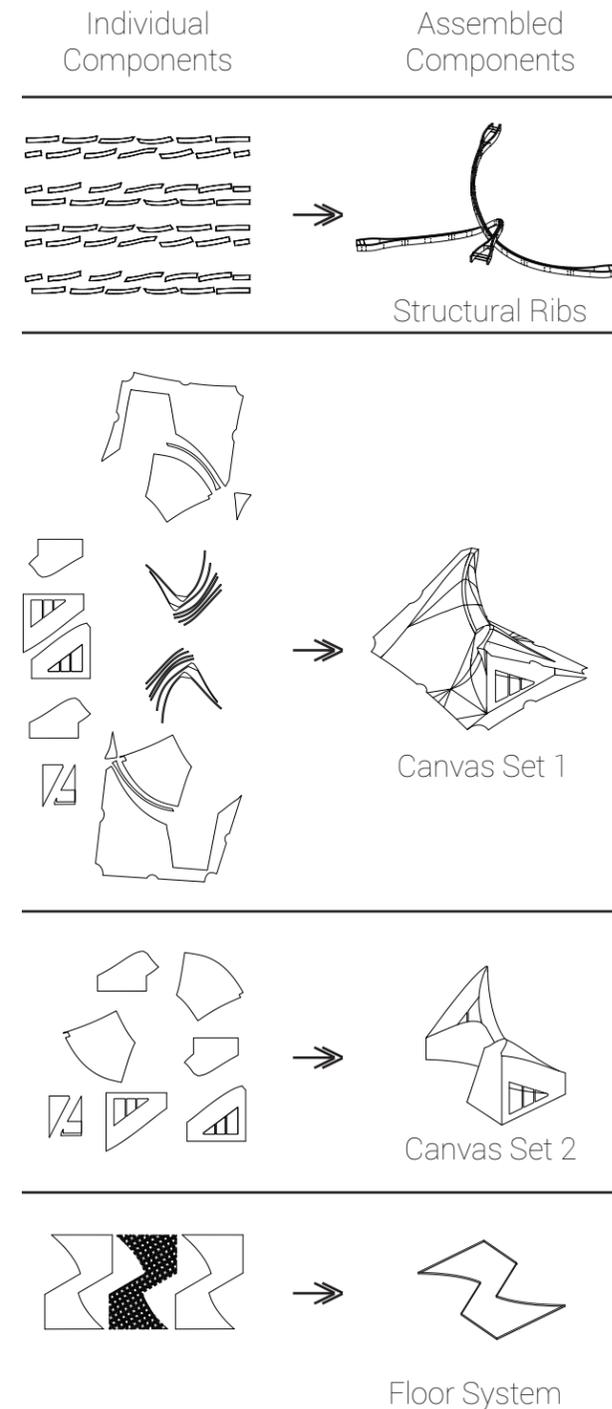


fig. 105  
Prefabricated Components List  
Author, 2021

## Site Cleaning

Removing any small shrubs or trees from the site where they may interfere with Retreat structures. Any trees being cut down will be used as firewood for inhabitants. This is determined during the design process.

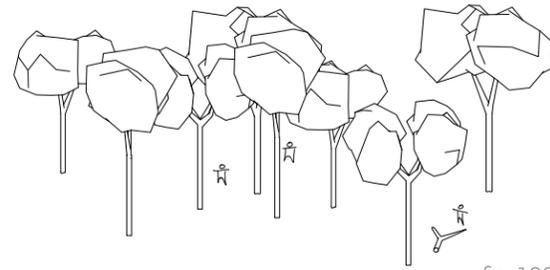


fig. 106  
Site Cleaning  
Author, 2021

## Draping Fabricated Canvas

The large canvas elements which were fabricated and stitched together at St. Mary's paper are then draped over the structural ribs. The ropes tied to the trees previously are fished through the canvas loops stitched into canvas surfaces. The ropes are left loose.

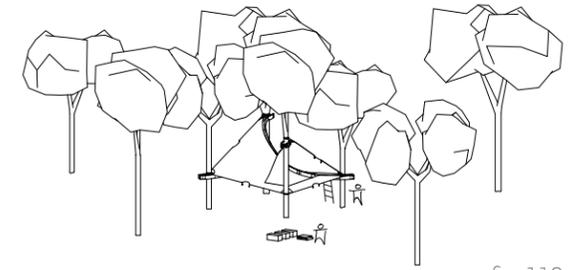


fig. 110  
Draping Fabricated Canvas Set 1  
Author, 2021

## Material Transport

The materials begin the journey up the ACR where they are unloaded next to the tracks close to the retreat site, before being carried into the site on foot by the construction team via a temporary trail.

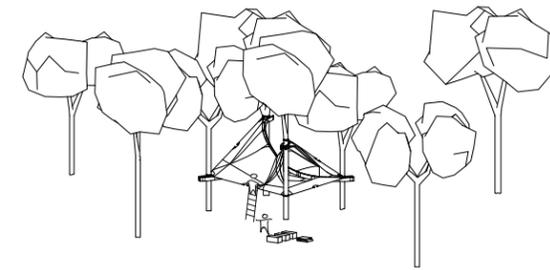


fig. 111  
Sewing Interior Walls, Insulation and Floor  
Author, 2021

## Sew Interior Walls, Insulation and Floor

The canvas floor structure system, which was already assembled, is then stitched to other canvas elements already draped over structural ribs. Then inserting straw bale insulation within the floors and walls. The interior walls are stitched to the structure system and floor completing the canvas structure.

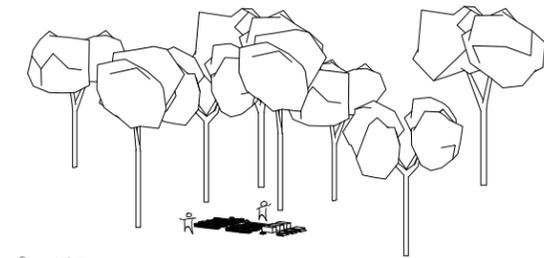


fig. 107  
Material Transport  
Author, 2021

## Rib Construction

Lamination of four rib structures by bolting together lumber pieces manufactured at St. Marys. Creating two separate ribs between the four anchor trees. Clamping the ribs to the trees using a series of pulleys and rope to lift either end of the bentwood and bolting it around the tree, clamping it. This is done four times at the corners and a final time in the center where both ribs meet and attach to one another.

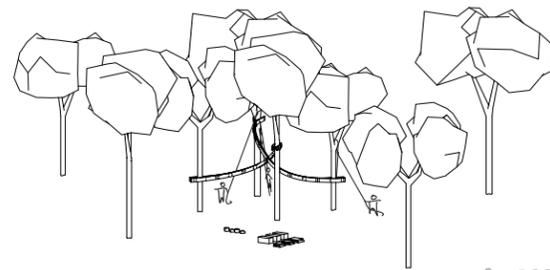


fig. 108  
Rib Assembly  
Author, 2021

## Tighten Turnbuckles

The addition of turnbuckles finalizes the structure making the entire system work in tension. Pulling tightly the retreat is strong enough to hold weight.

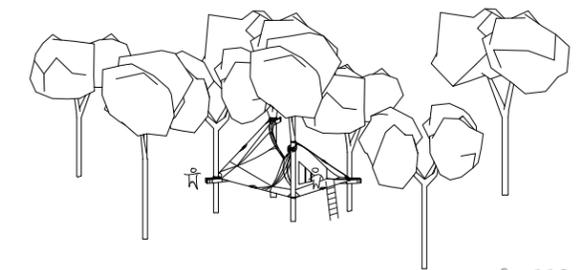


fig. 112  
Tighten Turnbuckles  
Author, 2021

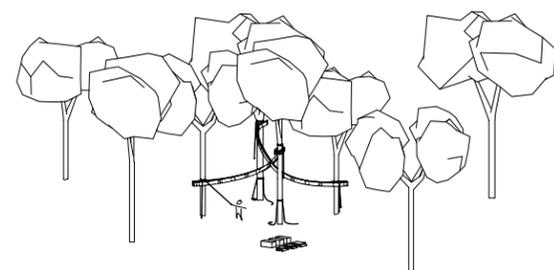


fig. 109  
Tying Rope  
Author, 2021

## Tying Rope

The ropes which tighten the structures are then tied around the anchor trees. The ends of these elements are loose and not attached to anything

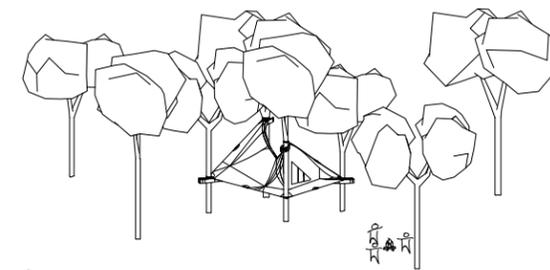


fig. 113  
Habitation  
Author, 2021

## Habitation

The Shelter and its supporting structures are then inhabited. As the Agawa Retreats interior is inhabited by humans the exterior is inhabited by the Wilderness. As the seasons change leaves and debris settle on the canvas surfaces staining them, birds and other animals use these

surfaces and the foliage above to create nests. The canvas begins to fade under the sun and the age of the structure becomes apparent.

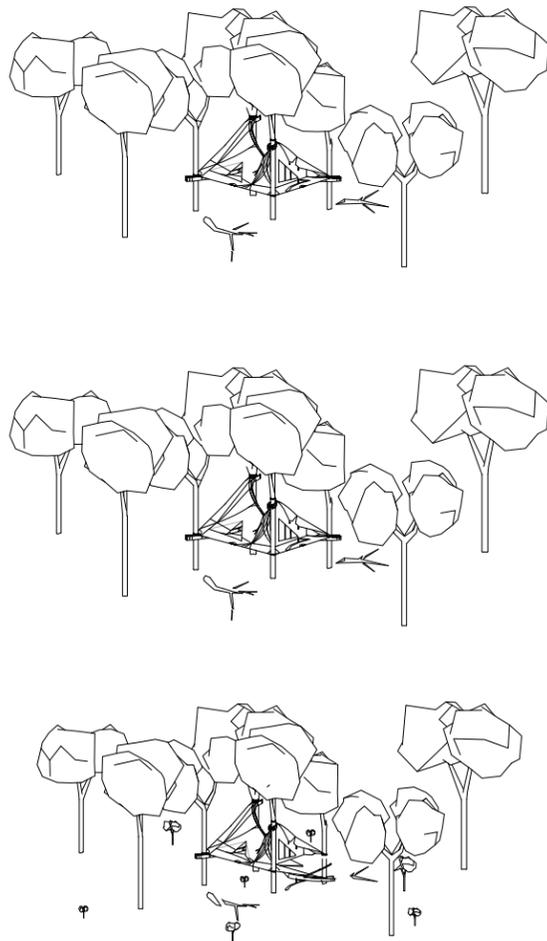


fig. 114  
Decomposition  
Author, 2021

## Decomposition

After about five years of use, the Agawa retreat begins to degrade. As the trees age and begin to decompose so does the structure. Branches begin to rip holes in the surfaces too large to repair and the retreat is abandoned by humans and inhabited by the wilderness and its creatures. The retreat continues to degrade and falls to the wilderness floor. Decomposing faster with the help of creatures and microbes. Animals now begin to use the decomposing structure as a shelter of their own for refuge, for storage and comfort. The retreat has become a natural habitat for wilderness characters to reside. This process of decomposition and habitation can inspire further growth on-site as well. As creating a designed space for Wilderness habitation can be a way to further increase the intensity of Wilderness experience, the decomposition can influence the expansion of the structures within the Retreat. This can be thought of in the human habitation phase as well as the decomposition, or Wilderness habitation phase.

## Material Collection

The elements of the retreat which resist decomposition, the steel bolts and turn-buckles, are then collected, so that they can be used again in a new retreat or to expand the existing site.

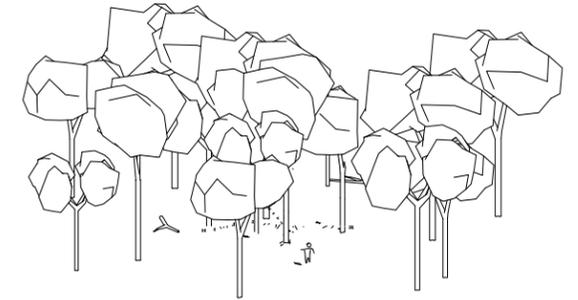


fig. 115  
Material Collection  
Author, 2021

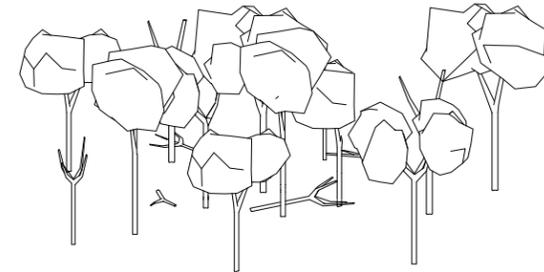


fig. 116  
Site Restoration  
Author, 2021

## Site Restoration

Finally, the site restores itself. Reclaiming the space with little evidence of human intervention. A cabin in the woods changes that site forever, the Agawa Retreat allows the site to be reclaimed by the Wilderness. The Agawa Retreat is different from the typical cabin because of its lack of longevity. Its temporality, while more robust than a tent, acts as more of a participant in the Wilderness when compared to the typical cabin retreat.

“I went to the woods because I wanted to live deliberately,  
to front only the essential facts of life,  
and see if I could not learn what it had to teach,  
and not, when I came to die,  
discover that I had not lived.  
I did not wish what was not life,  
living is so dear; nor did I wish to practise resignation,  
unless it was quite necessary.  
I wanted to live deep and suck out all the marrow of life,  
to live so sturdily and Spartan-like as to put to rout all that was not life,  
to cut a broad swath and shave close,  
to drive life into a corner,  
and reduce it to its lowest terms, and,  
if proved to be mean,  
why then to get the whole and genuine meanness of it,  
and publish its meanness to the world;  
or if it were sublime,  
to know it by experience,  
and be able to give a true account of it in my next excursion.”<sup>65</sup>

### 3.1: Final Thoughts

## ↓ PART 3 CONCULSION

65. Thoreau, Henry David. *Walden "Life in the Woods"*. Boston, Massachusetts: Ticknor and Fields, 1854. Page, 83.

A Retreat is a way to connect to ourselves and the wild. It asks how architecture can use the natural environment as a resource for self-healing and escape, and it reacts to the fear of losing the Wilderness and our connection to it. The Agawa Retreat gives form to the cultural benefits of nature as well as its ecology. It proposes the typical camp or cottage of the future rather than a lament for the past. It moves away from the big, massive and permanent to something flexible, disposable and temporary. Wilderness habitation must be done in a way that all inhabitants can co-exist, those being humans, wild fauna and flora. It is designed for people who can see that the Wilderness is a resource of strength, of courage and creativity.

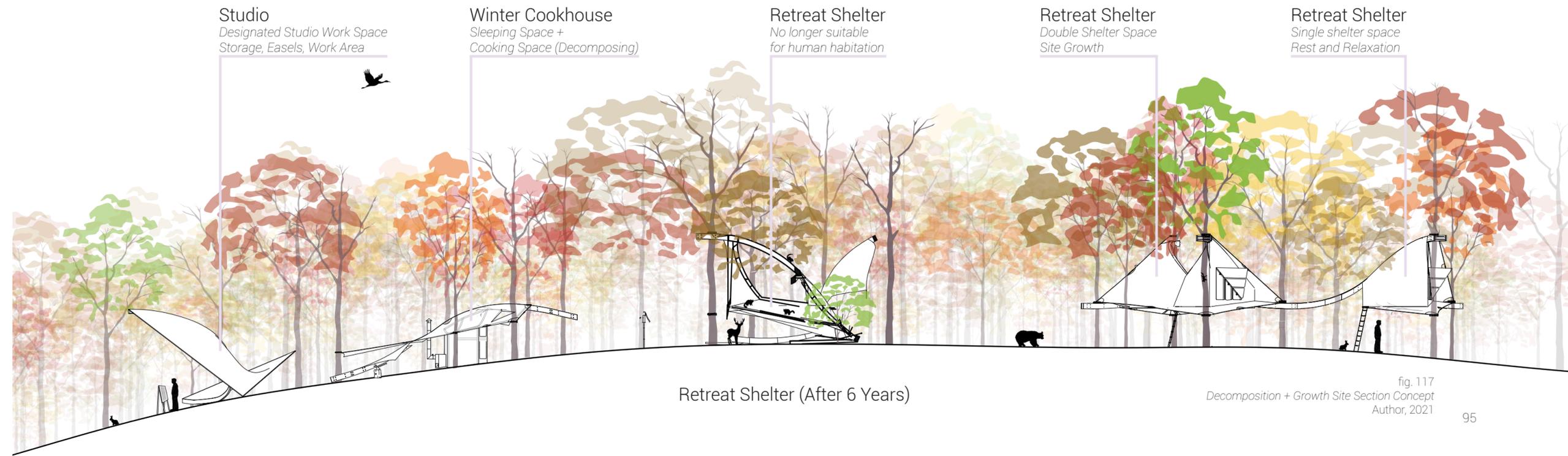
Much like the camps created by the Bucherons and Boxcar 10557 used by members of the Group of Seven, the Agawa Retreat is a place fully engaged with the natural world while maintaining the three essential elements of human survival; food, water, shelter. A wilderness retreat that acts as a tool mediating a relationship to nature. A site specific approach to design creates a village of programming for both survival and Wilderness interpretation directly shaped by the flora and topography. Moving away from the city to a more ancient self, rewilding our culture. An off-grid Wilderness Retreat which embeds nature into its culture where the mental and physical benefits of the landscape can

be fully utilized. The Agawa Retreat acts as a 1:1 scale prototype and example for Wilderness habitation. With repeatable, flexible and degradable details the Agawa Retreats design solutions can be adapted to a suitable site anywhere.

The Agawa Retreat concept has so much growth potential. The proposal showcases a retreat site with a single shelter space, further development of this site using the same approach could create an entire Wilderness complex of structures featuring different programming. As the Wilderness complex grows and older structures degrade new ones are built, developing the site into a community where more human occupants can inhabit the space. More Shelters, studios, workspaces and leisure areas in the trees can house more individuals. The development of the site is determined by the continued use of structures and landscape. The result is a community of explorers, artists and adventurers sharing art, passion and experiences. Creating a culture of nonprescriptive ritual which asks people to interpret and explore. Inhabitants work and create together arriving in the Wilderness, leaving the city behind before returning, taking their creations, personal developments and experiences with a newfound perspective on the human living condition.



Retreat Shelter (After 2 Years)



Retreat Shelter (After 6 Years)

fig. 117  
Decomposition + Growth Site Section Concept  
Author, 2021



fig. 118  
Exterior Render 1 (View West)  
Author, 2021



fig. 119  
Exterior Render 2 (View North East)  
Author, 2021



fig. 120  
Exterior Render 3 (View South East)  
Author, 2021

## Nature and Health

Maintaining a strong connection to the wilderness is important for upholding a strong relationship with wild psychogeography. Equally important are the beneficial mental and physical health benefits observed when immersing oneself in a natural setting. Urbanization has become part of the problem for many and plays a role in increasing the levels of mental illness present in today's culture. This trend can continue, currently, greater than 50% of people live in urban environments, this can grow to 70% by the year 2050.<sup>66</sup> The relationship between the growth of urbanism and disconnection from nature can further increase mental health risks. This is because urbanism creates negative emotions ("including clinically problematic emotions such as depression and stress"<sup>67</sup>) when compared to nature, which creates positive emotions. Hedonic (experiences of pleasure and comfort), eudaimonic (acting in ways consistent with one's values), and self-transcendent (a sense that you are a part of something greater than yourself, away from one's interests towards the experience of others<sup>68</sup>) emotions affect mood and mental health. Natural environments have proven to increase these feelings while urban environments seem to do the opposite. The wilderness has the power to dramatically change the mental health of the community by simply being experienced.

### *Decreased Depression*

Scientific studies from the National Academy of Sciences show that convening with nature can help to decrease activity in areas of the brain which are linked to depression.<sup>69</sup> Specifically in the subgenual prefrontal cortex (sgPFC) which is the area of the brain associated with self-focused behavioural withdrawal.<sup>70</sup> This withdrawal can be represented as rumination which is "repetitive thought focused on the negative aspects of self."<sup>71</sup> If this is prolonged it can lead to depressive episodes if not addressed. The mental health of an individual can have impacts on the health of the community as a whole and as urbanism grows so does the presence of mental illness and depression. The National Academy of Sciences conducted a study where one group of subjects went on a 90-minute walk through a natural environment and the other group went on an urban walk. The participants on the nature walk showed lower levels of rumination and reduced neurological activity in the sgPFC compared to the urban walkers.<sup>72</sup> The subgenual prefrontal cortex is known to be most active during repetitive and rumination thought. This neurobiological analysis shows that interacting with the wilderness causes chemical changes within the brain which improves the emotional state of the individual.

### **Boost Physical Well Being**

Immersion in nature has also been shown to improve all-around wellness. The health benefits of exposing oneself to green spaces have been shown to improve; "heart rate, blood pressure, statistically significant reductions in cholesterol levels, improved sleep duration, and neurological outcomes."<sup>73</sup> This is because restorative environments like a wooded area give a person the experience of being away. A release from the stresses of daily life and connection to the environment. The stimulation from car horns, traffic lights and advertisements require the attention of the people and this makes urban environments less restorative. The growth of urbanism has caused people to spend less time outdoors, effectively reducing the availability of short-term recovery from natural environments.<sup>74</sup> If a better relationship is developed between restorative environments like the wilderness and people, then that will have substantial benefits to health both short and long term.<sup>75</sup>

The Outdoor Adventure Leadership program at Laurentian University offers the opportunity to learn in a very different classroom setting. Jim Little, the ADVL program coordinator, said that wild landscapes are for learning, a place to learn social dynamics in a variety of landscapes. That instead of using a court in a gym to learn about social dynamics and health sciences the program uses nature.<sup>76</sup>

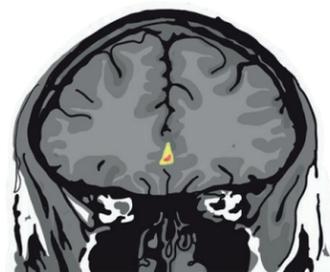


fig. 121  
Blood Perfusion to the sgPFC  
Gregory Bratman, 2015

Laurentian University understands that with this program they are blending people and place, actively engaging in the health of both. By moving the body in nature we gain physical improvement as well as the mental, by peaking our senses.<sup>77</sup> The program focuses on health and well-being within the context of nature and provides a great example of how a restorative environment like the wilderness can improve the overall health of an individual.

### **Intensity, Duration and Frequency**

Different levels of green space will have varying degrees of mental improvement. While exposure to nature in the form of a public park helps decrease mental stress, the raw wilderness has proven to be the most effective in decreasing stress and mental illness.<sup>78</sup> The intensity and duration of nature exposure influence the effectiveness of both short and long-term improvements on mental health and overall well-being. The longer and more intense experiences of the Wilderness improve mental cognition and attention focus especially when the use of electronic devices is limited showing "increased performance on creativity and problem solving by a full 50%."<sup>79</sup> This is because natural environments present a slower flow of information compared to the urban environment which encourages communication and constant stimulation. The diversity of species and habitat has also been shown to influence the

effectiveness of the natural benefits.<sup>80</sup> Meaning that a highly diverse environment has the highest potential for restoration. A study published in *The Journal of Positive Psychology* assessed whether hedonic and self-transcendent emotions were improved during and after interacting with nature. Two groups of participants completed the study; one group was assigned to an indoor environment, (no windows, no connection to nature) and the other group an outdoor environment; in a public park. Both were asked to refrain from using electronic devices. The groups rated themselves with 10 positive and 10 negative emotions for the hedonic test and also rated 13 self-transcendent emotions from none to extremely high. Both hedonic and self-transcendent emotions improved significantly from pretest to post-test after exposure to nature.<sup>81</sup> The indoor environment did not improve these emotions. An extended Wilderness duration has the highest degree of mental health improvement. "This advantage comes from the increase in exposure to natural stimuli that are both emotionally positive and low-arousing and a corresponding decrease in exposure to attention-demanding technology, which regularly requires that we attend to sudden events, switch amongst tasks, maintain task goals, and inhibit irrelevant actions or cognitions."<sup>82</sup> An urban environment has no restorative properties because it has the lowest degree of natural interaction. The highly stimulating environment is

fasted paced and requires attention at all times. An environment like a public park has some restorative properties, because it is a manicured green space, with a low level of diversity. The most effective method for restoration of the mind is an extended stay in the wilderness. Both green environments help decrease mental illness but people in the extended wilderness setting show the most significant decrease in stress levels when compared to the other environments. This data shows that convening with natural environments has effects on the brain which improves its mental stability, and the duration and intensity of this interaction can influence the effectiveness of the mental improvement.

### **Cognitive Functioning**

Exposure to natural environments improves cognitive functioning in the brain. Functions including increased attention, problem-solving, inhibition and multitasking improved during and after exposure to wilderness environments. An experiment published in *Psychological Science*, 2008 analyzed directed attention abilities. Participants were required to listen to a numerical sequence and repeat it in backward order. They were then assigned to a 50 - 55 minute walk either in an urban setting or a natural public park.<sup>83</sup> The park was secluded and lined with trees while the urban walk was located in traffic-heavy areas and office buildings. After the walk, the participants

conducted the numerical sequence test again. A week later the two groups switched locations and repeated the process. Performance on the numerical test improved significantly with the participants who walked in the natural environment when compared to the urban walk.<sup>84</sup> This shows that after interaction with natural environments, a person can perform better on direct attention ability tasks.<sup>85</sup> This is because urban areas are full of simulations that need to be overcome, described as hard fascination and over time this causes cognitive fatigue.<sup>86</sup> The consistent consumption of media, traffic noise and deadlines requires the attention of the brain. Over time the business of this environment fills the brain and slows its thinking and memory functions. Our modern society is very technologically rich and these technologies require the attention, and the multitasking abilities of the user. Natural environments on the other hand are described as soft fascination; a landscape that captures attention with feelings of pleasure and peace.<sup>87</sup> The difference between an urban setting and nature is the medium that nature uses. The tree-lined hills, birds chirping and river flowing are all part of an environment that contributes to the mental clarity of the viewer. By viewing and experiencing these places people can unclog their brains from the highly stimulating complexities of urban life.

## **EndNotes**

66. Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). *Nature experience reduces rumination and subgenual prefrontal cortex activation*. *Proceedings of the National Academy of Sciences*, 112(28), 8567-8572. doi:10.1073/pnas.1510459112 Page, 8567.
67. Neill, C., Gerard, J., & Arbutnott, K. D. (2018). Nature contact and mood benefits: Contact duration and mood type. *The Journal of Positive Psychology*, 14(6), 756-767. doi:10.1080/17439760.2018.1557242. Page, 756.
68. Ibid, 757.
69. Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). *Nature experience reduces rumination and subgenual prefrontal cortex activation*. *Proceedings of the National Academy of Sciences*, 112(28), 8567-8572. doi:10.1073/pnas.1510459112 Page, 8567.
70. Ibid, 8568 - 8569.
71. Ibid, 8567.
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