



SEKUWE ᑭᐃᐅ MY HOUSE

DENE FIRST NATION'S PERSPECTIVES ON HEALTHY HOMES

By The Northern and Aboriginal Health Research Group

*University of Manitoba
Assembly of Manitoba Chiefs
Northlands Denesuline First Nation
Sayisi Dene First Nation*

Dedicated to the Dene Youth, those who have journeyed into the next world and those in this Fifth World.

Feel the power of their imagination.

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We gratefully acknowledge the participation of the Elders from the Dene communities who took the time to share their wisdom and knowledge about housing and health. There are many people at Lac Brochet and Tadoule Lake who participated in the workshops, discussion, Housing Week events, feasts and meetings. Their ideas for designing healthy housing were inspirational.

The students involved in the project and the making of this book from the University of Manitoba, from Northlands Denesuline First Nation and from Sayisi Dene First Nation took a chance on a new endeavour to discover, design and create health housing for remote First Nation communities.

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PROJECT 0

COLLABORATORS

➔ **Healthy Housing Project Collaborators**
The people who made it happen



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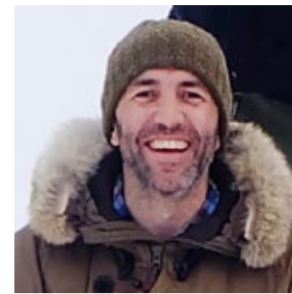
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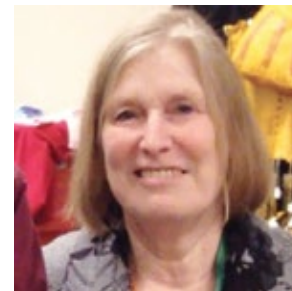
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Dene and University of Manitoba students working on Dene Healthy Housing

From Left to Right: Patricia Dettanikkeaze, Lizette Denecheze, Dana Tssessaze, Mathew Cutlip, Reagan Dantouze, Shirlena Cheekie, Branton Leskiw, Linda Larcombe, Jessica Thorassie, Marla Bigelow, Raven Yassie, Michelle Peake, Ty Gazayou, Jeannine Senecal, Mackenzie Sinclair, Andrew Hansen, Jessica Martin, Erik Arnason, Evan Taylor, Emily Bews, Carson Wiebe, Melissa Tssessaze, TJ Powderhorn, Matthew Singer, Evan Yassie, Lancelot Coar

INTRODUCTION

SEKUWE





→ Sekuwe *Dene for "My House"*

For First Nations in northern Manitoba, inadequate housing contributes to the health inequity that exists between indigenous and non-indigenous Canadians. The Dene First Nation in Manitoba maintain strong connections with the caribou, the land, the language, their traditional ways of being, and their families from two remote communities at the 59th parallel. The Dene are navigating their way in a larger world of broken promises, colonialism, racism, intergenerational trauma and poverty to live healthy lives on a path of their choice.

As such, Northlands Denesuline First Nation and Sayisi Dene First Nation have been active in housing and health research with the University of Manitoba, Departments of Medicine and Architecture and the Assembly of Manitoba Chiefs (the Research Partners) in an effort to improve the lives of their children and the generations to follow. The question, "how is our housing effecting our health?" was asked in 2005 when we were investigating the high rates of tuberculosis in northern communities. The overcrowding, inadequate ventilation and

mold were identified as risk factors for the transmission of infectious diseases and for worse health outcomes. Infact, many elements of Dene life were negatively effected by the condition and style of their houses. Building more of the same Euro-Canadian inspired houses, for urban and rural locations, with non-local materials and labour is a crisis management tactic that has so far been unsuccessful.

Given the opportunity with funding from the Canadian Institutes of Health Research, the Research Partners envisioned, designed and created housing plans and specific elements that would work to support the Dene First Nation on their path for improved health. The outcomes of this project are both tangible and intangible and this book is an artifact that uses words and images to remember where we started and what we have accomplished. No one individual will have the ability to improve housing and health equity for the Dene First Nation. This project demonstrates that if we, who are each on our own path, are willing to walk with others for a time, the path towards health can be made more equitable.



Housing and health are central for supporting the Dene First Nations.

PROJECT

PARTNERS





➤ Northlands Denesuline First Nation *Project Partner*

By: Lizette Denechezhe, Member of Northlands Denesuline First Nation

We still hunt caribou and fish for food for ourselves and our dog teams. We have done our best with what we have, but change is needed for us to become healthy and to continue our traditional ways. The Dene Healthy Housing project has been a good start to make our community healthy in mind, body and spirit.

When this project started two years ago, we were not sure how new house designs could help us. Bringing the workshops into our community to allow people to share their ideas started us talking and creatively thinking about our homes and future. When people have good ideas, you take their ideas and it adds to project, but first you need to take the ideas from the people. The workshops held in Lac Brochet helped, but things don't happen in one day, it can take years for thing to get into place and young people need to be involved too. At the housing workshops we talked about the past, our culture and our future. We identified a need to go back to some forms of the old ways of living off the land and its resources. After seeing some of

the designs that resulted from these meetings I now see how the land can help us create a house (using local resources), and how a house can actually help promote our culture.

The house designs created by the Architecture students took our concerns into housing designs. Places to dry meat, secondary sources of heat, public and private areas make our lives healthier and encourage our culture. Our culture defines us, we need space to dry meat, process hide, bead, but the way our houses are designed now, we find it difficult to do these things. When we dry our meat over a furnace it tastes different, better to dry over a fire, tastes like it should. Some of the house design promote us growing our food. We need that in Lac because of our short growing season we need new techniques and housing designs for us to grow healthier food.

The architecture students coming up to Lac Brochet was good for them to see an isolated community. For the Dene students who came down to Winnipeg, they were able to see

how University students live and learn. The Lac students were exposed to medicine, dentistry and health by Aboriginal students, which gave them ideas of their own future.

The future of the Lac Brochet housing project and to actually build the new designs would be a good experience for the students and workers in Lac. The young people around Lac do not have a healing centre that could be used in all seasons. Currently there are no opportunities for youth, they don't see options for their lives. The Dene Healthy Housing project has opened our eyes and has shown us possibilities for the future.







Sayisi Dene First Nation

Project Partner

By: Evan Yassie, Member of Sayisi Dene First Nation

The Sayisi Dene were originally from Duck Lake, MB but were forcibly relocated to Churchill in the 1950's. After more ten years at Churchill where many lives were lost due to violence, alcoholism and racism, Ronnie and Mary Bussidor, George and Mary Sandberry, Charile Ellis, Sandy Clipping and Charlie Thomas travelled back to the Barrenlands to look for a home where they could be caribou hunters. Tadoule Lake (Churchill Indian Reserve (IR) No. 1) is an area of 212 hectares and in 2002 the population was 350 people. Sayisi Dene people are strong, and our history has made us strong. When the Dene Healthy Housing project started over 2 years ago, we were excited to work with Dr. Linda Larcombe. We had worked with her to identify how housing conditions effect health. This new project, using the resourcefulness of the Sayisi Dene people to come up with new housing designs was something new for myself and the community.

After the first workshop people began to talk about housing. It was different kind of

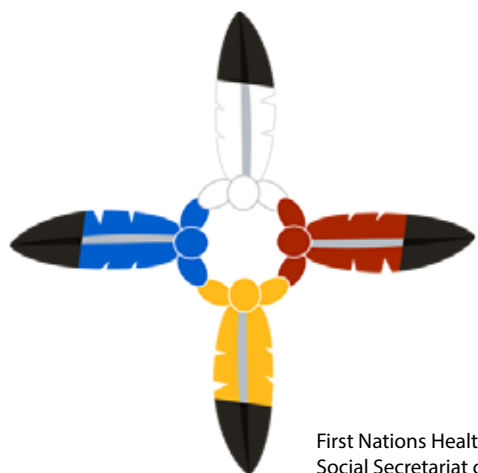
talk, it was about the future, it was about being Dene. Sometimes when people aren't given an option, you forget about the possibilities. At the workshops we talked about our houses in the past, how they had no mold, how they felt more like a home than the houses they build here now. Our Elders spoke about the houses they lived in and the youth listened. The workshops became a place for people to share stories and for people to learn and listen. The University of Architecture students listened too.

When the new Dene inspired housing designs were presented to the community they signaled the possibility of new way of living, which was promoting our old ways of living. Places to cut up meat, shelters for our snowmobiles, areas to grow our own food indoors, all things that would promote a healthy Sayisi Dene pathway. Our community needs healthy options, cultural options and most of all, options that maintain our Sayisi Dene way of life.

It is up to our people now, to take these designs, to keep talking about these designs, to

look towards a future that uses these designs. This project has revitalized housing opportunities for the Sayisi Dene people and it will be us to work with others, to make these designs a reality.





First Nations Health and
Social Secretariat of Manitoba



Dana Tsessaze (*Lac Brochet, MB*) at the AMC offices in Winnipeg

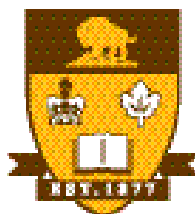


Assembly of Manitoba Chiefs *Project Partner*

By: Kathy Avery Kinew, FNHSS

The Assembly of Manitoba Chiefs (AMC) contributed to the development of the Dene Healthy Housing research project and later established Nanaandawewigaming First Nations Health and Social Secretariat in 2014 to promote the health and wellness of First Nations. Nanaandawewigamig Research staff continued to partner in this project, with Dr. Linda Larcombe and Dr. Pam Orr and the staff at the University of Manitoba, Northlands Denesuline, and Sayisi Dene First Nations in this worthwhile research to develop housing designs from the community, with the energetic help of Mr. Lancelot Coar and the University of Manitoba Faculty of Architecture students. Sekuwe delivers much of the story of the Dene people sharing their way of life, their hopes and ideas, to bring about major change and innovation in their homelands. Mahsi to all involved! The Chiefs and organizations will continue to work in partnership for healthy housing in the north!





The University of Manitoba *Project Partner*

By: Dr. Linda Larcombe, University of Manitoba, Medicine

The University of Manitoba is committed to research and education that has relevance for Manitoba First Nations. Linda, Lancelot, Pam and Matthew are academics who recognize how research and education with First Nation partners can be mutually beneficial. The University of Manitoba's Northern Health Research group has been working with Manitoba's First Nations investigating the role of nutrition, housing conditions, and biological conditions on health. Recently we researched and developed culturally appropriate housing designs for future use in Manitoba's Dene communities.

The impact of living in houses that are not suited for the environment, the culture and the economic conditions of the Dene First Nation in Manitoba is impossible to quantify and there is the temptation to take a reductionist approach to the issues and focus on the causes and effects between health and housing conditions. It is inappropriate to continue to investigate housing

conditions and health without explicitly linking it to research action. To envision, create and design healthy housing we explicitly modelled the consultation, relationship and the knowledge sharing processes that will be key for building culturally appropriate, healthy housing for remote First Nation communities.

The designs were informed by community workshops, first hand experiences with Dene lifestyle, student exchange programs and the exchange of knowledge between architectural students, Dene students and the communities.

Here we present some of the designs, concepts and design elements that were inspired using this relational approach to understanding the impact of housing on health. Key themes addressed by the designs include education, job opportunities, local and recycled resources, alternative heat sources, sustaining traditional and current activities and local cultural and environmental assets.

University of Manitoba and Dene students created healthy housing designs and we demonstrate a process through which housing might impact health even before the soil is turned. Future research will continue to model approaches that build relationship, experience and knowledge to build health equality.



RESEARCH

→ Discovering Sekuwe: Housing design and health

By: Dr. Linda Larcombe, University of Manitoba, Faculty of Medicine

In the 1980's the Canadian Federal Department of Indian and Northern Affairs provided funding for the two communities to build houses that could make use of newly available electricity, water and sewage. The plans, designs and materials for the houses were imported from Winnipeg and Thompson, Manitoba as a way to quickly build cost effective houses that matched those in other Canadian communities. On-reserve First Nation housing is a distinctive part of many communities and their designs are products of Euro or Anglo-Canadian history, sensibilities, world views, values and concepts of functionality. A house at Lac Brochet and Tadoule Lake is typically 900 to 1000 square foot, three-bedroom, one bathroom, bungalow built on a cement footing with a 4 foot crawl space under the house, two doors and an oil furnace with a heat recovery ventilation unit that has recently replaced the wood-burning stove. The windows are double pane aluminum sliders, vinyl siding with an asphalt tile roof. The houses become uninhabitable after 16 years of use by an average family sizes between 2 and 12 people, little maintenance and severe environmental conditions. The Euro-Canadian "living-room" functions in some households alternatively as a bedroom, a TV room, a butcher shop, a hide drying/tanning area, a meat drying area and a place to visit. On-reserve housing is not built or designed for the First Nations families and their way of life.

The houses in these communities are owned by the local governing body (The Band), which is comprised of officials (Chief and Councilors) that are elected by the community every two years. The Chief and Council are responsible for managing and allocating the financial resources for new house building, maintenance and community development. Funding for housing comes directly and indirectly to the Band from the Federal government through initiatives such as the recently completed Canada's Economic Action Plan, the Canada

Mortgage and Housing Corporation and through special funds.

In 2005-2010 Northlands Denesuline First Nation at Lac Brochet and Sayisi Dene First Nation at Tadoule Lake Manitoba partnered with the University of Manitoba Department Of Medicine to study the effects of housing conditions on health. The study participants and researchers identified poor household air quality, lack of adequate ventilation, mold growth and overcrowding as key barriers for health. The community participants also identified that the existing housing designs do not support the Dene way of life, traditions, language, values or beliefs and the lack of cultural identity in their housing affects physical and mental well-being.

While it was relatively easy to identify what was wrong with the houses, solutions were not as easy to come by and issues around housing are complicated by the politics, economics and historical management processes at all levels (community through to the federal government). Historically, options for Dene housing consisted of a tent, or a small log house, which accommodated their highly mobile caribou hunting, trapping and fishing way of life. In the 1970's Euro-Canadian bungalow style and more recently, a bi-level became the permanent shelters that were meant to accommodate a sedentary life for the Dene.

One question in the early study specifically asked about "what changes would you like to see in the design of your house"? A further probing question "what would a Dene house look like?" was asked. The answers of "more bedrooms", "bigger house", "more counter space", or "new windows" were confined in their scope and reflected the Dene people's lived experience and financial restrictions. In houses with seven or more people the answer to the question of "is your house crowded?" became complicated with discussions about multi-generational families, Elders who needed care but some privacy and about youth who were old enough to be on their own but had nowhere to go.

The University of Manitoba's mission statement is to "create, preserve and communicate knowledge and thereby, contribute to the cultural, social and economic well-being of the people of Manitoba, Canada and the world" (<http://umanitoba.ca/about/mission.html>). Research in the Rady Faculty of Medicine on the environmental and social determinants of health has been taking their place with biological and genetic health determinants. The Department of Architecture has explored concepts of First Nation spaces and buildings but not in the context of health or with the Dene First Nations. The Dene First Nation agenda is to improve the physical, mental and emotional health of the people in their community particularly for the youth and Elders.

At the outset we described the process of designing houses as linear, but interconnected phases, of "discovery", "envisioning" and "creating". The "two-eyed seeing" approach to Dene housing design was a central theme for the project so that Dene and University of Manitoba students, researchers and participants all practiced and learned in from Dene and Academic teachers using traditional, popular and academic styles.

The project was planned as a two-year program that would start with community planning and would gather a critical mass of knowledge about housing and health through the scheduled and deliberate engagement of university students, Dene community members, high school students and other stakeholders. Here, the end product would be eleven housing designs that reflect various aspects of Dene culture. The Canadian Institutes of Health Research (CIHR) provided funding for the project through their Health Intervention Program. Funding from CIHR is a highly competitive process and in 2013 it required a person holding an academic position at a university and a community partner (in this case First Nation) to apply.



Top Left: Three bedroom bungalow at Lac Brochet, MB
 Mid. Left: Designing a Dene style house at Tadoule Lake's Craft Night
 Bottom Left: Designing houses during Craft Night at Lac Brochet, MB

Top Right: K.J. Dettanikkeaze recording events at Craft Night
 Mid. Right: Housing design at Craft Night
 Bottom Right: Lancelot Coar speaking at a community workshop at Tadoule Lake, MB

➤ Envisioning Sekuwe: What is a healthy Dene house?

By: Dr. Linda Larcombe, University of Manitoba, Faculty of Medicine

The intention of the project was community led and participatory. A Dene Housing Task Force (DHTF) was established to lead each community through an exploration of concepts and ideas about health and housing and how they are understood and evaluated by the Dene. The DHTF objectives were to; 1. Question whether or not houses can be healthier if we include important Dene cultural elements into the housing designs; 2. Plan and hold Housing Week activities that took place in February/March (2014) to raise awareness of healthy housing and to have activities that involved the broader community in designing culturally relevant housing or raising ideas what a healthy house should include; and 3. With the UM and AMC partners, plan and run an exchange program to facilitate knowledge sharing between Dene and UM architecture students. Meetings of the DHTF were held in the fall of 2013 are summarized in two reports "Sayisi Dene House Task Force Review 2013" and "Northlands Denesuline Housing Task Force 2013."

A week-long "Housing Week" event was held in both communities in the winter of 2013-14 to focus attention on Dene housing design through feasts, workshops, meetings, contests, and a craft night.

The workshops focused on discussions about the health and housing in the community and how their needs were met (or not) by housing in the past and present. In the past Dene shelters were warm, dry, temporary and mobile because they followed and relied on the caribou. "We had to be physically active to survive". Today their houses are immobile, damp and sometimes without heat. They have to rely on the store for food but caribou and fish are still preferred. Various styles of workshops were held to encourage participation from groups that are not easily attracted to workshops. For the Elders for whom Dene was their primary language, workshops were held and the participants were encouraged to discuss housing in Dene. The

workshops were audio recorded and then the Dene research assistant translated the dialogue after the event. A campfire and hotdog roast was held on the beach at Tadoule Lake for the Dene youth to talk about housing. The casual relaxed atmosphere encouraged conversation, play and communicated the important role that the youth have in the future of housing in their communities.

An exchange program between students from the Dene communities and the University of Manitoba's Department of Architecture brought youth face-to-face with the challenges and opportunities around housing and health. The Northlands Denesuline and the Sayisi Dene First Nations are the only two Dene communities in Manitoba, Canada. The First Nation's people in these communities are "people of the caribou".

In the past the Dene people were highly mobile and moved throughout Nunavut, the Northwest Territories and northern Saskatchewan to harvest caribou, fish and other resources for food, clothing and their shelters. The skins of the caribou were used to make clothing and shelters that were warm and dry, and that could be easily moved. The meat, organs, and blood of the caribou provided nutrition, and the bones were used for tools.

At both communities the Dene lived in tents and built log houses from local materials. Houses were heated with stoves fueled with locally harvested trees, water was collected and used straight from the lake, outhouses were the toilet facilities, and dog teams and sleds were used for transportation. The Dene continued to travel extensively between northern communities where they once resided and to hunting and fishing cabins in their traditional territories.

Ten Dene students from the communities of Lac Brochet and Tadoule Lake were selected to participate in the healthy housing exchange program through a detailed application process. Applications required a short essay about their experience with housing conditions and ideas for how to improve the situation.



Top Left: Architecture and Dene students designing homes at the University of Manitoba
 Mid. Left: Students learning to cut caribou meat in Lac Brochet, MB
 Bottom Left: Laying out an ice fishing net in Lac Brochet, MB

Top Right: Designing an idea for a new Dene home at a housing workshop
 Mid. Right: Arthur's design for an eco-friendly home for Tadoule Lake, MB
 Bottom Right: Students exploring abandoned home in Tadoule Lake, MB

VOICES OF DENE E

ELDERS & YOUTH



➔ Voices of Dene Elders and Youth

The Dene Elders and youth contributed to the housing designs in both formal and informal ways. The words of the Elders from interviews and workshops are presented here in their original language. Dene students spoke with the Elders about housing, photographed both the positive and negative aspects of their current houses, and wrote about their impressions and their visions for the future.



Elders and youth alike having halloween fun in 2014.



➤ **Raven Yassie**
Tadoule Lake, MB

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"It is important to have a place where we can make our dry meat." (Dene Elder)



House design by Raven Yassie

The way I see housing around Tadoule is not good at all, we have family's living in houses with mold, or heater problems or sometimes water pipes freezing over the winter. Sometimes in the summer houses burn down leaving some people without a place to stay. It's a very good idea to combine our Dene style to housing because our elders take our culture very seriously. They can teach the young ones about their language and the sacred lessons about the drum and their culture. It would be nice to have nice homes for a change so it won't look like we don't look after ourselves. I feel like we as the younger generation are losing our culture. We are supposed to be a role model for the little ones and pass down what we learned from the elders. Some of the houses need to be renovated cause some homes don't have enough insulation. After the winter water will go through the walls which will cause problems like mold and fungi. Because of this people get sick and it is sometimes fatal. Our beliefs are our Dene drum songs, we don't use the rosary like the Catholics. Our Dene drum songs are sacred to our Dene

people cause you handle the drum its like holding your loved ones and strength and pride and courage and that's the values of the drum. We use the church but we don't use the bible we use the Dene bible. Our art work can definitely be put into our housing cause we have stuff like mukluks, dream catchers, beading, painting, carving, drawing, and sewing. The dream catchers can be hung up around the house cause the power of the dream catcher is that when you are near one it is said to catch bad dreams in the web and only good dreams and thoughts go through. And the carving is been apart of the Dene for quite a bit now and what we carve is soapstone, wood. The art work is so beautiful; say you're building a house for an elder, you can draw a big painting on the wall for them showing courage and pride. The beading is a beautiful craft, its so amazing to watch an what an elder can still make these days. Caribou heads, hides, craving, sharing caribou meat}sewing, hunting and trapping. We use the caribou brains for the hide for making gloves, mukluks, slippers} jackets, vests, hats} pants,

and drums. Sharing the caribou meat is the value of kindness and to share what you had sent your mind to do. For the houses you can have smoke free houses and if they want to smoke go out to the porch. Back up generators would be helpful so if anything happens to the power you can use the back up generators. Finally, more and bigger houses because the ones we have now are so overcrowded.



👤 Shirlena Cheekie
Tadoule Lake. MB

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"If I had my own house, I would be okay. Its overcrowded, I cannot send my grandchildren out, especially since there is nowhere for them to go." (Dene Elder)

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"Its not only about Elder's health, It is also about the children's health. If you don't renovate the houses, they get moldy." (Dene Elder)



Front yard in Tadoule Lake

The houses in Tadoule Lake were never renovated since they were built they should renovate the walls, painting, windows, doors, outlets, washer, dryer, floor tiles, rooms and bathroom. There is a lot wrong with the houses that were never renovated. The windows are broken and are covered up with boards or poly which makes them cold. Not all houses have wood stoves so when the furnace goes out it'll get cold in their house or when the power goes out it'll get cold in there so every house should have a wood stove even though there's a furnace. In the winter the pipes would freeze, their water would go out and they would have to get water from someone's house or the lake so every house should have a water barrel. In some houses there are a lot of holes in the walls. In some houses there is mold from water flooding. Some people don't even have doors for their room so they use blankets or sheets. Tiles from the floor are missing. Some houses need new drywall.

There is a shortage of houses because families are living with other families in a small house or 1 person is living in a 3 or 4 bedroom house alone. Some people don't have washers and dryers so they go to someone else's house and do their laundry there. Some houses in Tadoule Lake are built on muskeg, because of this every spring there is constant flooding under the house. This flooding situation causes mold to grow and can make the whole family sick. There should also be porches built on the front and back doors of every home so the doors don't freeze shut in the winter. The insulation in the houses should be up graded to ensure that the houses will be kept warm in the winter. They need to upgrade cupboards, counters, doors, windows, floor tiles, and toilet. There are a lot of abandon homes around here that can be renovated and fixed for families. Every house should have a garage, attic, and a basement to store things. Every house should have about 2 or 3 floors.

Tadoule should have its own separate building just for high school to grades 9-12 and adult education in it. It could also have a science lab, separate computer room and library, cosmetology, mechanics, gym, kitchen. Tadoule should have a restaurant and a hotel put together. They should have a shed for all the guns and stuff that people use to go hunting. Tadoule should have a bigger store, a bigger nursing station, and the airport should be bigger. Tadoule should have apartments and duplexes. Every home should have a back-up generator in case something goes wrong with the power. Tadoule should have an arena and a complex. In every home they should have an emergency kit that include blankets, batteries, pens, paper, dry goods, and more necessary things.



➤ Patricia Dettanikkeaze
Lac Brochet, MB

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"Usually when houses are going to be built, they don't look at the land where they are going to build the house. Houses are usually built below the esker and the water goes into the house. Most of the houses are built on muskeg, when you build on muskeg, I'm pretty sure you get mold in the house" (Dene Elder)



Sunset in Lac Brochet

In the north the weather gets really cold and the housing here is not built for the type of weather we get during the winter. We would like our houses to be built right for the conditions that we have to deal with. There are a dozen things that can be done to the houses in the north and these things would not cost so much to add these details. Basements should not be a tiny crawl space with no stairs and sand on the ground. Mice and spiders love crawl-spaces and a whole bunch of other living things that are not healthy like to live there too but what is the use to northern people? The answer is nothing. We should at least have an extra four feet added to basements with stairs going up to the main floor. Basements would be really useful for a lot of things. Put in cement floors instead of sand and a door so you can get to the outside would be a fantastic idea. Overcrowding is also a major problem here in the north. Adding another story to the house would be so much more space. Adding bedrooms and bathrooms would be useful too in the upstairs. Having an attic in the house would be great and

would be easy to get to if there was a second story added to the house. We can put things up there that are hardly used around the house. It is a great place for storage and for kids to play. The amount of insulation that is put into the walls of the house could be increased. Having 10 inches of insulation would be great rather than having 4 inches. It would be so much warmer. It would not cost much more either. The attic should have a lot of insulation and should be boarded over. Wood siding should be used to cover the house and no vinyl siding.

Having garages attached to the house would be perfect. You can put your stuff in there. For example, your trucks, skidoos, four wheelers, etc. Having heat in the garage would be very useful and people would not be getting cold while working on their machines. Heated garages would make a lot of people up north very happy. It would be like winning the lottery. Adding a porch to the house while building the house would be a really good idea especially for the moms who have to

wash the floor all the time. People take off their working clothes, boots, and other clothing they use, they are usually dirty and smelly. A fan in the washroom would be great so the steam caused by showering would not turn to mold. Mold is not healthy and it can cause illness and other health conditions. Adding a wood stove into the house would be useful because when the power goes off, it gets cold and there is no other way Dene people could cook so the wood stoves would be perfect. With all this said, making changes in the Dene housing is what is needed for the north. Adding a basement, making two story houses, using lots of insulation, double garages, porches, fans in washrooms, and wood stoves are things that would make Dene have a much easier and productive life.



➤ Reagan Danttouze
Lac Brochet. MB

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"I would like housing renovations because, Health Canada is talking about diseases, TB and H1N1." (Dene Elder)

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"Houses that are made today, there are a lot of ants and mold. Old cabins had no ants and mold." (Dene Elder)



Lac Brochet home

Dene housing should be made differently up north because it's isolated and colder up here. Many times there's a big family in a one bedroom house. It causes overcrowding and all kinds of problems like stress, suicide, and not enough room. It causes a lot of drama and people get kicked out. So what we have to do is make a two story house so they have a lot of room. Dene housing needs a two-bay garage attached to the house. Having it heated would be nice so you can put a four wheeler and a snowmobile inside the garage so they won't freeze as well as the truck. Dene windows should face south because the sun comes out from south and there can be much heat and more light in your living room. There should be a lot of insulation and thick insulated walls. There should be wood siding because it's warmer and stronger. Vinyl is bad because it doesn't work because it cracks easily and is cold. A storage room would be good as well so you can put the things that you work with like guns, traps, and the stuff you don't use like truck motors and skidoo parts in this room. It is important to have

a two story house so you can have bedrooms upstairs or have two bathrooms and also you can have an attic upstairs for a little storage room and put things like Christmas stuff or what you have or not use for the house. Some northern houses have crawl spaces but I would recommend a full basement with a cement floor and eight foot tall ceiling, a set of stairs to the first floor, and a door from the outside to the inside of the basement. It would be good to have a gym so we can be fit and do workouts so we can get in better shape to do hard labour. Heated floors in the bathroom would be nice so you get up in morning and the floor would be warm. That would make people in the cold north warm and happy. The Internet needs to have a high-speed dish so Dene can search for things for their work quickly. Therefore, there needs to be a better tower. The tower in Lac Brochet is really old and run down. Cell phone towers for caller ID are not even here so houses need a dish on the roof. It is an isolated town so homes need a dish on the roof for the Internet, TV, and cell phones. A lot of Dene need smoke houses

so they can smoke fish and dry meat. Dene people could then save money and stay healthy because traditional food is better for the people and as well the Dene won't have to go to the store and pay for expensive stuff to eat. Sometimes there is no room in a freezer. It would be good if Dene houses had a meat shed attached to the house so there would be room to put the meat and fish in. It would be nice if there would be a fish plant on the houses so northern Manitobans could sell fish and enable them to process the fish, pack it, and sell it out in the markets down south. A porch is important so you won't dirty the house or make a mess with lot of snow and families could put their coats and hunting gear in there. In conclusion, it is really cold and isolated in northern Manitoba. Dene need to have their houses specially made and more of them made so they can live happier and healthier lives.

DESIGN PROPOSALS FOR

OR A DENE HOME

University of Manitoba, Department of Architecture

→ Creating Sekuwe: Architecture Student Housing Designs

“The recent housing stock that has been built for indigenous communities in Canada has developed primarily out of two things: *need* and *intention*. Although the intention has arisen out of the restraints of economy and politics, the need has been born out of a different set of criteria, holding it accountable to the complex issues of cultural transformation, unsettled histories, and a rapidly changing environment. Over the past several decades the houses that have been built for these communities have revealed themselves as having served the *intention* much more than the actual *needs* of those who inhabit these structures

In Northern Manitoba 42% of homes are over crowded, housing more people than it was designed for, and 58% of homes are in need of significant repair, presenting unhealthy living conditions for its residents.¹ This year the United Nations Human Rights Council reported that despite its more recent efforts and economic stimulus projects (\$30M in 2010-12) the Canadian government has been unable to quell the severely inadequate housing conditions of indigenous people.² What these numbers do not reflect is whether the houses provided to these communities actually serve the culture and lifestyle of the people who live in them. One need only visit a remote reserve to discover that the people living there have often transformed the spaces intended to serve a single use to accommodate a very different life-style. Traditional events like communal gatherings, ceremonies, fires, and the traditions of hunting and harvesting of wild game are either forced into living rooms or dining spaces or suppressed by the limitations and inappropriateness of the imported style of these southern single family homes.

Simply put, Canada is facing a housing crisis in our indigenous communities. The questions are: How can architecture help with this challenge? Who is best suited to address this crisis? Is this a problem of ideas, needs, or something else?” (*Excerpt from design studio brief - Fall 2014*)

¹ Assembly of Manitoba Chiefs, Manitoba First Nations Regional Health Survey, 2010: Winnipeg.

² From the Report of the Special Rapporteur on the rights of indigenous peoples, James Anaya, Human Rights Council, United Nations, 4 July 2014.

Projects for Tadoule Lake:

Emily Bews *ED4*
Branton Leskiw *ED4*
Jessica Martin *ED4*
Jeannine Senecal *M1*
Carson Wiebe *ED4*

Projects for Lac Brochet:

Erik Arnason *AMP2*
Marla Bigelow *ED4*
Andrew Hansen *ED4*
Michelle Peake *M1*
Evan Taylor *ED4*

➤ Bringing the Knowledge Together

By: Professor Lancelot Coar, University of Manitoba, Department of Architecture

The eleven architecture students who participated in this project were made up of 4th year undergraduate and 1st year masters level students in the Department of Architecture at the University of Manitoba. The projects described in this book span over two academic terms (September 2014 - April 2015) and describe the outcome of the final semester's project, a new home for a Dene family in Tadoule Lake or Lac Brochet.

Research Methods

The team of students were broken up to either base their projects in Tadoule Lake or Lac Brochet. These students initially researched the Dene culture in their communities through published literature (both from community publications as well as academic research) and video documentation on and by the Dene people. Much of their focus was on the cultural origins of these two Dene communities and how their particular experiences have influenced their collective identity, lifestyle, and the unique challenges and opportunities facing in securing healthy homes to live in today. The students also studied the various forms of traditional homes that were built by both communities. This research focused on the great ingenuity of these structures to be environmentally efficient, structurally sound, and capable to be maintained using indigenous materials and skills.

The second form of research came in the form of direct experience. The two teams traveled to both reserves with Professors Lancelot Coar (architecture), Dr. Linda Larcombe (medicine), and Matthew Singer (researcher, medicine). On these visits the students and professors met with a community liaison (Evan Yassie from Tadoule Lake, and Lizette Denechezhe from Lac Brochet) who led them on tours and meetings with community members to offer them the

opportunity to learn about each community's life, history, and current realities related to health, housing, and traditional activities.

Students from each team had the opportunity to discover first-hand about Dene traditions through an invitation to participate in activities such as Caribou butchering, meat smoking, fishing, drumming, singing, hand games, and community feasts. These activities greatly impacted the students understanding of how life on these reserves are restricted by the limitations of the buildings to support such activities. Students were additionally taken on housing tours to see the quality of the construction of the homes as well as the state of disrepair and the problems often exacerbated by faulty construction which has led to structural, environmental and material failures in homes. It was also became clear that the lack of housing available in these communities contributed greatly to the overcrowding which further stressed the building systems in these homes (plumbing, ventilation, and structure).

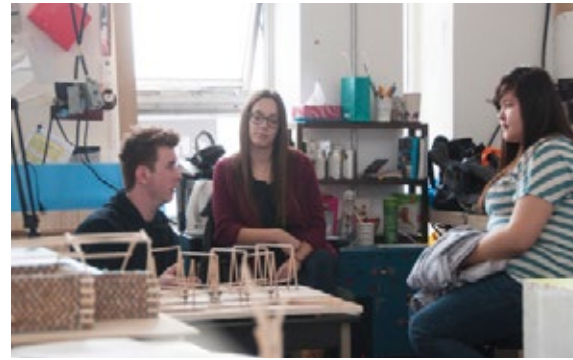
In spite of these challenging realities, students also discovered the great sense of pride, self-empowerment and resolve that many community members displayed in how they redesigned, transformed, and even added to the existing housing stock to support the needs not met by their homes. This included anything from a redesign of the interior space of homes to provide a buffer from the cold air at the entry space into the living space, to additions added on to existing homes to house furnaces and washing spaces not otherwise provided, to entirely new buildings that allowed for recreational and traditional activities to take place in (like meat smoking, hide stretching, and casual gathering). It was observed that there was an impressive capacity in these communities to harvest local trees, prepare them, and implement high quality

construction methods using these indigenous materials to produce these transformations.

Students learned that many community members felt that the traditional homes of these communities, mostly made from log home construction, were still desired. They also heard that the wood stoves that were removed in order to make room for the oil furnaces in these homes were missed and had inadvertently removed with them a range of other functions that the furnaces could not replace. This included the use of wood stoves to dry hunted meat, a back up heating source that could be used to cook on and be operated independent of external fuel sources, and provided jobs and activities for community members who could harvest the wood from surrounding forested areas.

Based on the literature research, interviews, site visits, and informal conversations with many community members, the architecture students each developed design proposals for a new Dene home. These designs were intended to reflect their understanding of how a house design could confront the constraints posted by the economic, material, and environmental challenges in each community as well as become more meaningful to the Dene families by taking advantage of the cultural traditions of each community, the relationships they had to the land, and the evolving realities of a contemporary lifestyle within a traditional context.

These designs were presented to the community members at Tadoule Lake and Lac Brochet in two separate occasions. First there was a specific trip taken in February where two students from the architecture program along with Dr. Linda Larcombe presented the housing designs as they were being developed. Several community members gave ample feedback and commented on how to improve the designs to make them respond to the needs experienced by



the community members. The second occasion was during the student exchange visit where the Dene students and Elders were able to review and comment on the designs in process during their visit in March. Using this feedback the students of architecture were able to finalize their designs and present them to the University and to the communities of Tadoule Lake and Lac Brochet. Professors Dr. Larcombe and Lancelot Coar traveled to the communities to show the community members the posters and held feasts and community events to share the ideas developed by the students. This included meetings with Elders and Band Councils as well as the youth from both communities.

Design Project Findings: Material Identity

For many Dene, the importance of selecting what materials a home is made of is not an issue of "nostalgia" or an aesthetic preference, rather it represents a deep connection to their history, teachings, and a regional identity; referring to a time when homes were literally made "of the land" by their people. In this project several community members expressed a disconnect with the materials used to build modern homes. Drywall was highlighted as being "cold" and "impersonal". While the comforts and convenience of contemporary homes were appreciated and desired, the material choices for the finished homes were not always wanted. A desire was expressed by several community members to see more exposed materials without paint; namely wood. The use of natural wood also conjures a cultural affinity to the wood used to build the homes that were used to settle these communities.

First and foremost, it was recommended by most student projects that community members be consulted when a home is being

planned/designed for them to inquire about preference of material finishes. It was suggested in the student projects that local materials be used to construct and finish houses as much as possible. The advantage of using local materials (like wood) is that it creates local jobs for harvesting and preparing the materials, it creates a local connection for the homes to the land, and offers a unique material quality to the finish of the buildings if desired.

Design Project Findings: Cultural Design Integration

Members of both communities described a desire to have more opportunities to transfer traditional knowledge from Elders to younger generations, as currently there is a lack of public and private spaces to do so. The unique histories and contemporary lifestyles of the Dene people of Tadoule Lake and Lac Brochet are not supported by the housing design currently being built in these communities. Specifically the traditions of hunting and butchering, craft making, smoking meat, tanning, large community gatherings, hand-games, among others are not supported in current homes. These activities are either discouraged, disallowed, or fit into the current home designs. In some cases these practices which are central to the Dene identity (like hunting, butchering, and preparing of traditional foods like the caribou) create unhealthy conditions due to excess moisture, and animal remains processed in living spaces. Some culturally significant social activities take place in the Band Hall and School because of the lack of flexible space anywhere else on the reserves. At times spaces within the homes would be appropriate to support social activities such as larger family gatherings, feasts, and hand games.

The projects by the students recommend that the homes designed for Dene community

members should take into consideration the lifestyle of the various family members who may live in these homes. Activities which help to transfer history, skills, traditional knowledge, and cultural identity should be strongly encouraged through flexible spaces and appropriate utilities and resources within the home (sanitary areas for meat preparation, waste and water locations, and proper ventilation to support food production activities).

Design Project Findings: Energy Independence

Because the homes in both communities are situated in the extreme climates of northern Manitoba, energy efficiency and the reliability of a heat source is of central concern. Current energy needs for homes are supplied almost entirely by imported diesel furnaces. These heat sources have replaced almost all the traditional wood stoves. However due to a lack of education, training, supplies, and supervision these furnaces often break down and can create life-threatening challenges for families in the winter months. In addition, the pleasures offered by a wood-stove fire as well as the quality of a central heat source, that promotes family gathering, is lost with a distributed heat system. While diesel furnaces have brought modern convenience to homes, they have also created a disconnect with the traditions of harvesting, gathering, and saving wood for the winter, which offer energy independence, security, money savings, and employment for many of the younger/able bodied members of the community. These furnaces have also created numerous challenges including damaged tanks causing oil leaks which have contaminated ground water supplies and oil supply disruptions that have left numerous families without heat in the deep of winter.

Energy efficiency in homes in these



communities is another challenge. Many homes have ineffective insulation detailing and are often climactically inappropriate designs for the locations they are built in. A basic example of this is how the window placement and the orientation of the homes are frequently not planned to take advantage of the passive heat gain offered by the sun. Homes are also commonly positioned without consideration of the major wind corridors that draw heat out of a home and create uncomfortable drafts in the living spaces.

A number of the student designs propose that a back-up high-efficiency wood-stove be installed in all new homes. This would create opportunities for new jobs for local members to gather and distribute wood throughout the community. It would additionally create an energy "safety net" for when the imported heat source is interrupted or the furnace breaks down. Finally, it would help to relieve some of the time-critical urgency for the band when working to fix a broken furnace. Many projects propose that homes should be designed to maximize passive heat gain and energy from the sun, including window placement, increase thermal heat storage in wall systems and organize house orientation to minimize exposure to prevailing winds.

Design Project Findings:

Food Security

While it may not be obvious, food security is directly related to housing design. Because of the remote nature of these reserves, the impact that homes have on food choices is significant. Two major food sources are currently available for Tadoule Lake and Lac Brochet, the Northern Store, which provides imported "southern" food (primarily processed food in limited supply and at a high cost), or wild food sources from the land (mostly caribou and fish). The often unhealthy and expensive food options at the Northern store

are linked to health problems for many including high cholesterol, diabetes, high blood pressure, and low nutritional intake. Yet the traditions of hunting wild game offer a broadly healthier food source providing rich nutritional value and a fresh quality diet. Additionally, hunting promotes traditional teachings to be shared, encourages exercise, builds life skills, offers food security, and helps to strengthen community bonding and cultural identity. Current house designs discourage traditional forms of food production because there are no spaces to support the necessary activities related to hunting and fishing.

Most student projects attempt to integrate and even celebrate the needs of a proper space dedicated to butchering, cleaning, and meat preparation. Some designs also sought to encourage vegetable production with an adjoining greenhouse incorporated into the home. It was also recommended that education and healthy food programs in the communities could help to promote small scale food production in homes. By building-in these capabilities within a house design, it also helps to provide food security and money savings for the families with these facilities.

Design Project Findings:

Long-term Maintenance

As identified from the research carried out by Dr. Larcombe and M. Singer, as well as the work done by the students in the architecture program, the most dominant housing problems were observed to have been the direct result of minimal or no maintenance being carried out on the homes in these communities over the years since they were built. Small problems that required minor maintenance attention compounded and became much more significant problems affecting the health and safety of the families in these homes.

Many student projects focused on recommending simple construction methods that would be possible for trained community members to take part in the construction as well as long-term upkeep of the homes. In addition, it was suggested that when possible, home owners should be educated in the design and construction selection so they are able to identify inevitable maintenance issues and the potential causes (as they may relate to lifestyle or home use issues, ie. preventative care through education.)

Conclusions:

Overwhelmingly the students in this project felt that the most important thing that can be done to improve the designs for homes in First Nations communities is the simplest; to listen to the community members. By listening to individuals about what they need, and to invite them into the design process provides, an opportunity to both improve the design and to offer them a stake in their own home. It became clear from the conversations students had with members from both communities that many challenges they face in their homes today could have been avoided if there was some degree of even minimal consultation in the home design they were provided. It is hoped that the designs proposed here might offer new (and traditional) approaches to addressing the challenges and opportunities facing the Dene people. Like many First Nations communities, the Dene have a deep knowledge and understanding about what does and does not work in their community and environment. It is clear that our job, as designers and as people who share the same land and resources, is to learn how to listen in our practice and to merge traditional knowledge with the complex and evolving building industry so that we can provide meaningful solutions and learn how to do our work more honorably and effectively.



Architecture students at Tadoule Lake

(from left to right): Jeannine Senecal, Carson Wiebe, Daryl Holloway, Emily Bews, Mackenzie Sinclair, Jessica Martin, Evan Yassie, Branton Leskiw, Lancelot Coar



Architecture students ice fishing at Lac Brochet

(from left to right): Christopher Denechezhe, Lancelot Coar, Joseph Moise, Lizette Denechezhe, Linda Larcombe, Marla Bigelow, Andrew Hanson, Aron Coates, Michelle Peake, Erik Arnason, Evan Taylor

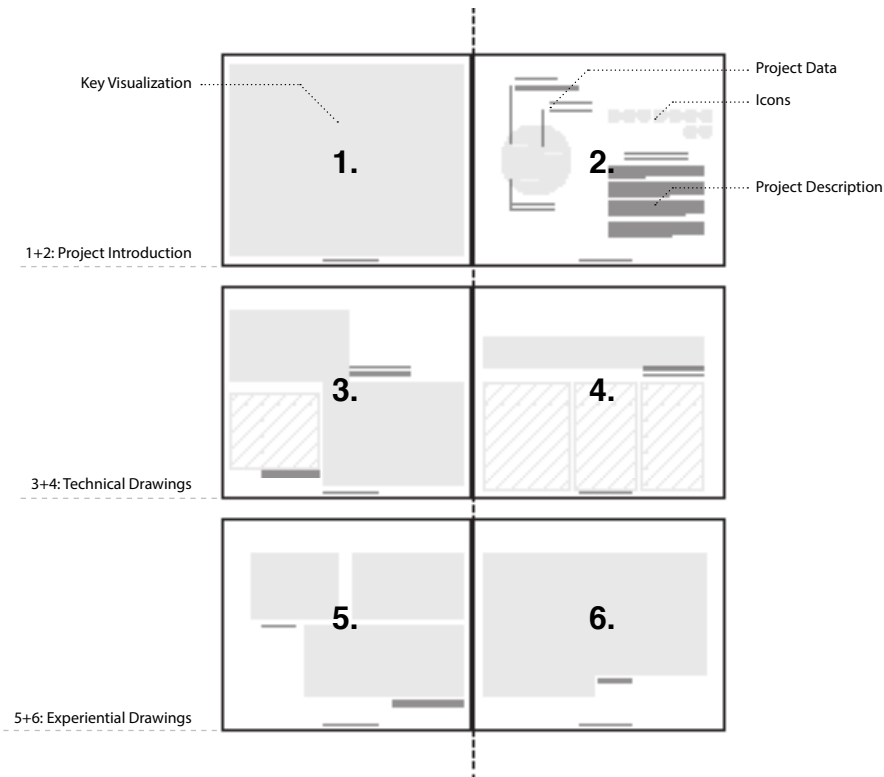
Icon Glossary

Each of the following student projects focused on attempting to integrate multiple aspects of Dene life in the design proposals. Concerns of cultural activities, climate, energy consumption, and community engagement, to name a few, drove each project towards its final form.

On the first page of every student project there are icons that broadly describe the individual qualities that project offers. These icons serve as a graphic table of contents at the beginning of each project. This spread describes these icons and explains what they mean.

Student Projects

The design projects are displayed over six pages and describe each part of the project in a particular way: the initial project-specific description and information, technical methods, and construction drawings, and the anticipated lived-in conditions of the spaces inside and outside.



COMMUNITY

Icon name: **π**

Icon description: **Community, Culture, Engagement, Climate, Energy Consumption, and Community Engagement**

Icon name: **λ**

Icon description: **Community, Culture, Engagement, Climate, Energy Consumption, and Community Engagement**

TRADITIONAL / HOME AND PROTECTOR

Icon name: **Sun**

Icon description: **Traditional, Home, and Protector**

Icon name: **Arrow**

Icon description: **Traditional, Home, and Protector**

Icon name: **Arrow**

Icon description: **Traditional, Home, and Protector**

Icon name: **Bicycle**

Icon description: **Traditional, Home, and Protector**

WALL TYPE



Traditional buildings integrated new materials such as glass, stone, metal, etc.



Walls provide structural support, ventilation, and weather protection. Early houses had walls made of mud with wattle and daub.



In construction, walls often serve as the main structural element. Walls provide structural support and weather protection.



Walls provide structural support and weather protection. Walls provide structural support and weather protection.




Walls provide structural support and weather protection. Walls provide structural support and weather protection.

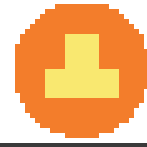


In construction, walls often serve as the main structural element. Walls provide structural support and weather protection.


FOUNDATION TYPE



Foundation provides support for the structure. Walls and floors are supported by the foundation.




Walls that serve as the main structural element. Walls provide structural support and weather protection.




Walls that serve as the main structural element. Walls provide structural support and weather protection.


HEAT INSULATION



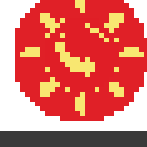
Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.

ALTERNATE OPPORTUNITIES



Walls of the structure are often built from brick, stone, or concrete. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



Walls and roofs provide structural support and weather protection. Walls provide structural support and weather protection.



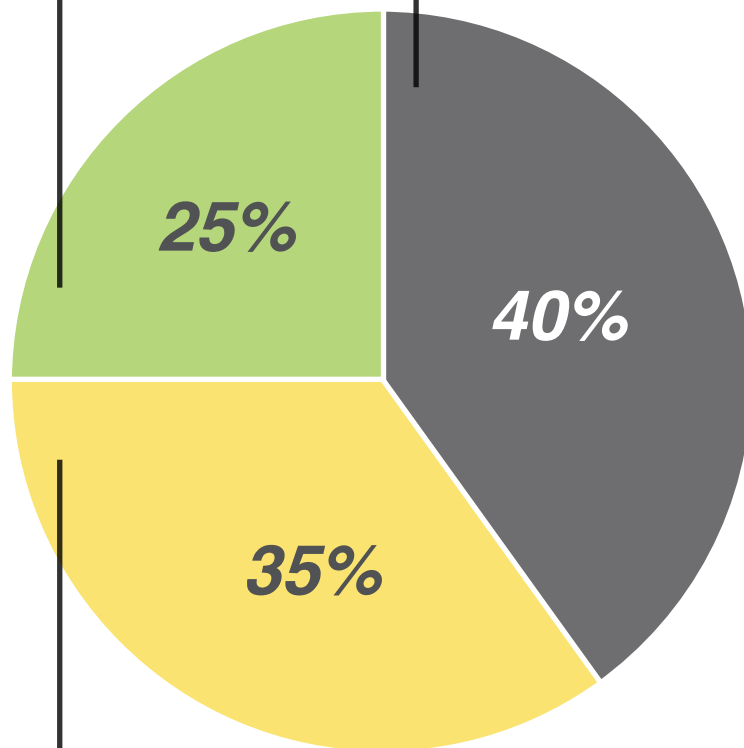
The new proposed design

RECYCLED MATERIALS

- HOUSE STRUCTURE PARTIALLY BUILT BY RE-USING AN EXISTING DIS-ASSEMBLED HOUSE

PURCHASED MATERIALS

- NEW STRUCTURAL MEMBERS



HARVESTED MATERIALS

- BLACK SPRUCE TREES



REPROCESSED HOME

STUDENT: EMILY BEWS - ARCHITECTURE YEAR 4

Working with the Dene indigenous community of Tadoule Lake, Manitoba, this project proposes the deconstruction of the old homes as a means of acquiring material for the new homes. Deconstruction is used as a method of teaching. It is a way to reduce the amount of material entering the landfill, reduce the cost of purchasing and shipping the materials up to the community, and allowing a second life for the material.

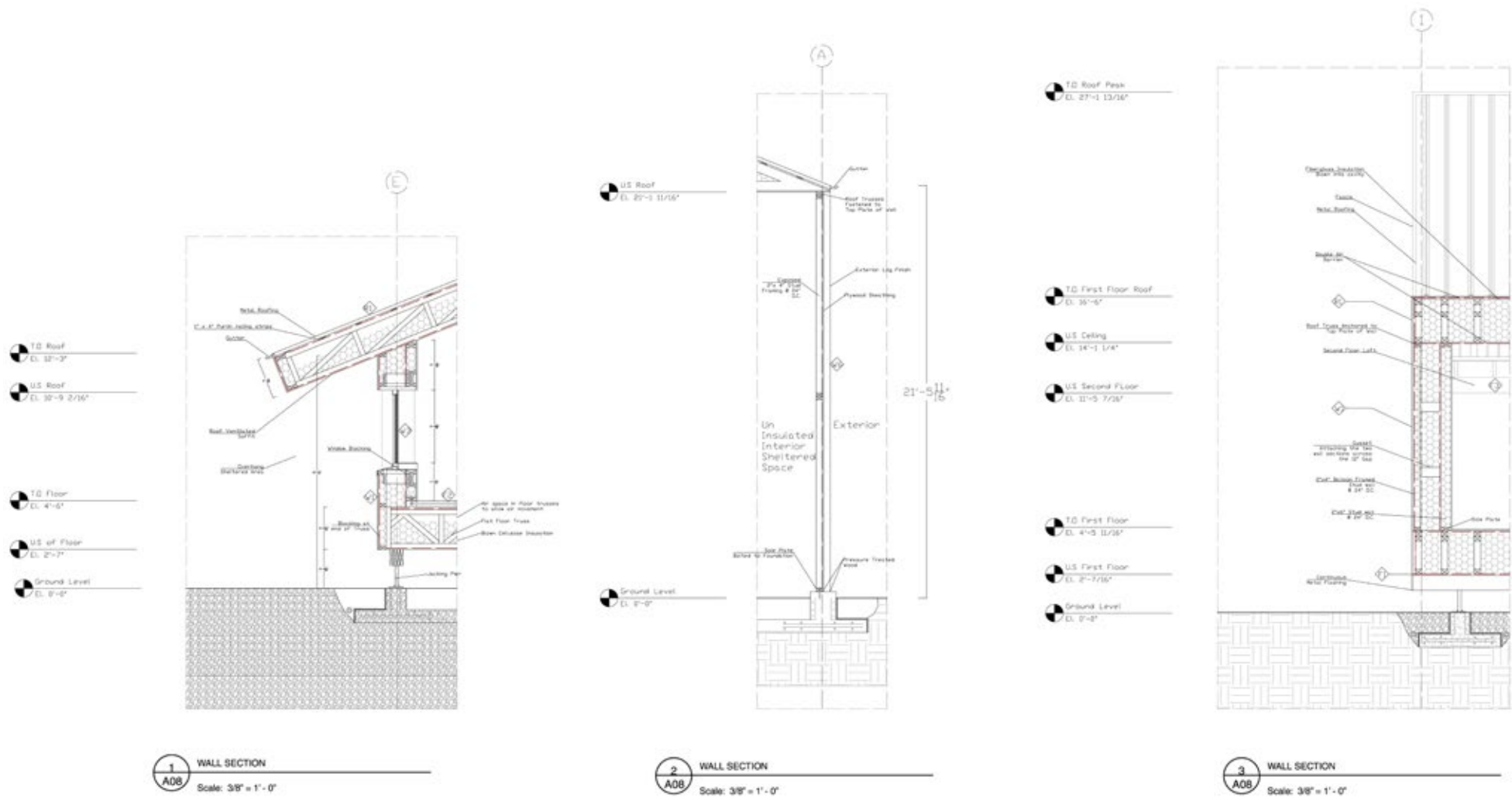
One main problem which surrounds northern homes is the issue of mold. The proposed design uses the technology of the double (or arctic) wall system. Moisture problems within the home stem from overcrowding and the practice of certain cultural activities (such as boiling the caribou head). The arctic wall system uses two feet of insulation and two air barriers (omitting all vapor barriers). It allows moisture to dry to either side and allows the inhabitants to continue their present activities without worry of moisture build up or mold problems.

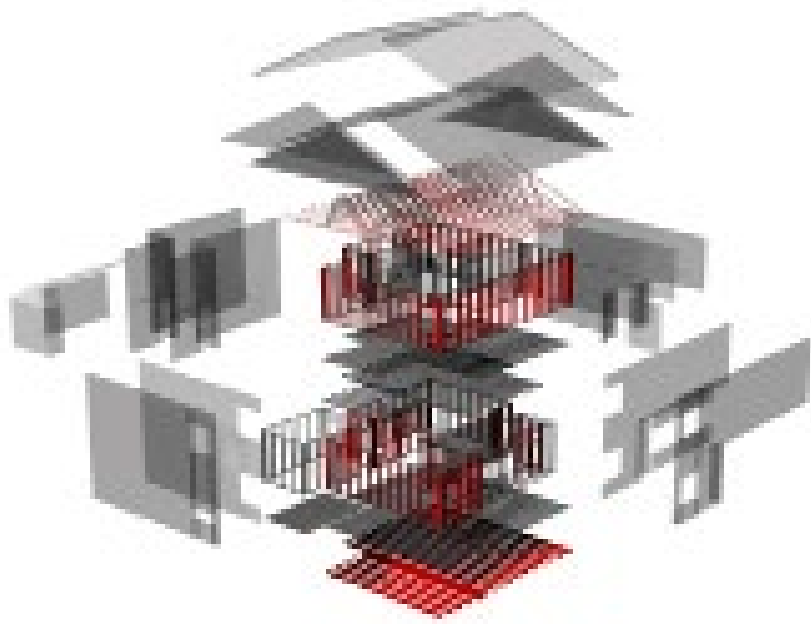
To accommodate for this large and obtrusive thick wall system, the design plays around with creating reveals in the seemingly sealed and thick system to allow for linkages between the house and nature. The envelope is pulled away at points to create outdoor spaces that are protected from the extreme environment (summer heat, blowing sand, cold winter winds) by the rest of the house. As the spaces became more exposed to the environment (physically), they became spaces which require less maintenance and are also more subject to passive systems. The spaces are reliant on the time of day/ climatic conditions outside, preventing the entire house from being a constant condition. Finally, the semi conditioned spaces allow for inexpensive space additions to the home.

The main purpose of this project is to begin building an economy in the community. By using local labour as well as material that already exists in the community, the process of creating homes begins to be rooted more directly in the community itself. This relieves a large amount of the reliance on outside parties. Although deconstruction does add extra time to the construction of a home, it is a very small percentage of the total process, only adding a maximum of 2 weeks more to the usual build time of 26 weeks. This extra time allows for more job opportunities.



Deconstruction process: Depending on the condition of each home, select materials such as wall studs, roof rafters, floor joists, plywood sheathing and other finishes are collected in hopes of reusing them.





Exploded Axonometric Rendering



The envelope of the design was pushed and pulled in order to create reveals in the structure, allowing the interior to connect to the exterior. These reveals became areas sheltered by the rest of the house.

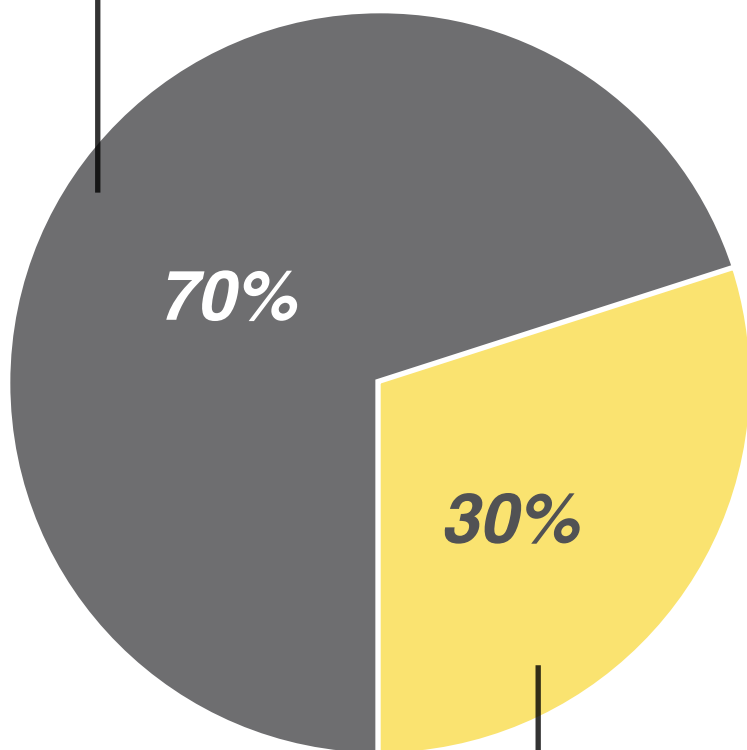


Left: Bedroom Interior
 Top: Boot/Storage Room
 Bottom: Meat Preparation Space



PURCHASED MATERIALS

- STRUCTURAL LUMBER
- RAMMED EARTH FORMING LUMBER
- CEMENT
- MASONRY HEATER



HARVESTED MATERIALS

- LOCAL SOIL
- LOCAL SAND



[R.E.] HOME

STUDENT: BRANTON LESKIW - ARCHITECTURE YEAR 4

The influence of the natural world is so closely tied to the traditions and culture of the Sayisi Dene. This sub-arctic terrain where they call home is vastly beautiful with large lakes, rolling hills, bedrock outcrops, and an immense amount of trees, namely black spruce. In order to build successful architecture within the constraints of a dynamic, deeply rooted culture, as well as the locational and economic constraints, the project proposes a few specific architectural, and tectonic ideas which will address these concerns.

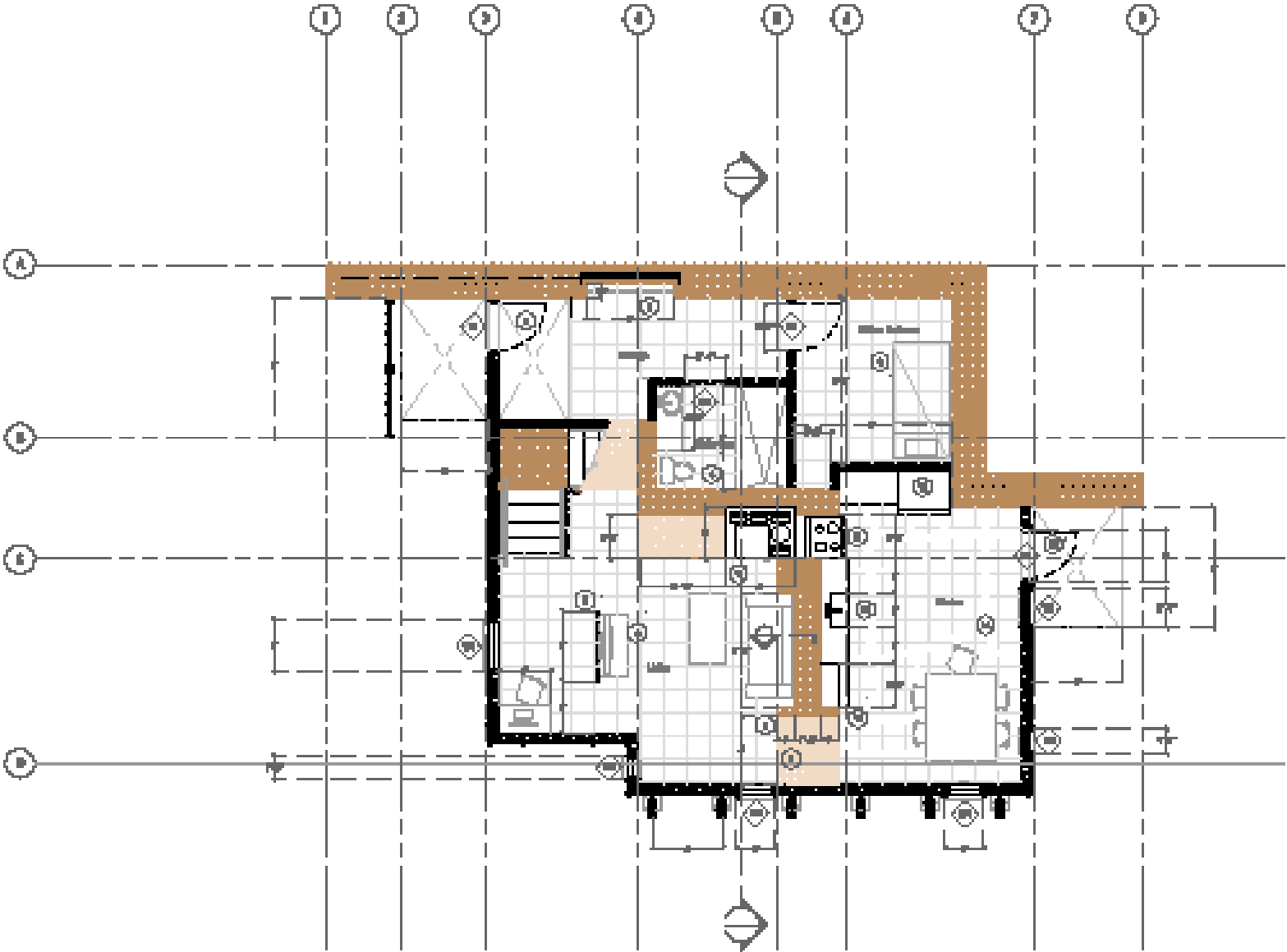
This housing proposal adheres to the Dene's deep connection towards fire, as well as their physical connection with the earth by creating an architecture that uses a rammed earth method of construction, combined with the necessity of a wood burning masonry heater. The formal, physical, and psychological affects of a fireplace will all coexist to help dictate not only how the final house is formed, but also how the house is used, by designing 'from the inside out'. The construction of the rammed earth will involve trained labour from the reserve itself since much of the physical building does not require a significant amount of training. The key aspects of the building are to involve a collaborative effort between the builders and the Dene people to allow for a mutual respect of what they are building and to therefore create a highly valued piece of architecture.

The concept of the rammed earth is to harness its density and strength to not only provide the structural support for the house, but to more importantly, provide the heat within its interior. A masonry heater traps the heat within its dense walls, and uses it to radiate heat outwards into the living space. Therefore, the layout of the house is directly related to the ranked importance of each interior room. The priorities being the kitchen, living area, bedrooms, and bathroom, while keeping the masonry heater in the center of the house. The secondary zones, would be the hallways, stairs, and the large back entrance, which allows for storage of firewood, tools, and winter accessories.

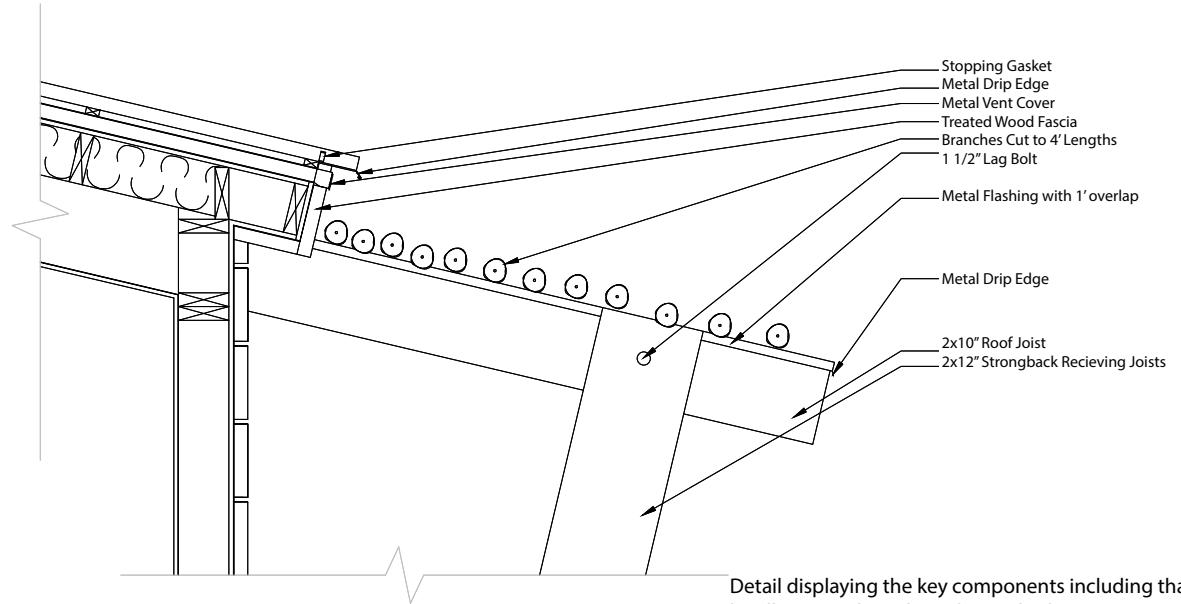
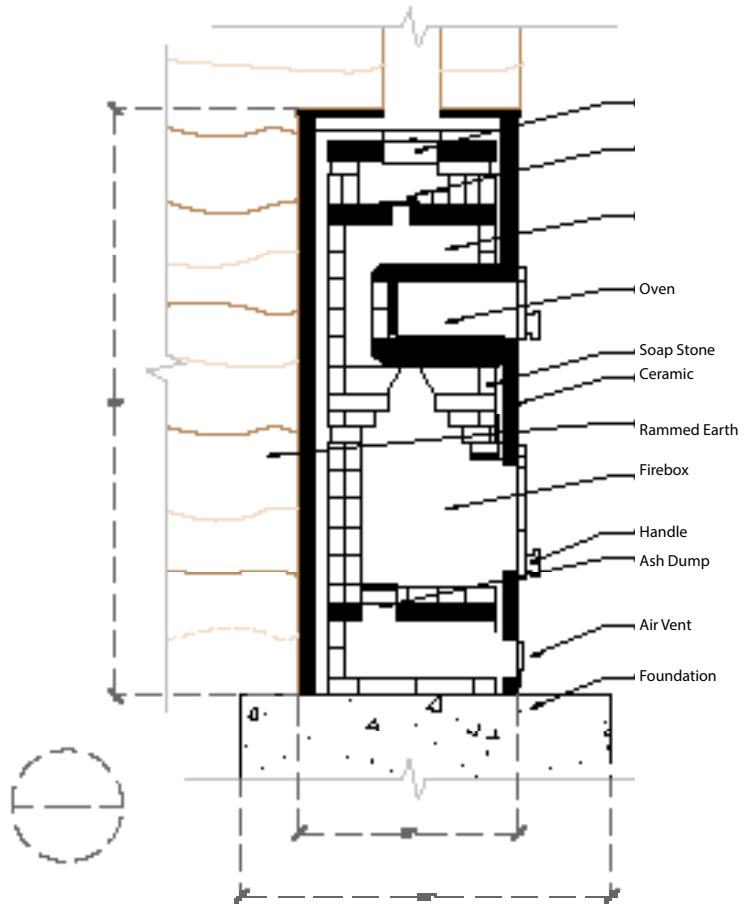
The use of local earth and sand will help reduce the importing costs of material from regions such as Winnipeg or Thompson, and will hopefully establish a stronger connection to their homes because of the material utilized in the build. The community will be able to hire local labour to assist with the collection, and ramming of the earth, providing work for a minimum of five people. The use of rammed earth provides a structure that is fireproof, rot resistant, and regulates clean air, which will hopefully result in a home that is dependable, and that lasts for future generations.



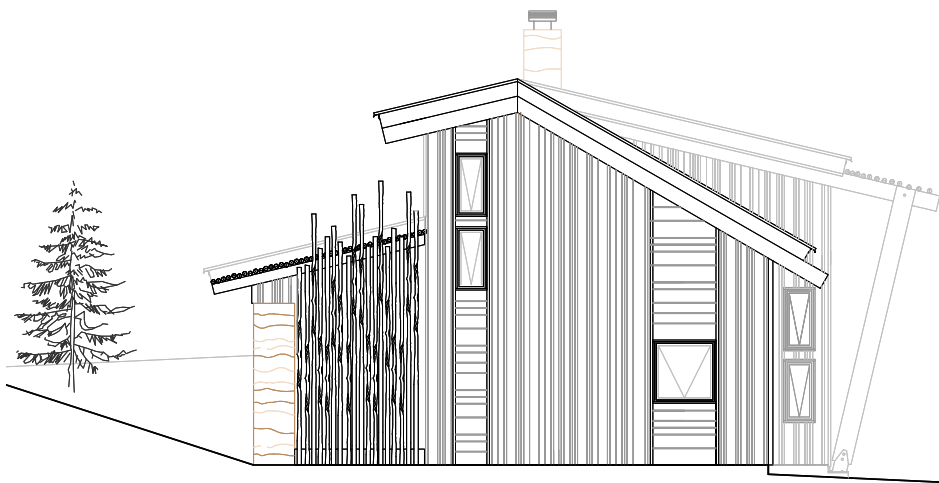
The proposed site looks out across the adjacent lake and forested landscape while remaining within walking distance of the town school and community town hall.



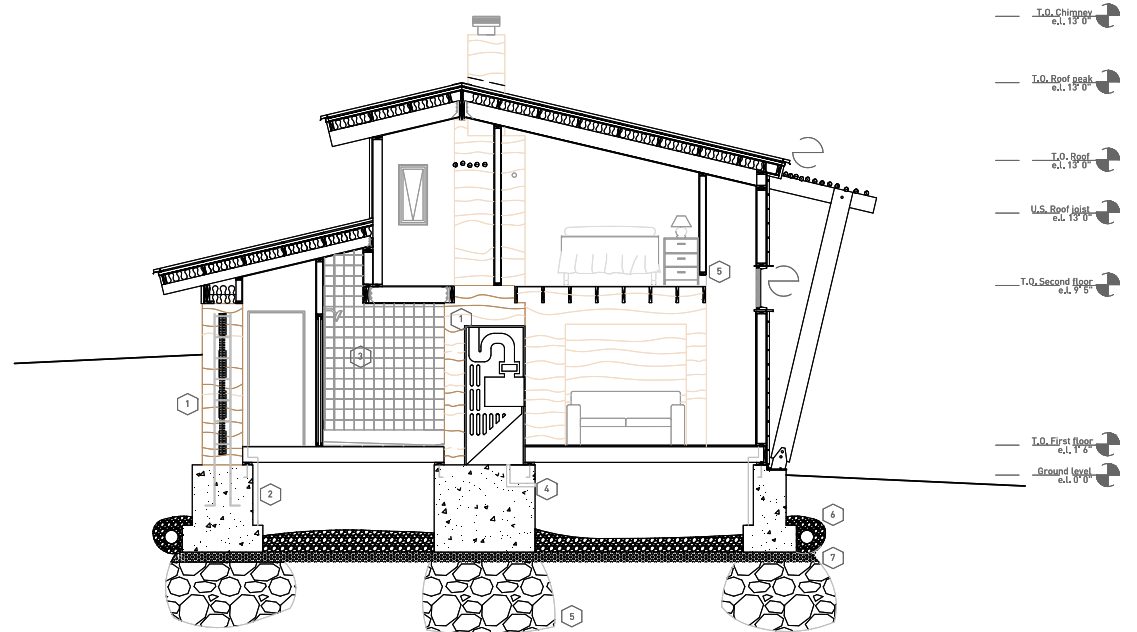
The S-shape formation is a masonry heater, not only but is also a structural element. This central heat source is the function of each room and



Detail displaying the key components including that of locally sourced tree branch sun shade.



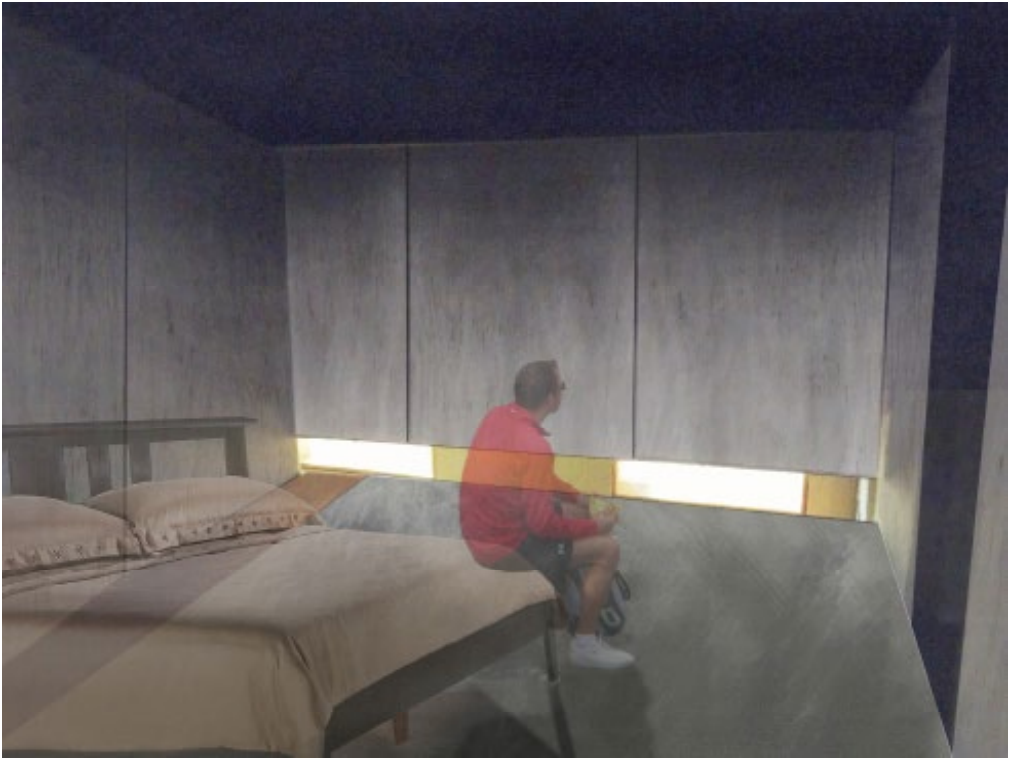
The form work used in the construction of the foundation walls and masonry heater are applied to the exterior envelope in an effort to recycle.





Replicating the construction process by reusing scaled formwork to create the masonry heater and perimeter foundation footing provided an estimated idea of how much could be reused.



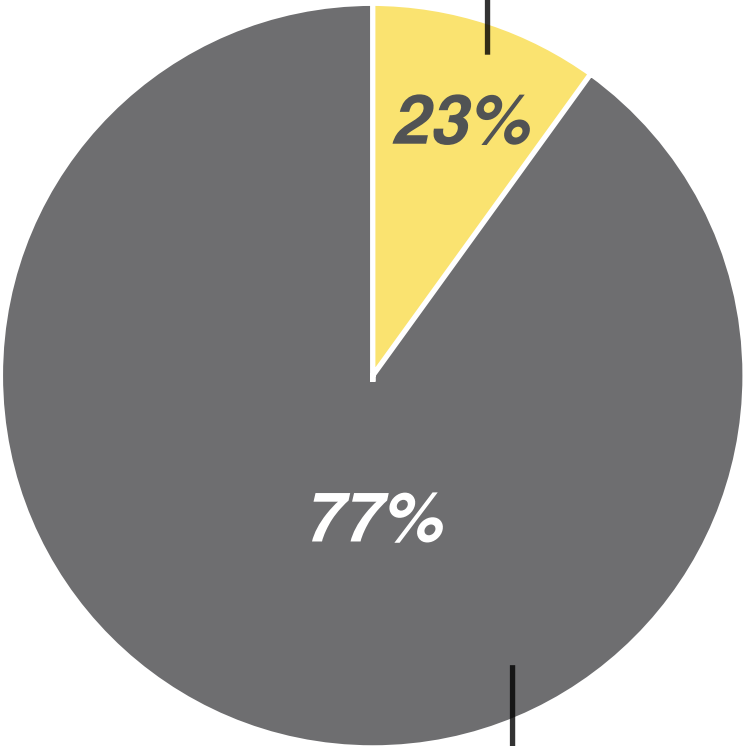


Qualitative interior renderings



HARVESTED MATERIALS

- BLACK SPRUCE TREES



PURCHASED MATERIALS

- CEMENT MORTAR BAGS
- POLYCARBONATE PANELS
- STRUCTURAL FRAMING MATERIALS

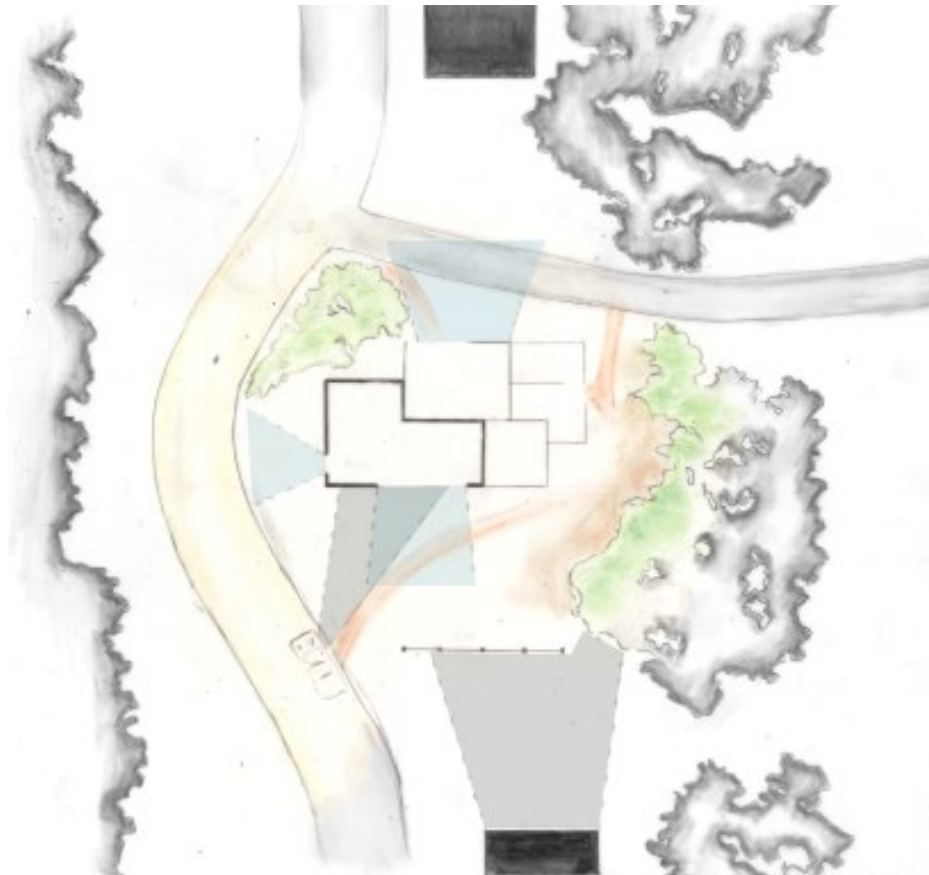


CONNECTADOULE

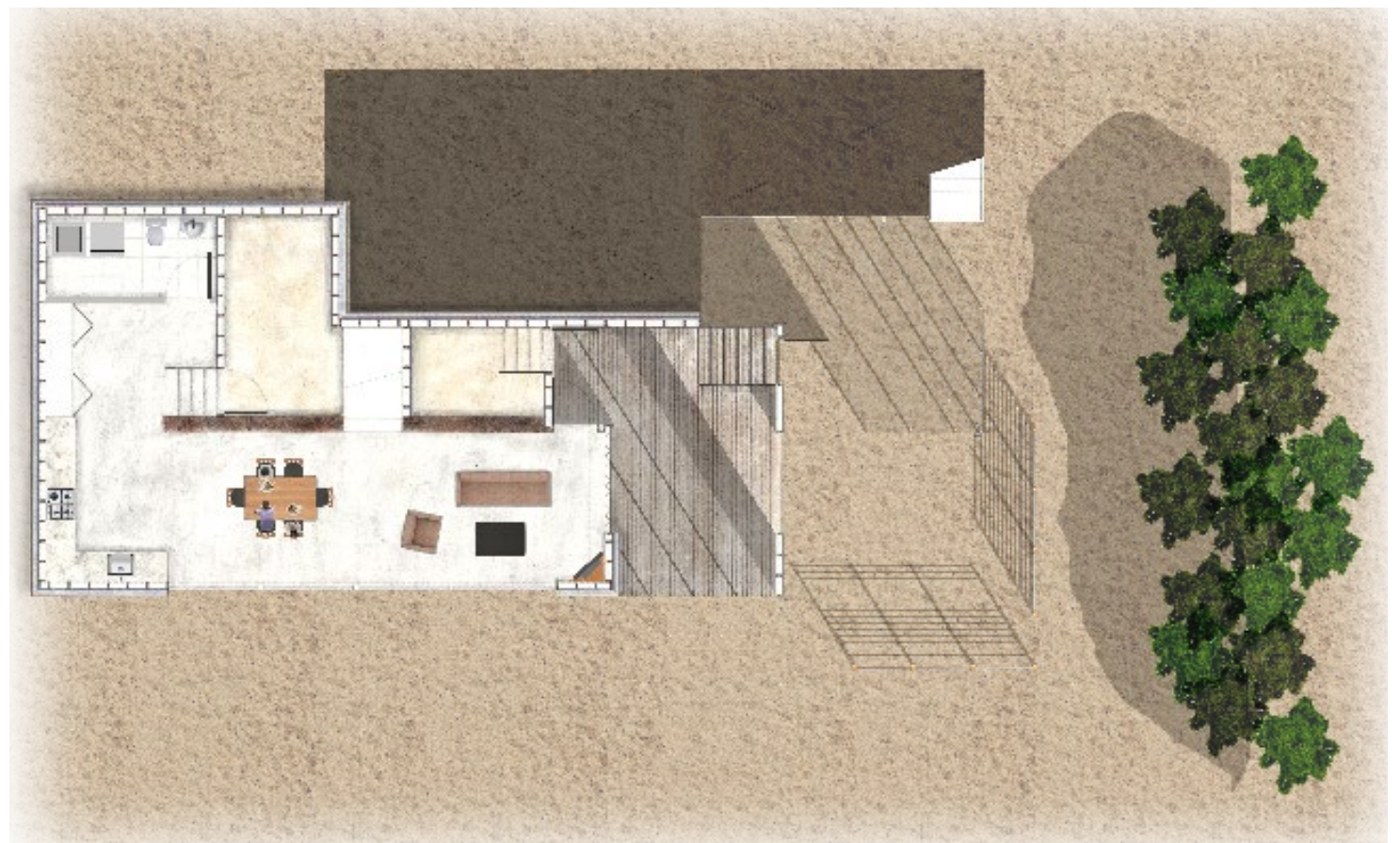
STUDENT: JESSICA MARTIN - ARCHITECTURE YEAR 4

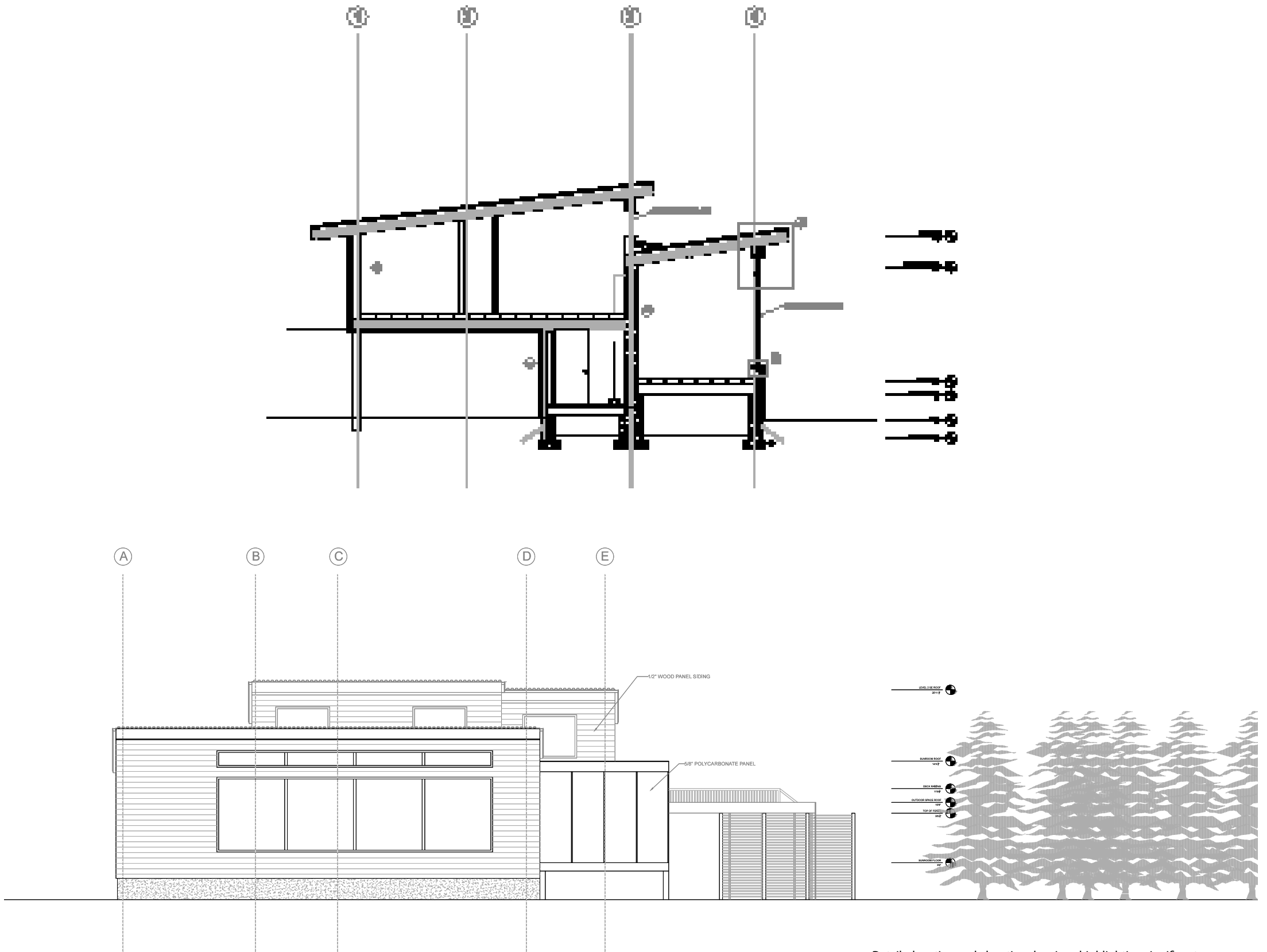
When designing or picking a house people are most often concerned with the interior spatial planning, like where are the bedrooms, how many bathrooms and how big is the kitchen? These are important things to keep in consideration, but what is sometimes not thought about is the space around the house, and how it connects to the outdoors. Because every extra square foot of space costs more to build, finding ways to create space that is still usable and enjoyable but doesn't require the same construction cost is an important factor to consider. In this proposal, different levels of "transitional" spaces are created using different construction methods to create areas that are not completely insulated like the indoors, but still allow for activity and comfortable living conditions. In an extreme climate like northern Manitoba, it may seem unlikely that semi-outdoor space could be comfortable in the winter, but using strategies like Passive Solar design (warming a space using the sun and a thermal mass wall to capture the warmth) these spaces can begin to be more enjoyable. As well, they can offer other benefits like creating a buffer zone when entering the house so that winter gear can be taken off and stored out of way, and freezing air does not blow directly into the house every time someone enters.

Having spaces that flow together and move from indoor to outdoor can start to allow people to make connections with the environment around their house as well as with neighbors and other outdoor activity. This transition can help remove the harsh separation between a home and it's surroundings which could allow people to take advantage of the most amount of space possible. It also creates a variety of spaces that can be used for different functions not only in relation to each other but also throughout different seasons.

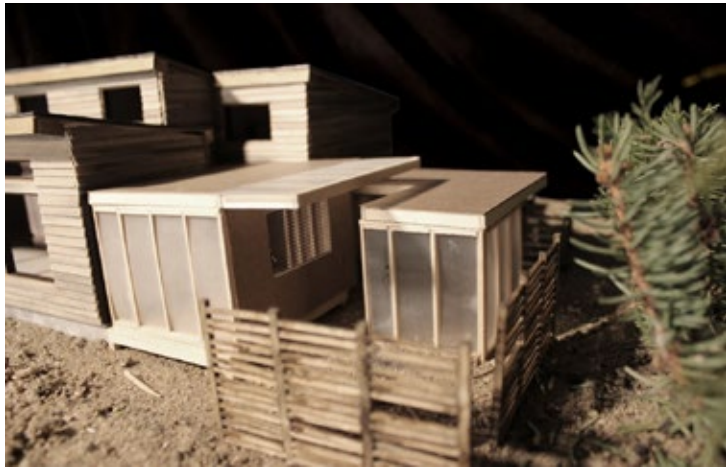


The building's position on site and its correlation to the sun and wind was of utmost importance in achieving specific requirements for the structure's hybrid exterior envelope. Diverting wind and snow build up, while positioning certain walls and windows in a response to the calculated sun angles played a large role in the final design of the structure.





Detailed section and elevation drawings highlighting significant connection types within both interior and exterior wall assemblies.



Displayed are various exterior moments around the dwelling. These spaces attempt to rediscover the function of transitional corridors and spaces. Also highlighted are the multiple wall systems that work together to create the building's envelope.



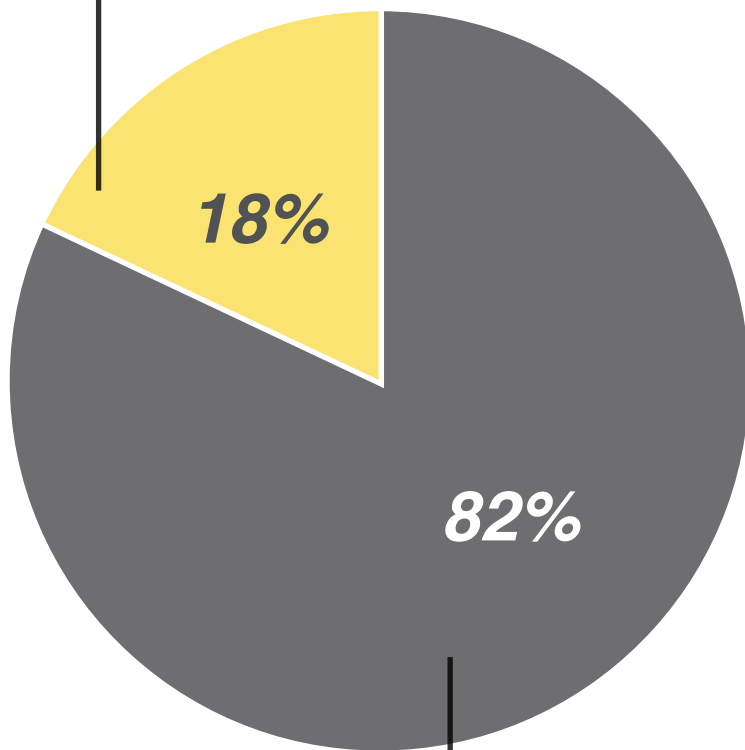


Rather than designating a room to a single purpose, the looseness of these transitional spaces provide opportunities for a wider variety of functions. Gathering, work shop, and relaxation are examples of spaces shown above.



HARVESTED MATERIALS

- LOCAL SAND
- LOCAL SOIL



PURCHASED MATERIALS

- SAND BAGS
- STRUCTURAL LUMBER
- GREEN ROOFING MATERIALS



THE EARTHEN ROUND HOUSE

STUDENT: JEANNINE SENECAL - ARCHITECTURE MASTERS YEAR 1

The particular soil type in Tadoule Lake allows for in-ground type construction due to the mass availability of the sand on the outskirts of the reserve. In addition, this soil can be used as a construction material for the home itself to help give strength to the walls in the ground. Sand bagging is an ideal material due to how simple they are to construct and most importantly, how they can be fabricated using any type of soil. Without any specialists needed, local labour can be used to construct the sand bags and then placed to form wall supports for the in-ground building. As a result, this type of construction relieves the ground pressure forced onto the walls and requires no additional shipped material other than the bags.

Using sandbags as walls will conserve heat and energy in aide of thermal mass properties of the soil. Having soil built over the walls will conserve the exterior of building allowing for a longer-lasting structure. In addition to the earth bags being used to keep the temperature of the home consistent, other features are incorporated into the home to ensure the home is well protected from the elements. With the home being earth-bermed, the roof will also integrate a green roof system. With all these building systems in place, the home will withstand the cold climate of North as well as keep the temperature inside well controlled.

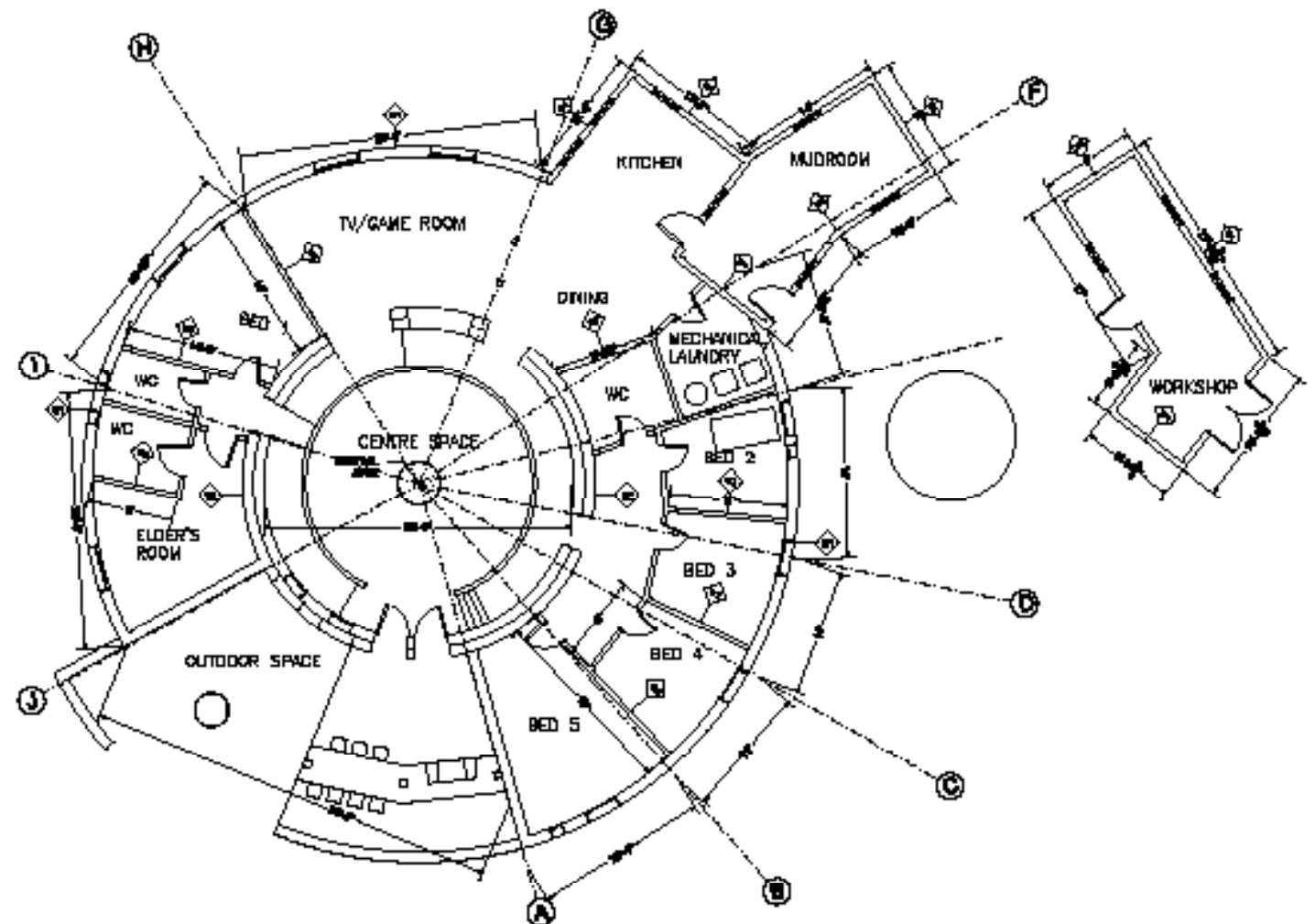
A main central space will be the center of all activity and gatherings in the large home, with the private spaces branching off radially. This large space will be circular in form in order to allow for ceremonial meetings and traditional assemblies. This room will have the ability to be transformative and adaptable to allow for a variety of activities to take place such as, crafts, television, computers and reading areas.

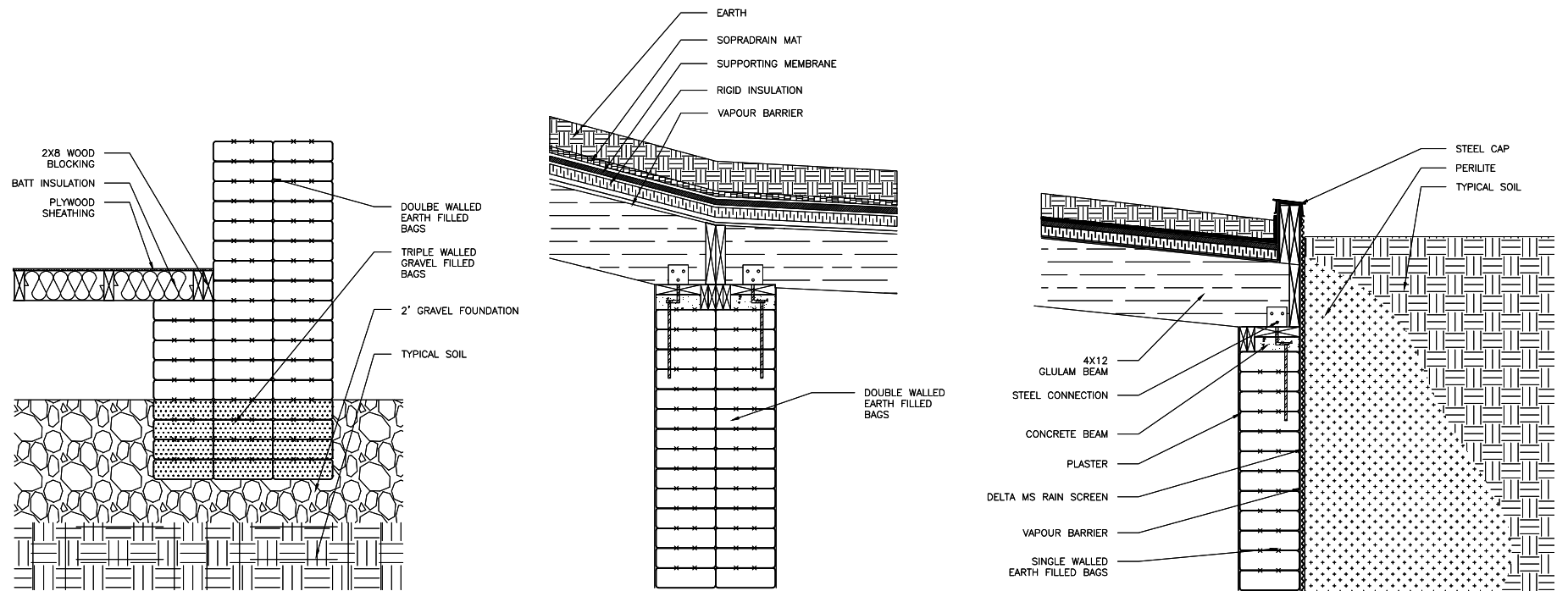
The workshop is dedicated to the culture and traditions of the Dene community. With a workshop and work area projecting from the home, this gives the family the opportunity to learn from each other and make with each other. Hunting storage, meat processing, meat smoking & drying, carving, mechanical repair, and other traditional crafts can all take place in this area.



In plan view, the central cavity becomes a focal point where all other rooms are derived from in a radial succession. As indoor spaces protrude outwards and exterior conditions reach in, the architecture begins to promote gathering spaces indoors and out.

Built into the side of a hill, the home feeds off of the ground mass as an additional insulator. With a roof near grade, wind and snow loads become a concern, therefore the domed shape naturally diverts winds/snow loads away from the centre of the roof.





Triple, Double and Single sandbag walls are used in various locations of the house depending on the loading applied to them.



Scaled model construction reveals the internal radial framing structure that supports the home and its relationship to the interior spaces within. Special consideration was made into how soil would be formed to the wall and the weatherproofing materials used to ensure no deterioration to the exterior walls.



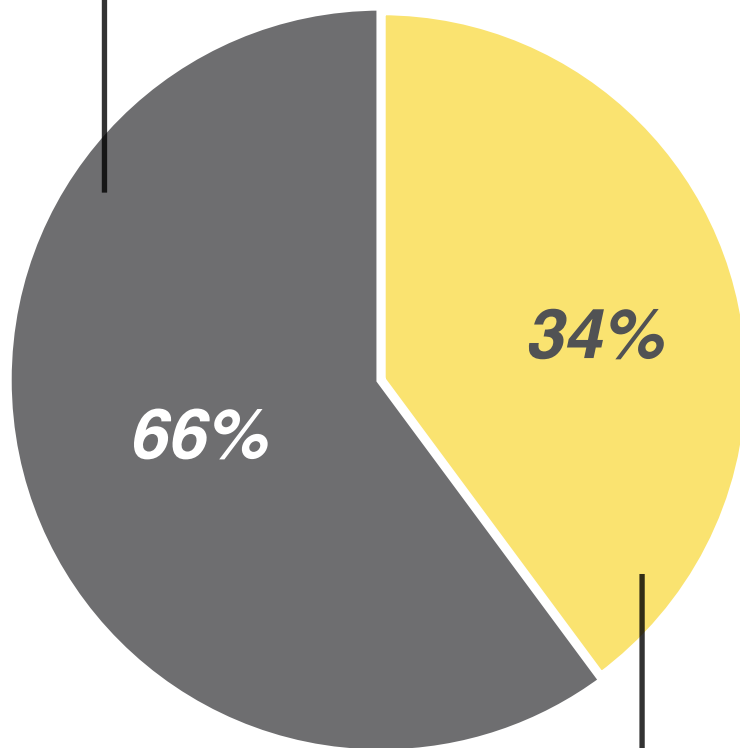


Renderings of inside and outside of the home.



PURCHASED MATERIALS

- SHEET METAL ROOFING
- CEMENT MORTAR BAGS



HARVESTED MATERIALS

- BLACK SPRUCE TREE LOGS
- FOUND TELEPHONE POLE



DENE IMMERSION

▀ STUDENT: CARSON WIEBE - ARCHITECTURE YEAR 4

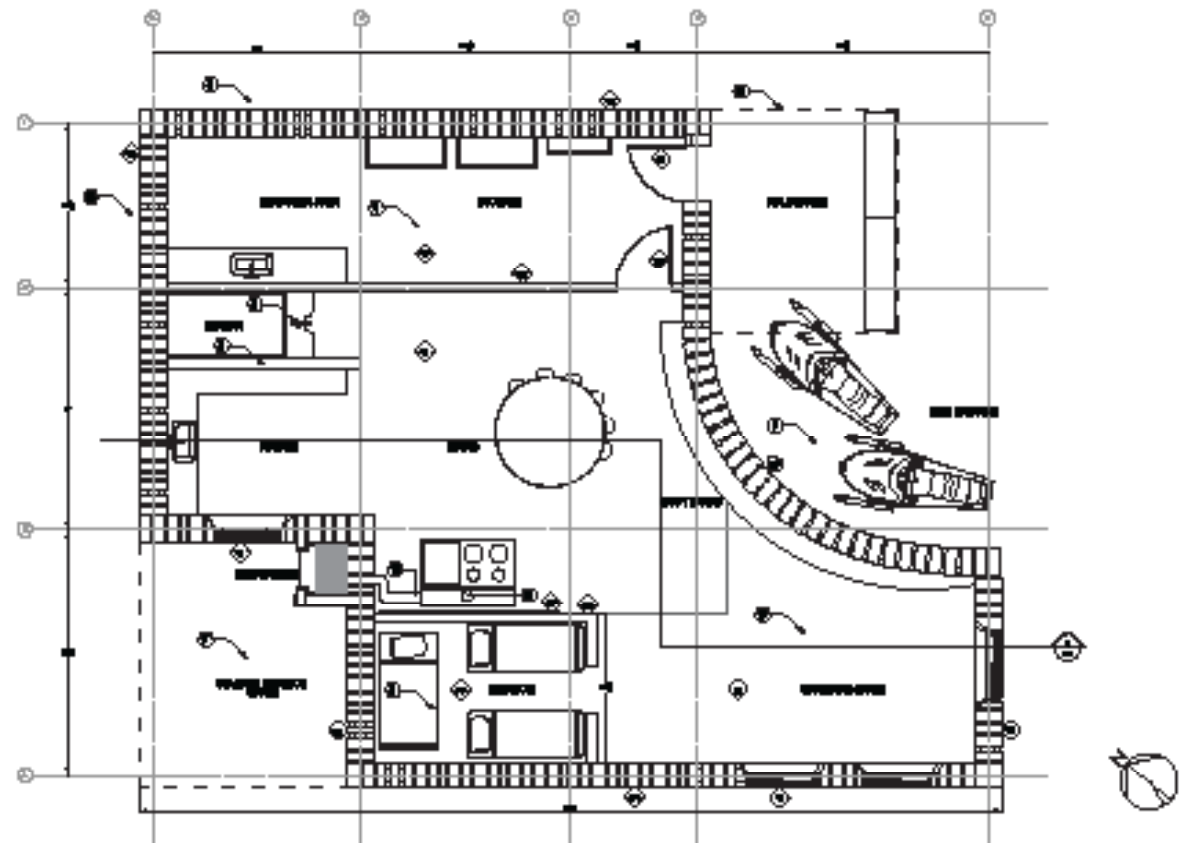
Since the introduction of reservation settlements and the educational programs that were put in place, many First Nations communities have experienced difficulty in passing on their traditional way of life to the younger generations. Extensive research and a visit to the community elementary school in Tadoule Lake, Manitoba demonstrated this idea to be present between the older and younger generations. This project proposes an architecture to support a retreat program in association with the school's curriculum in which students are guided by an Elder and embedded in a more traditional atmosphere.

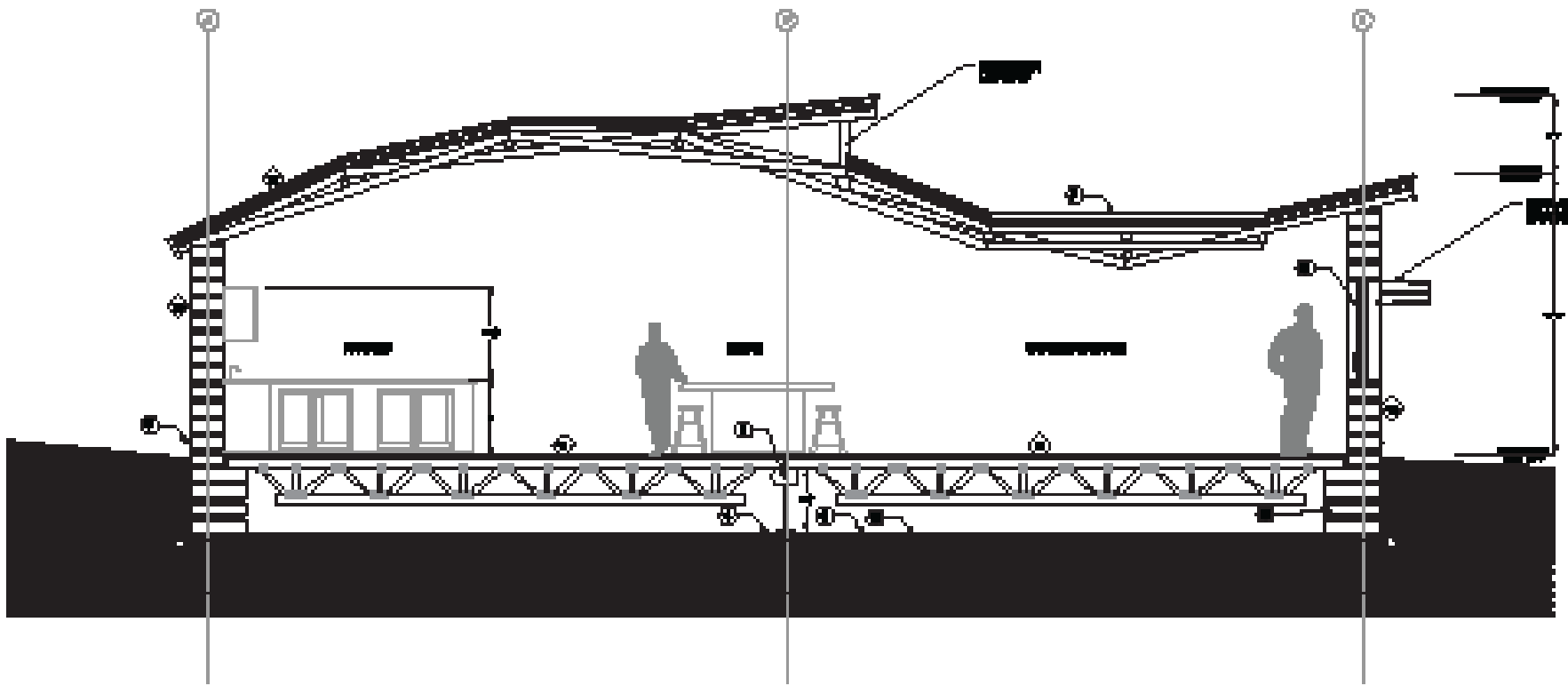
The program enables students to leave the typical school environment and situate themselves in a place that is embedded with the Dene lifestyle. Students would embark on seasonal excursions with a course Elder, as they would learn the ways of the past Dene people by imitating their techniques and methods.

The architecture is to rely upon the local supplies as much as possible while creating an efficient structure that promotes said activities. Students and members of the community would be encouraged to help construct the facility as many of the building methods would require minimal expertise. Utilizing a modular cordwood wall system, simple truss roof configuration, and an off-grid structure will allow the participants to be involved and learn during the project's entire construction.



The open floor plan creates a sense of community between the group of students during their stay. The indoor and outdoor activities carried out by the students are portrayed above in an attempt to give a sense of the life within the structure.

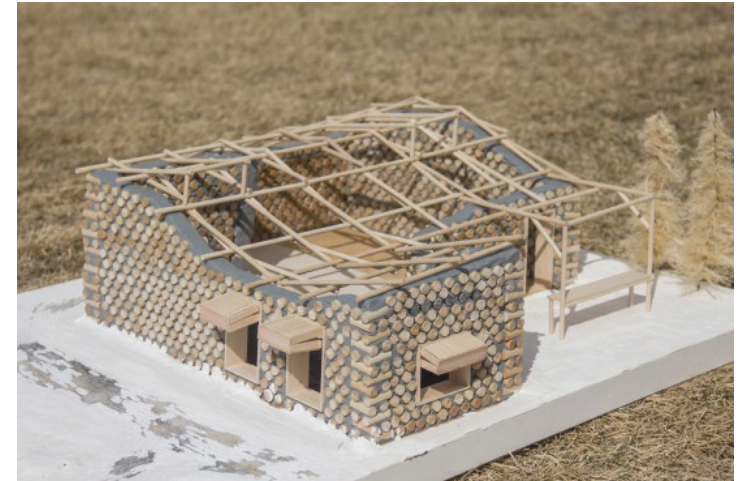




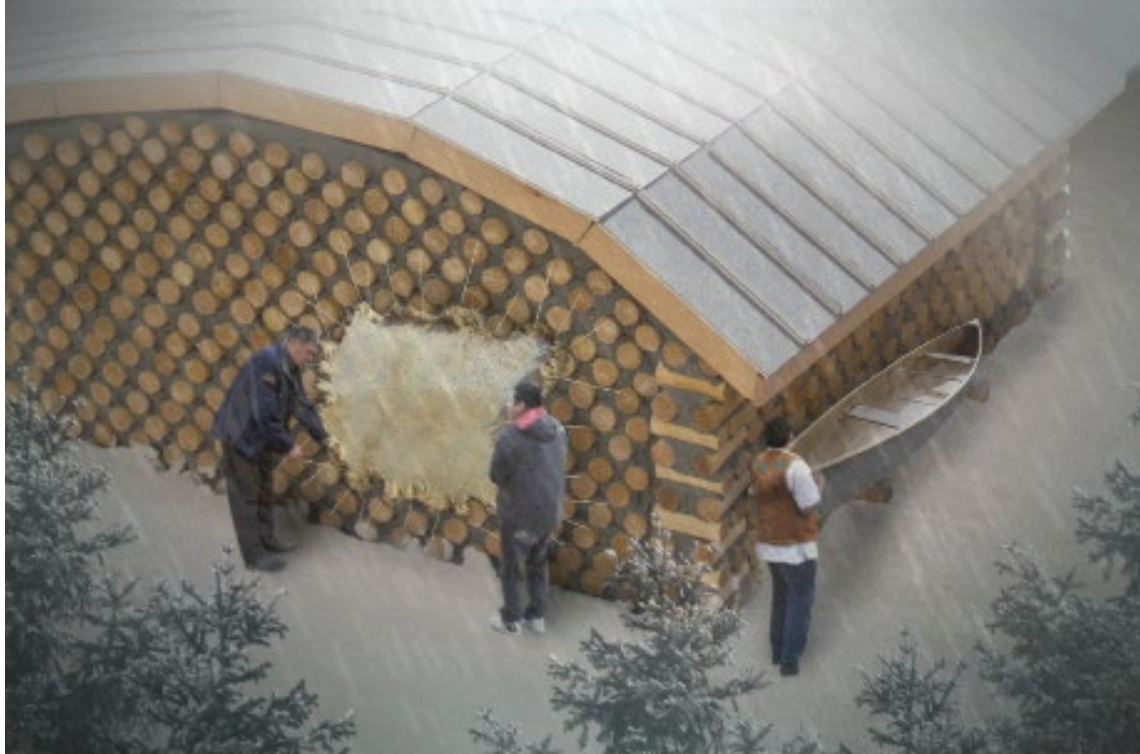
ction drawing reveals continuation of
e exterior walls to the foundation and the
or joist system.



Renderings capturing moments of the
building's interactive qualities.



In constructing a scaled model of the structure, the simple, yet time consuming, method of building cordwood walls was revealed. The roof trusses were derived from an interlocking bridge system but translated into an undulating roof frame.

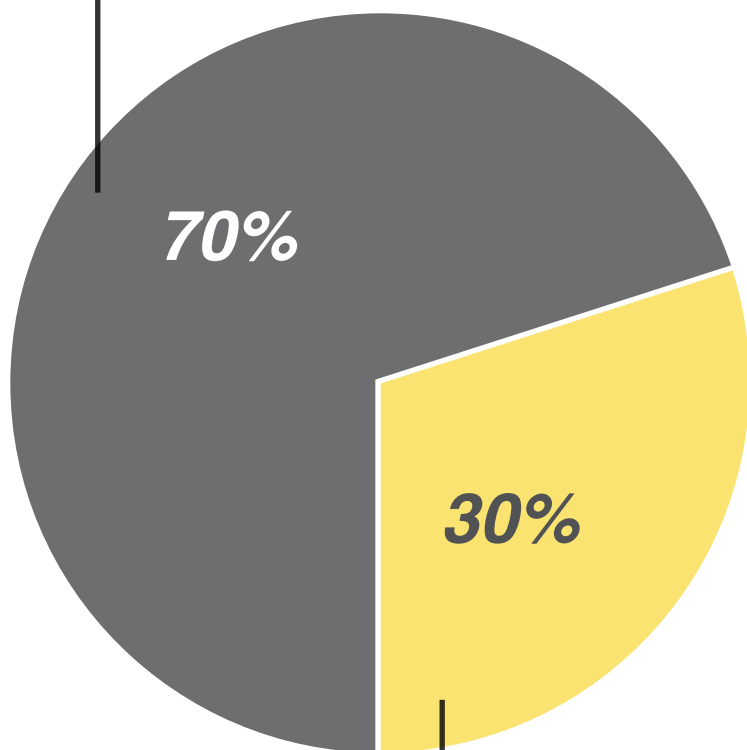


The exterior life of the architecture plays a significant role in the Dene teachings. Its adaptability and adjacent access to the natural environment places the structure itself in the heart of the Dene lifestyle. The interior layout equips the Dene Elder with the necessary tools and space to carry out the traditional teachings and bond with the students during their seasonal excursions.



PURCHASED MATERIALS

- SHEET METAL ROOFING
- BAGGED CONCRETE MIX
- STRUCTURAL TIMBERS AND LUMBER
- EXCESS INSULATION



HARVESTED MATERIALS

- BLACK SPRUCE TREES



N-HABITAT

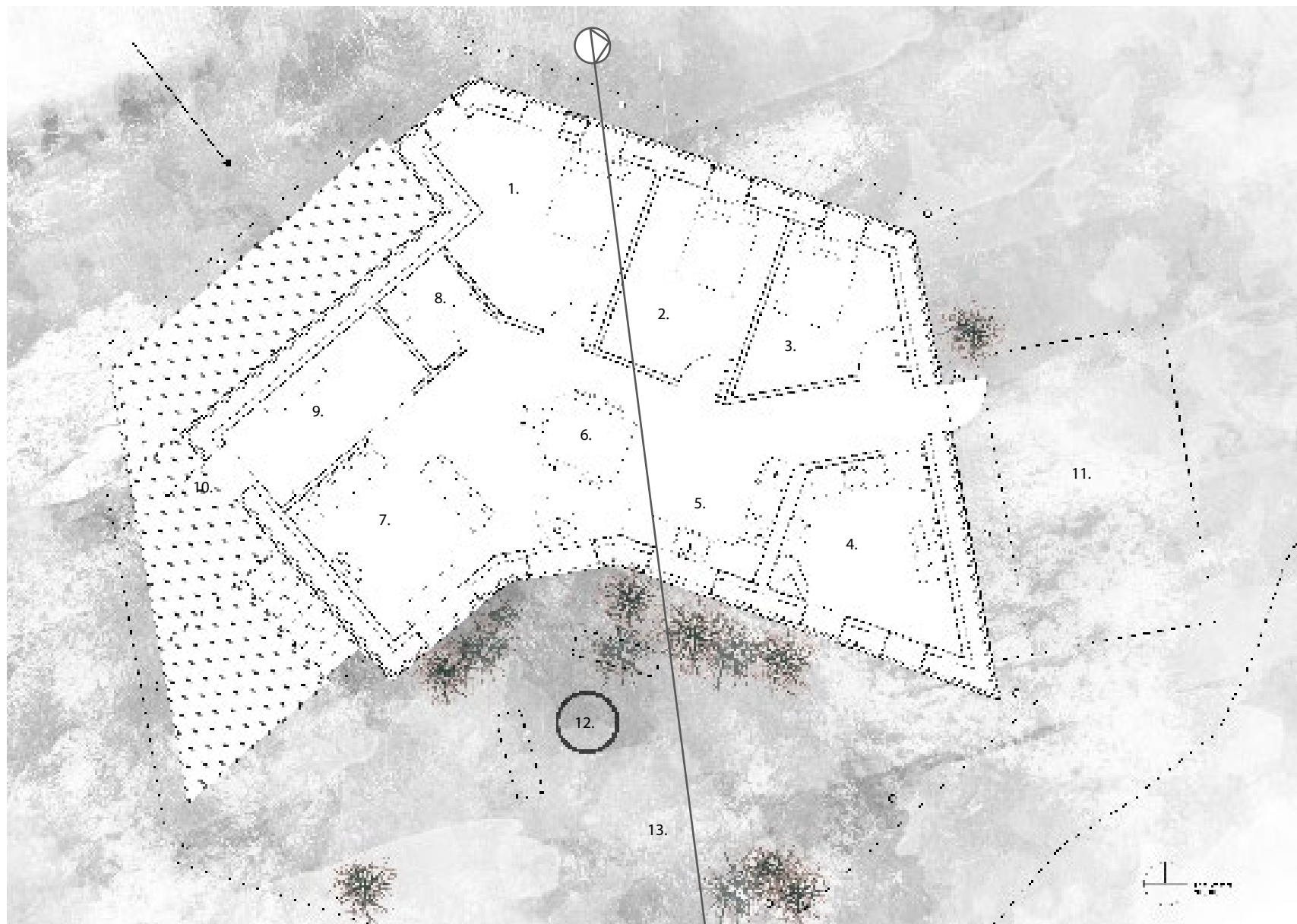
▀ STUDENT: ERIK ARNASON - ARCHITECTURE YEAR 4

This is a concept for a three bedroom, 1500 sf. family dwelling located in Lac Brochet. It is intended to serve as a single family home but to provide ample space and be flexible and functional even at over capacity. It accomplishes this through practical open space planning and a built in capacity to expand or accept additions.

The dwelling is a circle. Two thirds of the circle form the interior of the home, and the remaining one third is a sheltered space nestled against the building. This space is guarded from the wind and the cold by the building. The interior opens up to a large gathering space centered on around a wood stove. The roof radiates out from the center and large overhanging eaves shelter the building and provide cover from the sun and snow. Along the perimeter of the building, a wooden framework extends down from the freestanding roof and creates opportunities for additional usable spaces and structures to become part of the home. Fences, workshops, garages, outdoor seating and sheltered entrances to the home can all easily be constructed from local materials and woven into the fabric of the home. The building is designed to grow and adapt with the homeowner. The building is seen as a living organism that will grow alongside those who dwell within it.

The house is designed to be flexible and adaptable. The rustic wooden construction of the house is suitable for the northern climate and made to be durable and easy to repair. The house will age well as it weathers and settles and remain strong throughout a cold winter. The double thick durable walls are designed to provide extra insulation to ensure warmth through the coldest winters. Special consideration has been taken in the design of the walls to ensure moisture will not be trapped within the walls so the home remains dry and free of rot and mold. A furnace will heat the house throughout the winter and the wood stove will provide a backup heat source or a warm place around which to gather.

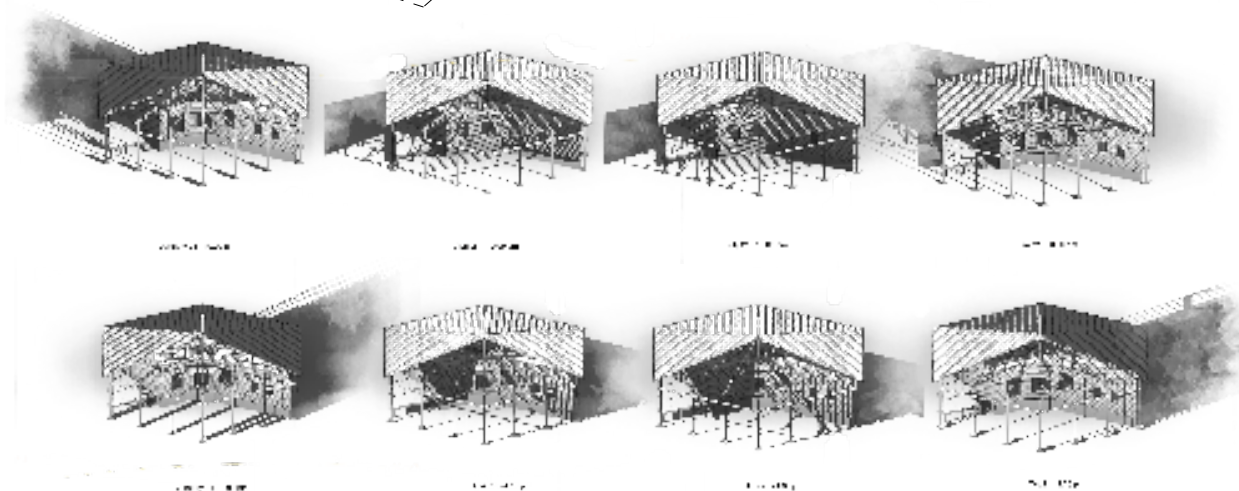
The inclusion of local materials and a straight forward stick frame construction method will enable the community to fully participate in the buildings development. The use of local jack pine wood as siding is a part of the local vernacular and its presence on this home will allow it to blend into its surroundings. Although an emphasis on providing space and a durable robust construction will increase the costs, this will be offset by allowing the house to accommodate the overflow of family members that often end up sharing a home and will create a long lasting structure.

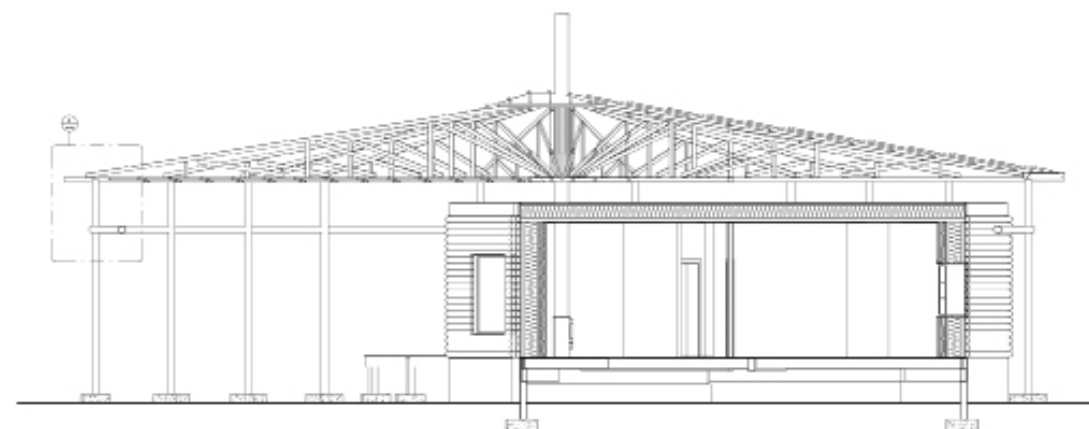
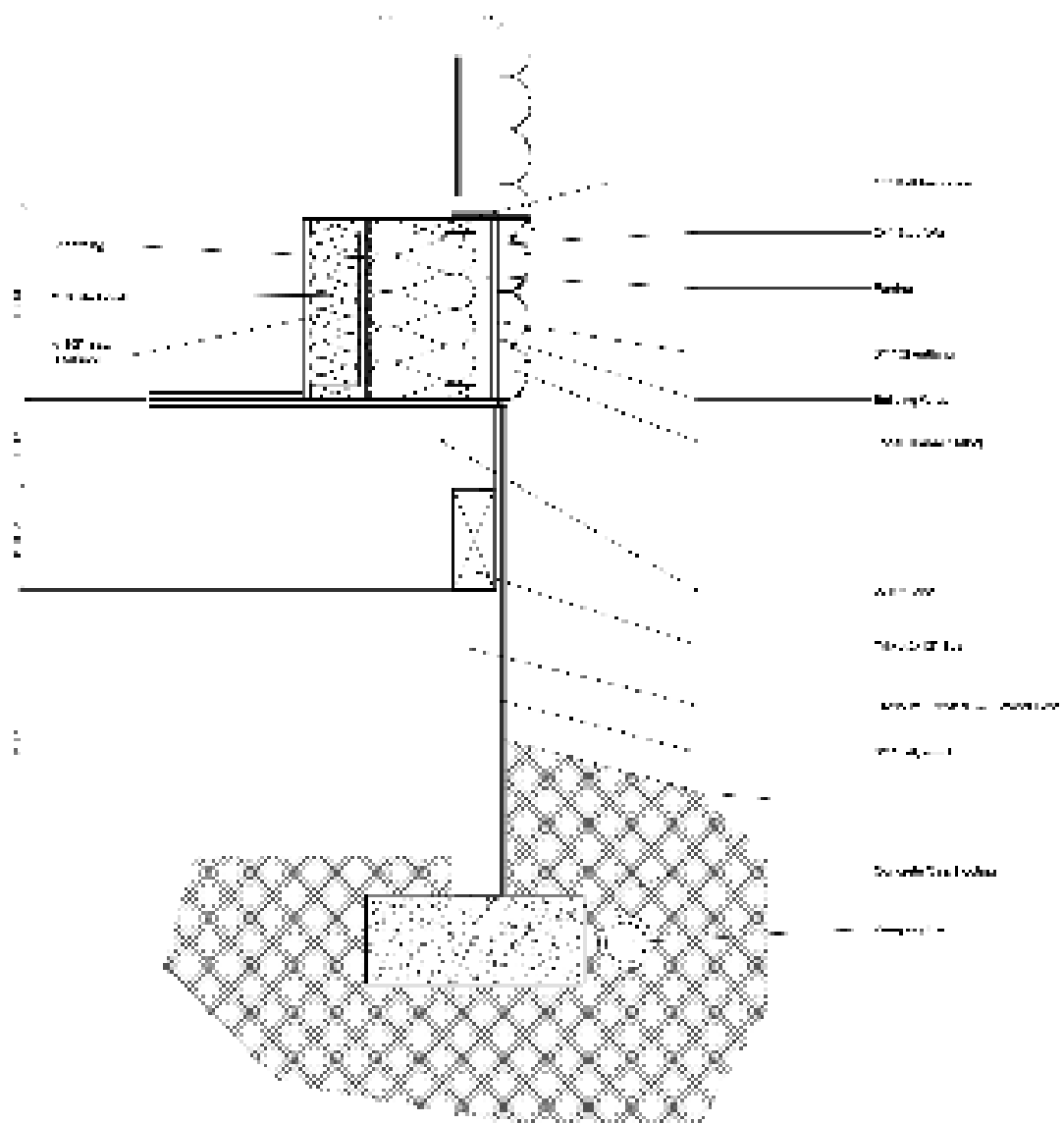


1. BEDROOM
2. BEDROOM
3. BEDROOM
4. WET ROOM/BATHROOM
5. KITCHEN
6. DINING ROOM
7. LIVING ROOM
8. STORAGE
9. ENTRYWAY/STORAGE
10. ENTRANCE
11. VEHICLE SHELTER
12. FIRE PIT AND SEATING
13. EXTERIOR SHELTER

Plan view drawing of N-Habitat showing the exterior and interior spaces.

Sun patterns and shadows at various seasonal times throughout the year.





Section elevation drawing cutting through half of the house, viewing west.



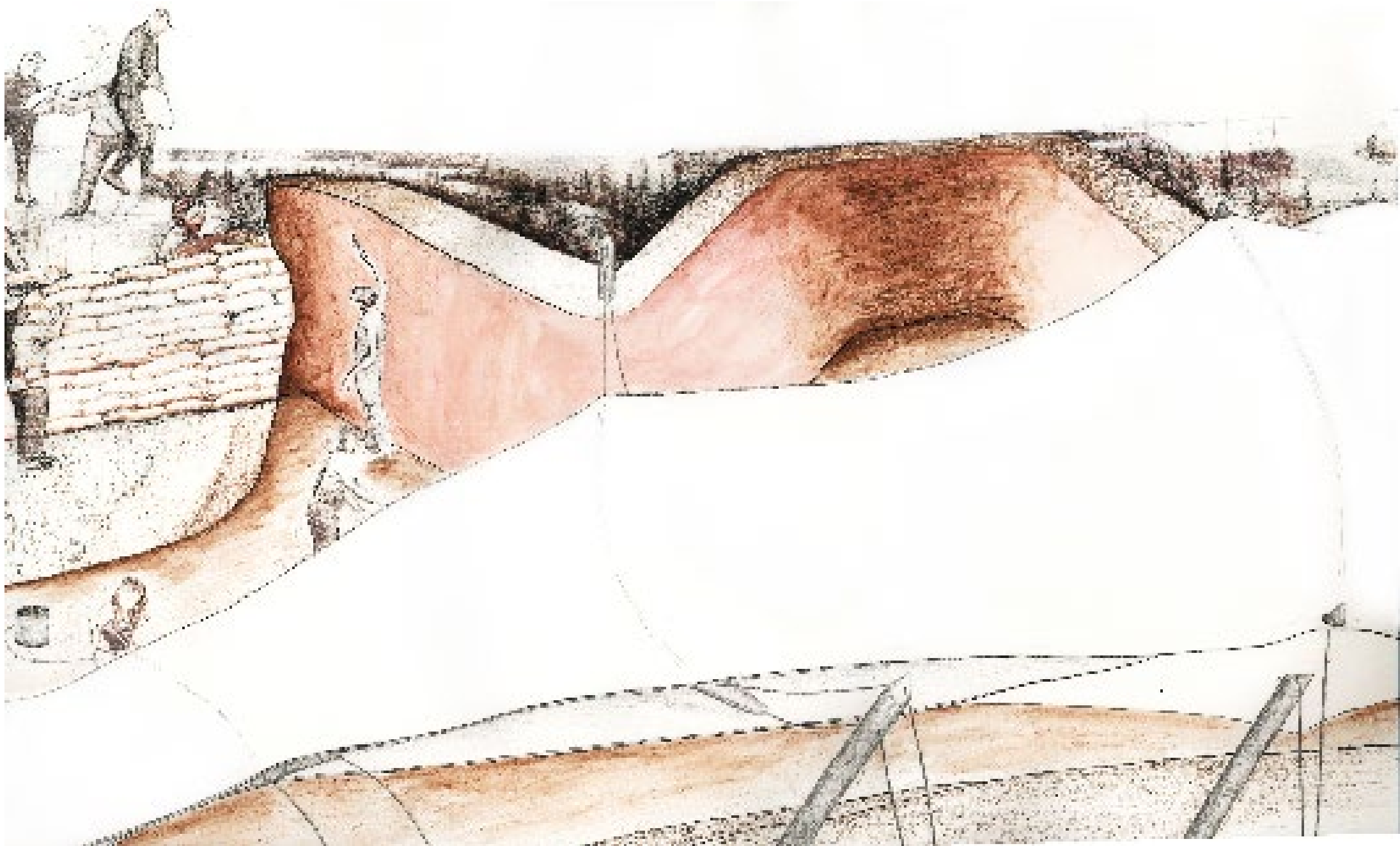
Three dimensional modeling aided in the development and visualization of the design.



Images of various key points of the dwelling's exterior: vehicle port, exterior shelter, entryway, fire pit.

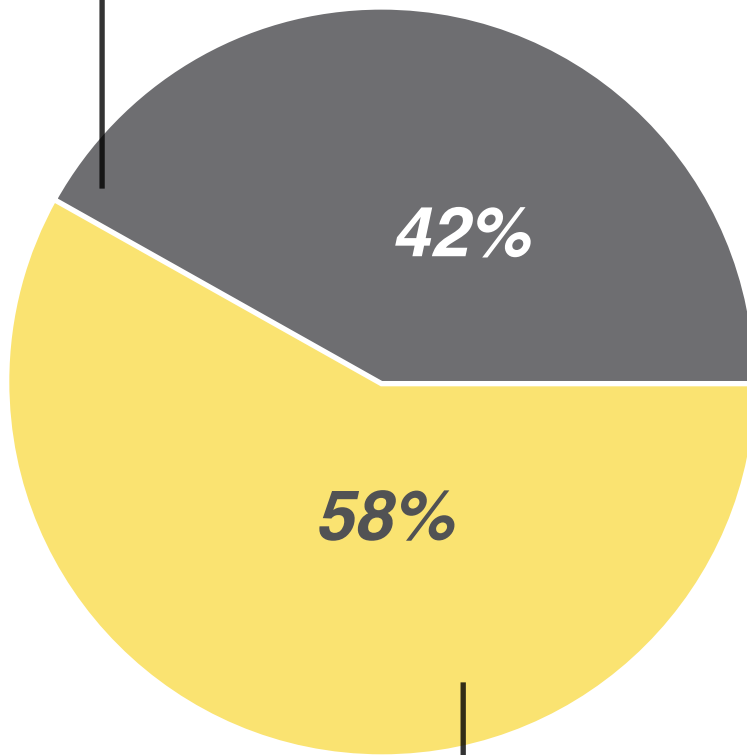


Drawings of interior spaces and activities throughout the house.



PURCHASED MATERIALS

- FIBREGLASS TENSIONED ROOF STRUCTURE
- VINYL FABRICS



HARVESTED MATERIALS

- SAND AND SOIL FOR PLASTERS
- WATER
- LARGE ROCKS FOR GABION WALLS
- RECYCLED PAPER PRODUCTS
- GRASS/STRAWS
- APPROX: 125 BLACK SPRUCE TREES



EARTHEN GREEN HOUSE

STUDENT: MARLA BIGELOW - ARCHITECTURE YEAR 4

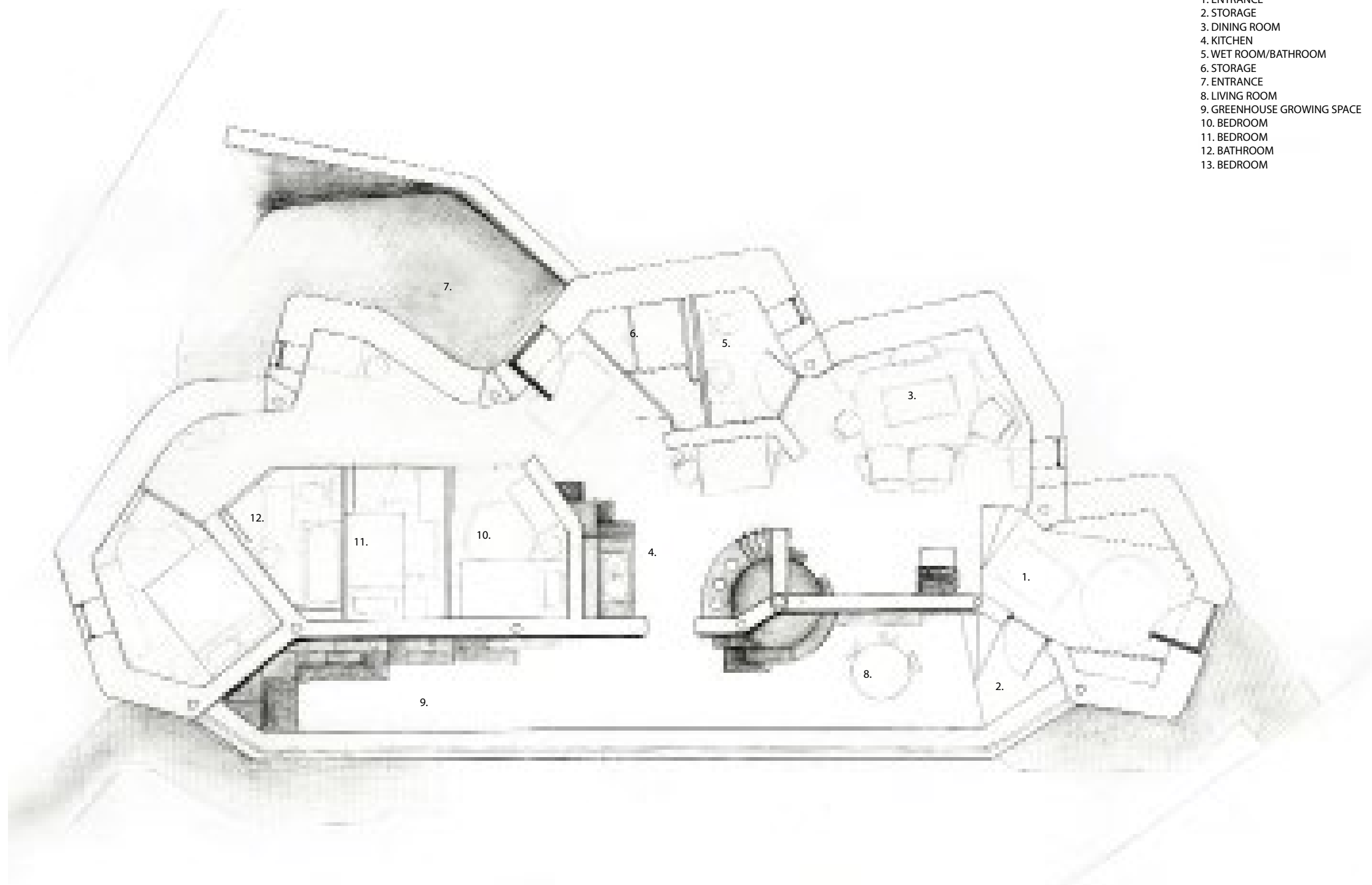
This project has two parts: a living area and a greenhouse. The greenhouse is intended not only for growing plants, but also for maximizing passive solar gain in the house. By using the sun in a passive system, the house is kept at a constant above zero temperature throughout the winter without the need for a furnace. The project seeks to utilize local materials through the use of sandbags, and reduce the weight of shipped materials through the use of a fabric roof system that imitates the traditional aesthetic of the tipi. The sandbags act as a natural thermal mass that supports the passive system. The envisioned family is small to medium (2 parents, 2-3 children), that shares an interest in growing food and building with local materials.

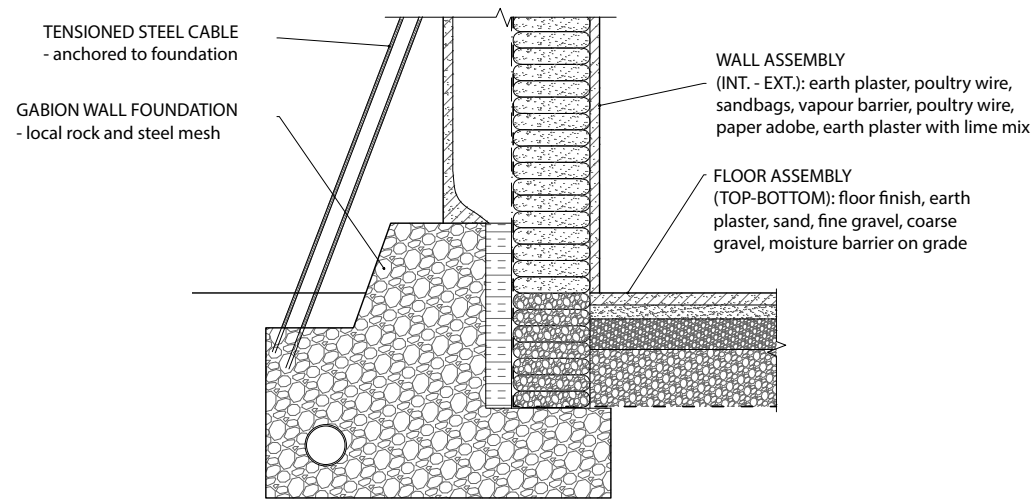
The challenges addressed in the project include warming a house passively, reducing the weight of materials that need to be shipped, creating a roof system that can support and direct snow loads, insulating an unconventional wall system, and creating a form for a building that effectively maximizes solar gain. These all were opportunities that directed the design process. Concerns that were brought up by the community were about alternate uses for the greenhouse, as well as the durability of a fabric roof system.

The form of entire structure is elongated and the dividing wall (central thermal mass) is straight in order to maximize the amount of solar warmth that is absorbed. The choice of materials for the walls and roof reduces the weight and amount of items that need to be shipped up. PTFE woven fibre-glass, chosen for the exterior of the roof assembly, is highly durable and self-cleaning with little to no maintenance required. The form of the roof (created with V-shaped struts) directs the condensation/snow/rain off the roof, which reduces loading. The positioning of these cabled trusses balances the weight between each one. The sandbag walls are mainly curved and bound together with barbed wire in order to increase durability. "Papercrete" (or paper adobe), is used as insulation on the exterior and also increases durability (for it hardens) while utilizing local recycled paper.

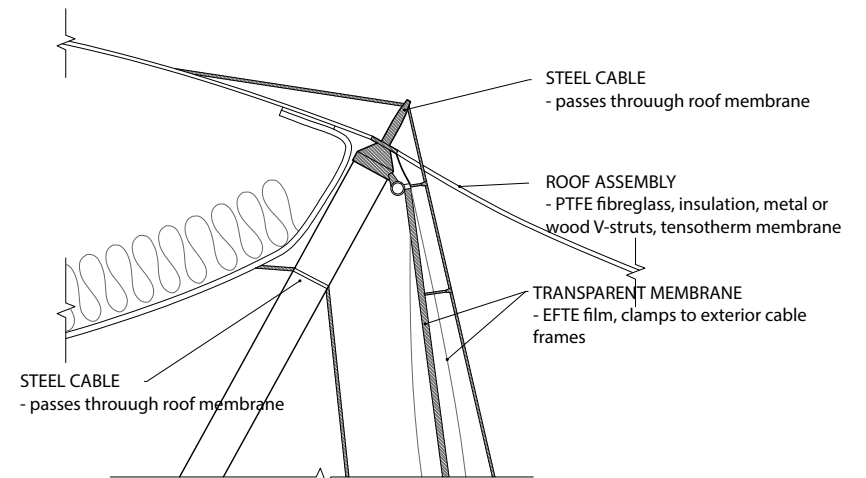
This project is intended to increase positive feelings towards growing fresh food in-home. It is also anticipated that the design will open minds in the community to new and different possibilities introduced throughout the design process. These ideas include passive solar heating and utilizing the environment (the sandy soil in particular) for its ability to retain heat, breathe, and release moisture. This project seeks to minimize the idea that "everything must be shipped" and that "we have to wait for the money". Instead, it seeks to answer the question, "what can be used here?"

1. ENTRANCE
2. STORAGE
3. DINING ROOM
4. KITCHEN
5. WET ROOM/BATHROOM
6. STORAGE
7. ENTRANCE
8. LIVING ROOM
9. GREENHOUSE GROWING SPACE
10. BEDROOM
11. BEDROOM
12. BATHROOM
13. BEDROOM

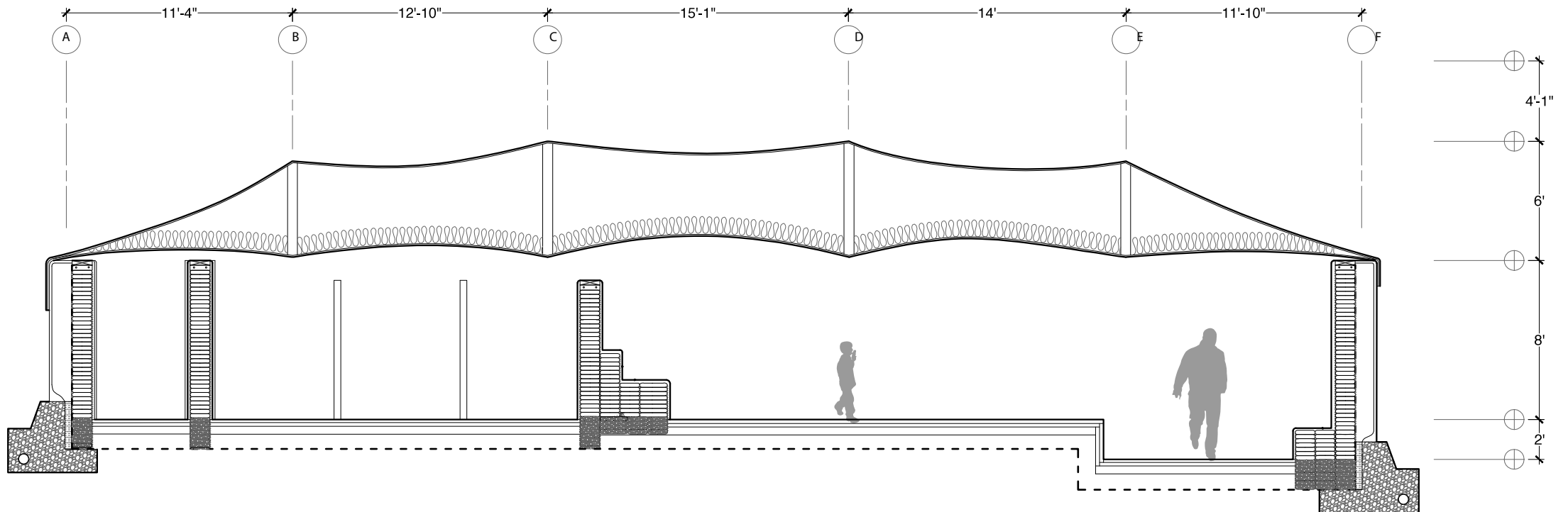




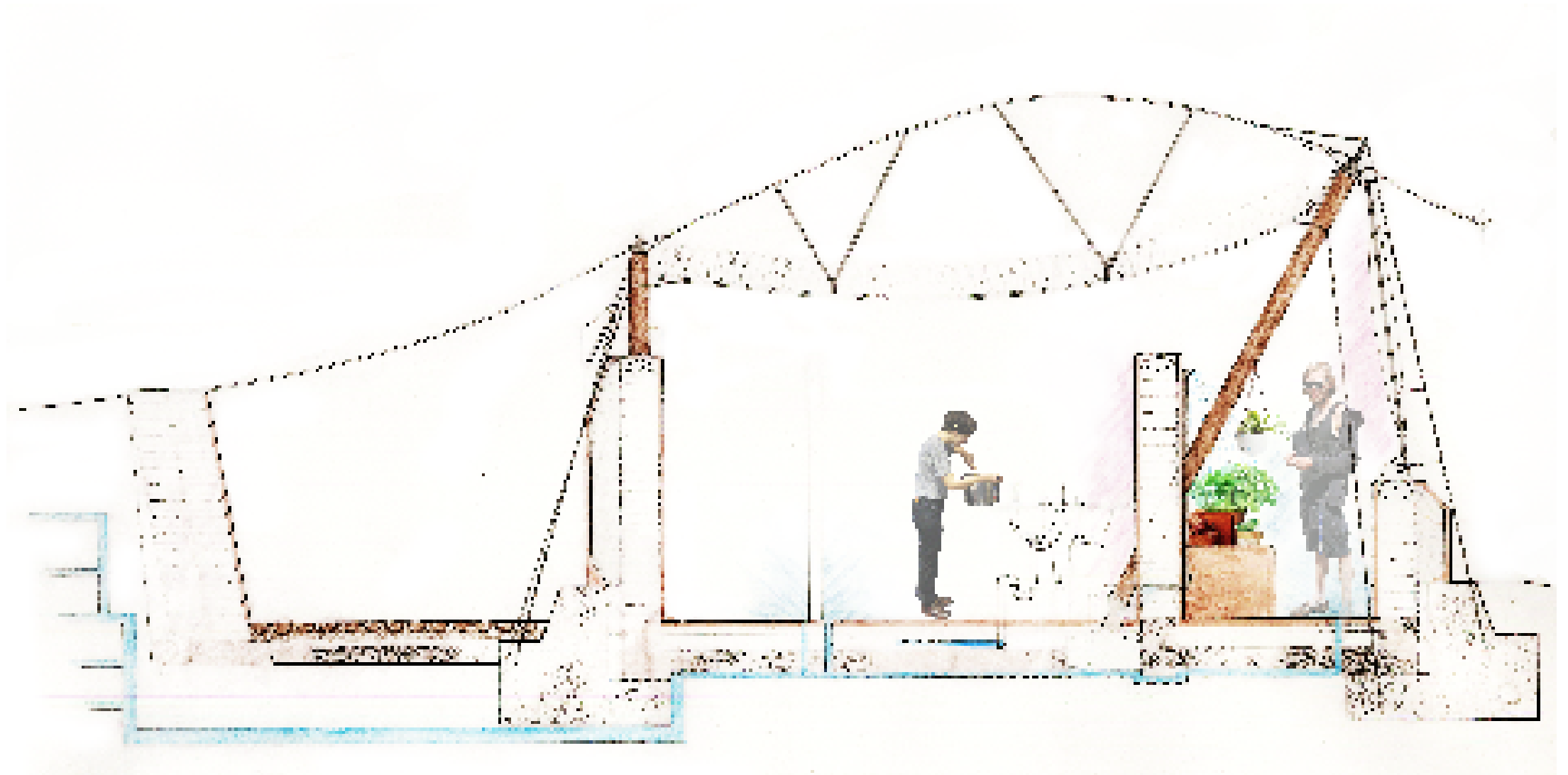
Foundation to wall detail.



Suspended roof system detail.



Section elevation drawing cutting through half of the house, viewing north.



Section elevation drawing illustrating various activities and events happening within the dwelling, the overall form of the building envelope as well as an integrated plumbing and irrigation system.



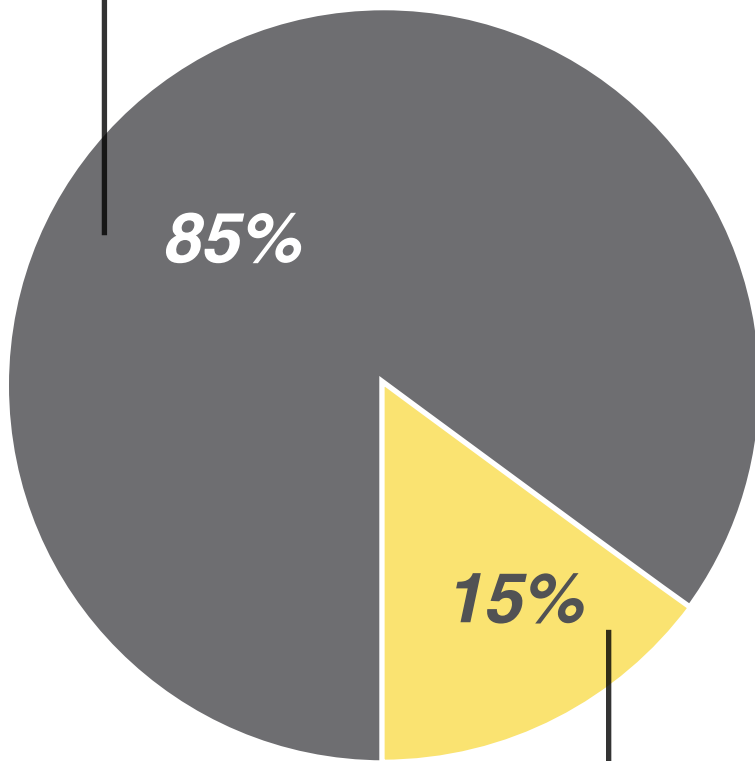
Interior images of the dwelling showing various spaces, activities and construction typologies.





PURCHASED MATERIALS

- FRAMING CONNECTIONS
- FRAMING LUMBER
- SCREW PILES



HARVESTED MATERIALS

- BLACK SPRUCE TREES AS SIDING FINISHES



FRAME HOUSE

▀ STUDENT: ANDREW HANSEN - ARCHITECTURE YEAR 4

The house was designed for a family of five to be living in it. The family consisted of two parents, two children and one Elder. It was imagined that the Elder in the family had a deep interest in teaching his grandchildren elements of the traditional lifestyles as well as hunting, fishing and food preparation techniques. The parents knew some of these methods however began growing up not needing to know as much as their grandparents. One of the children was very much into learning how to live off of the land while the other child was more into video games and technology.

One challenge of this project is creating a house that will attempt to aid in the teaching of traditional activities. How can the house foster a dialogue between the Elders and the children? These questions allowed for opportunities for the house to be more than a shelter, that the house can actually play a role in maintaining and strengthening of a culture.

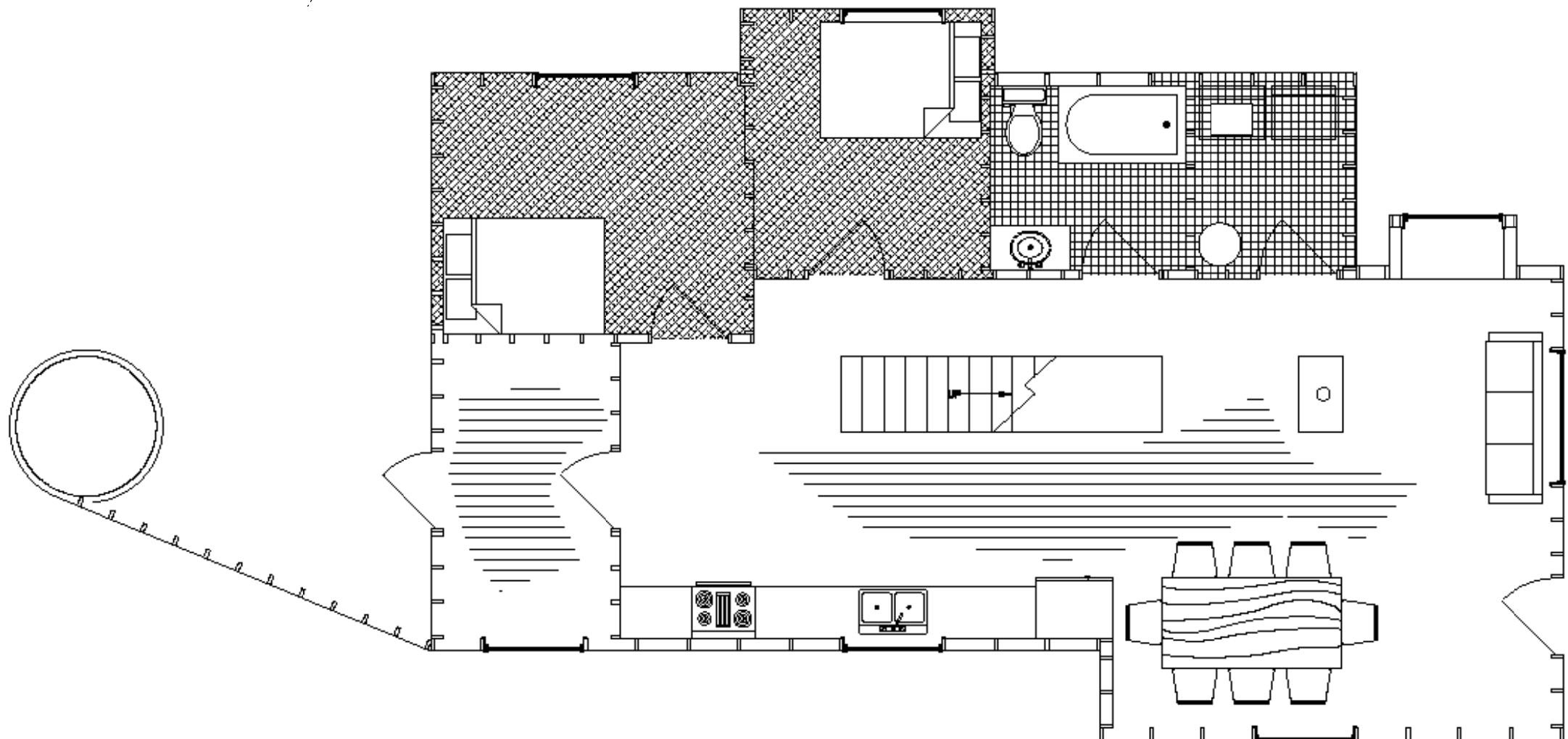
The structure of the house is built in such a way to be able to accommodate various and changing activities. The horizontal members of the structure are able to accommodate meat drying and smoking and can also act a bench to cut the meat on. To attempt to foster a dialogue between inhabitants of the house, the living area is large and centered around the wood stove, which is the main heat source of the house.

Through the inhabitation of this house, I hope that residents can strengthen their traditions through improved interactions with Elders. I also anticipate a desire within the community to have a more efficient way of processing their meats.



1.

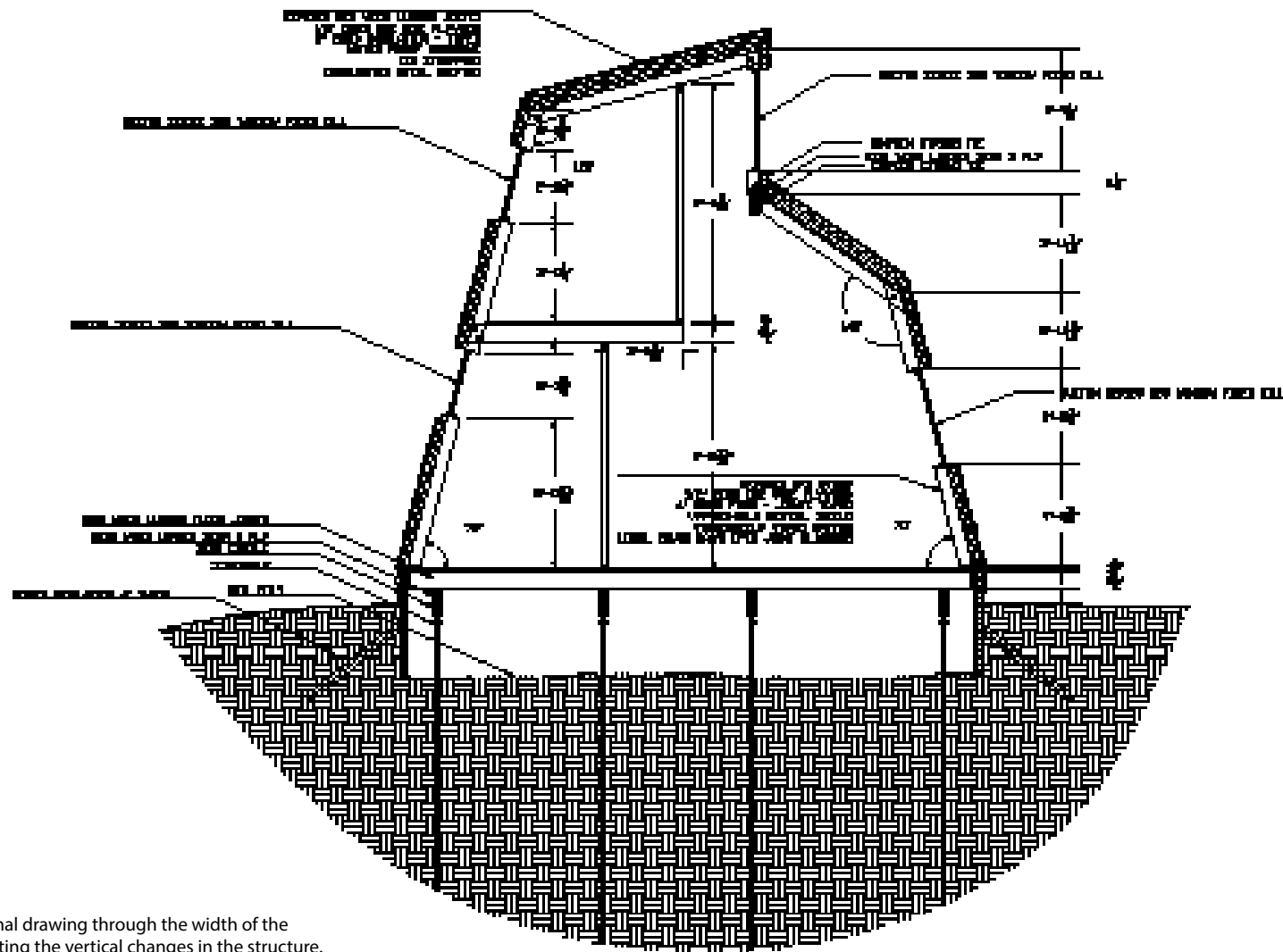
1. EXTERIOR SHELTERED ENTRANCE
2. MAIN ENTRANCE
3. BEDROOM
4. BEDROOM
5. BATHROOM
6. LAUNDRY ROOM
7. CENTRAL STAIRWELL TO LOFT
8. KITCHEN
9. FIREPLACE
10. DINING ROOM
11. ENTRANCE
12. BATHROOM
13. BEDROOM



12.



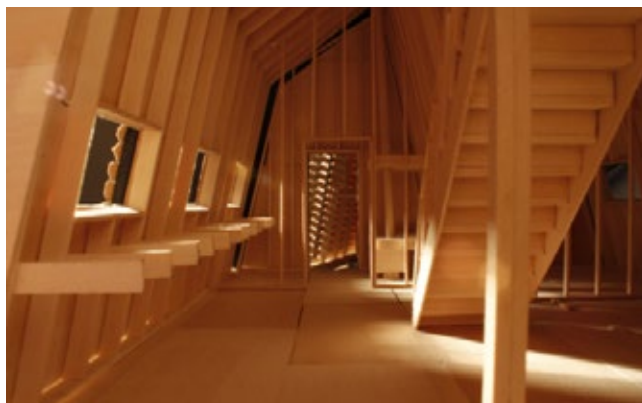
CONSTRUCTION SEQUENCE: SITE EXCAVATION TO FRAMING

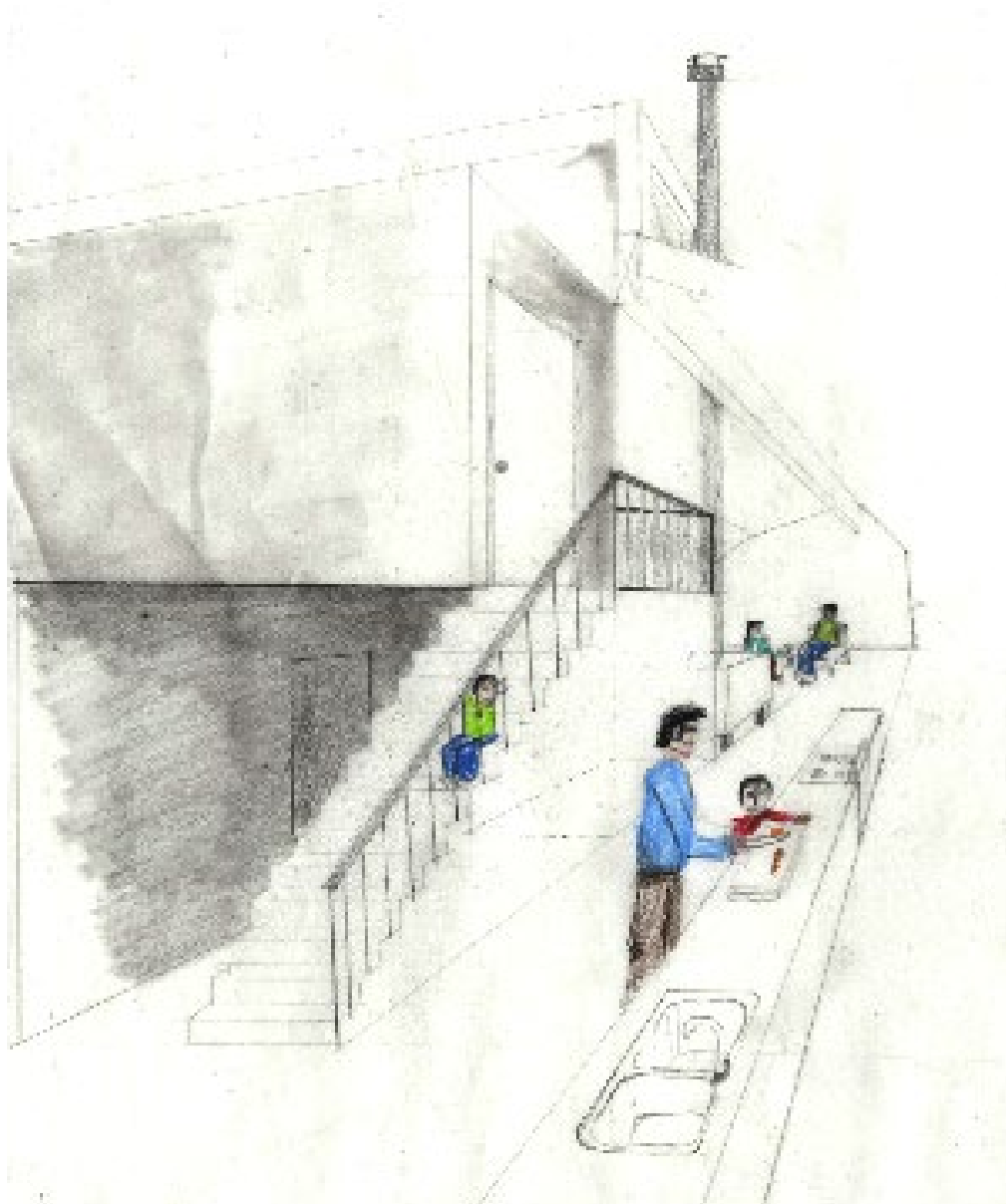


Technical sectional drawing through the width of the dwelling, illustrating the vertical changes in the structure.



To facilitate the flexibility of the space, there are very few interior finishes throughout the house. The frame is visible and available for the residents to adapt and change the storage and living conditions to suit their needs.

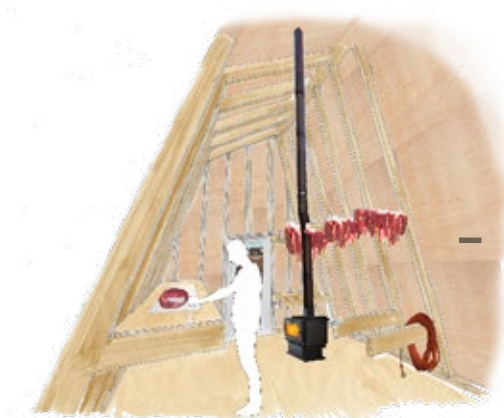




KITCHEN PERSPECTIVE



PLAY-WORK ROOM



CARIBOU PROCESSING SPACE



The caribou processing room shown both while the caribou is drying and also when it is not drying. It can be used as storage for tools when caribou is not hanging. Although the intended use of this room is for the processing and drying of the caribou, such activities only happen a few times a year. It is important that the space can be as multi-functional as possible.



PURCHASED MATERIALS

- BUILDING MATERIALS SOURCED FROM WINNIPEG TO IMPORT VIA WINTER ROADS
- VARIETY OF CLIMATE CONTROL PROCESSES

100%



ACTIVE HOUSE

▀ STUDENT: MICHELLE PEAKE - ARCHITECTURE MASTERS YEAR 1

The students of the Architecture Oriented Otherwise Studio are working in collaboration with the Faculty of Medicine. Studies have taken place in two specific northern reserve communities Tadoule Lake and Lac Brochet, Manitoba. The project researches housing conditions on the reserves and its effect on the health of the inhabitants. Overcrowding and excess moisture causing mold are major health concerns that are being studied. The houses that have been built for Tadoule Lake and Lac Brochet are not suitable for the social and cultural needs of the Dene people. The aim of this project is to develop an approach in which culturally appropriate houses can begin to be designed for northern communities in Manitoba.

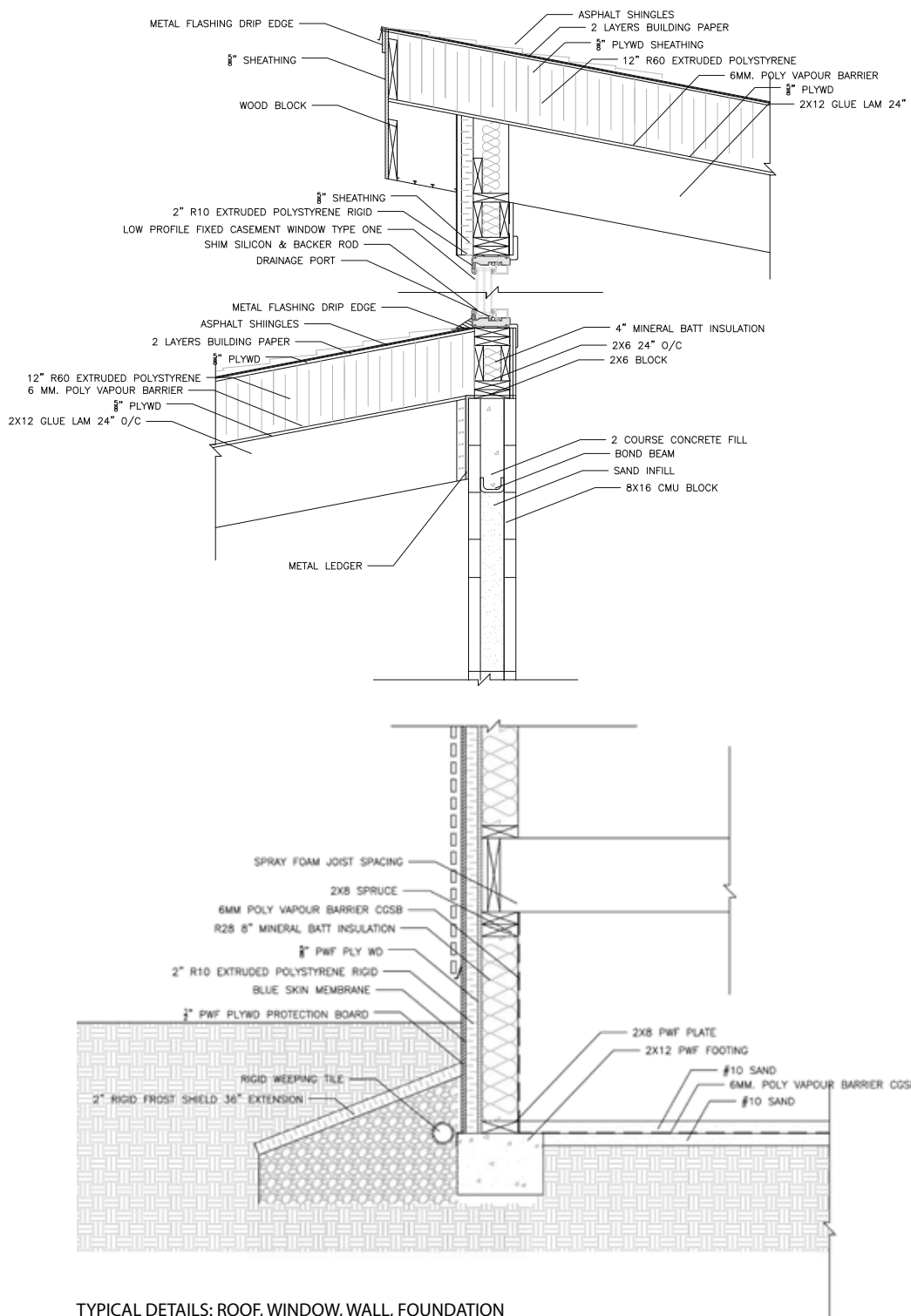
The following is a proposal for the design of a family dwelling in Lac Brochet, Manitoba. One of the challenges that this community faces is the recent change in lifestyle. The Northlands Dene went from an active life to a sedentary life on the reserve. The proposed project will explore various ways to respond to this challenge that the Dene face. There is a fear by some that the traditional knowledge and the Dene way of life is being compromised due to Southern influence in the communities. The proposed dwelling is striving to strengthen and encourage active relationships between individual families, their communities, the environment and the architecture they live in. Through carefully thought out, yet subtle moments the design of the home attempts to enhance the traditions and teachings of the Northlands Dene. The design will be sensitive to the Dene way of life and their valued relationship to the land and the creator. The architecture of the home begins to interact with the community and invite those outside to take part on events happening inside or around the home.

The specific dwelling that is proposed is a design for a family that consists of a single mother and two young boys. The home is designed to respond to their daily activities that take place. The home consists of three bedrooms, one bathroom, kitchen, cold storage, living and dining space. The total square footage of the dwelling is 1138.

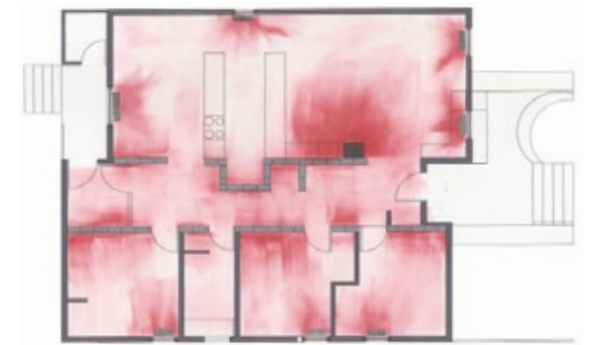


1. FIRE PIT
2. STACKED WOOD STORAGE
3. MAIN ENTRANCE
4. STORAGE
5. BEDROOM
6. BEDROOM
7. BATHROOM
8. MASTER BEDROOM

9. REAR ENTRANCE
10. REAR DECK
11. STORAGE
12. DINING ROOM
13. KITCHEN
14. LIVING ROOM
15. CRAFTING TABLE
16. WOOD STOVE



TYPICAL DETAILS: ROOF, WINDOW, WALL, FOUNDATION



WALLTHERMWOOD STOVE Primary Heat Source

- double combustion wood stove
- stove connected to a water tank to heat hot water and provide space heating
- 70% heats hot water
- 30% heats ambient air
- one filling will last 3.5-5 hours
- spare parts are available

PASSIVE SOLAR HEAT Complimentary Heat Source

- thermal mass wall absorbs heat from the sun during the day
- thermal mass stores heat
- when the sun goes down thermal mass will radiate heat into the space
- most effective with South facing windows
- if windows are covered, it will minimize heat entering the house
- no maintenance

DIESEL FURNACE Back up Heat Source

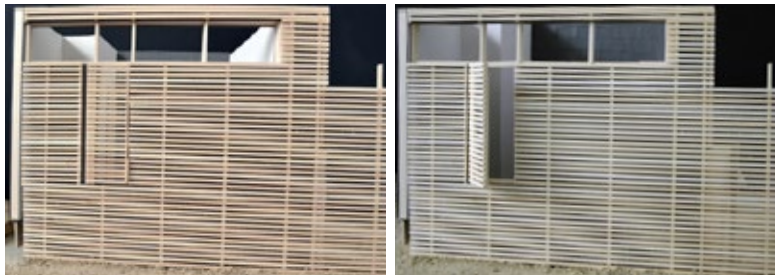
- Occasional use when family members are unable to tend the wood stove



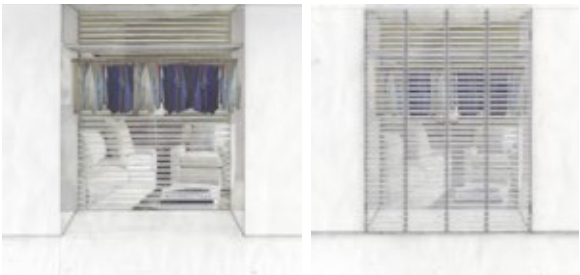
Section elevation drawing illustrating various interior and exterior spaces, activities and material finishes of the dwelling.



A window at the corner of the house is specifically placed to give a view into the space where the homeowner works on their crafts and allows a space for their products to be displayed to the community.



Operable doors clad in wood slats offer light into the house while protecting the window from damage.



Movable screens are used as interior partitions, to allow light and airflow through the spaces while creating stages of privacy for the inhabitants.

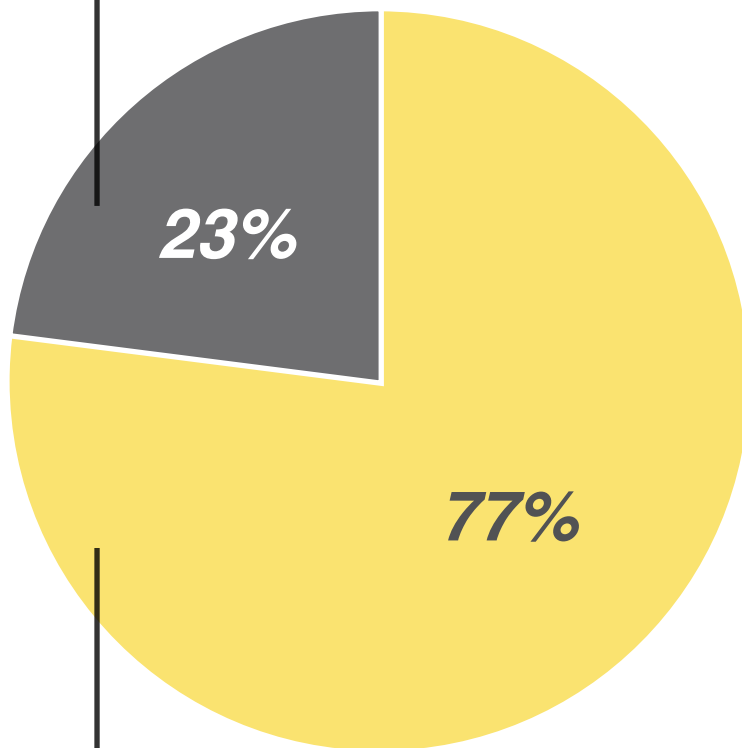


Exterior enclosures fold open and down revealing storage and creating a temporary working space.



PURCHASED MATERIALS

- STANDARDIZED METAL FASTENERS
- SCREW PILES
- METAL SHEET ROOFING



HARVESTED MATERIALS

- BLACK SPRUCE TREES



A HOUSE FOR A CRAFTSPERSON

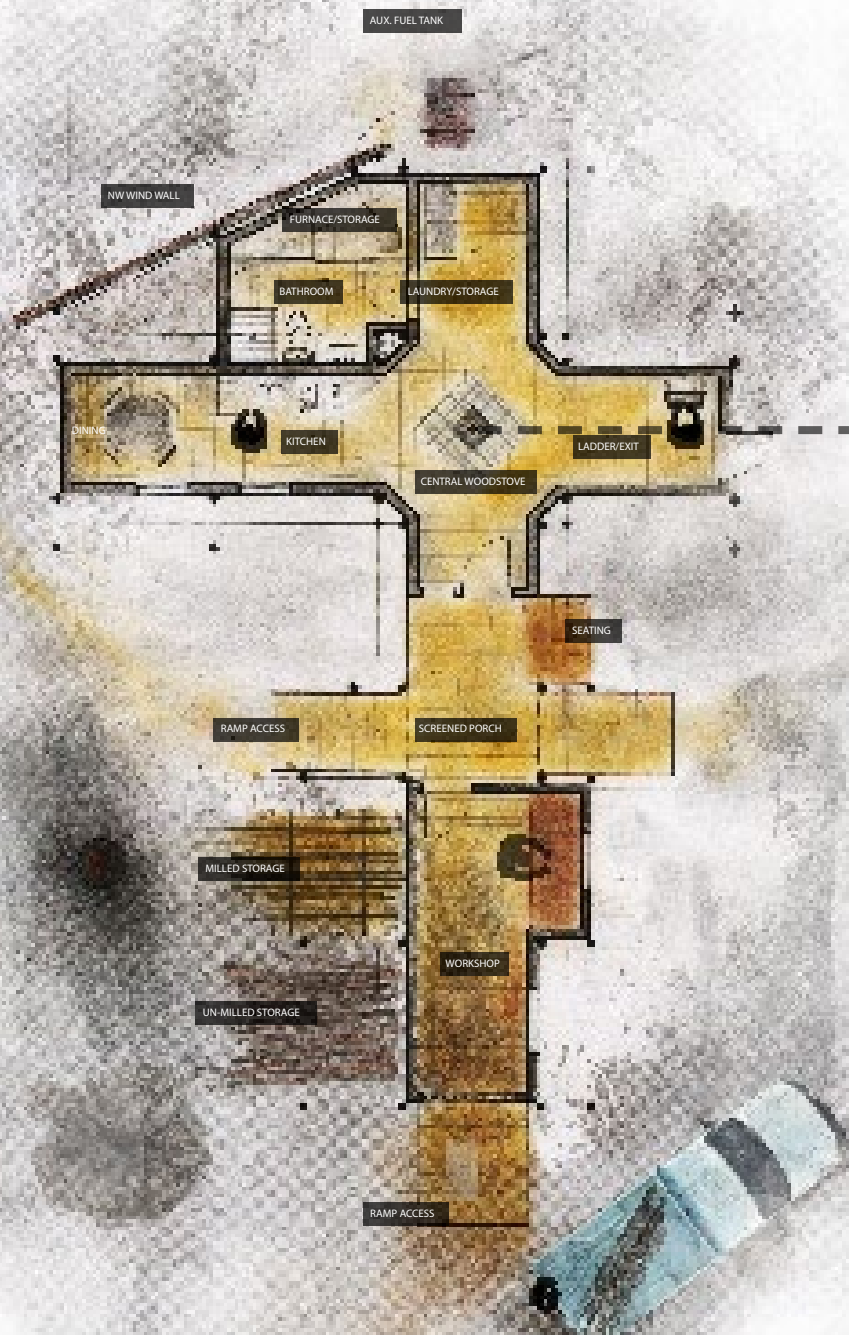
▀ STUDENT: EVAN TAYLOR - ARCHITECTURE YEAR 4

The Dene First Nations reserve of Lac Brochet, Manitoba faces a shortage of available housing for the growing community. In this scenario this form of overcrowding has lead to mental illnesses such as depression and sometimes worse within the community. This project aims to create an alternative pathway towards new housing compared to the standard housing stock. Currently, the Dene youth have little to no alternative options for new housing options. This project proposes a method and process of construction that creates an opportunity for a single youth to develop into series of necessary living spaces into a complete dwelling over a period of time.

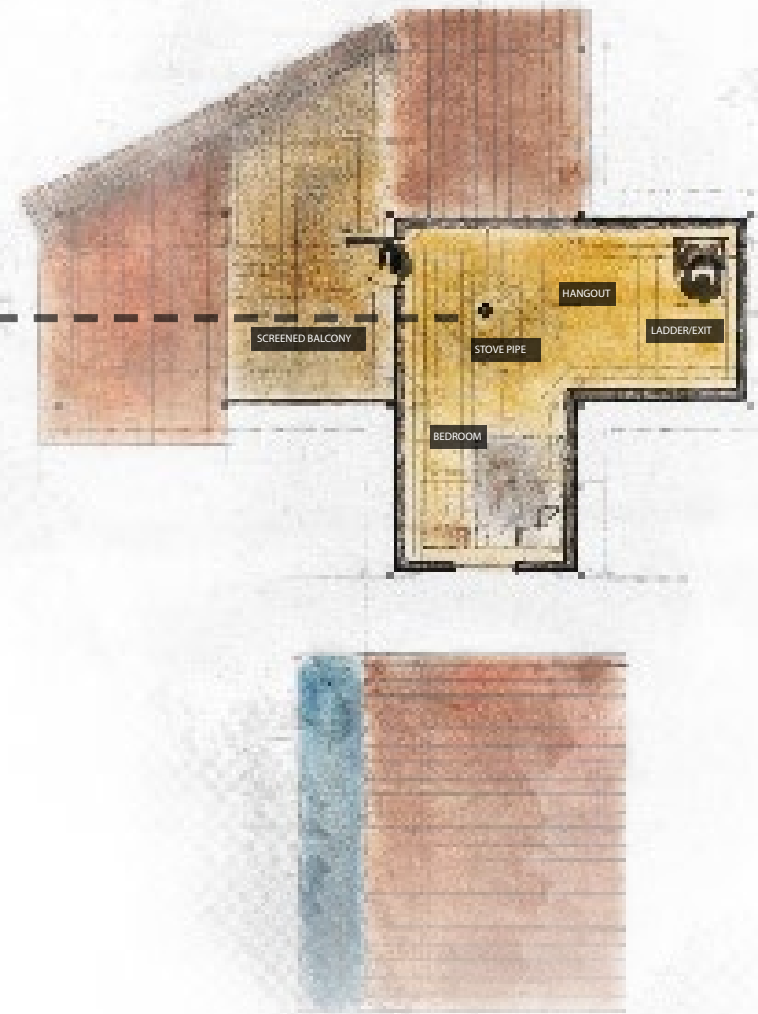
In remote communities such as Lac Brochet resource and material collection can be difficult and costly when transportation time and costs are considered. This process of goods and material shipment becomes a major issue in the contemporary northern building practices. This project seeks to find an alternative method to this current building practice: one that returns the First Nations community's housing stock back into a relation with the land and natural surroundings by utilizing local Black Spruce trees as core building materials. The integration of the University College of the North's carpentry program becomes a basis of working and construction skills necessary for creation of the building. The project utilizes a locally-sourced small round-timber exo-skeleton frame system to allow for external additions and flexibility of cladding types relative to the intended interior spaces. The timbers are connected into a three-dimensional frame through a series of simple, milled perpendicular connections aided by steel collars and steel tubing tied with bolts. These frames can be constructed in form for one to two story configurations. This process on the ground and raised up into place with the efforts of a few people. Interior and exterior finishes are milled from the same type of wood used in the frame; centre log cores sliced to form studs that can hold insulation and other typical framed inserts, smaller cuts can be utilized as interior wall, floor and ceiling surfaces, and off-cut ends of these trees can be lapped horizontally to create a finish for exterior siding.

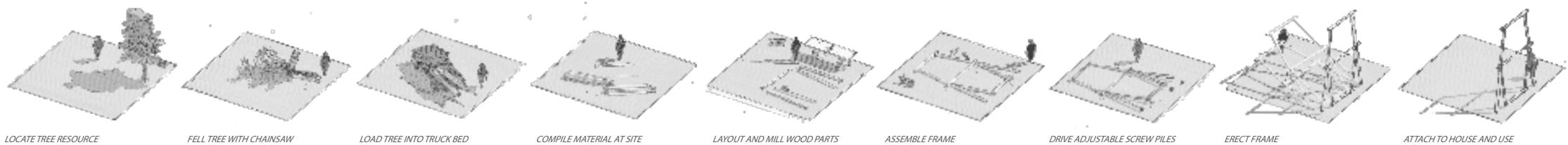
The intention of this housing concept is to start a discussion into what a contemporary form of housing could be for the community of Lac Brochet. Traditionally, First Nations communities of all backgrounds lived all aspects of their life from the earth. This projects seeks to regain a sense of this natural harvesting process by integrating it back into contemporary construction. The implications and influences of technology and southern lifestyles are undeniable and unavoidable in the present time of these remote communities. A discussion through the creation of new structures could lessen the reliance on government-funded housing, and reinforce a sense of importance in the community and re-connection with the earth and local landscape.

1F PLAN

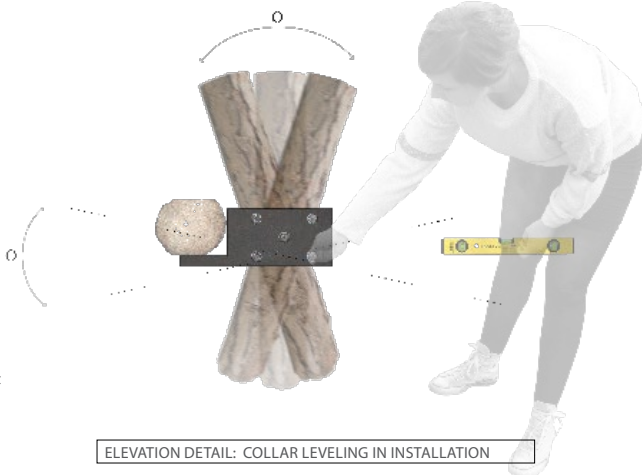
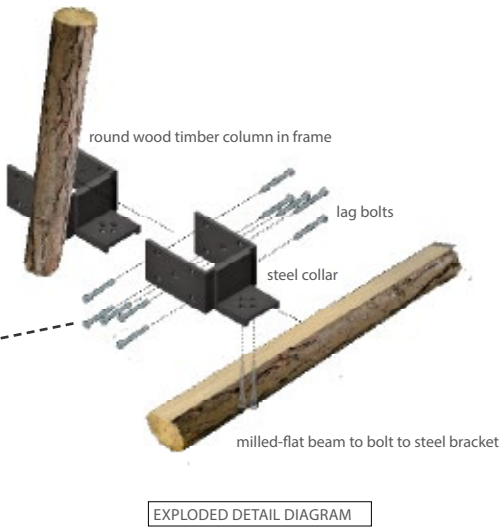
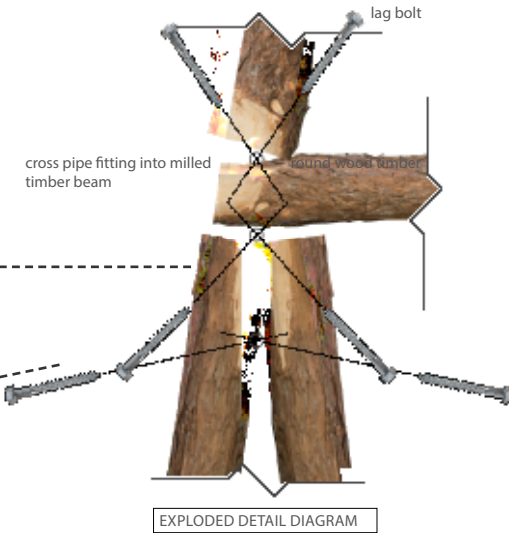
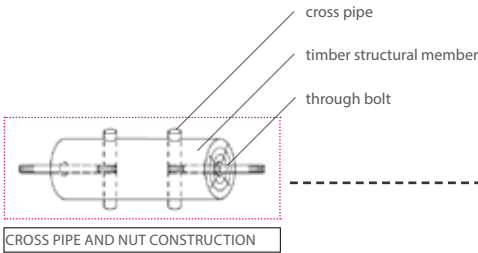
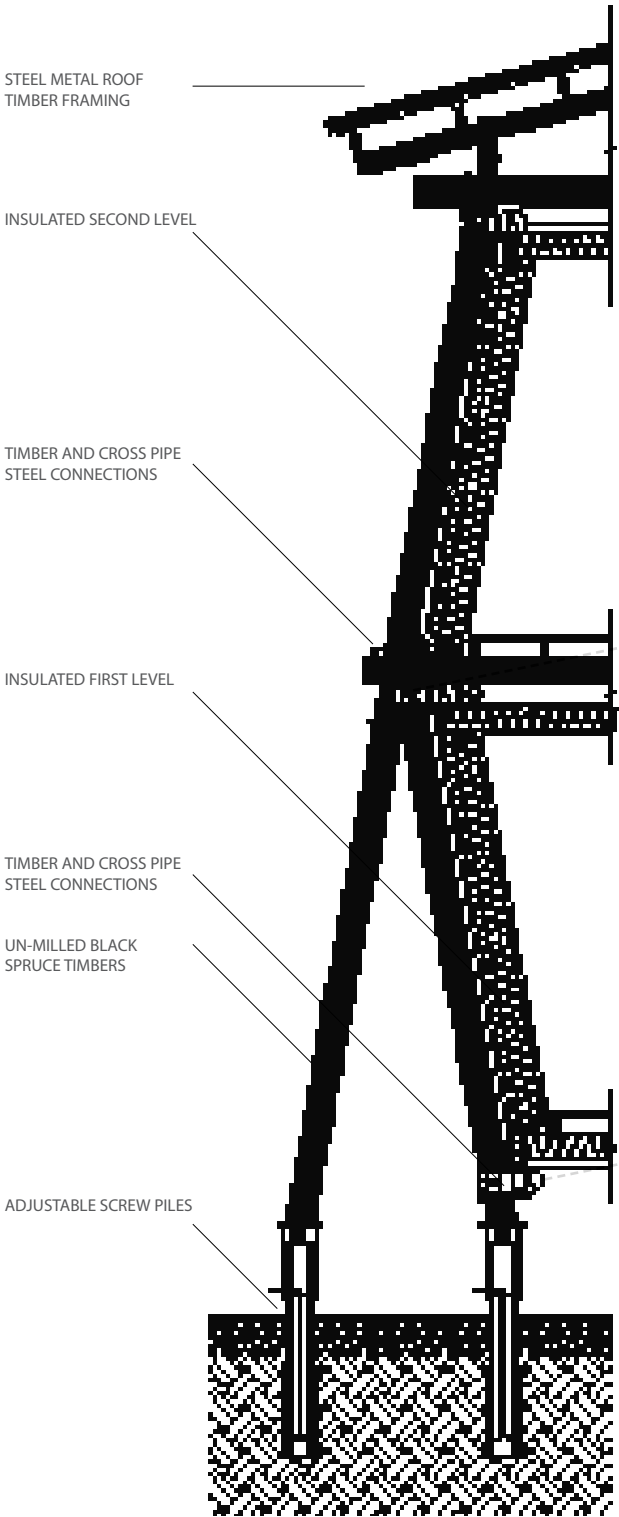


2F PLAN





TWO STORY FRAME CONSTRUCTION SEQUENCE





The interior walls are finished in boards cut from the local black spruce trees. This type of surface allows for an allowance of construction upon it as well as the ability for easy repair and replacement.



The interior spaces are sealed and insulated as the timber frame wraps the exterior, creating a workable and transformable structural separation between the exterior and interior functions.



Top Left: Exterior space south of main entrance.
 Top Right: Behind workshop, opened up for working.
 Bottom Left: Second floor balcony space.
 Bottom Right: Exterior space at night.

