

**ARCHITECTURE AS A CULTURAL TOOL:
A HOUSING PROPOSAL FOR A CREE COMMUNITY ON
THE WESTERN JAMES BAY**

by

Amanda McLeod

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

at

Dalhousie University
Halifax, Nova Scotia
July 2011

© Copyright by Amanda McLeod, 2011

DALHOUSIE UNIVERSITY
SCHOOL OF ARCHITECTURE

The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled “ARCHITECTURE AS A CULTURAL TOOL: A HOUSING PROPOSAL FOR A CREE COMMUNITY ON THE WESTERN JAMES BAY” by Amanda McLeod in partial fulfilment of the requirements for the degree of Master of Architecture.

Dated: July 7, 2011

Supervisor: _____

Advisor: _____

Advisor: _____

External Examiner: _____

DALHOUSIE UNIVERSITY

Date: July 7, 2011

AUTHOR: Amanda McLeod

TITLE: ARCHITECTURE AS A CULTURAL TOOL: HOUSING FOR A CREE
COMMUNITY ON THE WESTERN JAMES BAY

DEPARTMENT OR SCHOOL: School of Architecture

DEGREE: MArch

CONVOCATION: October

YEAR: 2011

Permission is herewith granted to Dalhousie University to circulate and to have copied for non-commercial purposes, at its discretion, the above title upon the request of individuals or institutions. I understand that my thesis will be electronically available to the public.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

The author attests that permission has been obtained for the use of any copyrighted material appearing in the thesis (other than brief excerpts requiring only proper acknowledgment in scholarly writing), and that all such use is clearly acknowledged.

Signature of Author

Dedicated to my grandmother and her mother

CONTENTS

Abstract	vii
Acknowledgements	viii
Chapter 1: Introduction	1
Precedents	5
Douglas Cardinal	5
Richard Kroeker	6
Glenn Murcutt	7
Ralph Erskine	8
Significant Writings	10
Native American Architecture by Peter Nabokov and Charles Easton	10
Bare Poles by Harold Strub	10
The Architecture of Affordable Housing by Sam Davis	11
The Eyes of the Skin: Architecture and the Senses by Juhani Pallasmaa	11
House Form and Culture by Amos Rapoport	12
The Bark Canoes and Skin Boats of North America by Edwin Tappan Adney and Howard I. Chapelle	13
Cultural Approaches to Native Canadian Housing: An Evaluation of Exist- ing Housing Projects in Cree Communities in Northern Quebec by Ghader Afshari-Mirak	14
Aboriginal Housing Assessment: Community Design Needs and Preferences and Application of Local Materials by the Center for Indigenous Environmental Resources	15
Architecture and Landscape Design Should Grow from Local Climate, Topography, History, and Building Practice by Douglas Kelbaugh	15
Housing Need	16
Housing Workshops: Housing Experiences and Potential for Change	25
Life Of The Omushkegowuk Cree: Past And Present	36
Mixed-Economies Of The Cree	37
Traditional Structures: Past In The Present	43
Place: Geography, Town, and Environment	47
Investigations into Material Culture	54

Chapter 2: Design.....	58
Beginnings.....	58
Keskaw Shelters: A Pilot Project.....	59
Apihkewin and Waskway: A Housing Design Proposal	67
Apihkewin House	71
Waskway Housing	81
Plan Studies	87
Structure and Material Culture.....	91
Form	92
Spatial Considerations.....	92
Individual and Collective	92
Housing.....	92
Workshop.....	93
Public Room	93
Transportation.....	93
Community Engagement	94
Greenhouse	94
Chapter 3: Conclusion	95
References	97

ABSTRACT

This thesis is a northern response to the dwelling culture and housing shortage of the Cree community in Moosonee, Ontario, located on the Western James Bay. The program of this thesis centres on housing, shared workshop space, and a public room, all designed specifically for those with the greatest need, multi-generational families, the elderly, and single parents with children. By anchoring the project with the premise of home as a zero point, a necessary place of beginning, I examined the typology of the house and its ability to respond to both landscape and culture. The housing responds to existing patterns in material culture, social structure, and ways of experiencing the land. Through this project I have investigated the myriad ways in which architecture can act as a cultural tool that reaffirms a sense of place and responds to living patterns and the northern climate.

ACKNOWLEDGEMENTS

I extend a special thank you to my Thesis Supervisor Richard Kroeker, Acting Director of Architecture, for his insight, expertise, and thoughtful advice. I would also like to express my gratitude to my Thesis Advisors, Jane Abbott, Architect, WHW Architects, and Emanuel Jannasch, Faculty of Architecture, for their steady support, guidance, and encouragement.

It is a pleasure for me to thank a number of people and organizations who helped to make this thesis possible:

Carol Kauppi, Professor, School of Social Work, Director, Poverty, Homelessness and Migration (PHM), and Director, Centre for Research in Social Justice and Policy, Laurentian University, and Henri Pallard, Professor, Department of Law and Justice, Laurentian University, for your unwavering support and for helping me turn my ten year plan into reality.

Emily Faries, Professor, Department of Native Studies, University of Sudbury, Kevin Fitzmaurice, Professor, Department of Native Studies, University of Sudbury, Honoureen Scott, Research Assistant, Laurentian University, Joey-Lynn Wabi, Community Advisory Committee Member, PHM, and Darren McGregor, Housing Director, N'Swakamok Native Friendship Centre, for providing assistance and sharing their knowledge.

Steve Parcell, Graduate Coordinator, and Bev Nightingale, Graduate Secretary, for their careful and incredibly thorough editing work.

The dedicated faculty and staff at the School of Architecture, for sharing your wisdom and gladly offering your help, from my first visit to the school in my workboots, to the final printing of this thesis.

My many friends and peers in the School of Architecture, especially Karl Vinge, Catherine Pagé-Chaussé, and Félix Lavallée, for innumerable late night desk crits, infectious laughter, and necessary coffee breaks.

Jim Hein for his encouragement and support – they were a mainstay during our time in Halifax.

My family for their love and support – hold fast.

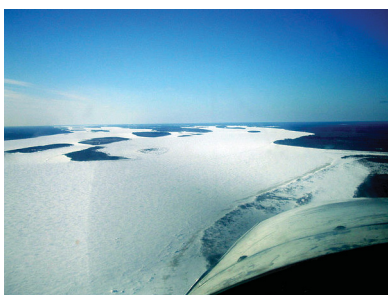
Finally, many, many thanks to Jessica Hein, for stumbling downstairs to have coffee with me in the early mornings, whether it was for a review of a drawing, to nurture the beginnings of an idea, to help me to remember. Your steady patience, wisdom, optimism, and support were integral to this work and its strength.

CHAPTER 1: INTRODUCTION

How can architecture be a cultural tool that reaffirms a sense of place and respond to living patterns, material culture, and the northern climate?

Responding to the housing shortage, the issues relating to substandard housing, and the dwelling culture that exists in the predominantly Cree community of Moosonee, this thesis project seeks to develop housing that combines private and collective space, and traditional and contemporary material culture. Apihkewin House and Waskway Housing simultaneously offer shelter while supporting and fostering traditional life patterns and culture of the Cree people. The design solution centres on a variety of housing models that are based on stages of life and living patterns. Built with local materials, the designs reflect material culture and fosters connections through shared outdoor and workshop spaces that seek to strengthen a sense of place and community. Two downtown sites were chosen: the first, bordered on two sides by water, is for a series of smaller units for seniors and single parents, and the second, running along the Moose River, is for a series of multi-generational family houses. Both sites respond to the need for a program that combines individual and collective dwelling.

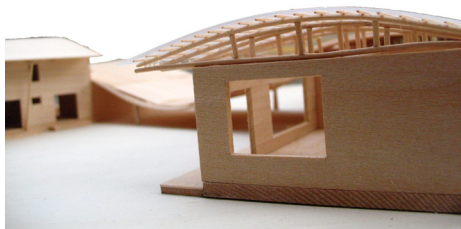
Selected because of its geographic location and its economic and cultural meaning for the community, the proposed site for Apihkewin House is a vacant lot adjacent to Store Creek and the Moose River at



Mouth of Moose River in winter
(Black Fly Boy)



Moosonee in summer (Rabbit2003)



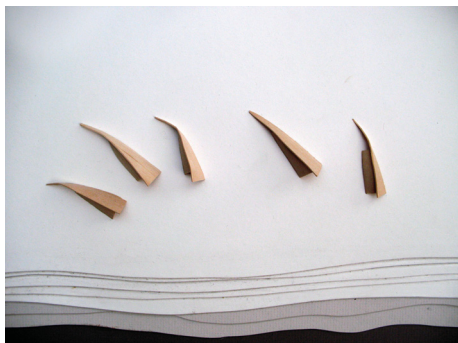
View of greenhouse, deck and housing of Aphikewin House

the southern end of the town's single commercial street. The site responds to the housing shortage and the widespread existence of substandard housing by providing housing for both elders and single parents with children. Informed by culture and place, the design proposes shelter that weaves together individual and shared spaces that flow from indoors to outdoors, reflecting cultural patterns and offering home.

Woven through the housing designs are shared spaces that will encourage interaction and act as places of teaching, learning, working, and gathering. Where First Street crosses Bay Road, ApihkewinHouse opens to the community with a Public Room. This space is an expression of local craft and culture that will be a focal point for the community and will provide additional opportunities for gathering, for sharing craft, and a potential place of engagement with the tourist population that visits the town mainly in the summer months. To the North



Site model of Apihkewin House, Waskway Housing, and Keskaw Shelter



Waskway Housing along the Moose River

East a pathway will lead from the site to additional infill housing, the creation of a public park, and the existing public docks.

Waskway Housing is located along the banks of the Moosonee River, occupying the space between the river, the forest, and the town. The design responds to the site and the traditional settlement patterns of the Cree community in Moosonee. Its form is most influenced by the water, the paths of movement across it, and by the wind, its coldness in the winter and the breezes in the brief summer months.

The houses are sited along the bank in clusters that form sheltered open spaces for gathering, teaching, working, and playing. Each house has a thickened north wall that wraps around the shelter, offering protection from the northern winds. A structure, comprised of roundwood, with bends that echo the making of the snowshoe, rises up and opens to the sky.

Integral to the success of the housing designs is the nature of the single home and how well it responds to climate, culture, and the community of Moosonee.



Crossing the Moose River on the ice road



Hudson Bay Lowlands - traditional territory of Omushkego Cree people (Bing Maps)

Precedents

Douglas Cardinal

Ouje Bougoumou



Aerial photo of Ouje Bougoumou
(Ouje Bougoumou)

Ouje-Bougoumou village is a Cree community in Northern Quebec. The master plan includes several public buildings clustered at the centre of the village. One of the strengths in this project is the collaboration and participation of the community throughout the design process. Community members played an active role in the design, from positioning the site along traditional trap lines to the building of their own houses. With sustainability at the forefront in both community and the built environment, Bougoumou stands as an example for the potential of design as a tool of empowerment.



Cree Cultural Institute (Ouje Bougoumou)



Beaverbank Free Lab (Richard Kroeker Design)



Pictou Landing Health Centre (Richard Kroeker Design)

Richard Kroeker

Beaverbank and Pictou Landing Health Centre

The Beaverbank Free Lab builds on earlier explorations at TUNS of bent wood construction such as the Algonquin canoe and the Eskasoni lodges. The project illustrates a direct connection between materials, process, and site. Influenced by indigenous building traditions and techniques, young saplings were bent in arcs to express their potential and to find an expression of form. Skins of reused bark and cedar shingles wrap the structure that sits lightly on the sloped site. Beaverbank “demonstrates that knowledge is not to be separated from making: that through experience there is a lesson in the way we build which has direct bearing upon our views on



Pictou Landing Health Centre (Richard Kroeker Design)

architecture and the world at large.” The essential nature of its construction offers a rich beginning to my understanding and study of bentwood structures and their process of making.

Lessons in sustainability, investigations of timber technology, and involvement of community are paramount in the Pictou Landing Health Centre. Exploration of Mi’kmaq material culture led to a structural system based on traditional bentwood technologies and the use of locally harvested trees; this material investigation gave the health centre its form. The Pictou Landing Health Centre offers an embrace, giving shelter from the north winds and providing a centre for the community.

Glenn Murcutt

Marika-Alderton House



Marika-Alderton House (Ozetecture)

Yirrkala Community, Eastern Arnhem Land, Northern Territory, 1991-1994



Marika-Alderton House, detail (Ozetecture)

The Marika-Alderton House offers much to study and learn from. Murcutt’s responsiveness to landscape and the elements results in an elegant design that seems to breathe like a living thing. Relevant to my thesis is the cross-cultural dimension of the project, Murcutt spoke of the house as one where he was trying to “build a bridge between cultures.” The house is built for an Aboriginal artist and her family in a remote area. Several considerations were paramount: adaptation to climate, prefabrication and a testing of the architect’s design principles with Aboriginal culture. A minimal palette of materials of cor-



Marika-Alderton House, interior
(Ozetecture)

rugated metal for the roof, plywood walls and tallow wood shutters, offer a sensitive design that is in stark contrast to the brick and nearly windowless bungalows that the Australian authorities build. Of great value in the study of this project as well is the working method of Murcutt, the sketches detailing design response to the sun and wind, from building scale to detail, outline a thoughtful and well considered working method. The prefabrication of the design, while it may cut down on expense, could be criticized for its lack of participation from the Aboriginal community.

Ralph Erskine

Northern Housing in Resolute Bay and Byker Wall in England

“I plead for poetry and beauty that is created out of real conditions; I plead for an architecture which expresses our dreams of a more just society.” Ralph Erskine

I learned much from Erskine’s principles in the design of Northern Housing, as well as his experience in the Resolute Bay town planning project. Erskine’s responses to the Northern climate include a sheltering wall from the cold winds, and the encouragement of social interaction. The humanism of his architecture, the optimism, and the encouragement of user participation are principles that I wish to find within my own housing design. Critical consideration of the Resolute Bay work relates to its unrealized completion. Did the community participate in the design process? Did Erskine respond to culture and



Byker Wall (Seoprise)

the specificities of Inuit ways of life? Was the project simply a vision of an unrealized Arctic utopia?

I also reflected on Erskine's work at Byker, England. The design is a multi-family urban housing project with a wall that wraps around the project's North side, protecting the inner houses from the wind and traffic noise. Simple materials of brick and concrete are met with flashes of colour at doorways and balconys. Communal spaces are designed to encourage interaction between residents.

I am interested in finding the moments that are present in Erskine's work in my own design response—a place to sit at the doorway, a shared balcony, and an entrance of one's own. Referencing the humanism in Erskine's work is important in my own design process; this includes ensuring Cree culture as a touch stone.



Housing in Resolute Bay (Bukisa)

Significant Writings

Native American Architecture by Peter Nabokov and Charles Easton

This collaboration by anthropologist Peter Nabokov and architect Charles Easton offers a thorough exploration of North American Native Architecture. The book begins with a culture area map that illustrates the geographic regions, language groups and native tribes of North America. Through historical observations, archeological summaries, ethnographic descriptions and field experience, each chapter explores “how architecture embodied and reinforced the tribe’s central notions about their society and its place in the cosmos.” This book is as much interested in the building process as the final dwelling. By way of diagrams, drawings and historical photographs, the authors explore the forces that are determinants of form: response to climate, natural materials at hand, social organization, patterns of gathering food, religious life and history. The three different structural forms, the conical tipi, the domical wigwam and the rectilinear gable roofed house, are in a way deconstructed—their materials and their methods of making are revealed layer by layer. The buildings of a people reflect their culture; as one Aboriginal elder said in an interview, “By our houses you will know us.”

Bare Poles by Harold Strub

In this text, Strub offers an informative guide for architects, engineers and planners when designing for people in the North. The book touches on

key issues for consideration, including the acknowledgement and appreciation of existing knowledge of the traditions of aboriginal people. Strub provides strategies for responding to site conditions, cold climate and the areas social context. With drawings, photographs and maps, the author has compiled a rich point of reference.

The Architecture of Affordable Housing by Sam Davis

Sam Davis writes an analysis for the design of affordable housing for those that are on the margins of society. Recognizing the sometimes precarious balance of community, individual, design and technical needs of affordable housing, the book iterates the premise that good design saves money and builds community. The role of housing in communities as places that offer residents a sense of dignity is examined through various case studies of projects and the analysis of economics and politics.

The Eyes of the Skin: Architecture and the Senses by Juhani Pallasmaa

In this book, Juhani Pallasmaa examines the alienation of the senses in modern architecture. Through the lens of architecture, Pallasmaa tracks the cultural and historical shift from a reliance on all senses to a singular focus on vision. He writes, "Modernist design at large has housed the intellect and the eye, but it has left the body and the other senses, as well as our memories, imagination and dreams, homeless." Pallasmaa also argues that the field of architecture has adopted the image-driven approach of

advertising, thereby turning buildings into commodities or products. In response to this assertion, he delves into a discussion of architecture that is informed by rich sensory experiences of sound, smell and touch, as well as vision. He explores the ways that senses work together to understand and interact with architectural spaces. Pallasmaa gives one example of the entrancing effect of dripping water in a darkened cave; the sound of water enables us to perceive and sense space in an extraordinary way. Through architecture that is human-centred and that engages all of our senses, Pallasmaa suggests we can experience spaces in ways that are meaningful physically, emotionally, intellectually, and psychologically.

House Form and Culture by Amos Rapoport

In *House Form and Culture*, Rapoport discusses houses within the environmental, technological, and social contexts in which they were built. He investigates the nature of the forms of houses, with diagrams succinctly describing overarching patterns and construction methods, moving from settlement to construction detail. Available materials, construction and technologies are discussed as modifying factors rather than “determinants of form” (Rapoport, 25). Ideas such as how “buildings and settlements are the visible expression of the relative importance attached to different aspects of life and the varying ways of perceiving reality” (Rapoport, 47) resonate as I consider my own observations of Cree material culture and are a good companion to Nabokov’s

text, “Native American Architecture” (see page 10 for more information). Throughout the book Rapoport outlines his thesis that the preeminent factor of house form is choice and he challenges the premise of climate, technological constraints, influence of place, defense, economics and religion as the sole generators of form. There is outdated terminology in his text, for example “primitive societies” that needs to be set to the side, but it is thoughtful and important work that offers a way in towards a well considered observation of house and its form.

The Bark Canoes and Skin Boats of North America by Edwin Tappan Adney and Howard I. Chapelle

This book is a study of the history and technology surrounding the watercraft of aboriginal North Americans. Adney leads the reader through the development of the earliest bark canoes and gives a thorough account of materials and tools used in their construction. Variations of craft are organized around regions and tribes, moving from the Eastern Maritime Region across to the Northwest and the Arctic. The author discusses how migrations of aboriginal groups within geographical areas and the influence of the fur trade have resulted in a number of “hybrid forms of bark canoes.” Historical photographs coupled with detailed construction drawings and extensive written descriptions allow for an intimate knowledge of the canoe: its place of making and the people who made it. This book is a detailed study of material culture, and at times I could almost feel the birch bark in my hands, smell the spruce

gum heating on the rocks and hear the lapping of water at the side of the canoe.

Cultural Approaches to Native Canadian Housing: An Evaluation of Existing Housing Projects in Cree Communities in Northern Quebec by Ghader Afshari-Mirak

This article illustrates how the social and cultural perceptions of Native and non-native people differ and influence the built environment. Afshari-Mirak describes indigenous Cree housing and evaluates the existing housing projects built by the Canadian government and Cree Housing Corporation. Through an analysis of culture, community, and living patterns, Afshari-Mirak provides comprehensive background information about Cree culture and housing in Quebec's James Bay Cree communities. Noting that architects and planners often ignore the socio-cultural complexities of indigenous communities, Afshari-Mirak states "participation in the decision-making process at both the design and construction stages would allow natives to meet their spatial needs and cultural aspirations, providing them the option of choosing a more suitable housing form." This article discusses the desire for self-determination on First Nations communities and calls for culturally appropriate development that is participatory, community based, collaborative, modest, and respectful.

Aboriginal Housing Assessment: Community Design Needs and Preferences and Application of Local Materials by the Center for Indigenous Environmental Resources

This paper summarizes a study that responds to two concerns of Aboriginal communities: that the design of their housing is not appropriate for their culture and that building materials are too often imported from far away even when local resources are available. Current housing designs in Aboriginal communities do not meet the needs or preferences of the residents. Other concerns and preferences discussed by participants in the study include sensitivity to culturally appropriate designs, a need for more space, addressing the needs of children, flexible space, back-up heat sources, outdoor space and outbuildings, closed porches and mudrooms, fire exits, the needs of the elderly, and housing options for single people. The article also includes information about the use of local materials for housing (particularly logs, straw bales, and bricks). The use of local, sustainable materials for housing construction has the potential to bring environmental, economic, social, and cultural benefits to the participants and the community as a whole.

Architecture and Landscape Design Should Grow from Local Climate, Topography, History, and Building Practice by Douglas Kelbaugh

Critical regionalism (or simply regionalism) is an attitude in planning and design that closely observes and honours the specific characteristics of a location. Kelbaugh states, “the principle roots architec-

ture and landscape design in local culture and the genius loci. It is a reaction to the standardization and homogenization of Modernism, which typically substituted technological fixes (air conditioning, for example) for architectural responses to climate, topography, and building practice.” The article discusses the importance of understanding natural systems (such as geology, hydrology, and ecology) in order to achieve sustainable architecture.

Housing Need

Dwelling: something more than having a roof over our head and a certain number of square meters at our disposal. (Christian Norberg-Schulz, 7)

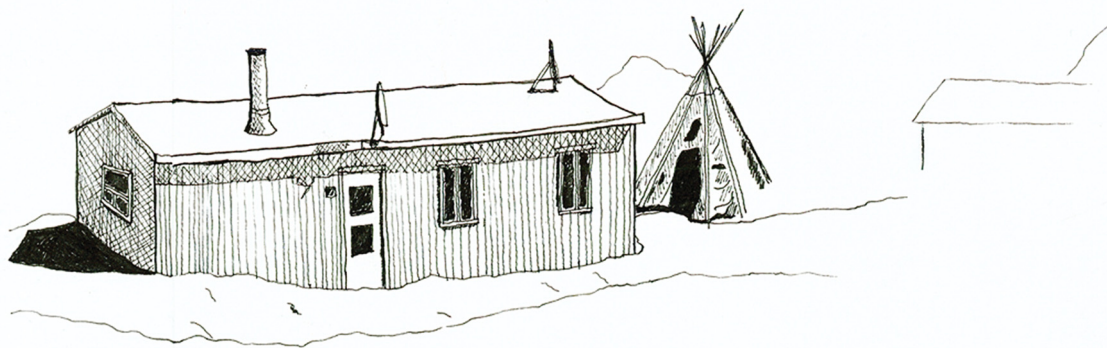
Housing represents a zero point; it is “the foundation of individuals, families, and neighbourhoods. Safe, secure, quality, appropriate, and affordable housing enables people to fulfill their potential as healthy and educated contributors to society” (Ontario Federation of Indian Friendship Centres, 5). In his text *The Concept of Dwelling*, Christian Norberg-Schulz writes that in order to have a meaningful life we must know who we are and where we are (7). Housing that reflects the material culture, relationships with the landscape, and the social fabric of the community is necessary.

In order to develop culturally and geographically appropriate housing, it is important to understand the history and context of the community. What follows is a review of the literature on the issues of housing and homelessness within Aboriginal communities in Canada, and Moosonee in particular. In addition, two

housing workshops with Cree people from James Bay are discussed in detail.

Across Ontario, Aboriginal people have diminished access to decent shelter and this is most apparent in the extreme over representation of Aboriginal people among the homeless populations of every major city in Ontario (Ontario Federation of Indian Friendship Centres, 5). United Nations representative Miloon Kothari reported observations of shocking homelessness and overcrowded conditions after a recent visit to Aboriginal communities in Canada (Ontario Federation of Indian Friendship Centres, 20). A history of government social spending cuts and services have exacerbated a situation that is compounded by inflation and a lack of investment in affordable housing (Ontario Federation of Indian Friendship Centres, 21).

Research has shown that stereotypes of homelessness have a spatial component, with the erroneous assumption that housing affordability crises are con-



Drawing of a home in Moosonee

centrated in large urban centres (Whitzman, 2006). However, homelessness and precarious housing conditions have been documented in rural communities and small cities in Canada (Kauppi et al., 2003; Miller, Donahue, Este, & Hofer, 2004; Montgomery, Forchuk, Duncan, Rose, Bailey & Veluri, 2008;). Numerous physical and material reasons account for the ways in which rural spaces obscure the nature and extent of homelessness (Cloke et al., 2001). In contrast to the visible street presence of homeless people in urban centres, there are few points of concentration for homeless persons in rural areas due to the lack of services for homeless persons (e.g. shelters, drop-in centres and soup kitchens). Therefore, homelessness is hidden in small communities. Moreover, rural communities may utilize terms such as housing issues rather than homelessness in local



A photo taken by a homeless person of the place where he sleeps, photo-voice project, PHM, Laurentian University

discourse. It should also be noted that terms such as homelessness and migration may have different meanings for indigenous people who lived together in close quarters and who have traditionally taken in extended family members who had lost their housing.

Hidden homelessness is endemic in many rural Aboriginal communities, often taking the form of “couch surfing,” which occurs when an individual or at times an entire family moves from home to home. This results in extended living situations of extreme overcrowding, with as many as three or four families living in one small bungalow. Overcrowding, in combination with improper construction, often leads to moisture build up within homes, which then causes mould. Far too often aboriginal people live in homes that are not healthy and not safe. A myriad of factors contribute to this reality: insufficient homelessness services or infrastructure, colder climates, and inadequate funding for new accommodation. These factors are in addition to ongoing struggles in the communities that include “the ongoing impacts of colonialism and residential schools, existing legislation such as the Indian Act and its patriarchal provisions, various structural determinants, racism, social and economic exclusion and the consequent ripple effects of higher incidences of violence, family instability, addictions, and mental illness” (Ontario Federation of Indian Friendship Centres, 22).

Aboriginal people leave rural communities in order to obtain health care, work opportunities, educa-

tion, and social services as well as better access to decent housing. Families are then separated, and the transition from a rural to urban life can be fraught with obstacles. Often this is a cyclical migration, with persons moving back and forth, reflected in the higher mobility rates of the Aboriginal population. Inadequate housing options contribute to this cycle, thereby perpetuating the problem (Ontario Federation of Indian Friendship Centres, 23). Across Canada, Aboriginal, Inuit and Metis people struggle daily with housing needs and the adverse impacts of poverty on their communities, which include challenges in early childhood development, education, work force participation, health, community safety, and quality of life (Ontario Federation of Indian Friendship Centres, 24). According to the Housing Trust, “it is time to recognize safe, affordable, and culturally-appropriate non-reserve Aboriginal housing as a cornerstone to healthy, sustainable communities” (27).

A timeline focusing on major developments within Canadian housing policy begins during the depression in the 1930s, with the role of the government set out in the Dominion Housing Act in 1935. After WWII, the government provided affordable housing for returning soldiers and their families with the first social housing projects by the Canadian Mortgage and Housing Corporation. In 1964 the National Housing Act provided public housing, with the acknowledgment in the following years that decent shelter was a right to be afforded to all. In the subsequent years, through the 1970s and 1980s, various social hous-

ing projects and programs were introduced, including the Rural and Native Housing program and the Urban Native Housing Program. From the inception of these programs, Aboriginal groups were calling for more culturally appropriate housing that was designed and built in the communities. During the 1990s there was a gradual withdrawal of both the federal and provincial governments from housing development, with a shift in responsibility to non-profit agencies for the provision of housing. In recent years, the federal government attempted to address the short term housing needs of non-reserve Aboriginal people, but with decades of housing shortages, the existing housing is inadequate and unsafe and the waiting lists for shelters are lengthy (Ontario Federation of Indian Friendship Centres, 26).

In comparison to the 8% growth rate of the population of non-Aboriginals in Canada, the Aboriginal population has increased by 45% since 1996. Demographic trends illustrate a population that is diverse, growing, increasingly urban and mobile, and that has a high percentage of single-parent families, lower educational attainment, and a large portion of the population living in substandard housing (Ontario Federation of Indian Friendship Centres, 28). The Aboriginal population is young; nearly half are children and youth 24 years of age and younger, in comparison with 31% of the non-Aboriginal population in Canada (Ontario Federation of Indian Friendship Centres, 28). These demographic trends, coupled with a dearth of adequate and affordable housing,



A typical house in Moosonee



A typical house in Moosonee

produce high levels of core housing need particularly among single parent households (Samivel, Sibi 2006 Census Housing Series, 11).

Careful study of existing housing reveals housing designs that often do not support Cree culture and rarely respond to the Northern climate (see page 23-25 for plan studies of existing housing). In his article, *Bare Poles: Building Design for High Latitudes*, Harold Strub points out that “housing erected by the government to serve native populations was designed on a pattern suited to southern Canadian suburbs” (14). According to Strub, the housing in the far north is inadequate for arctic and subarctic conditions, and is small and drafty. In addition, the houses are not adapted to Aboriginal lifestyle; rather Native people have been forced to adapt to the design of the houses. While in southern Canada inappropriate housing designs would disappear from the market within a year, in the north there is simply no alternative (Strub, 14).

A search of the published literature on Moosonee and the Cree communities of the western James Bay shows that there has been little research conducted in this region on housing and social issues including poverty and homelessness. Much of the existing research is Eurocentric and does not involve indigenous or innovative methodologies that engage indigenous community members in the development of the research projects. A further problem is that a number of studies were conducted several decades ago and the results may not accurately depict the

present conditions of Moosonee. The studies on homelessness among isolated, northern, small town and indigenous populations mainly included individuals who were absolutely homeless and there has been little attention given to understanding the housing circumstances of people who are at risk for homelessness or experiencing forms of hidden homelessness. While little research has been done thus far on the Omushkegowuk Cree of the Western James Bay, it is important to understand the broader context of Aboriginal people in Canada.

However, based on the housing studies that have been done in Moosonee we can ascertain that there is a need for the development of varied forms of housing that can meet the needs of the mainly Cree inhabitants (Meridian Planning Consultants, 2006). Additional affordable housing that addresses the traditional cultural patterns of life is required. Social housing, transitional homes, and emergency shelters are needed to serve Cree people who are living in precarious housing conditions. Historical factors of colonization and residential schools are linked to ongoing problems such as domestic violence and abuse. Furthermore, there is a need for ground-level seniors' homes as at present none exists in the town of Moosonee. The town lacks supported housing where individuals facing multiple difficulties including homelessness, mental health issues, developmental or other forms of disabilities such as dementia, Alzheimer's disease and vision loss due to diabetic retinopathy. Research shows that supported housing for persons with mental illness allows for connec-

tions with significant others in addition to providing a sense of safety and purposefulness (Montgomery, Forchuk, Duncan, Rose, Bailey & Veluri, 2008). The success of the supported housing intervention is likely to be influenced by the characteristics, circumstances, and resources of each community.

According to the 2006 census, the total number of private dwellings in Moosonee was six hundred and fifty eight (Statistics Canada, 2007). Municipal data for Moosonee indicated that, in 2010, the active housing waiting list indicated a need for 444 bedrooms. The largest number of individuals were looking for housing with 3, 4 or 5 bedrooms in the unit. This pattern is consistent with the traditional modes of living in which extended families live together.

In order to gain specific insight into the housing issues and forms of homelessness faced by people in Moosonee and other communities in the region, I participated in and co-facilitated two housing workshops that were conducted in Sudbury, Ontario with Cree people who were originally from the James Bay. The workshops were organized by the Poverty, Homelessness, and Migration project at Laurentian University, which is a five-year, SSHRC-funded Northern Community-University Research Alliance (CURA) project that is focused on homelessness and migration in Northern Ontario. My work for the project centred on housing, poverty, and urban migration in the Cree communities in the James Bay region. The following sections provide a summary of the discussions pertaining to the interconnected

issues relating to housing on the James Bay. Also presented is an overview of the housing designs developed by the participants.

Housing Workshops: Housing Experiences and Potential for Change

October 2010 and February 2011

N'Swakamok Native Friendship Centre

Sudbury, Ontario

Cree people from the James Bay were invited to the N'Swakamok Native Friendship Centre in October 2010 and February 2011 to discuss their housing experiences and develop solutions. Both housing workshops began in the morning, with the beat of a drum, a song, and a smudge. At each workshop, the participants responded thoughtfully and openly to discussion questions and offered information about their individual and collective housing experiences in relation to First Nations housing and urban migration. Dialogue centred on the psychological, social and structural issues related to the inadequate housing conditions on reserves, as well as the lack of support and affordable, decent housing upon migration to more southerly urban centres. Participants also discussed traditional ways of life and material culture, and offered contemporary housing solutions.



Substandard housing, photo-voice project, PHM, Laurentian University



Substandard housing, photo-voice project, PHM, Laurentian University

Workshop Details

Participants at both the October 2010 and February 2011 workshops were originally from the James Bay communities of Moose Factory, Moosonee, Fort Al-

bany, and Attiwapiskat. In addition, two individuals were from Anishinaabe communities in the North Shore area or southern Ontario but they had previously lived in James Bay communities. About half of the participants in each workshop were women. The discussions that took place during both workshops were recorded and the audio recordings were transcribed verbatim.

At the first workshop, held in October 2010, 19 participants attended and one additional person asked for an individual interview. The October workshop was held in two parts. In the morning session, a facilitated discussion focused on experiences with housing and housing needs. The facilitator, Carol Kauppi, shared a series of photographs that illustrated the living circumstances of absolute homelessness as well as substandard housing in the Sudbury area. The photographs had been taken by homeless and near homeless people to show the places where they lived. It offered the participants a beginning place to relate their own stories of inadequate housing. In the afternoon, a design charrette explored housing solutions. Through stories, drawings, and models, participants shared their experiences with adversity and countered them with humour and hope.

The second workshop, held in February 2011, was a more intimate gathering of six Cree people (compared with the first workshop attended by 19 people). At the February workshop, the participants were invited to speak about their knowledge of trad-

itional Cree structures and material cultures. At the beginning of this workshop, I gave a presentation to give an overview of the key ideas from the October workshop. The presentation focused primarily on individual and collective housing experiences in James Bay and Sudbury and potential solutions to housing problems. I also showed images of the models and drawings that the first group of participants had made during the design charrette at the first workshop. Participants were invited to review and comment on ideas and experiences revealed in the October housing workshop and design charrette. The aim of the follow-up workshop was to build on that knowledge through an in-depth discussion of housing experiences both in the James Bay and in Sudbury. In addition, a specific objective was to explore the participants' understandings of the relationship between traditional ways of living and making and their roles in contemporary Cree culture and housing.

Housing Concerns Pertaining to the Western James Bay

In response to questions concerning their home communities on First Nation territory, the participants from both workshops expressed their dissatisfaction with the existing housing. They stated that the housing is poorly built and maintained and is often unsafe and unhealthy. The presence of asbestos and mould in many houses creates harmful environments in which to live. Participants also discussed the issue of poor water quality. Some houses simply do not have running water. Sometimes the water from the

pipes is dirty and must be boiled. They spoke about winters when the pipes freeze and there is no running water. They described strategies families use to keep heat inside the homes, including piling up snow on the edges of homes in the winter to prevent the pipes from freezing.

At length, participants discussed overcrowding and its negative effects on individuals, families, and the greater community. It is common within First Nations communities for two or three families to share a single bungalow, with two or three children per family. In such situations, each family shares one bedroom. In these overcrowded housing situations there is no privacy, there are no boundaries, and families experience a great deal of frustration and stress. Some choose to stay away from the house because of the overcrowding and during the summer months many people camp outside of the community in order to have some privacy.

Participants discussed the difficulty of obtaining housing in their home communities—some have waited as long as ten years to acquire their own house. Some participants stated that council members have the best housing in the community and that decent housing is much more readily available to those who are related to the council members. Young people find it difficult both to stay on the First Nation and become independent and autonomous because it is virtually impossible for them to move away from their families into their own houses.

Questions about past housing experiences in the community led to discussions about the traditional ways of life that no longer exist. Interconnected with housing problems is the legacy of residential schools. Participants spoke of their loss of language and culture and the abuse that was endured. A participant stated, "I was put in CAS when I was a kid, they screwed me up more than anything. I lost my language, I lost my culture, I lost everything." Participants spoke openly of battling addictions, struggling with mental health issues, experiencing difficulties related to reintegrating into the community after incarceration, and dealing with cycles of abuse.

The devastating effects of residential schools on the community include ongoing cycles of abuse and alcoholism, an erosion of the sense of community, the loss of their languages, and a diminishing knowledge of and connection with the land.

Participants articulated the multifaceted and interconnected problems related to housing on the First Nations, as well as the lack of support and affordable, decent housing upon migration to more southern urban centres. They noted that, when their needs are met, individuals are able to realize their potential, families are able to heal, and communities are able to flourish.

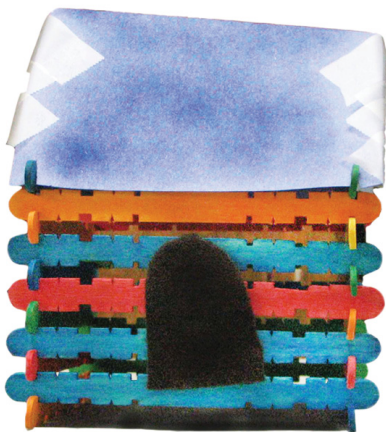
Discussion of personal and collective housing experiences led to ideas related to the importance of having pride in one's home. A yard and a well-kept home may seem like simple pleasures to some,

but participants explained that their path to decent housing can be fraught with obstacles. Feelings of discouragement, disappointment with landlords, and the recognition of battles with mental health issues all contribute to circumstances that offer little optimism.

Participants also spoke about a number of reasons accounting for migration from the north to the more southerly urban centres. People often move to join family members who had previously left, they travel to seek employment, or leave because of existing housing shortages and overcrowding in the north. Participants also explained the difficulties they encounter in the city when searching for housing. Story after story recounted instances of apartments suddenly being no longer available for rent, of phone calls not returned, and of openly distrustful landlords.

Design Charrette

The design charrette was held during an afternoon session of the October workshop. Participants were invited to design their ideal houses through drawing and modelling. A broad range of materials were provided, including drawing materials (pencils, pencil crayons, markers, paints, and a variety of papers) and construction materials (modelling clay, wooden sticks, felt, glue, graham crackers, icing, and soft candies in varied shapes and colours). Participants were invited to use any combination of materials and methods to demonstrate elements of their ideal housing.



Housing model by workshop participant, PHM



Workshop participant making a housing model, PHM

Some participants chose to work alone, while others worked in small groups. The participants set to work with much creativity and enthusiasm, working for two to three hours to create their drawings and models. Animated discussions amongst the participants were interspersed with both humorous and serious narratives about prior experiences. Periodically participants sought out additional materials to incorporate into their designs.

The facilitators circulated amongst the participants and using tape recorders invited each participant to explain their drawings and models; the audio recordings were later transcribed verbatim. Photographs were taken of each model and drawings were retained in order to capture the participants' ideas. The use of these methods enabled the facilitators to obtain the perspectives and concepts of the participants in an accurate manner.

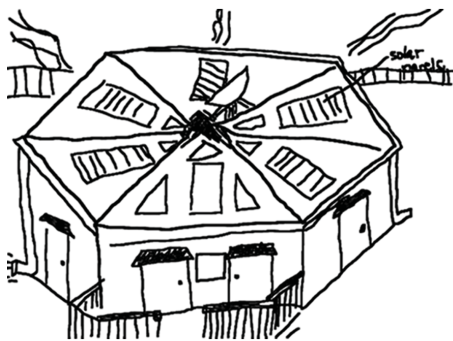
Each participant responded to the design exercise in a unique way, from drawings on paper to complicated models, from exploring structural housing issues to social housing ideas. Regardless of the approach, everyone gave serious consideration to addressing issues pertinent in their own lives and providing housing solutions. Details regarding the specific models and drawings are summarized in the following section.

Creating Change

The participants in the October focus group put forward ideas for change in both their home commu-

ities and the city, which were revealed through their words, drawings, and housing designs. With regard to the First Nations communities, they conveyed the need for more employment and better housing. Participants expressed the need for healthy and warm houses that have enough space for all family members in an extended family grouping. They also wanted more wood stoves, in order to increase self-sufficiency and strengthen their connection with the land. During the design charrette, when asked to build her ideal house one participant started with the very basics—a warm house. She spent the afternoon building a detail of a wall that was structurally sound and illustrated the layers of insulation necessary for a warm, comfortable house. Another participant included solar panels on the roof of her ideal home.

A participant drew a picture of her “dream home”. It was a two story structure surrounded by trees and grass; within the spacious home, there were several bedrooms to allow plenty of room for extended family members and visiting relatives. The living room area also had a fireplace. The placement of numerous windows and doors is shown in the drawing. Other participants who drew or constructed housing models mentioned that their ideal housing would have many windows to allow the sunlight to shine inside. A male participant stated that he wanted the sun to shine into his house and into his heart.



Drawing of an ideal house design by a workshop participant, PHM

Several participants drew or constructed a tepee, alongside of a house, as part of their ideal housing.

A participant explained that it would be used for drying or smoking fish.

Participants spoke about the need for treatment programs on reserves that are confidential and supportive and about the need for more activities for youth who use drugs and alcohol for recreation. When asked about ideal housing, one participant quietly drew a series of symbols. He drew a gun, a needle, and a bottle, each crossed out with an X. He made it clear that violence, drugs, and alcohol were not a part of his ideal community.

Participants also noted the need for transitional and community housing on First Nations. When building their ideal housing during the design charrette, two participants developed plans for shared hous-



Drawing of traditional and contemporary dwellings by a workshop participant, PHM

ing. In their models, they provided multiple units for individual families in one building, with some shared facilities such as a sauna and a workshop. A participant described this model of housing as appropriate for single mothers, young people, or elders. Another participant associated this model with transitional housing.

Northern Traditions

Discussion of traditional structures led participants to speak about seasonal patterns and migrations. The annual spring goose hunt is a vital tradition that continues to be practiced, as families go out on the land for weeks at a time. Travel is by snowmobile in the spring and by boat in the fall. A participant stated, "I miss that, I want to go back one day...when you see the geese go by, I know that they're doing back home." While most of the participants were based in Sudbury, their ties to communities on the James Bay coast remain strong. Some participants still own houses and have connections to family members who continue to live there.

Participants provided explanations about the role of traditional structures in contemporary Cree culture. They spoke about the use of such structures for smoking wild meat (geese, moose meat, fish), as places for teachings, and spaces for gatherings. From these discussions there is an understanding that these structures are a direct and present link to Cree cultural traditions of the past.

Conclusion

At both workshops, participants articulated the interconnected housing problems they face both on and off reserve. They described both physical and psychological issues related to poor housing. The physical issues related to housing are numerous: water leakage into houses, mould and asbestos, the lack of clean, running water, poor lighting, and the need for more windows. The neighbourhoods are dusty, have few trees and little grass. These issues are compounded by the fact that there are not enough houses for everyone in the community. As a result, small houses that were not well built and are not well maintained are over-crowded and shelter multiple families. Participants noted that these factors work together to create strain, tension, frustration, anger, abuse, and ultimately the breakdown of family units.

The participants in each group expressed their appreciation for having the opportunity to discuss their concerns and to explore the possibilities for change, especially through hands-on, active design. Participants acknowledged that they do not have enough forums in which to voice their opinions. When the participants were asked to describe their ideal housing on or off the First Nation, the answer was simply enough—a house that has enough space, enough daylight, enough insulation, and enough heat.

Life Of The Omushkegowuk Cree: Past And Present

The following sections of this thesis analyze existing dwelling patterns and life style of the Cree people in both contemporary and traditional society. A number of common themes address the needs of the community, particularly the addition of storage space to accommodate the gear required to access the land, the construction of decks to ease access into the yard, living space that extends outside of the house, the provision of a place for repairing and maintaining boats, the addition of gardens for sustenance and self sufficiency, the creation of work space in the living room, and the provision of necessary additional bedroom space. Amos Rapoport writes in *House Form and Culture* that, it is necessary to concen-



A Moose Cree village (Ontario Archives)

trate on the study of houses because it reveals “most clearly the link between form and life patterns” (Rapoport, 10).

The Omushkegowuk Cree traditionally lived in scattered bands, moving with the seasons and subsisting on fish and game (George, Berkes and Preston, 356). This nomadic lifestyle involved times of gathering and times of geographic dispersal. These living patterns have been radically altered in the past two hundred years, due to European contact and resultant colonization. “Indian concepts of home and settlement were altered by trade, disease, depopulation, warfare, and the relocation of tribes to reservations” (Nabokov, 47). “Home” has shifted from the bush to the town settlement. Moosonee is one of eight Cree communities (Moose Cree, MoCreebec, New Post, Fort Albany, Kashechewan, Attawapiskat, Peawanuck and Fort Severn) that have a total population of approximately 6,500; these communities wrap North along the banks of the Moose River and upwards along the North West coast of the James Bay.

Mixed-Economies Of The Cree

Traditional land based activities remain central to the Cree. The spring (Canada Goose) and fall (Lesser Snow Goose) waterfowl hunts, as well as fishing, trapping, big game, and berry harvesting are the primary harvests in which the communities participate. “According to the Cree, Aboriginal identity is defined significantly in terms of access to bush food and wildlife harvesting is centrally important for core cul-

- Traditional territory of Omushkego Cree
Site: Moosonee, Ontario

Arctic

climate zone | Arctic, Subarctic

ecology | Tundra

raw materials | snow, sod, timber, seal skin, stone

major building types | wigwam, tipi



- Arctic (includes Subarctic)

Language Groups

Eskimo-Aleut

Athapaskan

Algonquin

Tribes

Eastern, Central,
& Western Aleut
Trans-Arctic Eskimo

Beaver, Carrier, Dogrib, Kutchin, Sekani, Slave

Cree, Montagnais, Naskapi

tural values such as sharing” (George, Berkes and Preston, 358). The bush also provides fuel for firewood and fur. The First Nations are currently working to reduce their dependence on external economies. Their goal is to build and foster communities that focus on local resources and skills, and that complement both wage earning income and the traditional land based economy (George, Berkes and Preston, 359). “Hunting on the land is central to Cree culture, and its intergenerational transmission, not only for the preservation of bush skills, but also of ethics and values such as the importance of sharing and reciprocity” (359).

The traditional activities of hunting, fishing, and other harvesting activities, while not market-based, are central to the local economy. The traditional sector is strong as reflected in the wildlife harvesting and considerable bush food consumption. These activities produce forms of in-kind income and also some cash remuneration which stems from the sale of commodities such as fur (Berkes, 1994, George et al., 1995). In addition to traditional activities such as hunting, fishing, and harvesting, the current econ-



Canada Geese in flight

omy includes a combination of transfer payments, government grants and programs, and wage earning. Employment in Moosonee is concentrated in the resource sector and is largely based on mining, forestry, energy development projects, and military installations as well as tourism and administrative positions related to governance and services. The economy in all of these sectors is generally seasonal or cyclical in nature (Pigeon, 2004).

The traditional harvesting activities also have social and cultural significance since Cree identity was originally defined in terms of land-based sustenance. At the core of the traditional activities was a cultural perspective focused on the relationship between land, people and animals. Therefore, traditional ac-



Moosonee in the summer (PHM)

tivities centred on bush skills as well as ethics and values surrounding sharing and reciprocity.

In spite of the cultural significance of the traditional activities, the lifestyles and activity patterns of harvesters have changed considerably over recent decades. Prior to the 1980s, the Cree people lived on the land in scattered hunting groups for eight or nine months of the year and gathered together in summer in trading post communities. More recently, however, Cree people have been carrying out much of their harvesting activities by making short trips from permanent communities. They have become reliant on modern transportation technology (Berkes, 1995). The hunting patterns that have emerged were the outcome of government policies that focussed on settling indigenous populations into centralized communities. These policies were largely motivated by the belief that a land-based economy was not viable and that indigenous peoples should be integrated into the modern wage economy. However, wage opportunities in the James Bay region have been scarce and development projects have not provided significant employment for the Cree people.

Tourism also has a role in the economy. Tourists journey on the Polar Bear Express, a five hour train travel North from Cochrane, to the town, primarily in the summer months. They stroll down First Street, and then take a water taxi across to Moose Factory Island, a First Nations community across the river. In the winter months snowmobile enthusiasts journey

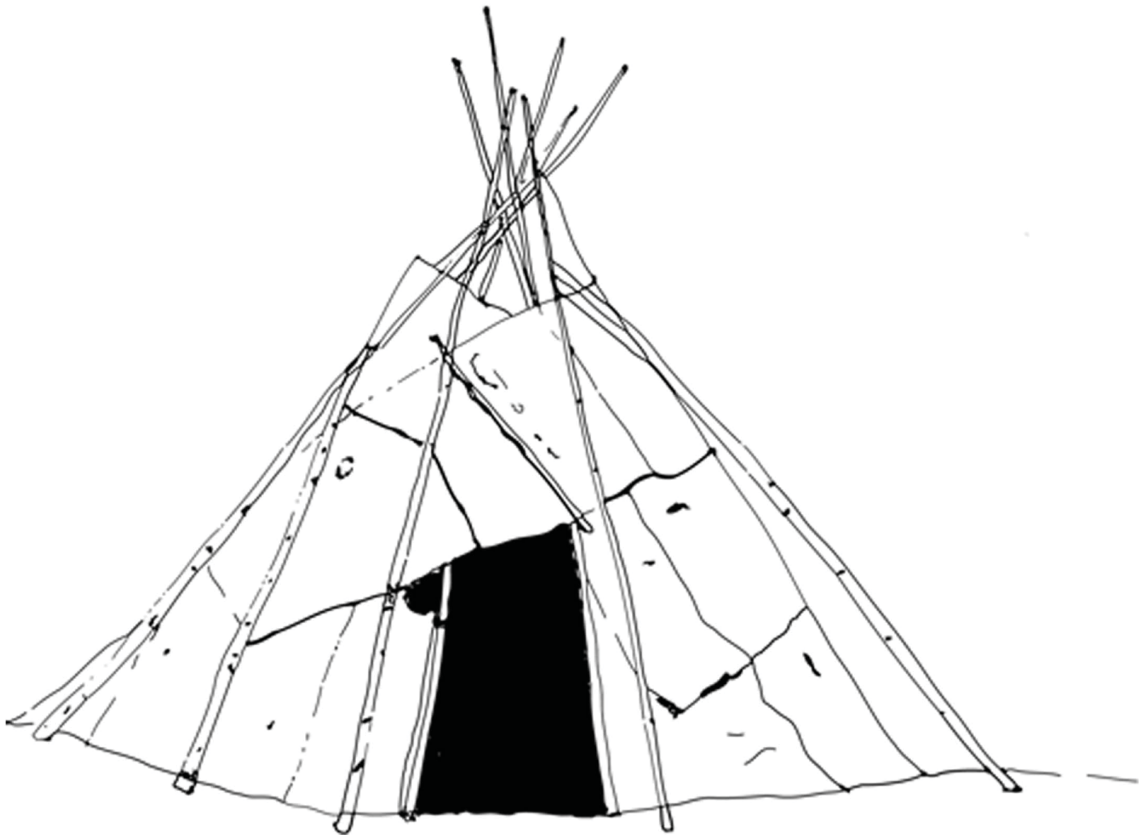
north on the seemingly endless trails, over muskeg, creek, and river.

Mining is taking an increasing role of the economy as the Rim of Fire is being developed. Diamond and gold mines operate further North and West of the town, with trucks, materials, and machinery traveling by rail to Moosonee. Remnants of machinery that is no longer needed lie in the rail lands, an area to the north of the main street, where the tracks end. In addition, the Ontario Power Generation (OPG) projects provide employment opportunities for the James Bays Cree communities.

The cost of living in isolated and northern communities is higher when compared to southern communities. Due to their relative inaccessibility, these communities have a cost of living differential index of 115 or more which means that the prices for food, clothing, and household operations are high. The cost of moving goods to these communities is affected by the elevated transportation costs associated with shipping goods from major urban centers via ice roads, rail, or air (McNiven & Puderer, 2000, Pigeon, 2004, Treasury Board of Canada Secretariat, 2009a, 2009b). Therefore, accessibility to the western James Bay communities is compromised due to lack of an all-season road. While the Ontario Northland Railway provides transportation to Moosonee, the cost of moving people, goods, and materials via rail is more expensive compared to transportation on roads (Natural Resources Canada, 1981a, 1981b).

Traditional Structures: Past In The Present

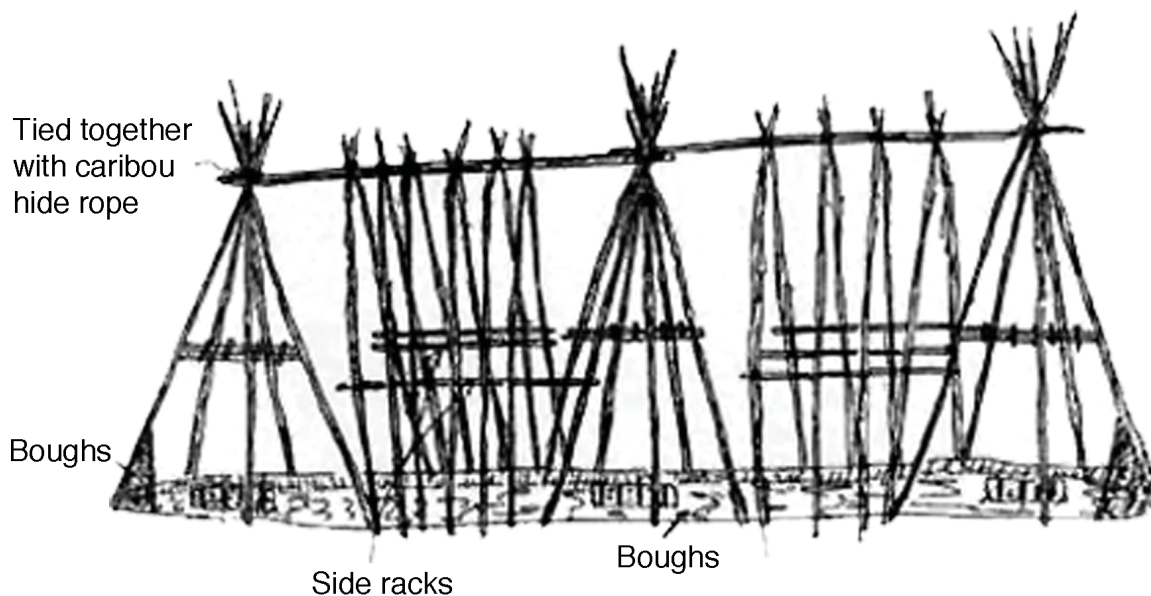
Traditional structures for the Ojibwe people are of three primary forms: conical tipi, domical wigwam, and the rectilinear gable roofed house. It is an architecture not usually conceived as permanent; it is one that is tied, wrapped, and knotted together, inhabited for a season, with coverings that are able to be rolled up to bring to the next site. For the tipi, a structural conical frame of six poles is assembled, and for the wigwam a tensile or bent frame is constructed by lashing together small saplings. In the past, the structural frames were layered with pieces of stitched birch bark, animal hides, or thatch and the floors were covered in layers of fragrant conifer branches. Adaptation to the weather manifested it-



A drawing of a tipi

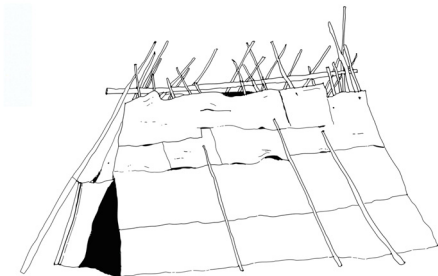
self in partitions of hanging mats, wind breaks constructed against openings, and portability to enable the optimal location of shelter to shield people from the harshest winter climate. In a traditional settlement, a variety of structures were used for different purposes throughout the day. There was a flow between inside and outside and therefore an ability to tolerate variations in temperature (Nabokov, 24). Traditional settlement patterns within Cree summer camps typically comprised a number of individual lodges that faced the river. In the winters, small groups of dwellings would face the sunrise. “Their architectural imprint, often ephemeral, blends harmoniously with the land, and the ebb and flow between residents and surroundings is smooth” (Nabokov, 50).

Within the home, shared typically by one or two individual families, the definition of space followed



Shaapuntuwaan with three hearths (The Bark Canoes and Skin Boats of North America)

strict rules of etiquette, which allowed for privacy and peace within a small space. Temporary quarters and sleeping assignments were determined by sex, family, marital status, and age (Nabokov, 33). The hearth centred the space, with an open gathering and cooking area that rose up to an opening at the top, which provided ventilation for the structure. Rapoport notes in *House Form and Culture* “One can learn from the past; the study of the past is of value philosophically as well as in making us aware of the complexity and overlapping of things. It can also clarify those elements that are constant and those which change” (11).

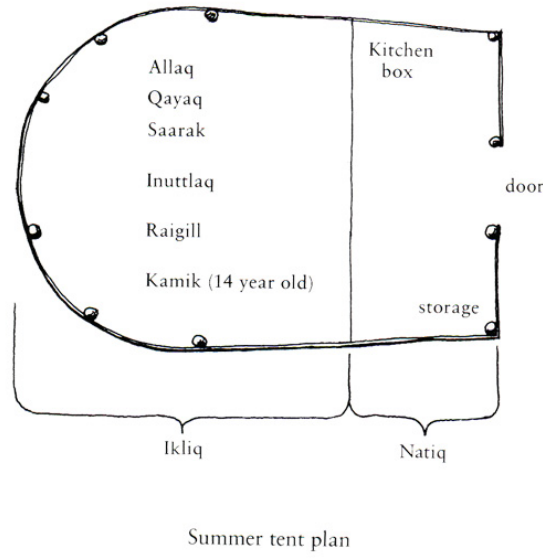
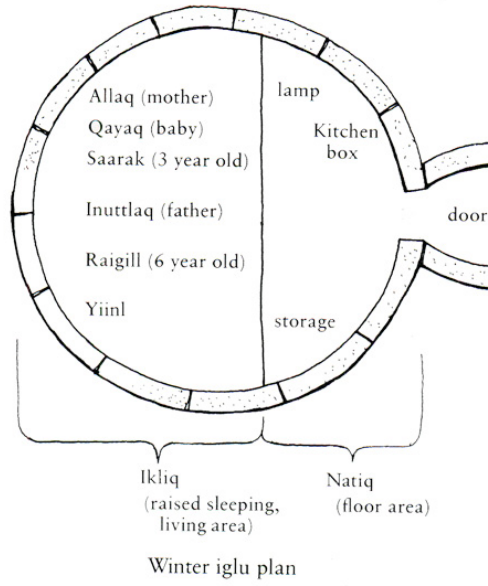


A drawing of a Shaapuntuwaan

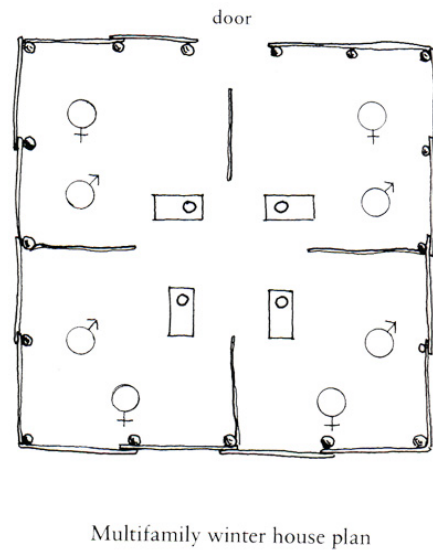
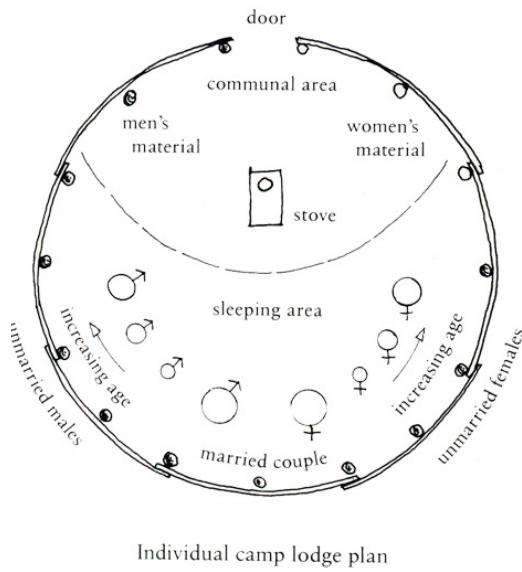
Traditional structures continue to be built and used by the community members of Moosonee. Tipis, now covered with canvas or tarps, are constructed adjacent to houses and are places to smoke wild meat, to gather, to teach and to store equipment that is used to access the land. Larger structures are also constructed to enable larger group gatherings and ventures out onto the land. The Shabat-won, an enlarged tipi that has the addition of a ridge



Moose Cree settlement with canoe (The Bark Canoes and Skin Boats of North America)



Central Eskimo interiors



Mistassini Cree interiors

Traditional Inuit and Cree house plans (Nabokov, *Native American Architecture*)

pole and openings at both ends, provides space for several cooking fires during the spring and fall hunts. The wigwam structure is often used as a sweat lodge and is shared by community members.

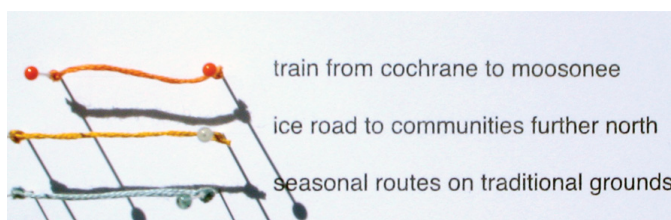
Place: Geography, Town, and Environment

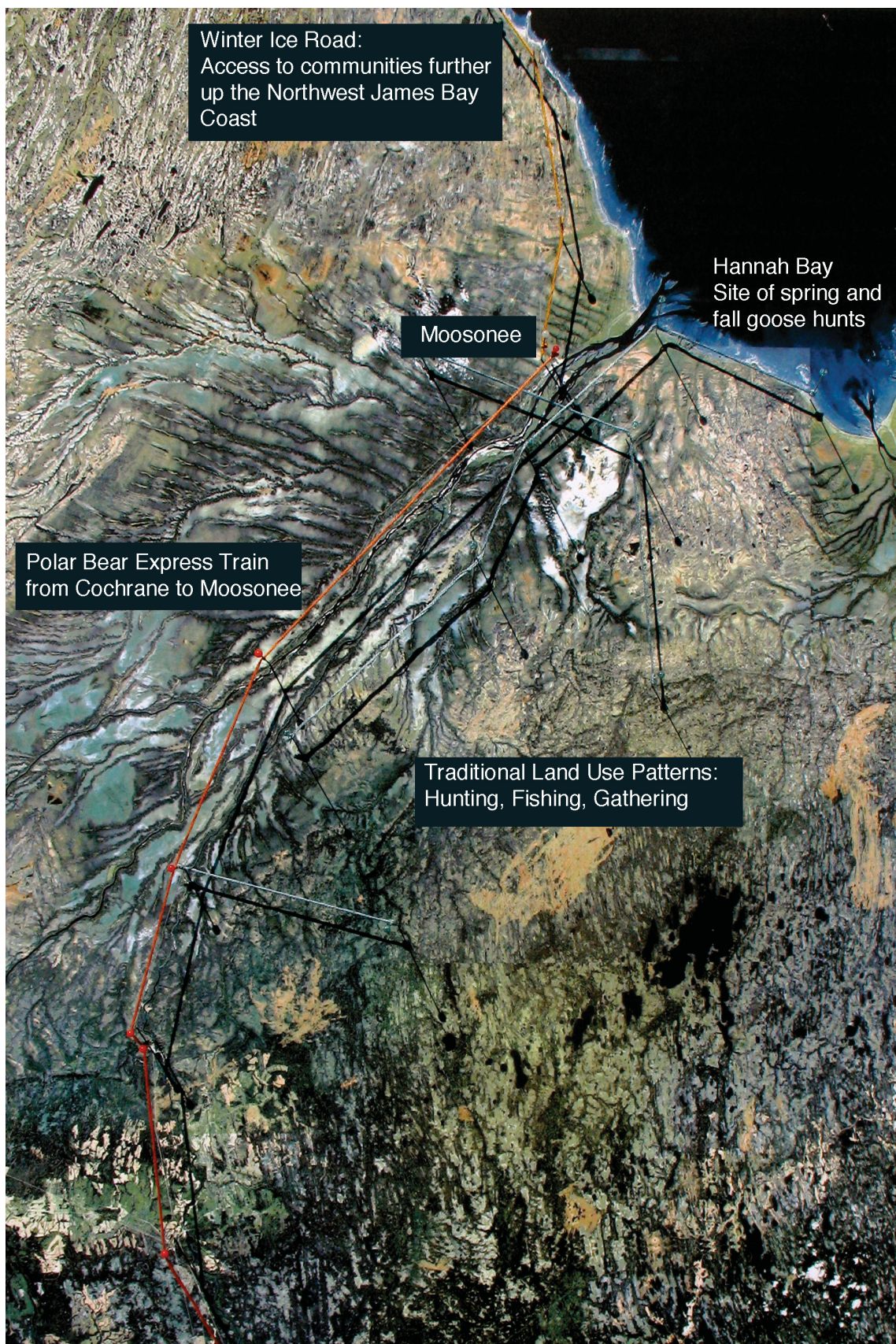
Moosonee, Ontario is located on the Moose River 12 miles south of James Bay at a latitude of 51 N 07' and longitude of 80 W 35'. Moosonee serves both as a gateway to communities further north on the James Bay as well as being a launching point for nearby communities across the Moose River in Moose Factory (Moosonee Official Website). However, Moosonee is not connected to the road system in Ontario and access is limited to the rail service from Cochrane, by air travel with Air Creebec which is based in Timmins (George et al., 1995) or via small charter air companies based in Moosonee, or by boat (either water taxis or private vessels). The map on the left illustrates the train line from Cochrane to Moosonee, the ice road to communities further up the coastline, and the seasonal routes on traditional lands.

Traces of the town's past can be found in the diminutive Revillon Freres trading post along the riverbank, established by the French in the late 1600s. In the grid of the town is a once-active radar military base,



Land and water routes to Moosonee and communities further north (detail)





Land and water routes to Moosonee and communities further north



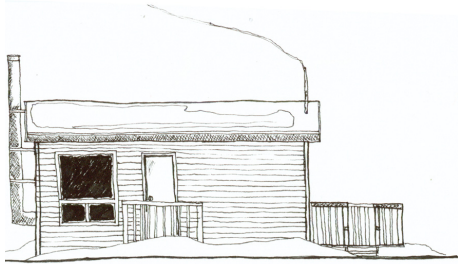
Snowmobiling on the Moose River: a scene from the train

but now it has been partially dismantled and left behind.

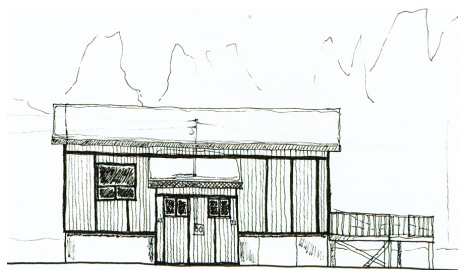
In the community, people travel by various modes of transportation depending on the season. In winter, transportation is typically by vehicle, usually a pick up truck, on ice covered roads and ice roads across the Moose River and northward along the James Bay coast leading to the communities of Kashechewan, Fort Albany, and Attawapiskat. Snowmobiles are used a great deal as well for travel to trap lines and ice fishing sites. The transitional seasons, spring ice break up and the freeze in late fall, are the only times when travel slows or ceases. Otherwise, land and water are traversed as they have always been, lightly with sleds, skis, tires, snowshoes, and boats. The landscape is constantly moved through, upon its surface, whether frozen and covered with a white blanket of snow, or watery and green.

The population of Moosonee is approximately 3,500 with about 85% being Cree. The main language in Moosonee is English with Cree being a second language; there is also a small French population (Moosonee Official Website). Access to elementary and secondary school, as well as some college courses is available in Moosonee as there are two elementary schools, a secondary school and a campus of the Northern College of Applied Arts and Technology. The latter serves as a learning centre to address some of the educational needs of communities located on the James Bay coast (Young, 2005). Health services are also available at the Moosonee

Clinic of the James Bay General Hospital and the Weeneebayko General Hospital in Moose Factory (Maberley, Koushik & Cruess, 2002).



One of the smaller houses in Moosonee: note the wood heat and the addition of the deck



A duplex in Moosonee with a cold air lock



A house in Moosonee with a storage shed

The town of Moosonee is located within the Boreal Forest, the Arctic Watershed, and the Hudson Bay Lowlands, which is one of the largest wetland areas in the world. Moosonee is officially designated as a northern community. In fact, the federal and territorial governments in Canada utilize several criteria to determine a rating of nordicity or “northernness.” The definition of nordicity is derived from ten variables that represent various facets of the North (Bone, 2003; Graham, 1990). These ten variables include latitude, summer heat, annual cold, types of ice, total precipitation, natural vegetation cover, accessibility by means other than air, air service, population, and degree of economic activity. Similarly, McNiven & Puderer (2000) create a dividing line between north and south as well as transition zones on both sides of this line by aggregating data on sixteen climatic, biotic and socio-economic indicators. According to Bone (2003), northern Canada consists of Arctic and Subarctic biomes. These biomes encompass a vast area (approximately 80%) of Canada and include three territories and northern parts of seven provinces. The boundary of north is marked by the Boreal Forest.

It is also important to note the number of heating degree days in Moosonee in comparison to southern Canada (McNiven & Puderer, 2000). The climate in Canada requires the use of indoor heating for a sub-



Sun and snow on the Moose River



Shadow of train across the Moose River

stantial part of each year. The term heating degree-days indicates a relationship between outside temperature and the optimum inside temperature. The number of heating degree days has implications for fuel or energy consumption required for home heating. The number of heating degree-days ranges from under 3000 in the warmest regions of Canada to above 13,000 in the coldest regions of the country. The dividing line between northern and southern Canada is set at 6000 (McNiven & Puderer, 2000). The communities in the western James Bay region are above the 6000 demarcation line in terms of heating degree days (Natural Resources Canada, 1995; Office of Energy Efficiency, 2009a, 2009b). Being situated north of this line requires double the energy consumption to maintain optimum inside temperature compared to the warmest regions in the country.

Because of Moosonee's location within the subarctic biome, this thesis is also relevant to several Aboriginal communities in the western James Bay region such as the First Nation communities of Attawapiskat, Kashechewan, Fort Albany and Moose Cree, as well as MoCreebec, a Cree community on Moose Factory Island settled largely by Cree people from the province of Quebec. These communities fall within the boreal forest region and are considered northern communities as per Bone's definition (Natural Resources Canada, 1957).

The climate of Moosonee, Moose Cree First Nation, and MoCreebec communities and the Cree

communities further north is influenced by the cold, maritime conditions of Hudson Bay and James Bay. The region is characterized by cold dry winters, with temperatures ranging from -10 to -40° celcius and short warm summers, with temperatures ranging from $+10$ to $+35^{\circ}$ degrees celsius. There is an annual average precipitation of 490 mm of rain and 213 cm of snowfall (Environment Canada Climate Data). These conditions substantially reduce the “growing-degree-days” (Baldwin, Desloges & Band, 2001, 7) in comparison with other Canadian locations which are at similar latitudes. For example, as Baldwin et al. note, Winnipeg, Manitoba, which is situated at



Lowland forest on route from Cochrane to Moosonee



Birchbark vessel (National Museum of the American Indian)



Moose Cree snowshoes (Jumaka)

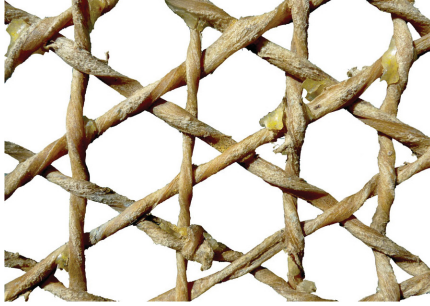


Subarctic snowshoe, detail (Kauffman Mercantile)

approximately the same latitude as Moosonee has “about 1000 more growing-degree days” (7). The Aboriginal communities in the western James Bay region have between 750 and 1250 growing degree days placing these rural and remote communities beyond the northerly limits of commercial agriculture (McNiven & Puderer, 2000; Natural Resources Canada, 1995).

The habitat surrounding Moosonee is very unique due to its sub-Arctic locale. The banks of the Moose River are lined with spruce, aspen, poplar, birch, and balsam fir. It is a delta-like area that experiences six to seven foot tides that come up the Moose River from the James Bay. The soils are moist, consisting of layers of silty sand, gravelly sand, silty clay, and bedrock.

The Omushkegowuk Cree traditionally depended on the flora and fauna of the area for their livelihoods. Cree life continues to be intertwined with the seasons and the movements and migrations of the animals. The main wildlife in the region are black bears, wolves, muskrat, fox, martin, moose, rabbits, and occasional caribou. The aquatic life includes sturgeon, pike, pickerel, trout, whitefish, suckers, and carp. Seals and beluga whales are common to the James Bay in the fall. Canada Geese, Blue Geese, Lesser Snow Geese, ducks, ospreys, and eagles are the primary waterfowl that inhabit the area. The vegetation includes grass, moss, shrubs, open cover of black spruce, lichen, and woodland (Moose Cree First Nation).



Snowshoe lacing, detail (Kauffman Mercantile)

Investigations into Material Culture

An exploration of Cree material culture reveals commonalities between a birch bark basket, a snowshoe, a decoy, a canoe, and a tipi. The processes of making include the activities of harvesting, splitting, bending, and joining which offer a rich beginning point for a design proposal for housing and collective space. Integral to the process is an intimate understanding of the materials and the land. The understanding of when it is time to harvest implies a rich relationship with the landscape and one that is central to Cree culture.

The use of local materials and craft are critical di-

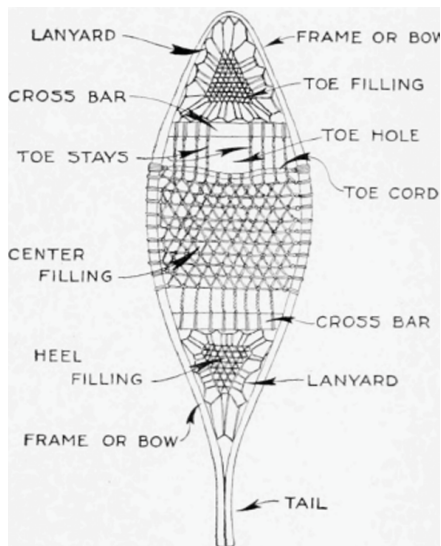


Cree woman lacing snowshoe (Birchbark Canoe)

CHART I: TRADITIONAL WOOD FRAMES

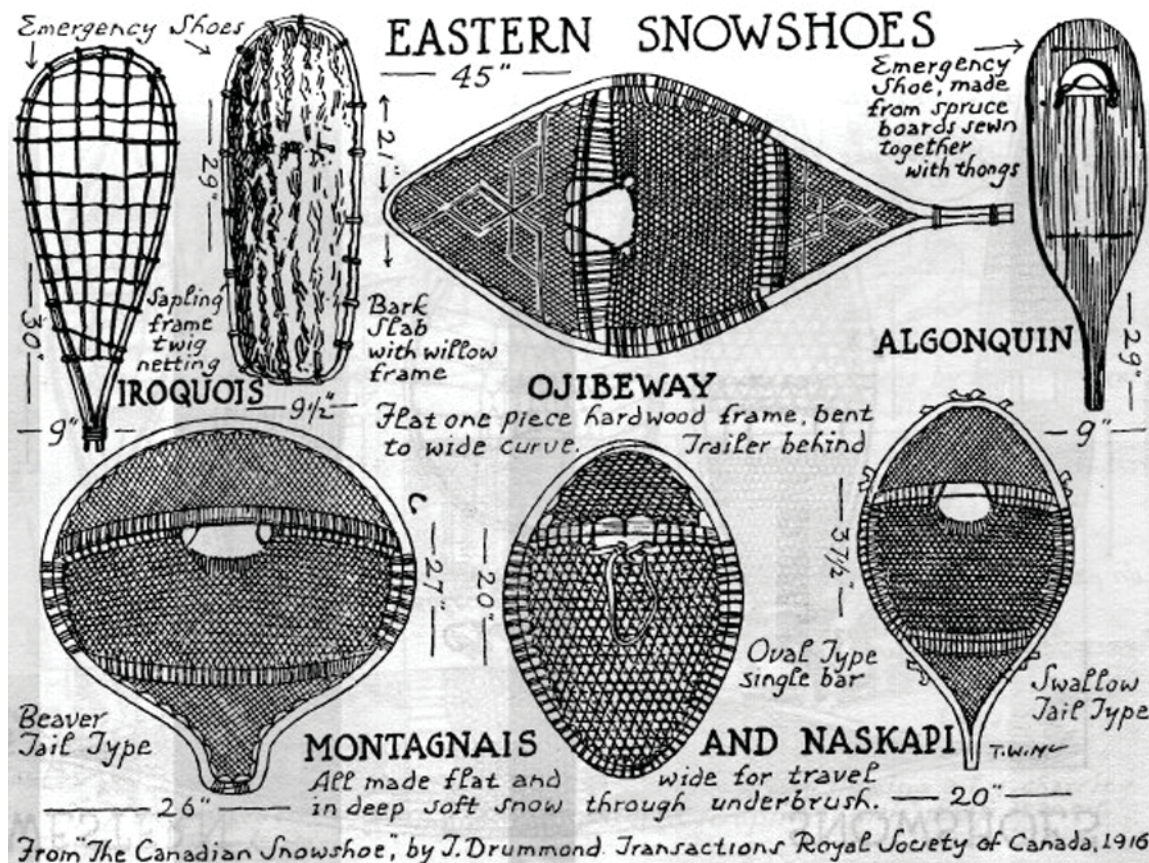
0 in.						
10 in.						
20 in.						
30 in.						
40 in.						
50 in.						
60 in.						
SHAPE NAMES (generic)	<ul style="list-style-type: none"> • Huron • Michigan • Maine (Beavertail) 	<ul style="list-style-type: none"> • Alaskan • Yukon • Pickerel • Cross Country 	<ul style="list-style-type: none"> • Ojibwa • Cree 	<ul style="list-style-type: none"> • Modified Bearpaw • Westover 	<ul style="list-style-type: none"> • Bearpaw 	<ul style="list-style-type: none"> • Modified Bearpaw, • Green Mountain • Appalachian
SMALL most-used sizes	10 × 33 12 × 42 12 × 46	10 × 46	9 × 36 10 × 48	7 × 30 10 × 48	13 × 29	9 × 28 10 × 30
weight range	up to 220 lbs	up to 200 lbs	up to 130 lbs	up to 160 lbs	up to 150 lbs	up to 170 lbs
MEDIUM most-used sizes	13 × 46	11 × 46	11 × 54	11 × 32 12 × 35	14 × 30 13 × 33	10 × 35 13 × 36
weight range	150 to 240 lbs	140 to 215 lbs	130 to 200 lbs	140 to 200 lbs	up to 150 lbs	150 to 225 lbs
LARGE most-used sizes	14 × 46 14 × 48	10 × 56 11 × 56	12 × 60	13 × 35 14 × 35		11 × 40
weight range	175+ lbs	175+ lbs	175+ lbs	up to 250 lbs		175+ lbs
TIP RISE	+/- 3"	+/- 8" (+/- 4")	+/- 8"	+/- 3"	Flat to slight rise	+/- 3" to 4"
BEST GENERAL USE	<ul style="list-style-type: none"> • Deep snow • Rolling terrain 	<ul style="list-style-type: none"> • Deep snow • Open terrain 	<ul style="list-style-type: none"> • Rolling terrain • Brush and bushes 	<ul style="list-style-type: none"> • Moderate terrain 	<ul style="list-style-type: none"> • Deep snow when maneuverability is needed 	<ul style="list-style-type: none"> • Mountainous terrain • Firmer snow

Regional variations on the snowshoe (Kauffman Mercantile)



Parts of a snowshoe (Townships Sun)

mensions to the housing design. Explorations with round wood that build upon initial investigations in designs for ice-fishing shelters have been expanded and enriched in the design of a home. Through a single home, a cluster of housing, and the spaces that weave them together, the material culture of the Omuškegowuk Cree are reflected in moments of shelter at doorways, in gathering spaces that rise and open, and in the lightness of roundwood structures that reach across open space to embrace the the land and the community.

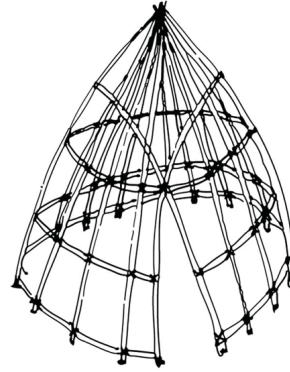


Types of snowshoes (Townships Sun)

TENSILE OR BENT FRAME WITH COVERING

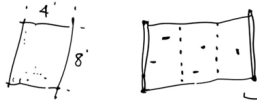
ARCHITECTURE THAT IS TIED, WRAPPED AND KNOTTED TOGETHER

WIGWAMS - CONICAL DOMICAL



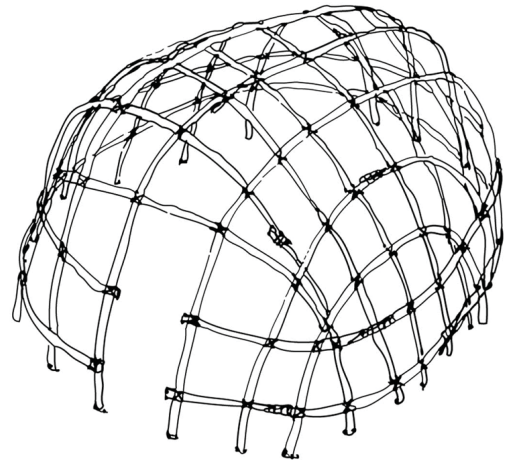
SAPLING FRAME LASHED TOGETHER
CORDAGE MADE FROM FRESH STRIPS OF
WHITE OAK, TOUGH ROOTS (SPRUCE), OR
INNER BASSWOOD

COVERINGS OF BARK, HIDE, WOVEN GRASSES
ROLLED UP FOR TRANSPORT



BIRCH BARK
STITCHED TOGETHER
WITH SPRUCE ROOTS
AND STIFFENED
WITH BATTENS

OVERLAPPING
WEAVING
LASHING
BENDING

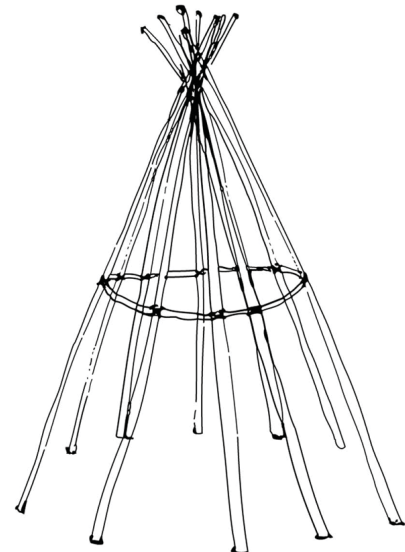


"BY OUR HOUSES YOU WILL KNOW US"

CONICAL WIGWAM



FRAME OF SPRUCE, CEDAR, FIR WITH BARK
LEFT ON



CHAPTER 2: DESIGN

Beginnings



Waiting for the train in Cochrane



A view from the train to Moosonee



Traditional structure at the Moose Factory hospital



On the Moose River

First hand experience has been an important part of my design process. In addition to the housing workshops with Cree people from the James Bay (see pages 24-36 for more information on the workshops), I travelled to Moosonee and Moose Factory for a week in February 2011. Via car, planes, and a train, I travelled across Canada and through the Boreal Forest to the edge of the James Bay. It was a brief visit, punctuated on either side by the five-hour train travel north on the Polar Bear Express.

I carried a camcorder with me, recording hours of footage, from the train, the truck, and on walks around the town and out on the ice. Working with video and photography enabled me to capture a sense of place and landscape. We were fortunate to visit an elder who gave us a tour and shared with us many stories about her culture and the communities of Moosonee and Moose Factory. I was struck often on the trip by the openness of people that I met. Train travel in particular seemed to inspire conversation in travellers and a camaraderie that I had forgotten existed in travel. I was told stories about travels out on the land, people who continue to lead a traditional lifestyle, the residential school era, and the spirit of community life in the North.

My video work has resulted in a sketch of my travel north, the quietness of the landscape, the endless trees, and the frozen water. I found the rhythm of the



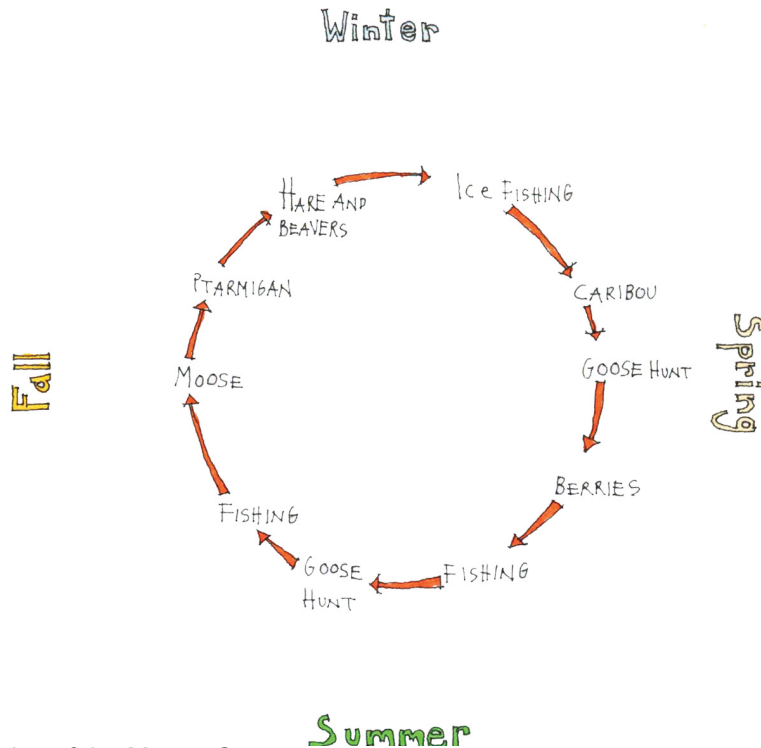
Wind on snow in Moosonee

train in motion through a remote landscape, tracing the trees, the streets and the frozen lakes and rivers.

The video also represents a beginning point in my thesis work. It is a first exploration of place and local culture that is outside of formal workshop settings, leafing through books, and searching on the internet. Most often during the trip I listened, I asked questions, and I quietly watched. The images on the preceding page are a series of still frames from the video, Cochrane to Moosonee.

Keskaw Shelters: A Pilot Project

Initial design work for this thesis project evolved out of a response to, and in support of, seasonal cycles of land use patterns and activities that are integral to Cree culture in Moosonee. Contemporary life in

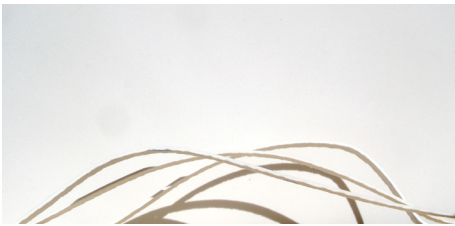


Seasonal cycles of the Moose Cree

Summer



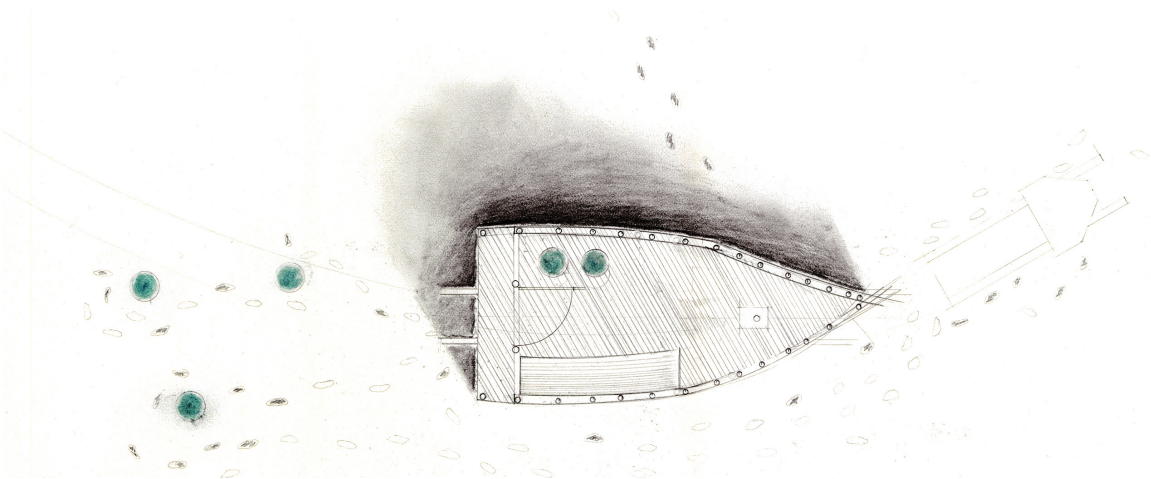
Initial forms - exploring the circle



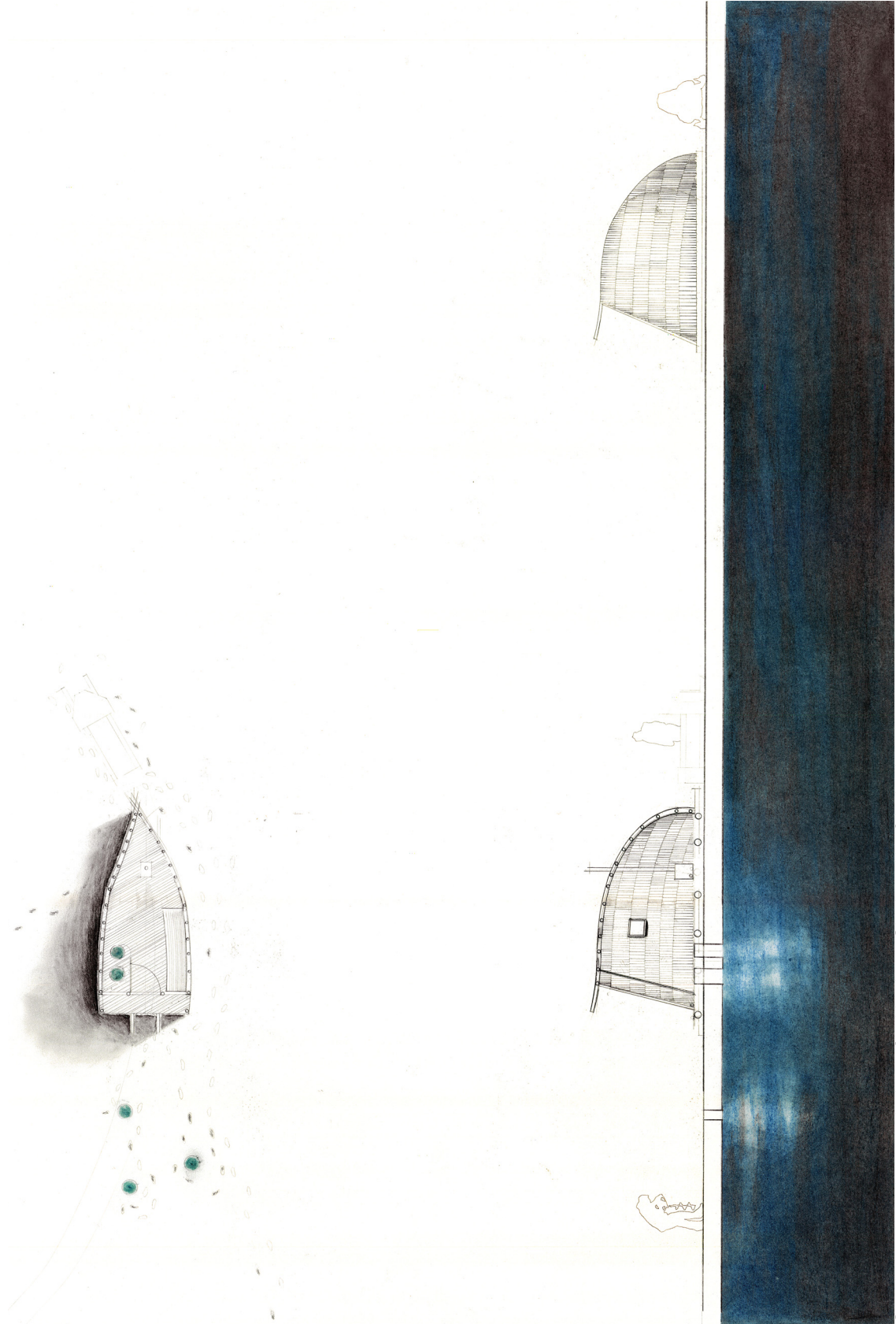
A study on curves

Moosonee is closely linked to the land. The community relies on traditional territories for wild food, livelihoods, and eco-tourism. In the winter, community members travel primarily by snowmobile to go out on the land in order to trap and ice fish. Designs of temporary structures must respond to the mode of travel, the purpose of the shelters, material culture, and the landscape.

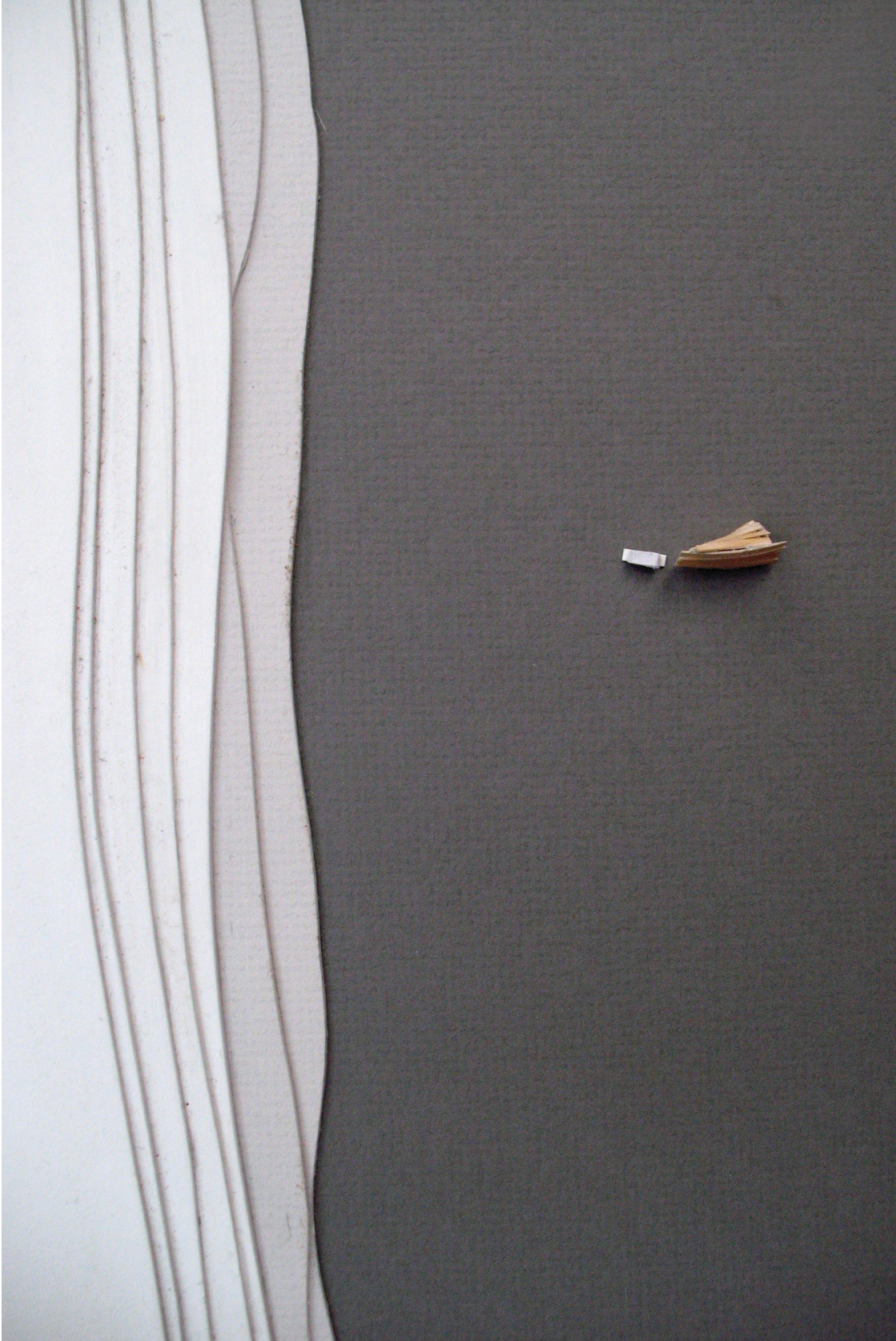
Through studies of traditional Cree structures I explored possibilities of bending, wrapping, and weaving materials. Keskaw shelters respond to local materials and methods, using round wood for structure, bending to find form, and lashing pieces together. A central tenet of the design is to create temporary, lightweight, moveable shelters. Responding to the necessities of traveling through the land and harvesting food from a frozen, solitary landscape, the shelters become points of reference within the environment and reminders of story, community, culture, and place. The structures strive to be essential in their nature, buffeting the wind, offering shelter, a place of rest, and a fishing hole.



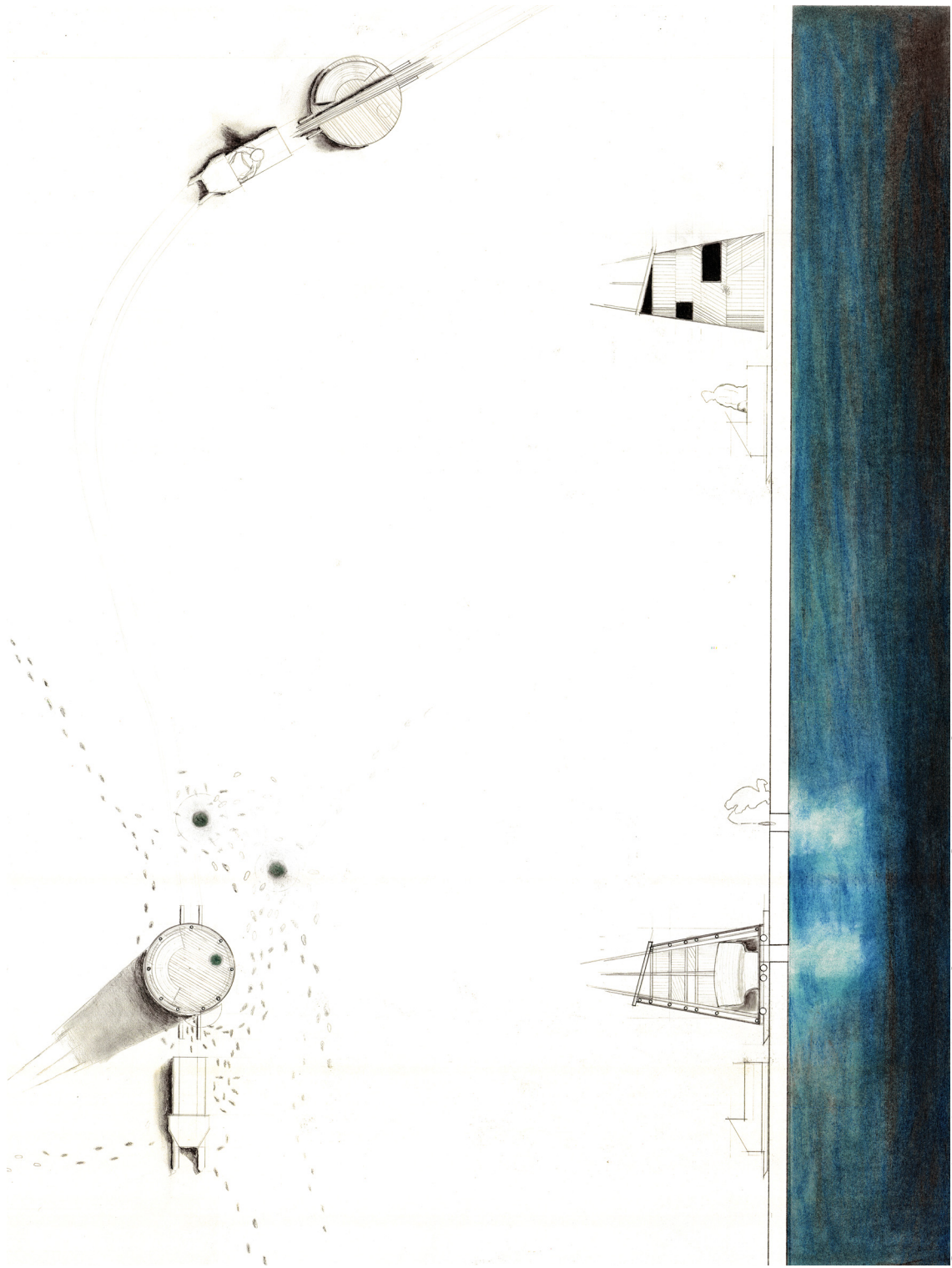
Keskaw Shelter (1 of 3 designs), plan



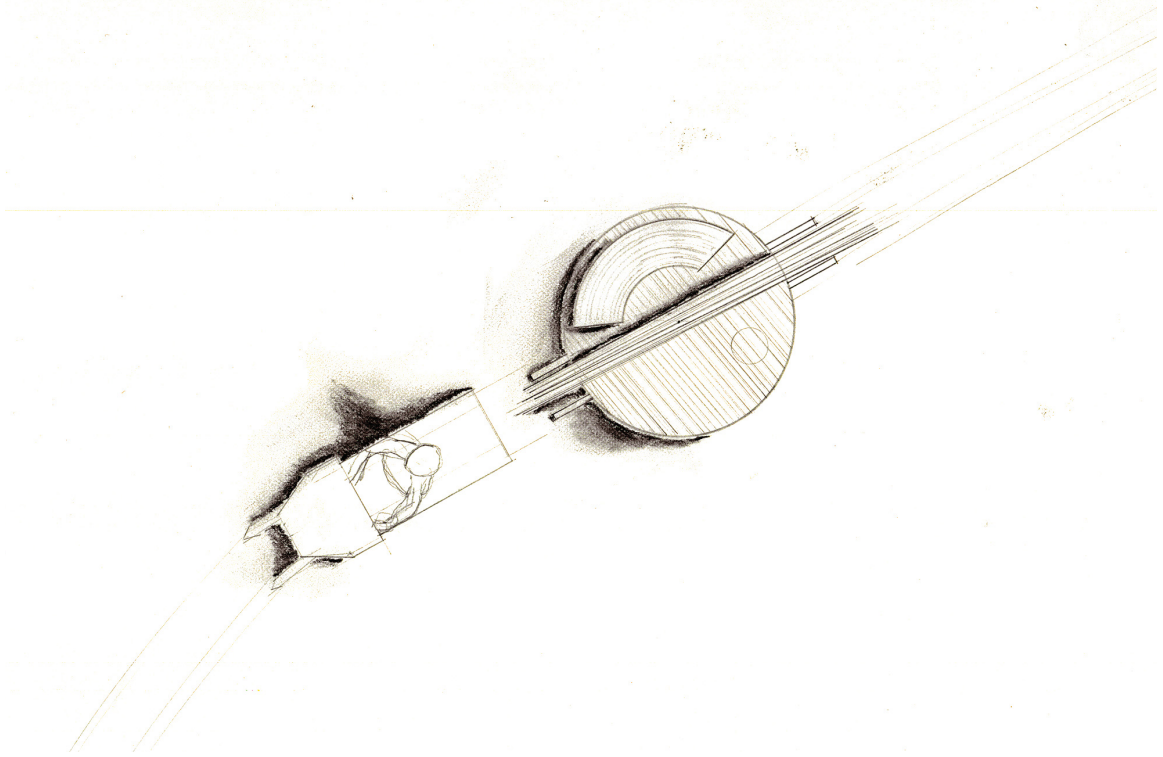
Section, elevation, and plan of a Keskaw Shelter (1 of 3 designs)



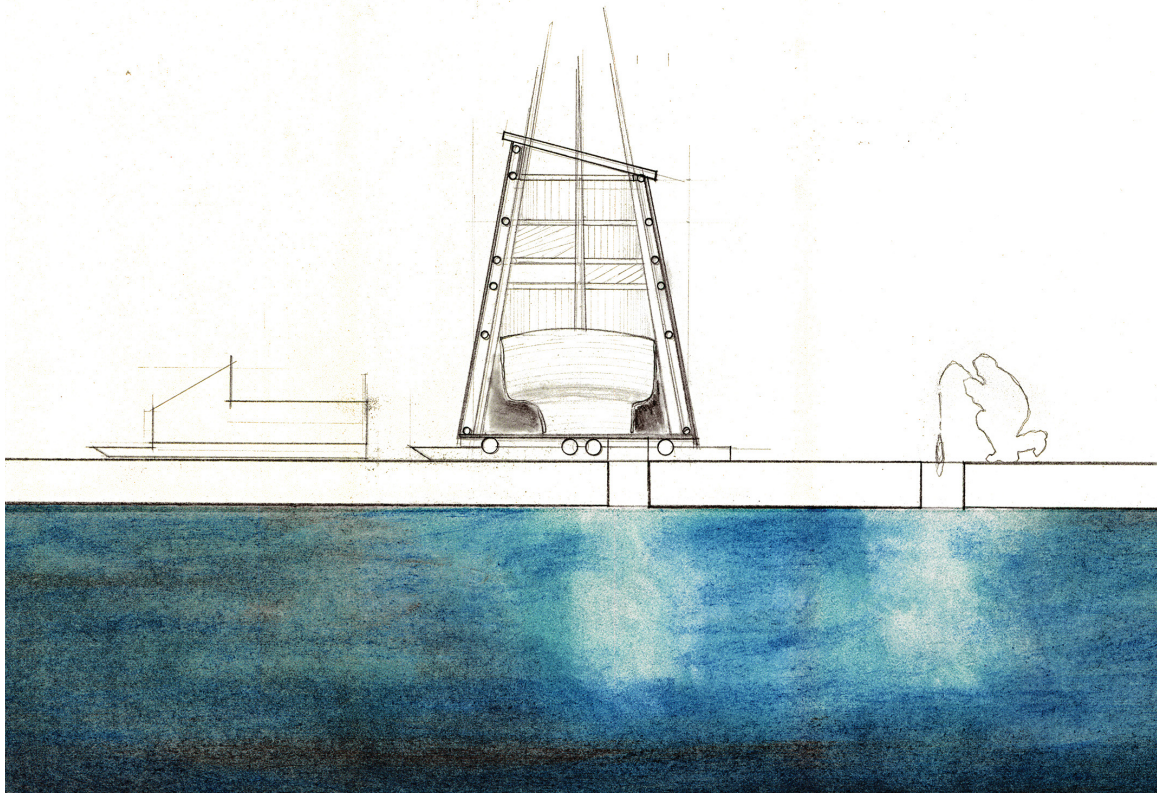
Keskaw shelter returning across the Moose River



Section, elevation, and plan of a Keskaw Shelter (2 of 3 designs)



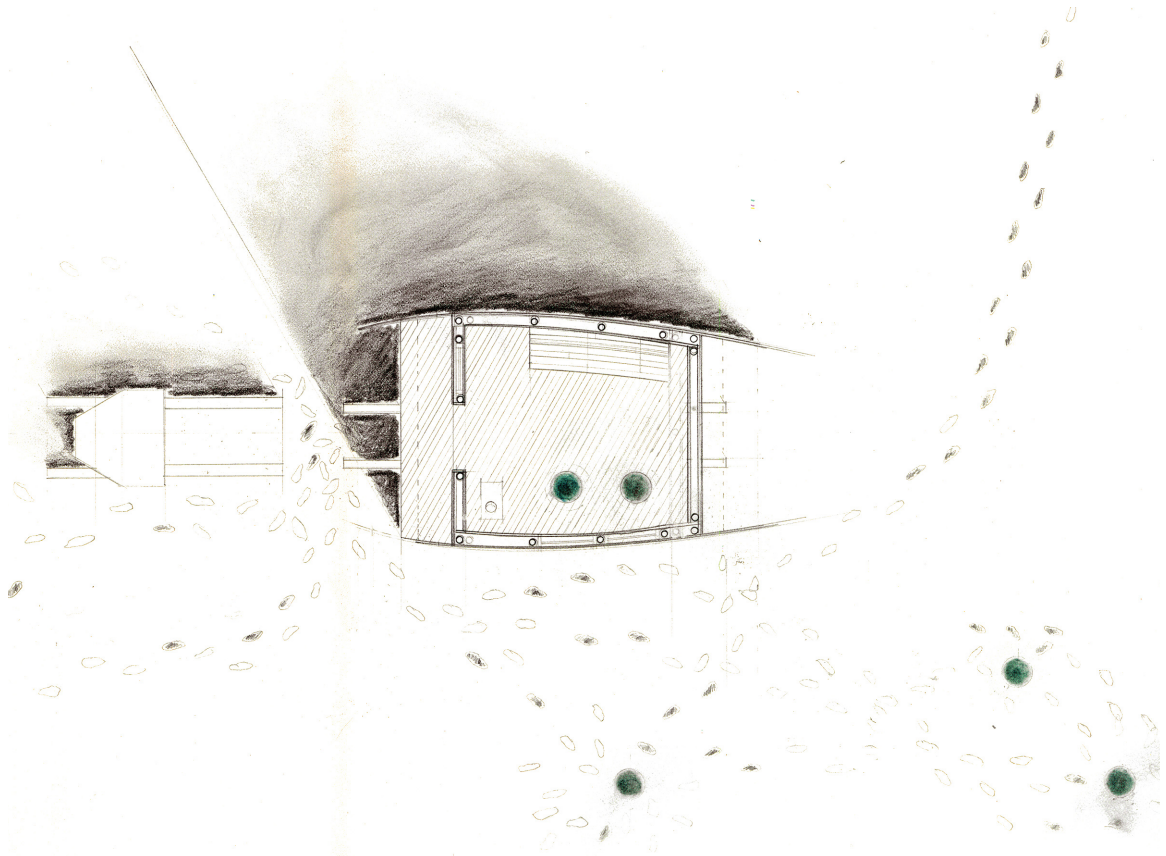
Keskaw Shelter (2 of 3), plan, in transit



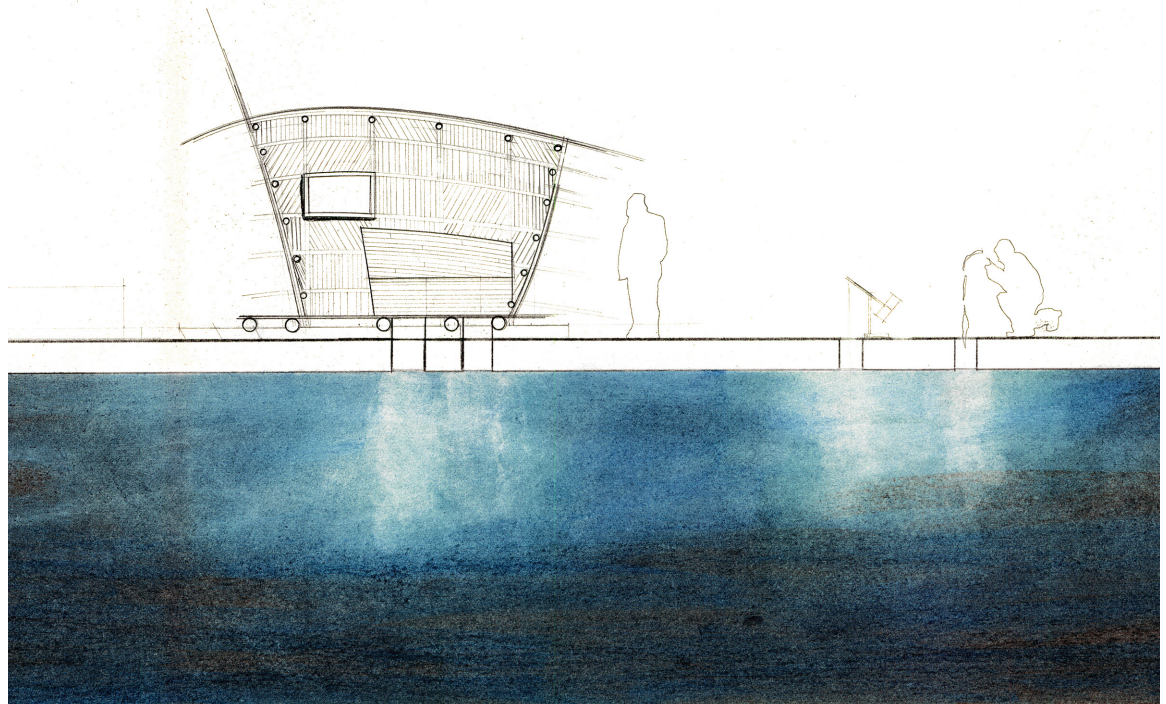
Keskaw Shelter (2 of 3), section, at fishing site



Section, elevation, and plan of a Keskaw Shelter (3 of 3 designs)



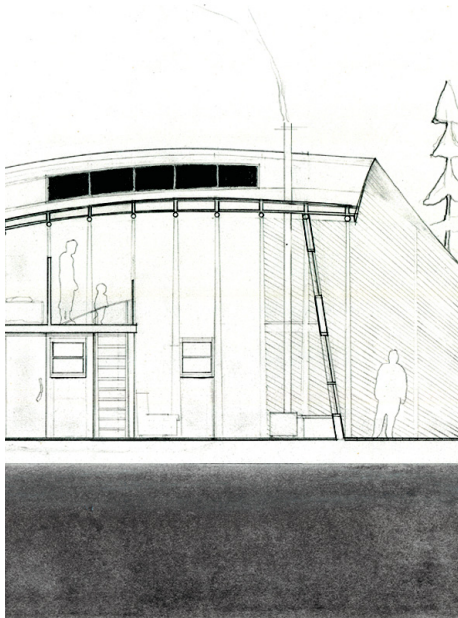
Keskaw Shelter (3 of 3), plan, in transit



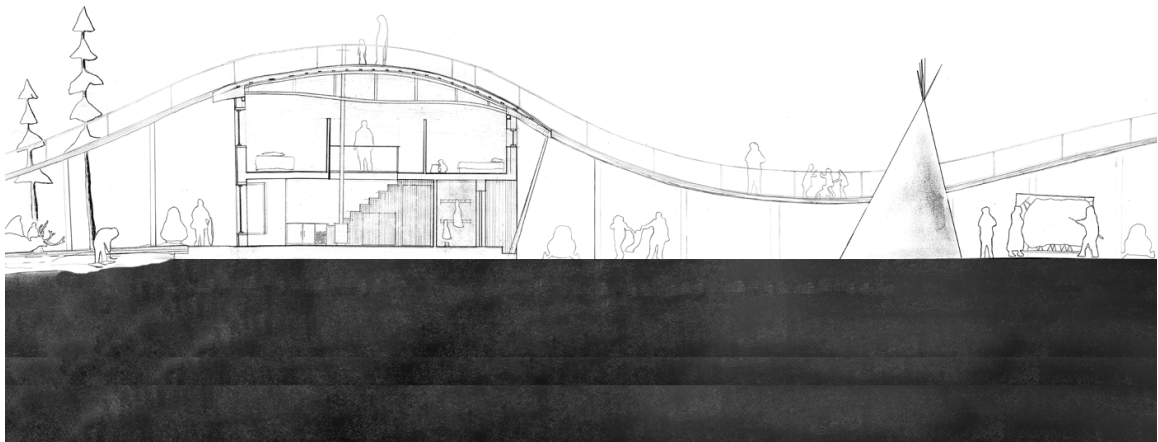
Keskaw Shelter (3 of 3), section, at fishing site

Apihkewin and Waskway: A Housing Design Proposal

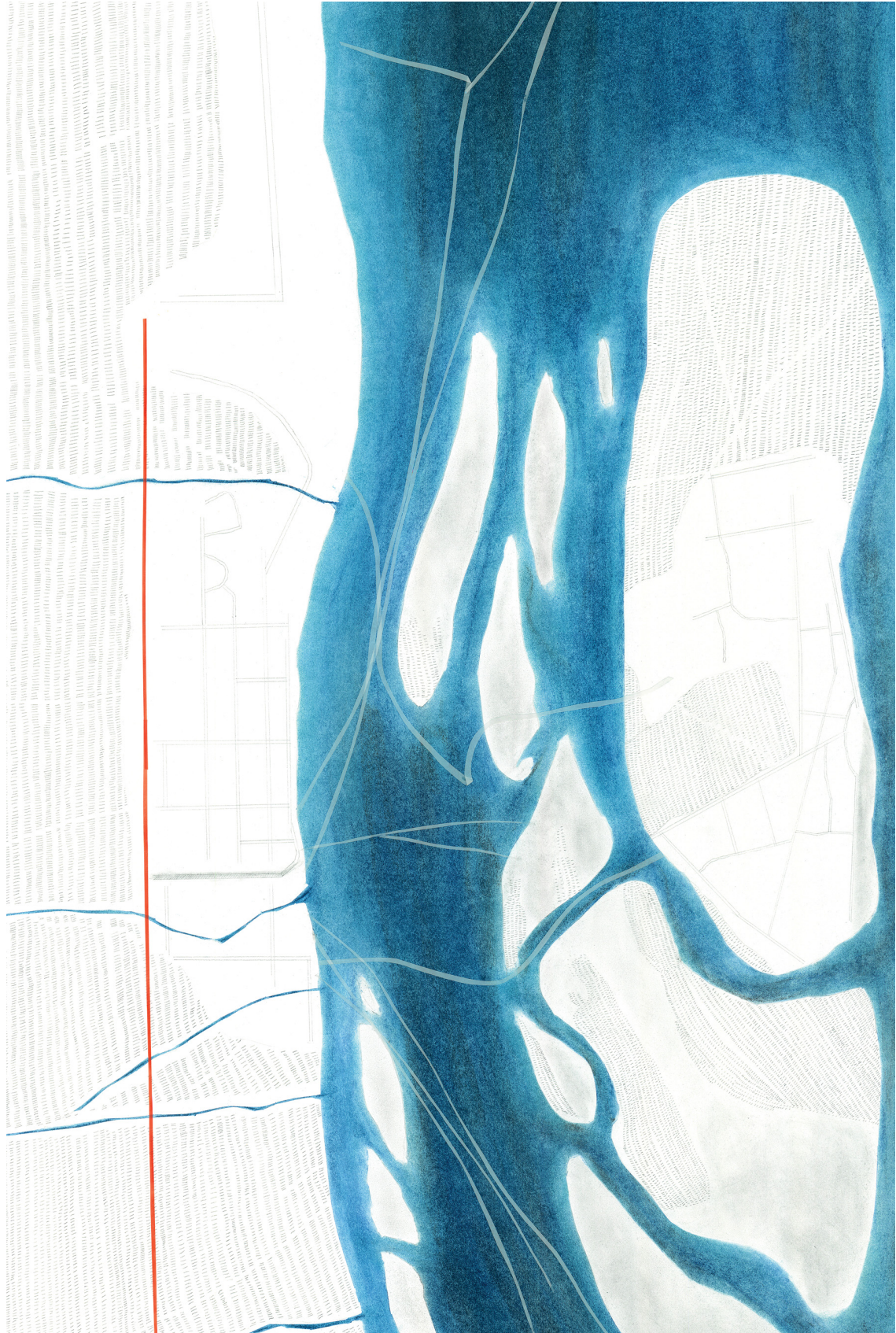
Apihkewin House and Waskway Housing strongly relate to the Moose River, to traditional settlement patterns, and to contemporary Cree ways of life. In the Apihkewin design the houses are grouped together to share walls, as well as collective interior and exterior spaces. In contrast, Waskway is conceived as individual family houses that are pulled apart yet, like Apihkewin, cluster together to create protected, shared outdoor spaces. The roof of Apihkewin and the structure of Waskway are inspired and informed by Cree ways of making and local materials. The forms found within the snowshoe, the canoe, the tipi, and the shaapuhtuwaan were touchstones throughout the design process.



Section detail of Waskway Housing.



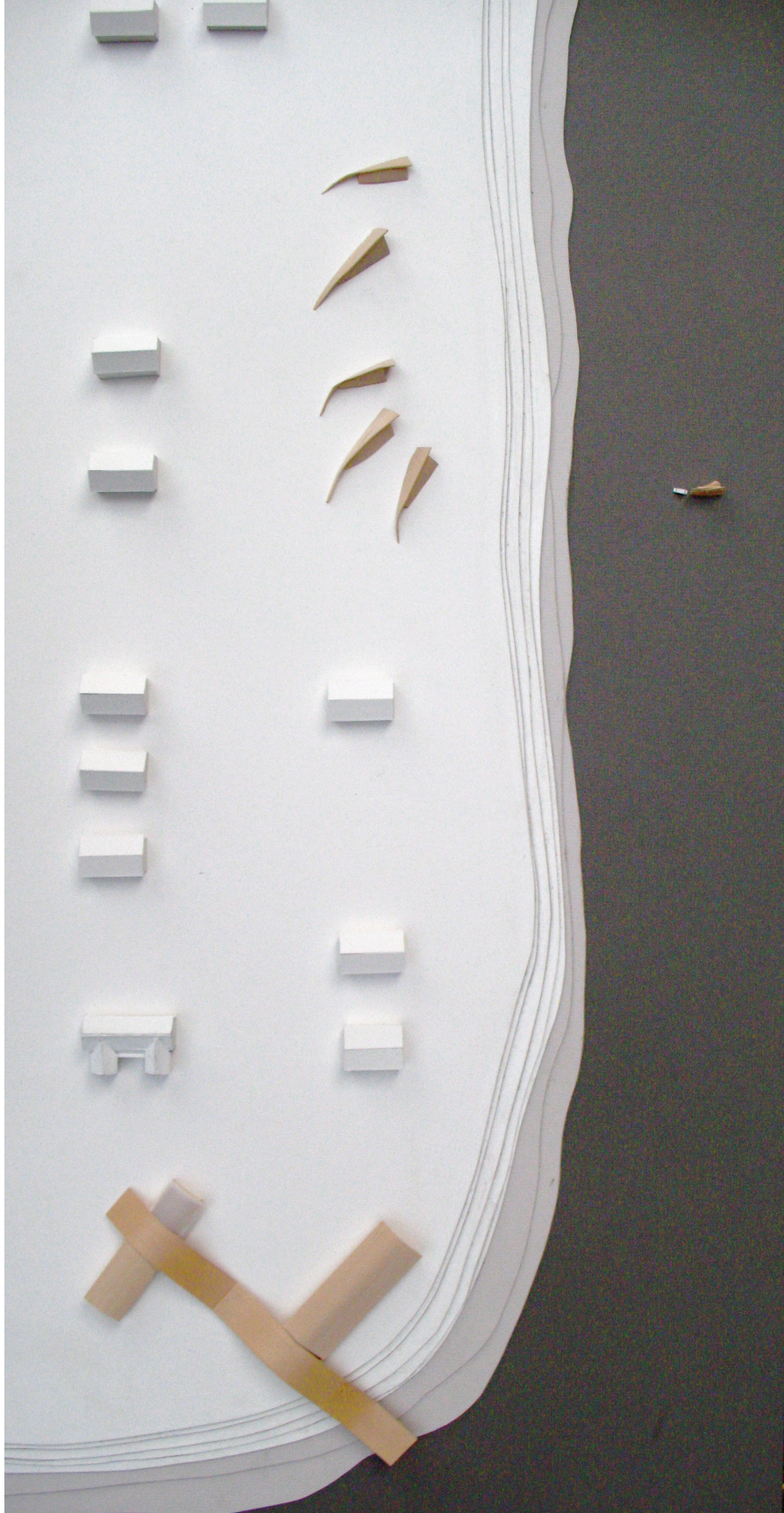
Section detail of Apihkewin House.



Topography, waterways, and landuse patterns of the Moosonee and Moosefactory area



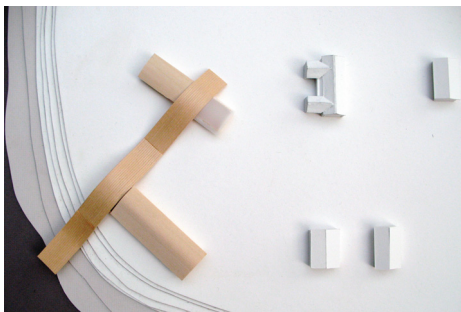
The town of Moosonee at the bank of the Moose River, design site highlighted in orange



Site Model of Apinkewin House, Waskway Housing, and Keskaw Shelter

Apihkewin House

Apihkewin House is designed with the central premise of shared common spaces. The buildings are situated to provide shelter from the north winds, with a south facing outdoor gathering space. The collective spaces are woven through the site and encourage places of interaction and exchange.

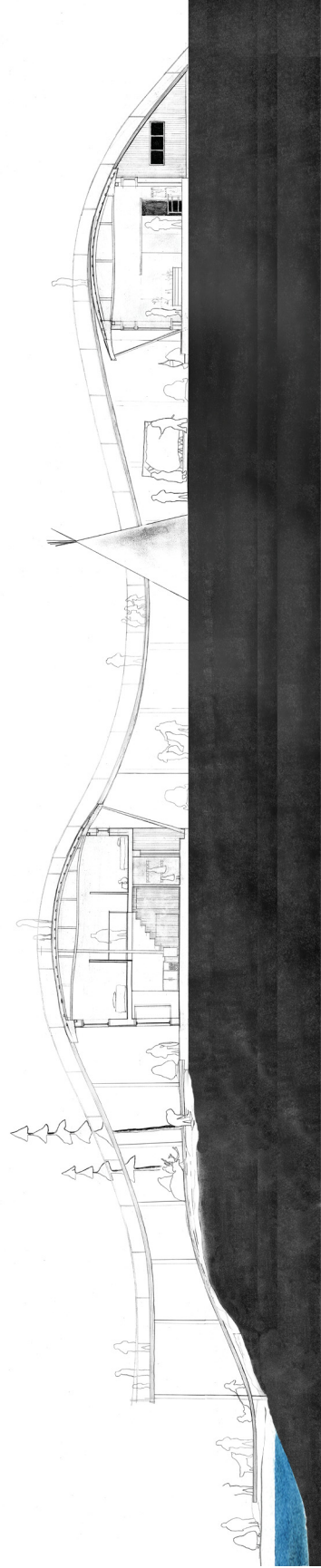


Apihkewin House

Store Creek and the Moose River wrap around the site of Apihkewin House at the eastern end of First Street. Careful consideration of the scale of the houses was given as they get closer to the water, in order to ensure that ample sunlight reaches the shared outdoor gathering space. This clustering of the houses, the sharing of walls that shelter, and needed amenities reflect both a response to the northern climate and to central values of Cree culture. Winter porches buffet the cold winter winds



View through shared courtyard of Apihkewin House



Section of Apihkewin House

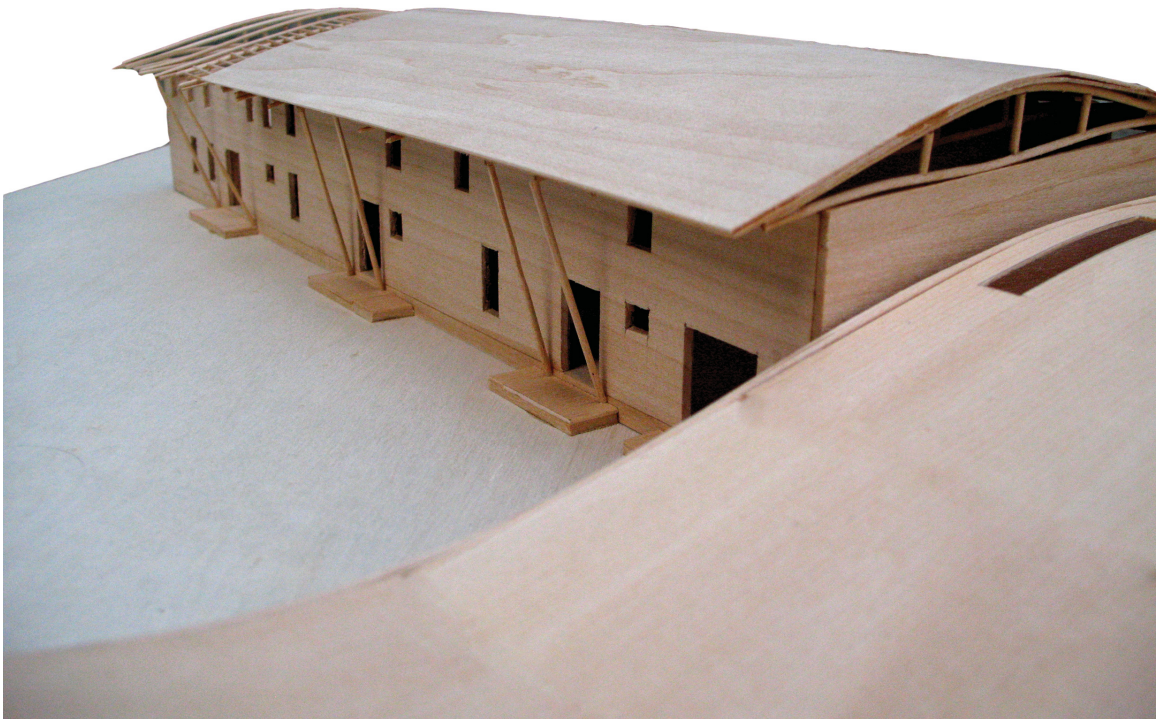


Entrance to elder housing unit (Apihkewin)

and aligned openings allow summer breezes from the water to pass through the site and for views to beckon. The shared greenhouse and public room anchor the project at the street, providing a threshold between public, shared, and private space.

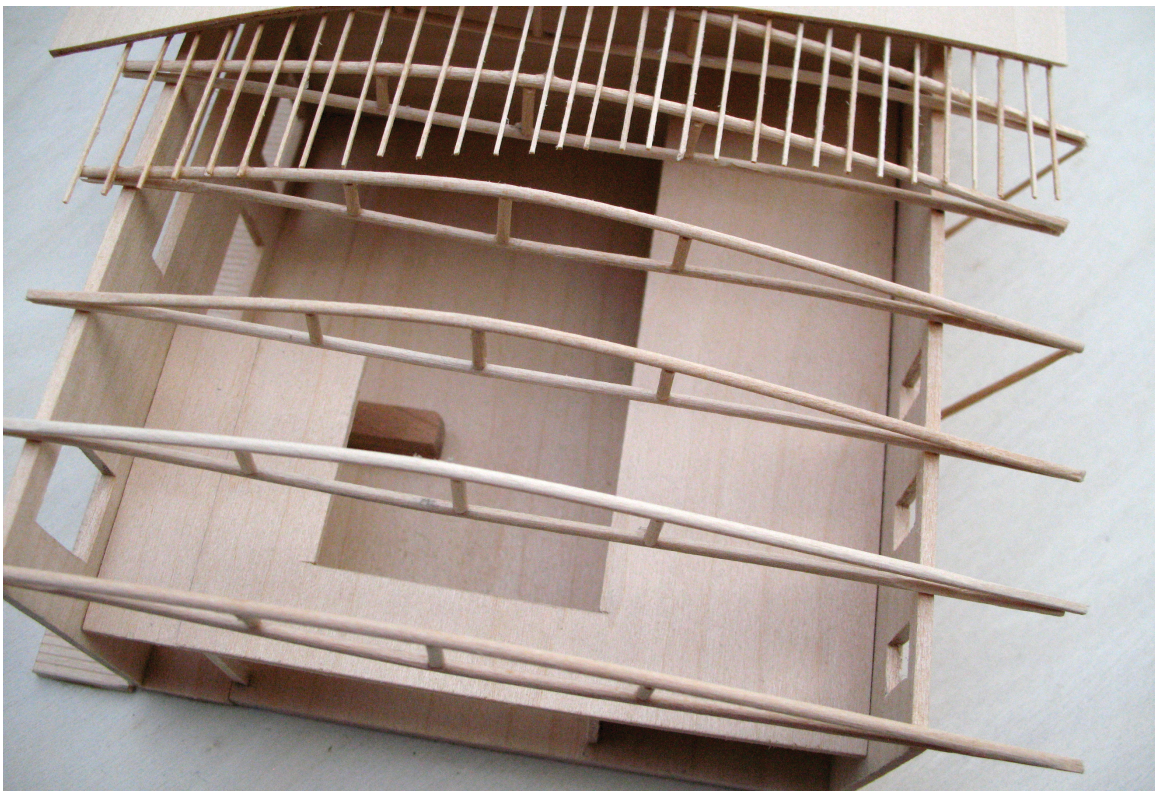
Interior open plans centre around the hearth and allow for generous amounts of natural light within the dwellings. Openings are placed to minimize exposure on the northwest facades, to take advantage of views of the water, and to catch summer breezes that keep the black flies at bay.

Apihkewin House is located on a site that is comparatively the size of approximately two town residential lots. While a residential lot is sized to hold one bungalow for a single family (4 or 5 people), Apihkewin

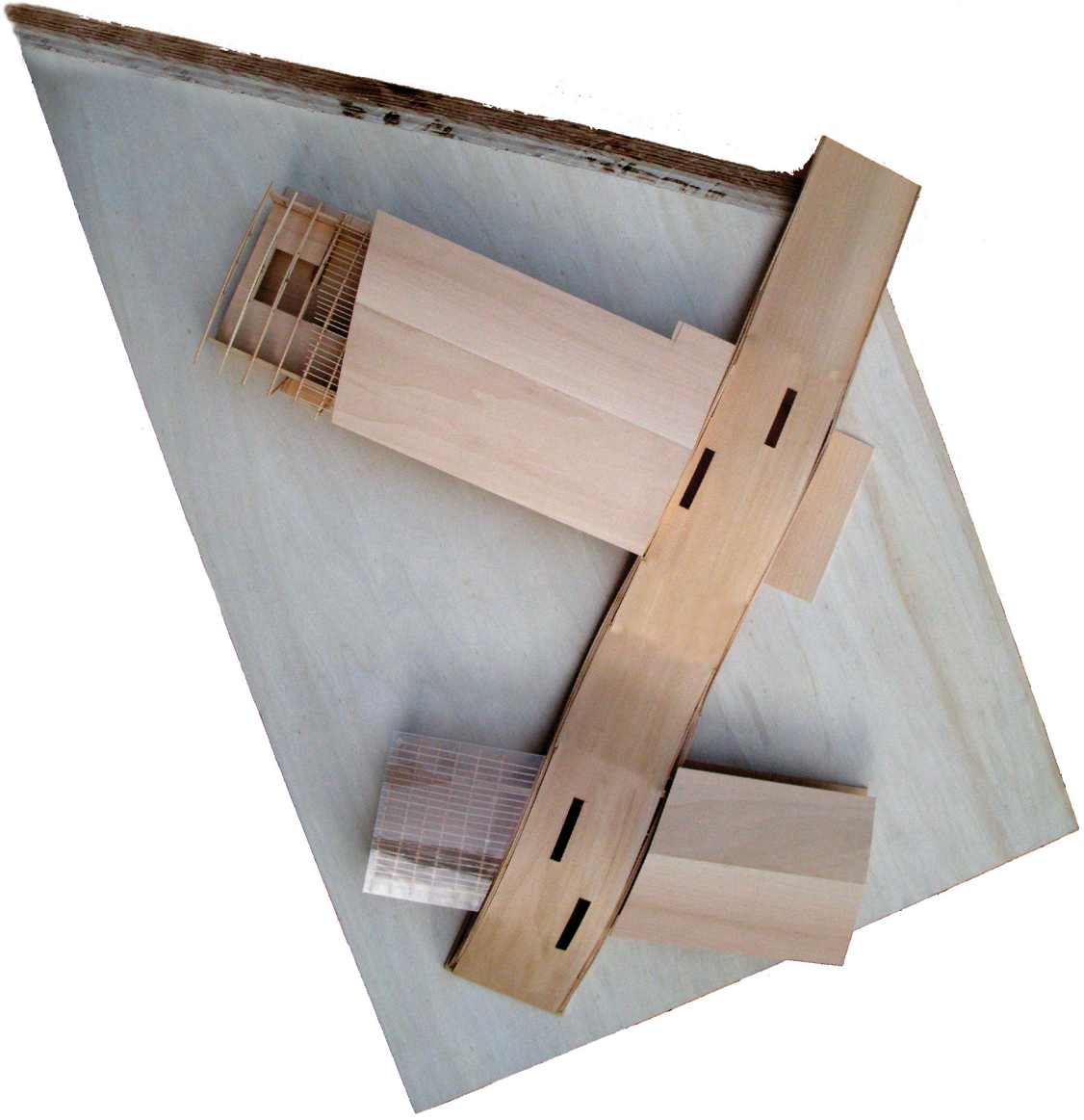


View from deck of Apihkewin House

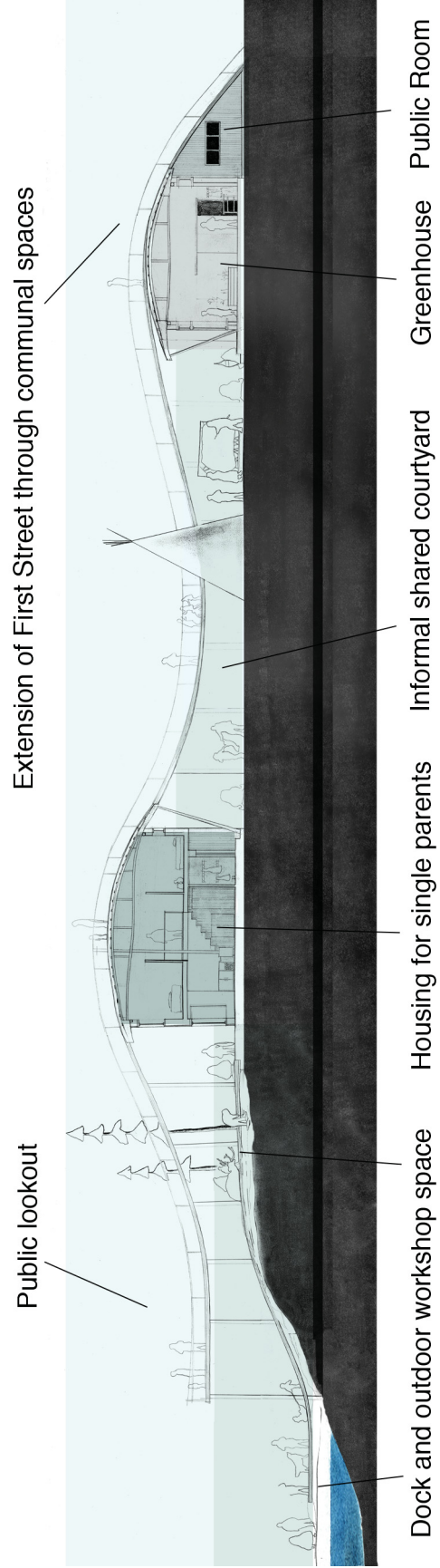
House is designed to offer shelter for three single or partnered elders (up to 6 people) and for three families of up to 5 persons each (approximate total of 15 people). While Apihkewin House is a higher density plan (housing approximately 21 people total), it also provides ample private and collective spaces, both indoors and out, as well as area for the construction of traditional structures. This clustering of houses and collective amenities offers an alternative idea of land use and a response to existing dwelling culture.



Section of Apihkewin House showing structure

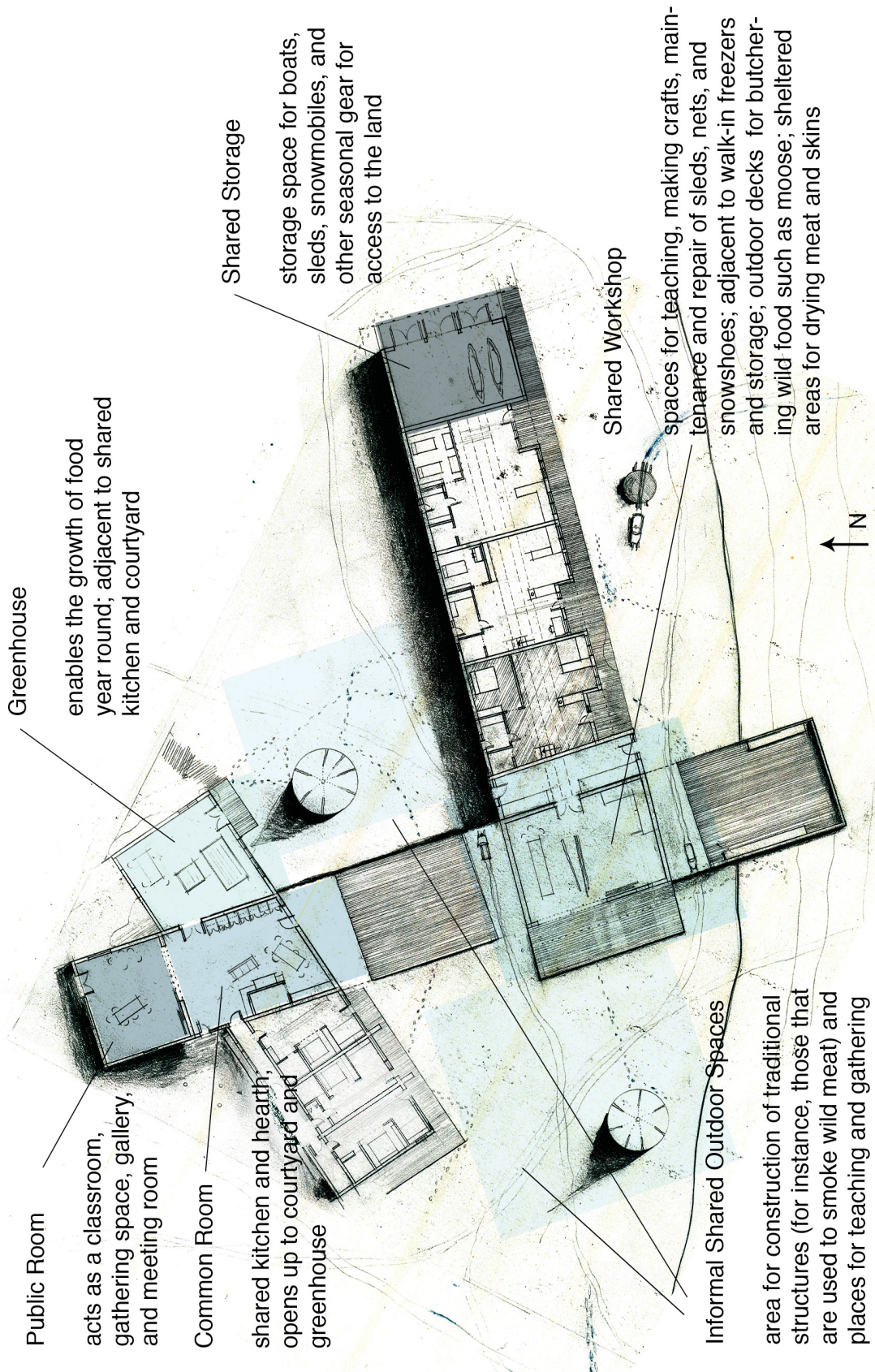


Model of Apihkewin House



Apihkewin House Program Section

Weaving Interior and Exterior Spaces



Program diagram of Apinkewin House

Housing

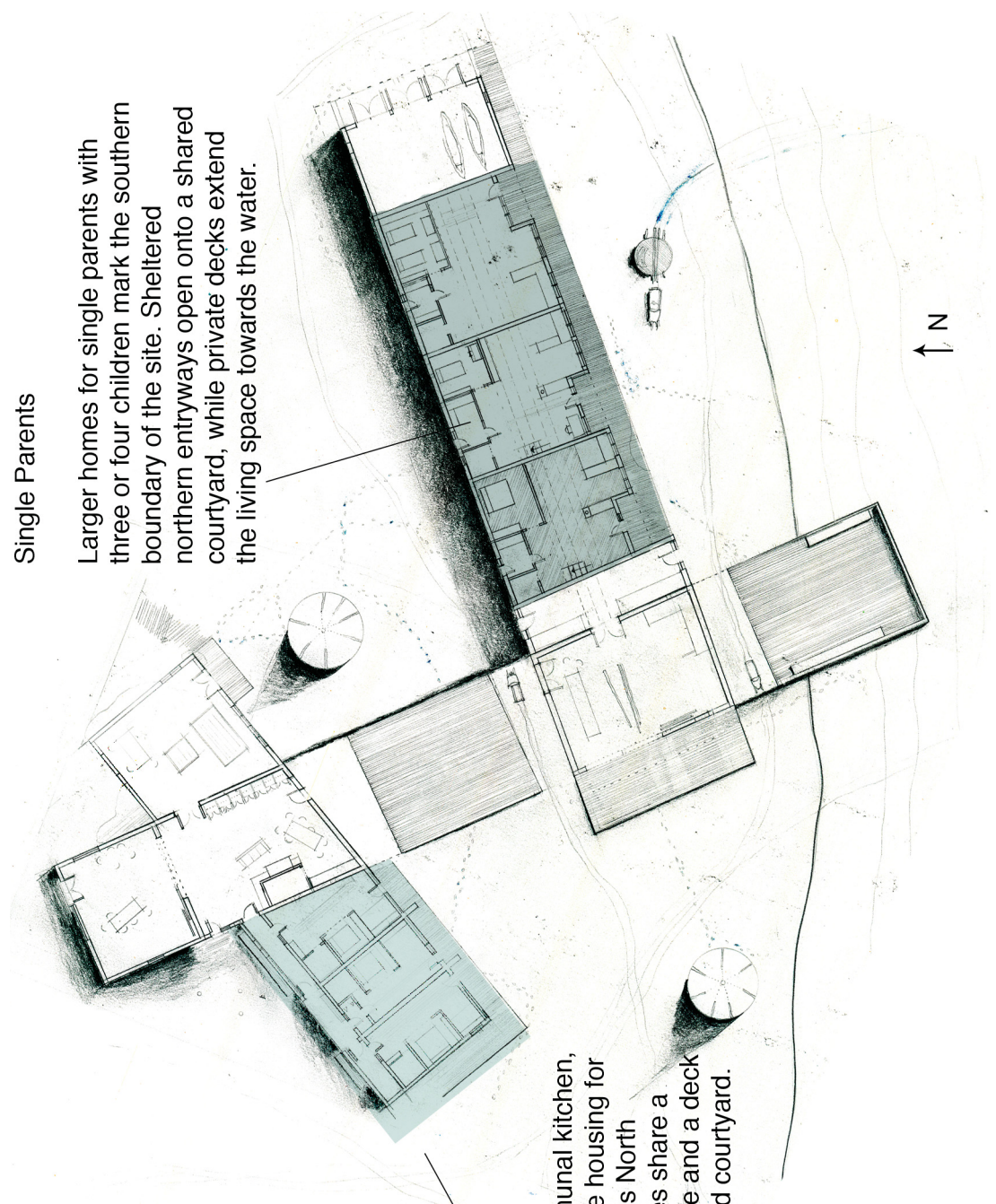
Single Parents

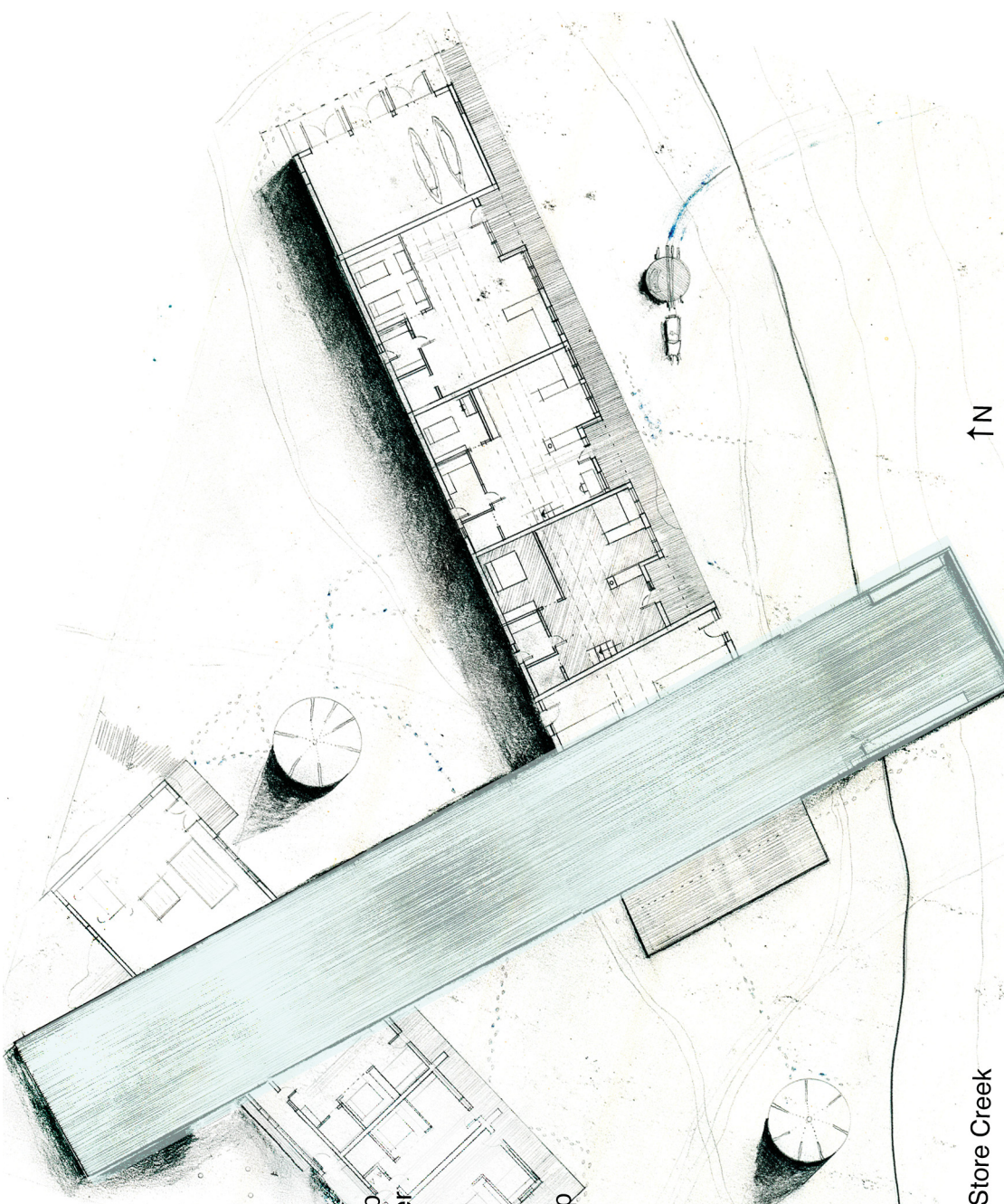
Larger homes for single parents with three or four children mark the southern boundary of the site. Sheltered northern entryways open onto a shared courtyard, while private decks extend the living space towards the water.

Elder Housing

Sited adjacent to the communal kitchen, hearth and greenhouse, the housing for elders anchors the site at its North Western corner. The houses share a sheltered Northern entrance and a deck that reaches into the shared courtyard.

Store Creek





Public Amenity

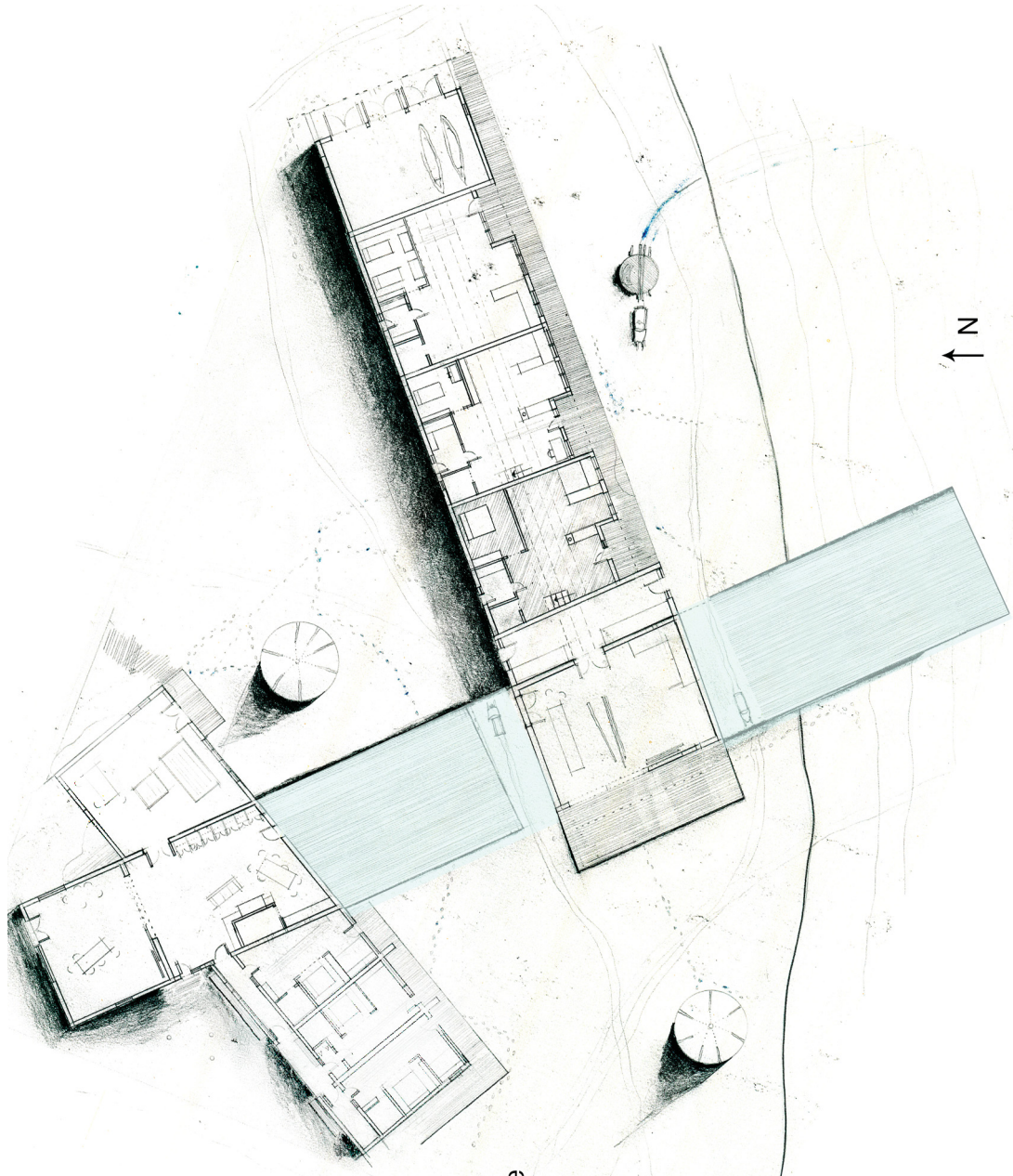
A deck extends from First Street, rising to become the roof of the public room and the common kitchen. The deck then drops in elevation, acting as a bridge between the two housing blocks and over the shared courtyard. From there, the deck rises once more over the workshop and resolves in a lookout over Store Creek and the Moose River, creating a vantage point to watch for returning boats and sleds and to catch the warm summer breezes up away from the blackflies and mosquitoes. The elevation changes in the deck provide sites for varied activities - a place to gather, to clean berries, to go sliding with toboggans, to run, stroll, watch, and play.

Store Creek

Deck Program of Apinkewin House

Weaving - The Ground Plane

At the courtyard level, the deck offers a sheltered area for working, for drying meat and skins, for cleaning berries around a large table, for interaction, teaching, learning, and working. Life extends outward from the common spaces - the kitchen and the workshop - and meets in the openness of the informal courtyard. At the waters edge, the deck is then a dock, a point of contact with the water, a place to bring in a boat and unload gear, with close access to the workshop, walk in freezers, and storage.

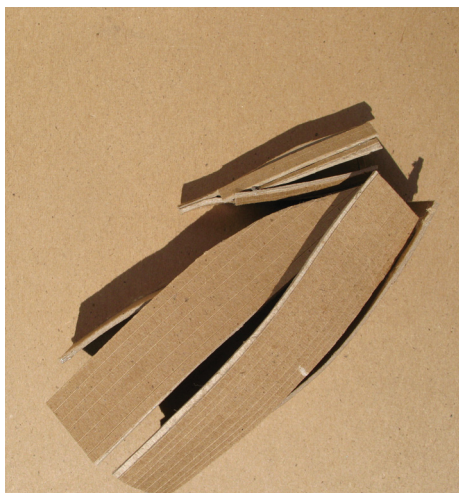


Store Creek

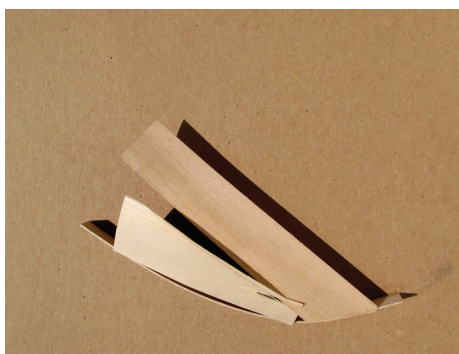
Dock Program of Apinkewin House

Waskway Housing

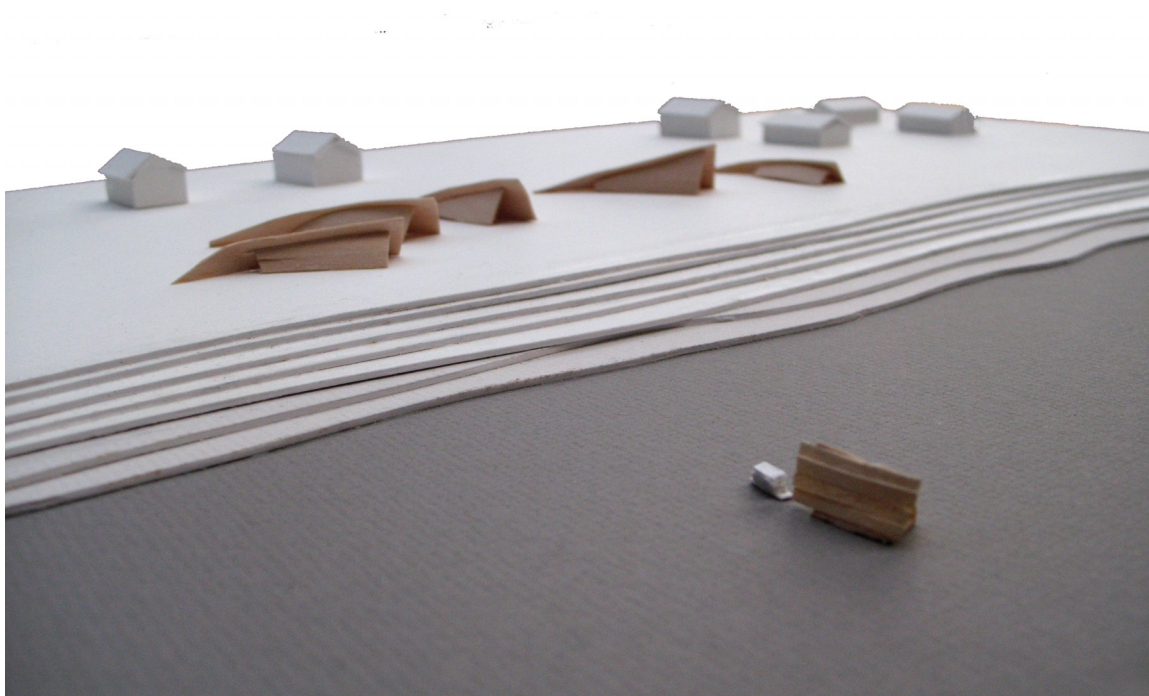
The intention of Waskway House is to offer shelter for intergenerational families. The design developed from a North West wall that wraps and extends around the house to buffet the winter winds and give much-needed sheltered entryways. Much like the housing in Apihkewin, the house has an open plan that centres on the hearth and opens up to views of the water. A second floor loft provides space for bedrooms and a play area that is awash in light from skylights above and looks over the central living area and beyond to the river. Openings are strategic: aligned to catch summer breezes and positioned for views to the landscape. Decks wrap the house as well, extending the home into the landscape, with the North West wall becoming both a place of shelter and of storage for seasonal gear and fuel for heat.



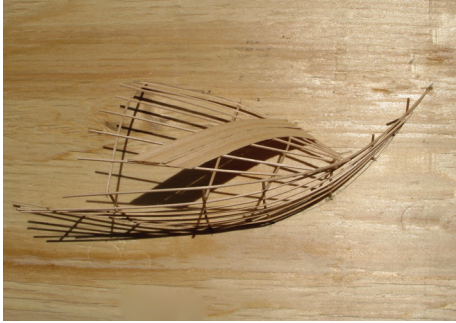
Initial study of Waskway Housing



Initial study of Waskway Housing



Waskway Housing and Keskaw Shelter coming across ice

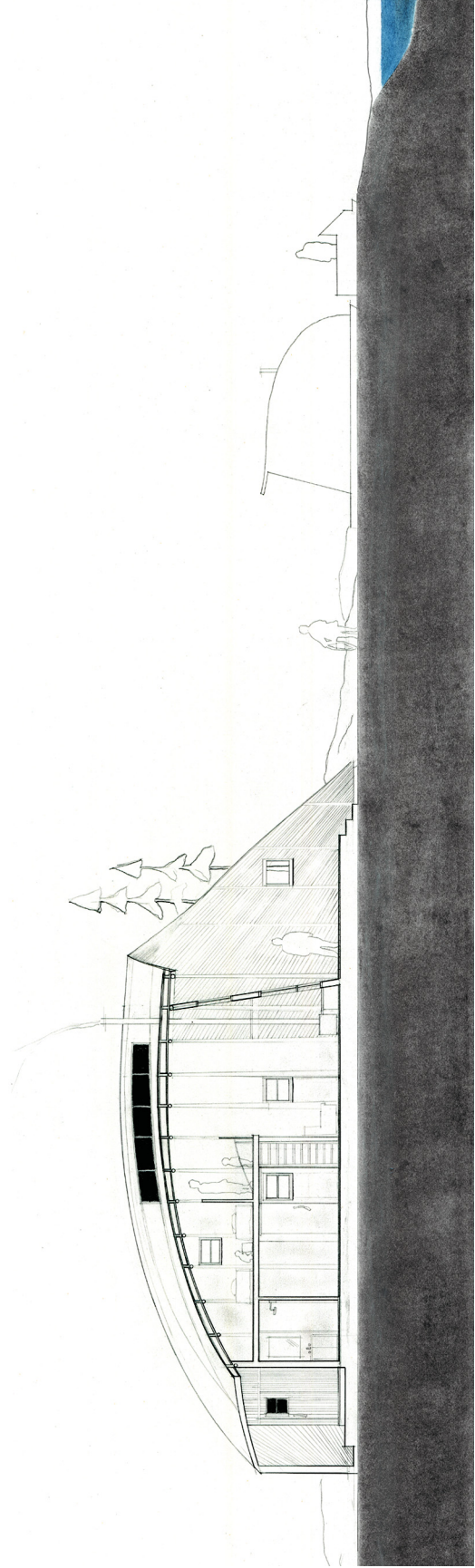


Study model of Waskway Housing

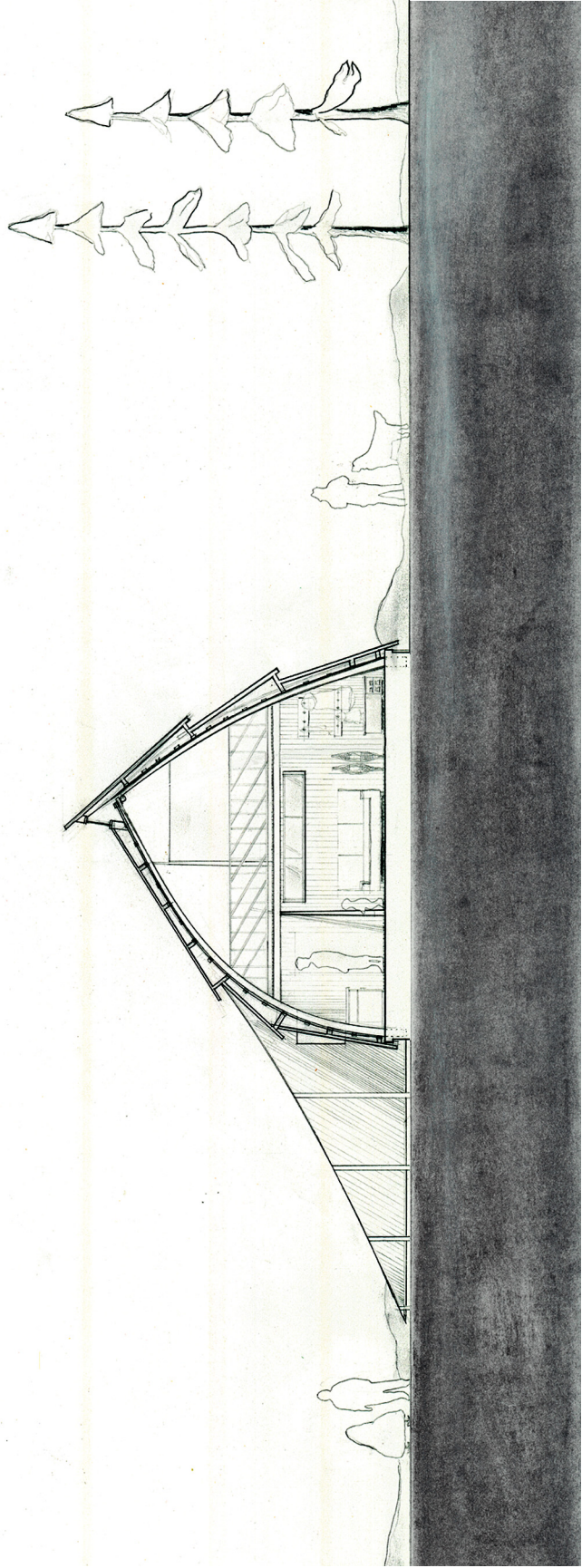
Integral to the design of Waskway is the idea of a cluster of houses that together create a sheltered outdoor space. While one home might be larger, with additional bays for a larger family, the one adjacent may be for an elderly relative, a smaller home that tucks in close and joins the grouping. The pattern of settlement relates to traditional Cree patterns of living, of clusters of family dwellings that relate to the water.



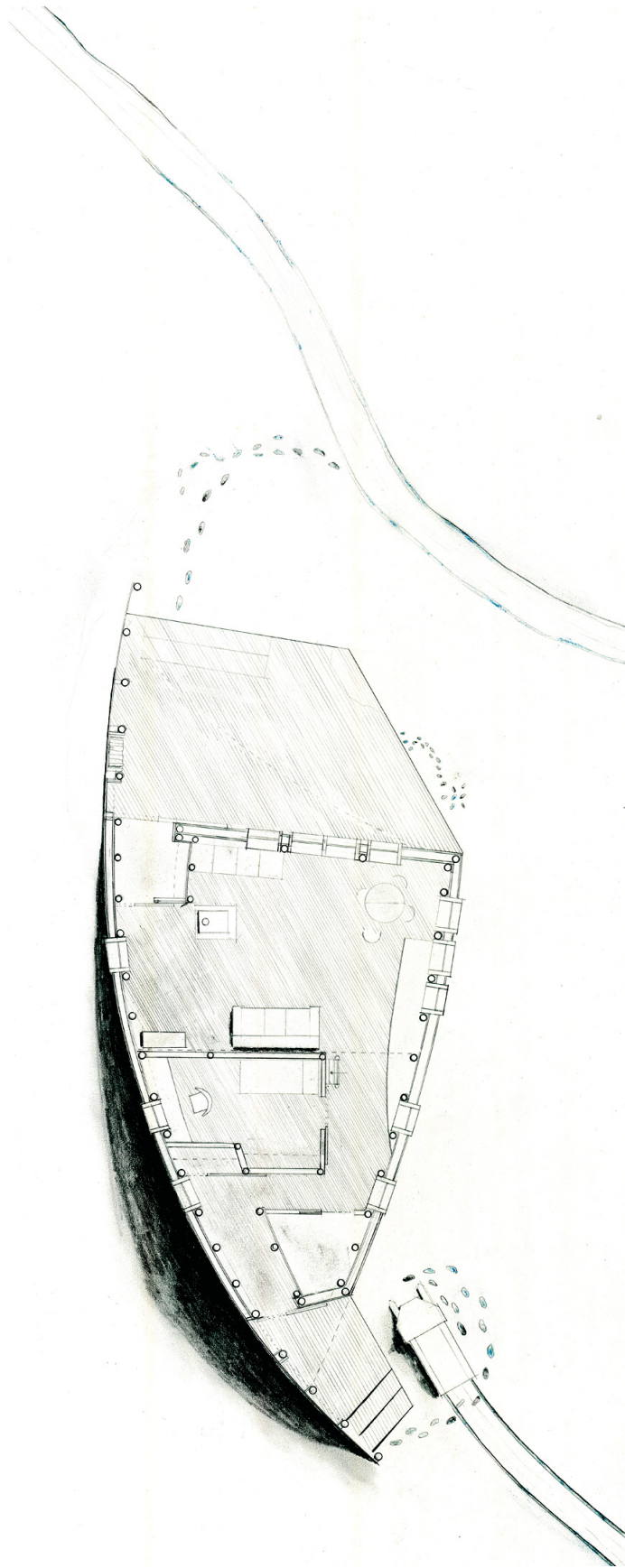
Study model of Waskway Housing



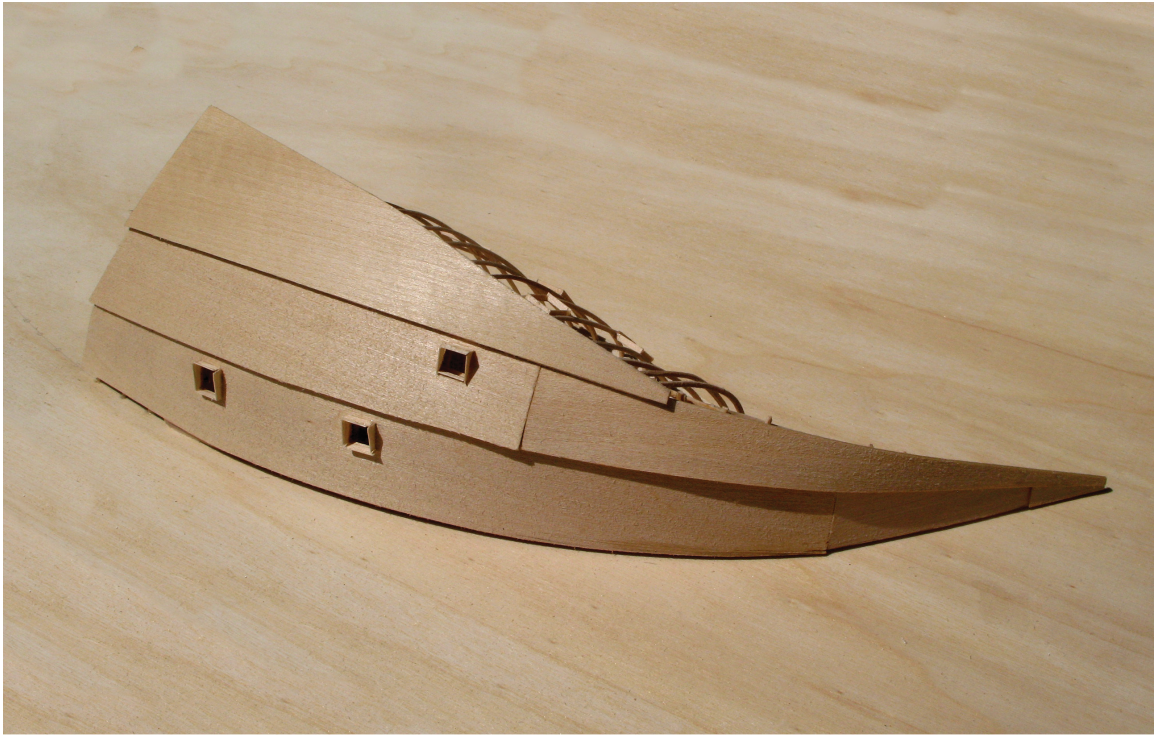
Long section of Waskway Housing



Short Section of Waskway Housing



Plan of Waskway Housing



North West wall of Waskway Housing



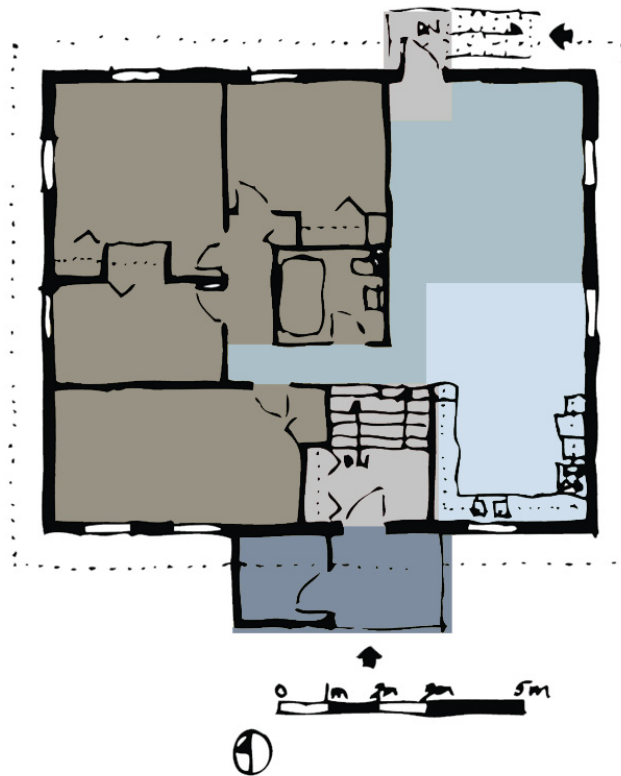
Exposed structure of Waskway Housing

Plan Studies

Although recent social and cultural changes have altered the structure of families, causing traditional living patterns to diminish, the Cree have kept their traditional community spirit. A great variety of domestic activities, such as smoking meat, weaving fish nets and snowshoes, and recanvassing canoes occur within the house and in the yards. Local streets and pedestrian paths, in addition to facilitating movement, become places for work and settings for social interaction. (Ghader Afshari-Mirak)

The following plan studies analyze existing dwelling patterns and proposed designs of Apihkewin House and Waskway Housing. The analysis of existing housing before and after occupancy reveals the need for additional storage space to accommodate gear required to access the land, decks to ease access to the yard, more living space outside of the house,

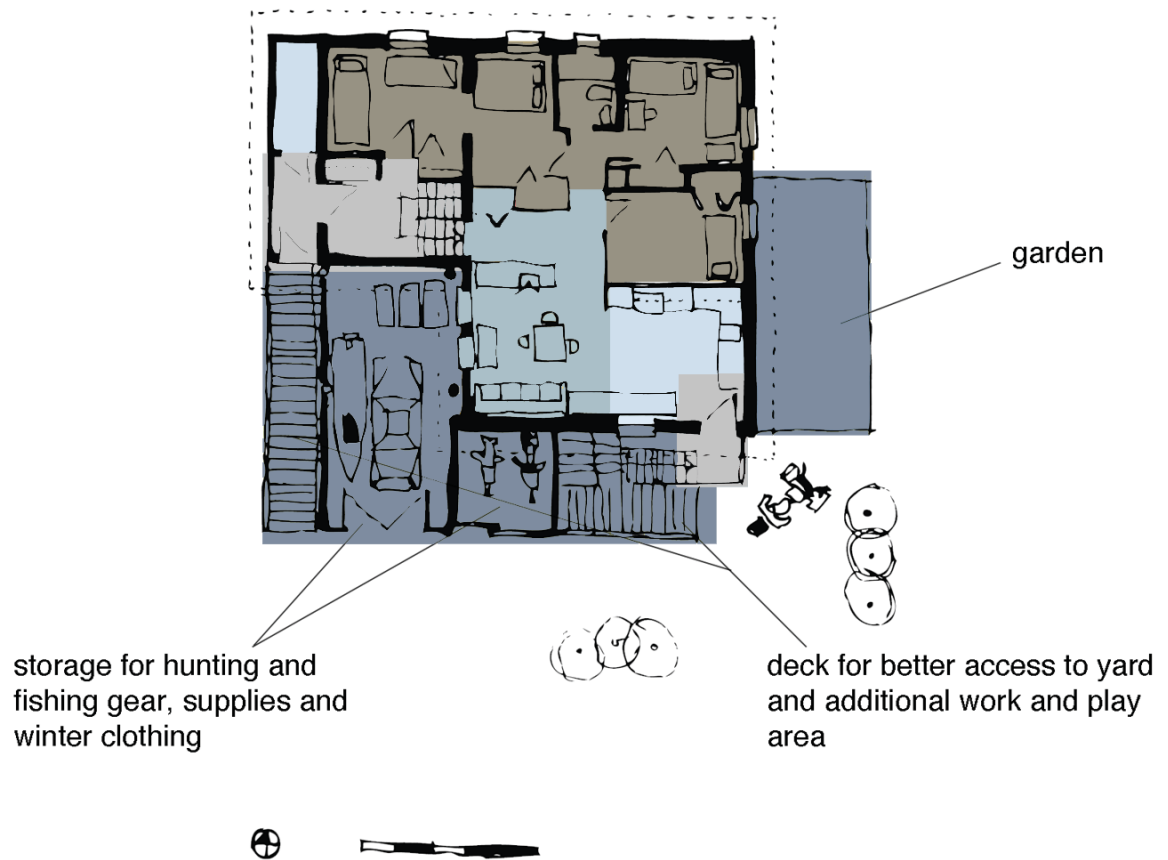
- yards | activities
- entrances
- living
- food
- sleep



Typical Moosonee bungalow before occupancy

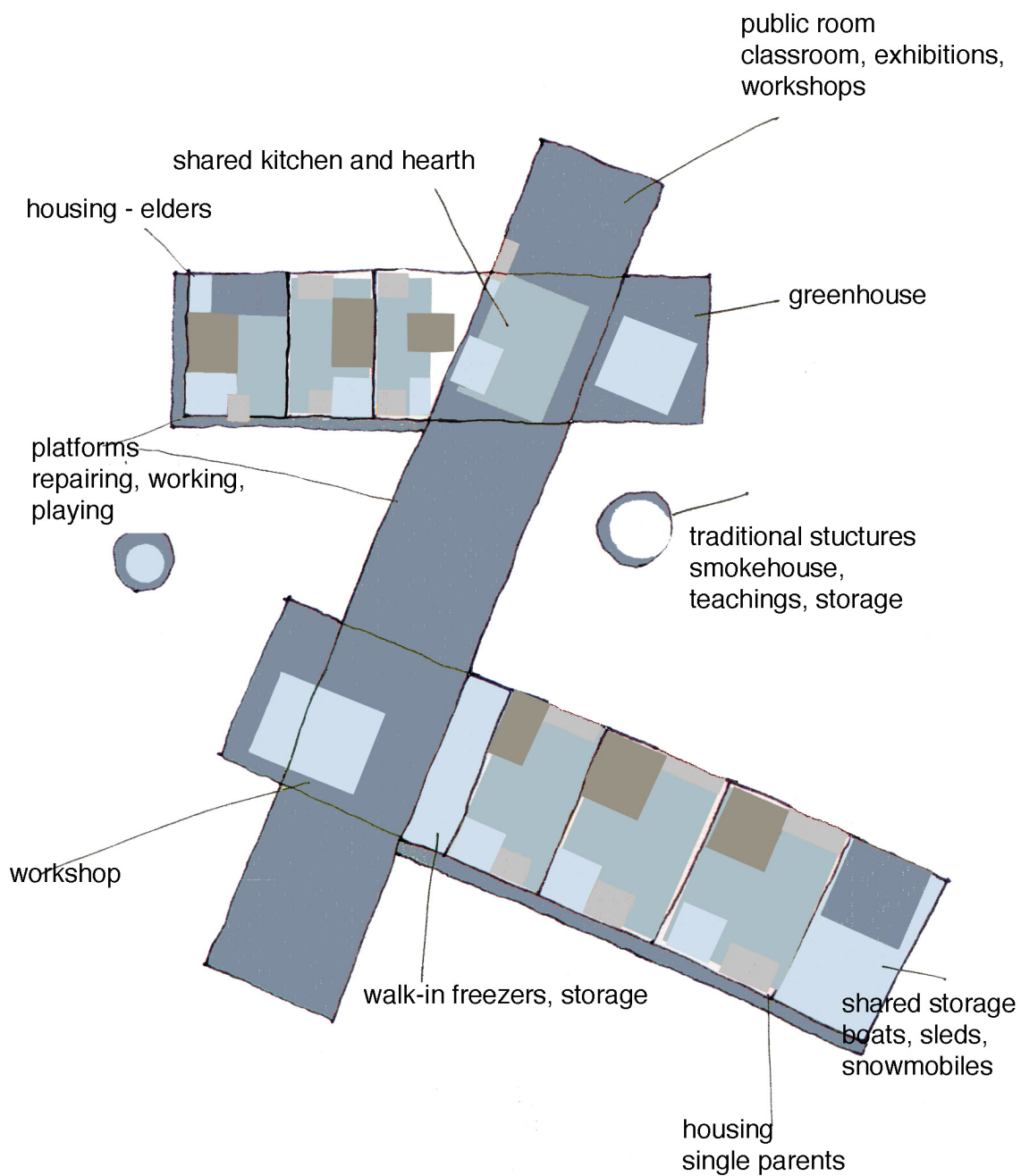
places for repairing and maintaining boats, garden space for sustenance and self-sufficiency, working areas within the living room, and extra bedrooms for visitors. The plan studies of Apihkewin House and Waskway Housing show the existing dwelling patterns and illustrate how these patterns have been incorporated into the designs.

- yards | activities
- entrances
- living
- food
- sleep



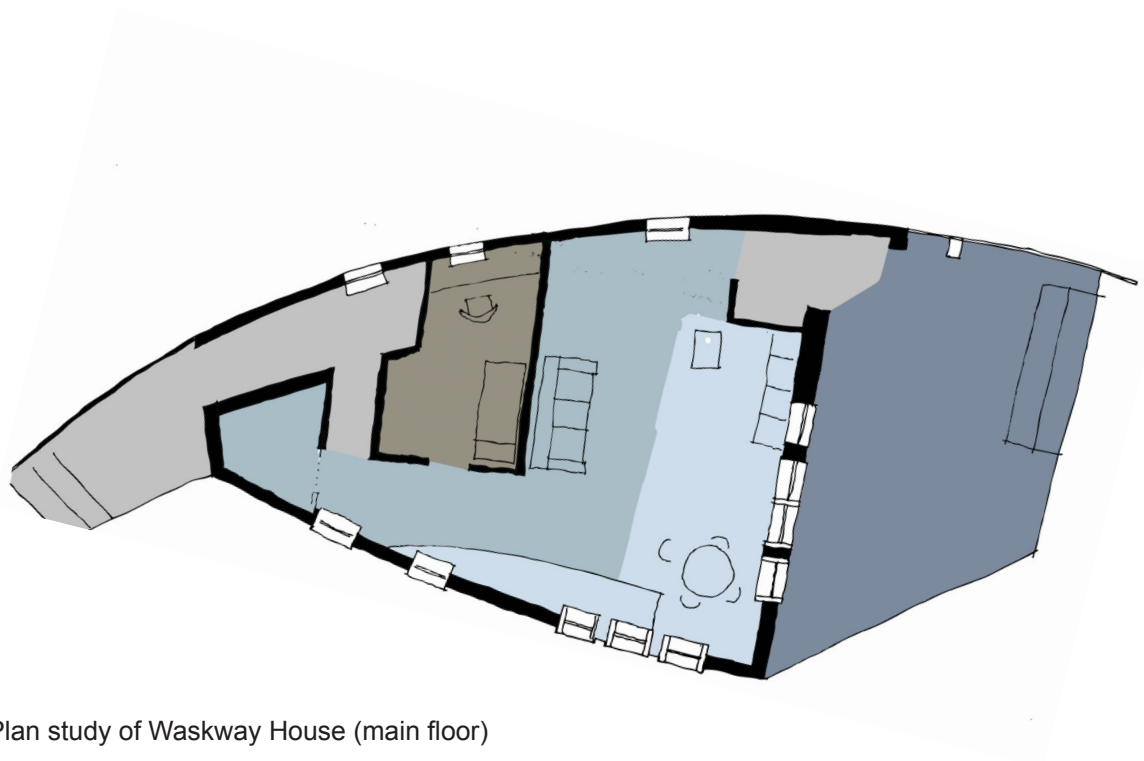
Typical Moosonee bungalow after occupancy

- yards | activities
- entrances
- living
- food
- sleep

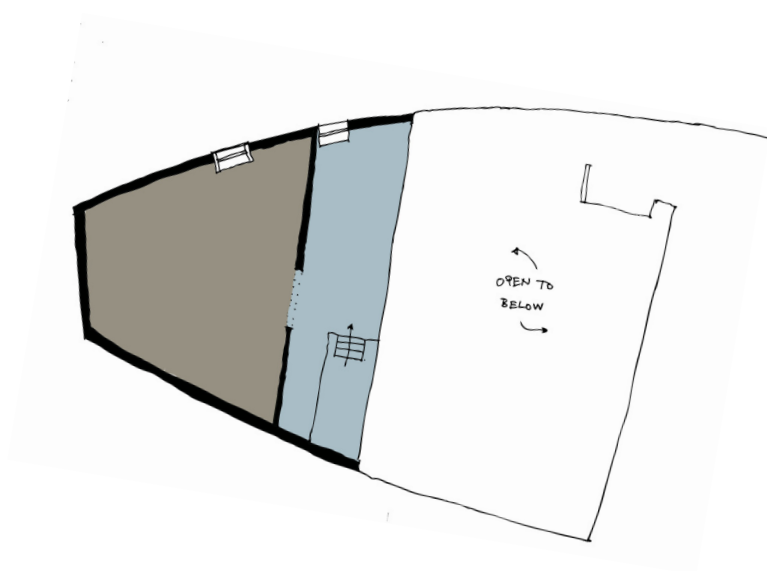


Plan study of Apihkewin House

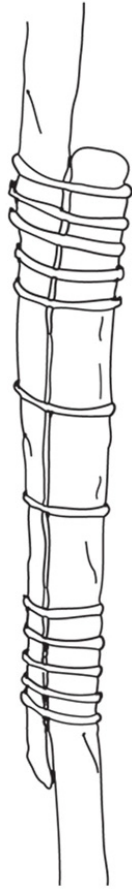
- yards | activities
- entrances
- living
- food
- sleep



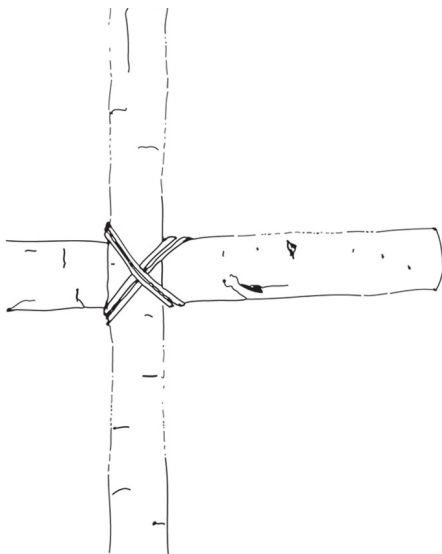
Plan study of Waskway House (main floor)



Plan study of Waskway House (loft)



Drawing of a traditional Cree joining detail



Drawing of a traditional Cree perpendicular joining detail

Structure and Material Culture

The structure builds upon earlier studies on the design of the ice shelters; the intention of the project is to propose a similar solution for a housing. The design is one where the structure is legible, where the landscape is evident in the materials, and where culture is reflected in the methods of joinery. A minimal palette of primarily local, durable materials is used. Structure comprises bent round-wood, overlapped, and joined together.

Form

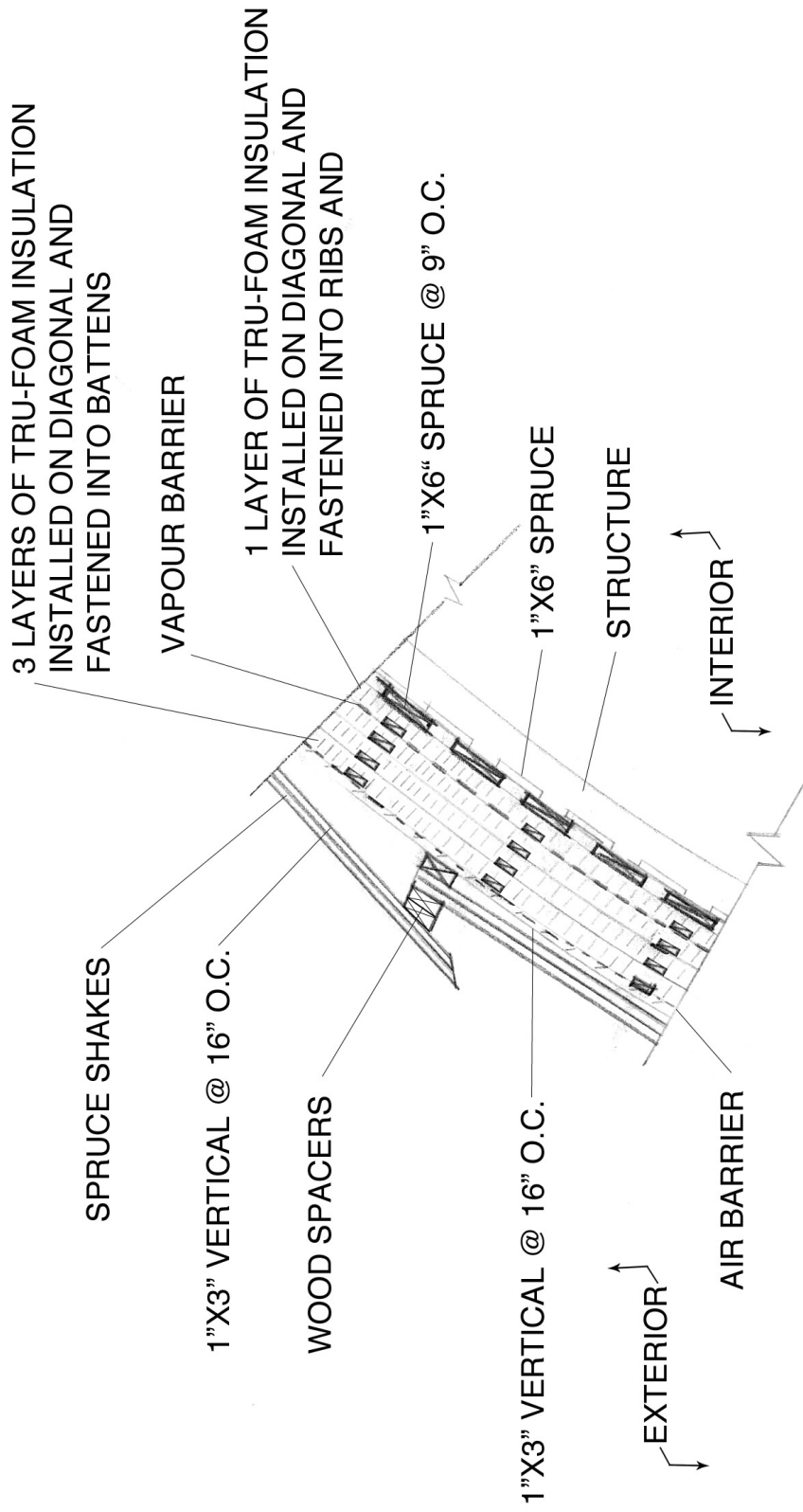
The forms of Apihkewin House, Waskway Housing, and Keskaw Shelters were found through bending, shaping, and tying materials, I searched for forms that fit for one house, as well as a cluster, that provide space for an ice shelter to tuck in while at home, that provide a winter porch, or an extra place to sleep. The central concept is to offer forms that are rooted in the solutions of traditional structures, that sit lightly on the land, that hold the snow and shed the rain readily, that catch the energy of the sun.

Spatial Considerations

Individual and Collective

A major component of the design is the overlapping of individual and collective space. There is a sense of connecting some of the shared spaces, piecing them together, and weaving them through the site. There is an economy to this architectural move, but also a reflection, and perhaps reinforcement, of one

ROOF/WALL SECTION



Typical insulation detail of Apihkewin House and Waskway Housing

of the core values of Cree culture – community. Inherent in the shared space is its purpose. The south facing, open space adjacent to the greenhouse is a place for play, work, and for the placement of traditional structures.

Housing

The design proposes a variety of housing models based on various stages of life and ways of living: homes for intergenerational families, elders, and single-parent families. These groups have the greatest need for housing within Aboriginal communities. A central concept in the housing design is that the various housing models enhance and sustain each other. The efficient use of space, with open plans, built-in storage, flexible partitions, and private outdoor decks that open onto shared space characterize the design. There is a generosity to the shared spaces, which include a communal hearth and kitchen, walk-in freezers, a greenhouse, and storage space for boats, sleds, and equipment. Each of these components relates to others: access to the land, sustenance, and community.

Workshop

Activities in the workshop allow for classes to be offered, both informal and formal, and provide communal space for working, making, and engagement with the broader community.

Public Room

The public room is an expression of potential and a celebration of craft. It is an interior space for gatherings, a gallery for local photographers to exhibit their work, a screening of a film by a director from Moose Factory Island, a place where children spend the day learning a craft from an elder.

Transportation

Shipping of materials is an expensive part of the current construction of a home in Moosonee. Materials are shipped by rail from the south, which is costly. By increasing the use of locally sourced materials, shipping costs will be reduced.

Community Engagement

A skilled construction sector exists in Moosonee and Moose Factory, and the building of Interweave House and Waskway Housing will offer benefits to the local economy and additional employment opportunities for the community. Once one project is built, skills can then be transferred to neighbouring communities, building upon experience and increasing the use of local materials for building in the north.

Greenhouse

The shared greenhouse catches southern light and warmth, harvests rainwater, and provides food for the community.

CHAPTER 3: CONCLUSION

This thesis grew and evolved from the careful study of contemporary and traditional Cree culture, from consideration of the site and climate, and from thorough analysis of existing housing in Moosonee. Apihkewin House and Waskway Housing simultaneously respond to the existing housing shortage in Moosonee and offer a housing design that responds to both place and to Cree dwelling culture. The premise of home as a necessary place of beginning, from which we move forward out into the world has been a touchstone throughout my thesis. These designs attempt to reaffirm home and respond to place – where family, community, and landscape overlap, intersect, and weave together.

The Keskaw Shelters are a response to a way of experiencing and living off of the land. The shelters are designed to travel through the landscape, giving shelter from the elements as one harvests wild foods – fish, moose, berries, geese – throughout the seasons. These designs have developed through material studies based on traditional structures, through bending wood to find form, weaving and lashing pieces together. Waskway House is of the same language – bentwood structure gives form, a curving wall offers shelter from the winds, and a deck extends the home into the landscape. The design of Apihkewin responds to those with the greatest housing need – the elderly and single parents – and integrates their housing with shared indoor

and outdoor spaces that affirm community and life patterns of the Cree in Moosonee.

A northern response to First Nations housing needs is necessary and central to the success of the design. Integral to the housing designs are structure that determines form, materials that are inherently local, and a process of building that fosters and responds to a culture that is centred on reciprocity. If a thesis can be considered a beginning point, then this has been an incredibly rich one for me. I have learned much from my close study of Cree culture, of materials and structure, of environment and landscape, and I can see that it will serve as a solid point of reference as I continue my explorations in the field of architecture.

REFERENCES

- Afshari-Mirak, Ghader. 2001. Cultural Approaches to Native Canadian Housing: An Evaluation of Existing Housing Projects in Cree Communities in Northern Quebec. M. Arch thesis, McGill University.
- Adney, Tappan, and Howard Irving Chapelle. 1964. *The Bark Canoes and Skin Boats of North America*. Washington: Smithsonian Institution.
- Baldwin, A., J. Desloges, and L. Band. 2000. Physical Geography of Ontario. In *Ecology of a managed terrestrial landscape: patterns and processes of forest landscapes in Ontario*, edited by David Euler, Ajith H. Perera, and I. D. Thompson. Vancouver: Published by UBC Press in cooperation with the Ontario Ministry of Natural Resources.
- Berkes, Fikret. 1994. *Wildlife harvesting and sustainable economy in the Mushkegowuk Region of the Hudson/James Bay Lowlands*. Hamilton, Ont.: Program for Quantitative Studies in Economics and Population, McMaster University.
- Berkes, F., A. Hughes, P. J. George, and R. J. Preston. 1995. The persistence of Aboriginal land use: Fish and wildlife harvest areas in Hudson and James Bay lowland, Ontario. *Arctic*, Calgary, 48 (1): 81.
- Berman, H., G. A. Mulchay, C. Forchuk, K. A. Edmunds, A. Haldenby, and R. Lopez. 2009. Uprooted and displaced: A critical narrative study of homeless, Aboriginal, and newcomer girls in Canada. *Issues in Mental Health Nursing*, 30: 418-430.
- Bing Maps. Hudson Bay Lowlands (map). <http://www.bing.com/maps>.
- Birchbark canoe. Woman lacing snowshoe (photograph). www.birchbarkcanoe.com.
- Black Fly Boy. Mouth of Moose River in winter (photograph). www.flickr.com.
- Bone, Robert M. 1992. *The geography of the Canadian North: issues and challenges*. Toronto: Oxford University Press.
- Bukisa. Aerial view of Resolute, Nunavut (photograph). www.bukisa.com.
- Canada Revenue Agency. 2009. Do you qualify for the northern residents deductions? Line 255. <http://www.cra-arc.gc.ca/tx/ndvdl/tpcs/ncm-tx/rtrn/cmpltng/ddctns/lns248-260/255/qlfy-eng.html>.
- Canada Revenue Agency. 2009. Prescribed Northern Zones. Line 255 Zone A. <http://www.cra-arc.gc.ca/tx/ndvdl/tpcs/ncm-tx/rtrn/cmpltng/ddctns/lns248-260/255/zn-eng.html#onA>.
- Center for Indigenous Environmental Resources. 2004. Aboriginal housing assessment: Community Design Needs and Preferences and Application of Local Materials. <http://www.cier.ca/information-and-resources/publications-and-products.aspx?id=548>.

- Cloke, P., P. Milbourne, and R. Widdowfield. 2001. Intersecting housing, homelessness and rurality: Evidence from local authority homelessness officer in England and Wales. *Journal of Rural Studies*, 17: 99-111.
- Davis, Sam. 1995. *The Architecture of Affordable Housing*. Berkeley: University of California Press.
- Environment Canada. National Climate Data and Information Archive: Moosonee. http://www.climate.weatheroffice.gc.ca/climateData/hourlydata_e.html?timeframe=1&Prov=XX&StationID=30242&Year=2011&Month=6&Day=23.
- George, P., F. Berkes, and R. J. Preston. 1995. Aboriginal harvesting in the Moose River Basin: A historical and contemporary analysis. *The Canadian Review of Sociology and Anthropology*, 32 (1): 69-90.
- Goulston, van S. M., J. McCready, H. Merskey, and G. F. D. Heseltine. 1980. Illness episodes and service delivery in the Hudson Bay and James Bay region. *Canadian Family Physician*, 26: 822-826.
- Jumaka. Moose Cree snowshoes (photograph). <http://www.jumaka.com/snowshoes/images/Cree>.
- Kauffman Mercantile. Regional variations on the snowshoe (chart). www.kauffmanmercantile.com.
- Kauffman Mercantile. Snowshoe lacing and subarctic snowshoe, details (photographs). www.kauffmanmercantile.com.
- Kauppi, Carol, and Jean-Marc Bélanger. 2001. *Report on homelessness in Sudbury: comparison of findings July, 2000 to July, 2003*. Sudbury, Ontario: Social Planning Council of Sudbury.
- Kelbaugh, Doug. 1997. *Common place : toward neighborhood and regional design*. Seattle: University of Washington Press.
- Maberley, D. A.L., W. King, A. F. Cruess, and A. Koushik. 2002. Risk factors for diabetic retinopathy in the Cree of James Bay. *Ophthalmic Epidemiology*, 9 (3): 153-167.
- Maberley, D. A. L., A. Koushik, and A. F. Cruess. 2002. Factors associated with missed eye examinations in a cohort with Diabetes. *Canadian Journal of Public Health*, 93 (3): 229-232.
- McNiven, Chuck. 2000. *Delineation of Canada's North an examination of the North-South relationship in Canada*. Ottawa: Statistics Canada, Geography Division.
- Menzies, P. 2006. Intergenerational trauma and Aboriginal men. *Canadian Review of Social Policy*, 58: 1-24.

- Meridian Planning Consultants Inc. 2006. Town of Moosonee: Official Plan.
- Miller, P., P. Donahue, D. Este, and M. Hofer. 2004. Experiences of being homeless or at risk of homeless among Canadian youths. *Adolescence*, 39 (156): 735-755.
- Ministry of Natural Resources, Ontario. 2008. About Ontario's forests. http://www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_163390.html.
- Montgomery, P., C. Forchuk, C. Duncan, D. Rose, P. C. Bailey, and R. Veluri. 2008. Supported housing programs for persons with serious mental illness in rural northern communities: A mixed method evaluation. *BMC Health Services Research*, 8: 156-163
- Moose Cree First Nation. <http://www.moosecree.com/>.
- Moosonee Official Website. Town of Moosonee. <http://www.moosonee.ca/joomla/>.
- Nabokov, Peter, and Charles Easton. 1989. *Native American Architecture*. New York: Oxford University Press.
- Norberg-Schulz, Christian. 1985. *The Concept of Dwelling: On the Way to Figurative Architecture*. Milan: Electa.
- National Museum of the American Indian. Birchbark basket (photograph). <http://american-indian.si.edu/searchcollections/results>
- Natural Resources Canada. 1995. Growing Degree Days. *The National Atlas of Canada MCR 403*, 5th Edition. <http://atlas.nrcan.gc.ca/site/english/maps/archives/5thedition/environment/climate/mcr4034>.
- Natural Resources Canada. 1995. Heating Degree Days. *The National Atlas of Canada MCR 4033*, 5th Edition. <http://atlas.nrcan.gc.ca/site/english/maps/archives/5thedition/environment/climate/mcr4033>.
- Natural Resources Canada. 1981. *The National Atlas of Canada MCR 4050, Road Transportation Network*, 5th Edition. <http://atlas.nrcan.gc.ca/site/english/maps/archives/5thedition/economic/transportationandcommunications/mcr4050>.
- Natural Resources, Canada. 1981. *The National Atlas of Canada MCR 4070, Railway Transportation Network*, 5th Edition. <http://atlas.nrcan.gc.ca/sites/english/maps/archives/5thedition/economic/transportationandcommunications/mcr4070>.
- Natural Resources Canada. 1957. *Atlas of Canada, Forest Regions*, 3rd Edition. <http://atlas.nrcan.gc.ca/site/english/maps/archives/3rdedition/environment/ecology/039>.
- Ontario Archives. A Moose Cree village (photograph). <http://www.archives.gov.on.ca/english/on-line-exhibits/james-bay-treaty/treaty-relationship.aspx>.
- Ontario Federation of Indian Friendship Centres. 2009. *The Ontario Off-Reserve Aboriginal Housing Trust Final Report*. Toronto, Ont..

- Ouje Bougoumou. Aerial view of Ouje Bougoumou and the Cree Cultural Institute (photographs). <http://www.ouje.ca/>
- Ozecture. Marika-Alderton House (photographs). www.ozecture.org
- Pallasmaa, Juhani. 2005. *The Eyes of the Skin: Architecture and the Senses*. Chichester: Wiley-Academy.
- Partington, M. W., and N. Roberts. 1969. The heights and weights of Indian and Eskimo school children on James Bay and Hudson Bay. *Canadian Medical Association Journal*. 100: 502-508.
- Pigeon, M.-A. 2004. Federal Northern Residents Deductions. Economics Division, Parliamentary Information and Research Service, Canada.
- Poverty, Homelessness and Migration. 2007. Models and drawings by housing workshop participants (photographs). Sudbury, Ont: Laurentian University.
- Poverty, Homelessness and Migration. 2007. Photographs taken by homeless and near homeless people in Sudbury, Ontario. A photo voice project. Sudbury, Ont: Laurentian University.
- Poverty, Homelessness and Migration. 2007. Moosonee in the summer (photograph). Sudbury, Ont: Laurentian University.
- Rabbit2003. Moosonee in the summer (photograph). www.flickr.com.
- Rapoport, Amos. 1969. *House form and culture*. Englewood Cliffs, N.J.: Prentice-Hall.
- Richard Kroeker Design. Pictou Landing Health Center (photograph) and Beaver Bank Free Lab Project (photograph). www.richardkroekerdesign.com.
- Samivel, Sibi. 2009. Issue 6: Off-reserve Status Indian Households: Housing Conditions and Core Housing Need. *2006 Census Housing Series*. Ottawa, ON: Canada Mortgage and Housing Corporation. <http://site.ebrary.com/lib/dal/Doc?id=10397917&ppg=11>
- Seoprise. Byker Wall, England (photograph). www.bukisa.com/topics/arctic-settlements-of-canada&usg=__jl-h6RJAIZX-j-bmB_pwCx3lWi0=&h=160&w=270&sz=15&hl=en&start=0&zoom=1&tbnid=Hs3tWUyEpV8bTM:&tbnh=115&tbnw=194&ei=pLIETtTeEKHy0gGZ7az1Cg&prev=/search%3Fq%3Dralph%2Berskine
- Statistics Canada. 2007. Moosonee, Ontario (Code3556106) (table). Aboriginal Population Profile. *2006 Census*. Statistics Canada Catalogue no. 92-594-XWE. Ottawa. <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-594/index.cfm?Lang=E>.
- Strub, Harold. 1996. *Bare Poles: Building Design for High Latitudes*. Ottawa: Carleton University Press.

- Toohy, K. 1985. English as a second language for Native Canadians. *Canadian Journal of Education*, 10 (3): 275-293.
- Townships Sun. Parts of a snowshoe and types of snowshoes (diagrams). www.townshipssun.com
- Treasury Board of Canada Secretariat, Canada. 2009. Volume 2: Isolated Posts and Government Housing Directive. Appendix A Classification of Isolated Posts. http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/ipgh-dpill/ipgh-pile-a-eng.asp.
- Treasury Board of Canada Secretariat, Canada. 2009. Volume 2: Isolated Posts and Government Housing Directive. Appendix H Criteria for Determining Levels. http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/ipgh-dpill/ipgh-pile-h-eng.asp.
- Whitzman, C. 2006. At the intersection of invisibilities: Canadian women, homelessness and health outside 'big city'. *Gender, Place and Culture*, 13 (4): 383-399.
- Young, G. 2005. Program trains women for construction careers. *Ontario Birchbark*, Aboriginal Multi Media Society.