BUILDING COLLABORATION, BUILDING COMMUNITY
A Home for Northern Learning

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in
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Building Collaboration, Building Community: A Home for Northern Learning explores the potential for architecture to support learning endeavors in the Canadian North. Informed by traditional approaches to northern learning for cultural continuity, alongside the assimilative effects of the residential school experience, the thesis strives to develop an environment for contemporary northern learning where both Aboriginal cultures and values can thrive alongside current educational endeavors.

Situated within a context plagued by imposed and unsuccessful architectural models, the thesis advocates for a design process rooted in collaborative ideals. At its core, the thesis asserts that both the local knowledge of the community and the training of the architect are vital components in the design process. In the development of an environment for northern learning, both the socio-cultural visions of a northern people and the skill sets of the architect are of necessity.

Local stories and perspectives - both past and present - guide project developments. As directed by the community, the scope of work does not focus solely upon the formal learning environment, but rather upon a series of social and cultural structures designed to support learners within the northern educational context. Technically, as informed by traditional architectural predecessors, the contemporary forms are developed in accordance with the local climate: the proposed architecture invites its inhabitants to thrive within the immediate northern landscape.

Ultimately, these explorations – of community vision and technical design - are synthesized into a series of design vignettes for a student living community in Yellowknife, Northwest Territories. The ideas housed within the architectural translations and the broader thesis documentations are not finite conclusions but rather they form the foundation for future investigations: they provide a starting point for continued dialogues and developments.

Acknowledgements

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Northern Canada is a Third World country in everything but name.
It is underdeveloped. It has native culture in collision with imported culture.
It has high unemployment and lacks a stable pool of entrepreneurial and technical skills.
It faces an uncertain future.

- Harold Strub in *Bare Poles: Building Design for High Latitudes*

Introduction

The destiny of a population is bound to the way its people are educated. Education shapes language and pathways of thinking, influences the development of character and values, informs the social skills and creative potential of an individual, and collectively determines the productive skills of a community. Education is transformative in nature. It not only transmits formal lessons and bestows credentials, but also influences the way that people understand themselves and others, the social and natural worlds, and their relationships with these worlds.

Education has had a variety of altering affects upon the culture and livelihoods of Aboriginal peoples in Northern Canada throughout their history. For thousands of years, education was a vehicle for cultural continuity: through traditions of storytelling and learning by observation, education prepared Aboriginal peoples for a vibrant cultural life together and provided them with the skills for physical survival upon the northern landscape. Upon contact with European peoples however, this experience of learning was disrupted by an imposed educational model. The Canadian Residential School system was culturally assimilative at its core: it removed children from their home communities, provided a foreign environment for re-socialization and ultimately sought to integrate students into the non-Aboriginal world. Although much has changed since that time, today, many learners within the formal educational context express feelings of marginality in the dual realities that they inhabit: many feel disoriented and alienated in the formal academic setting, and upon completion of their studies, find themselves as foreigners in their families and home communities. Ultimately, Aboriginal students in contemporary learning contexts have voiced concern that current educational structures continue to operate in direct opposition to the traditional value systems and upbringings of native learners. This disconnect leaves native students to balance the conflicting messages and demands that are created in contexts where Aboriginal and non-Aboriginal worlds meet.

0.1   Opposite

Today, these experiences of disconnectedness and opposing cultural values translate statistically into a clear divide between the levels of educational attainment among Aboriginal peoples and the broader northern population. In 2001, drop out rates among northern Aboriginal learners at the high school level of learning were at 70 percent compared to the rest of the northern population which averaged 30 percent.[1] In post-secondary schooling, only 32 percent of Aboriginal students completed their degree, compared to 62 percent of the broader population.[2] Of the Aboriginal population over the age of 25, only 50 percent reported to have received a high school graduation certificate in 2001, while only a mere 3.1 percent of the population had achieved a university degree at a bachelor's level or higher.[3] Given that education is heralded as a vital tool for social and economic well-being, the current challenge for Aboriginal communities and their broader northern context is clear.

Developing a more highly skilled and educated Aboriginal population has the potential to provide many positive benefits for individuals and communities in the Northwest Territories. For northern Aboriginal peoples, the acquisition of formal education has the potential to provide the kinds of experiences, knowledge, skills and credentials that are required for economic participation in contemporary Canadian society. As well, education has the potential to enable students to grow both linguistically and culturally as Aboriginal citizens so that they can emerge from their schooling experiences grounded in a strong and positive Aboriginal identity to one day assume responsibilities in their nations.

Addressing education in the north is further challenged by the rising birthrates among Canadian Aboriginal populations. Between 1996 and 2001, the Canadian Aboriginal population grew by 22.1 percent whereas the country as a whole grew by only 3.9 percent. In the Northwest Territories, where half of the overall population is of Aboriginal descent, these rising growth rates add another layer to northern educational challenges. Aboriginal histories and future prospects are not only profoundly significant to Aboriginal people, but rather the overall health of the growing Aboriginal population has direct influence upon the overall socio-economic well-being of the broader northern society. Education in the north is not merely a challenge for Aboriginal communities. Today, and for generations to come, developing an educational vision will have a direct affect upon all northern peoples – Aboriginal and their non-Aboriginal neighbors alike.

Given these complex and deep-rooted issues of the north, the contemporary challenge for northern learning is to make educational opportunities more accessible and sustainable for Aboriginal students. A reconsidered northern learning structure has the potential to provide appropriate supports to attract students to learning and help to retain them within the educational environment. Local insights and perspectives have much to contribute to this process: rooted in traditions of the past and visions for the future, the involvement of the local community in these developments ensures the integration of traditional educational values with forethoughts for the coming generations.

North

1   *Great Slave Lake*
2   *Great Bear Lake*
3   *Mackenzie River*
4   *Beaufort Sea*
5   *Parry Channel*
6   *Arctic Ocean*
7   *Victoria Island*
8   *Banks Island*
9   *Ellesmere Island*
10 *Baffin Island*

0.2 Northern Canada (Author)

The thesis explores the role of architecture in the adult and post-secondary education systems in the Canadian North. Alongside appropriate curriculum, teachers and pedagogy that foster intellectual development and the physical, emotional and spiritual wellbeing of students, the thesis is approached from the perspective that the environment within which the learning occurs has a vital role to play in the re-visioning of continued education in the north. Winston Churchill's notion in 1943 that "We shape our buildings, and then they shape us"[4] captures the essence of the challenge. In the context of northern learning, the physical setting in which education occurs directly influences the educational processes and the learners themselves. The architecture provides the physical space within which northern learning and academics are housed. As well, through its ability to connect people, the architecture also contributes to the defining process of an individual and community sense of self by providing the place where cultures, relationships, and support structures can thrive and grow.

The architectural investigations and proposals are not universal. They are not intended for application in all northern contexts, but rather are focused upon the unique histories and experiences of the inhabitants of the city of Yellowknife and the local Dogrib people who have inhabited the lands for thousands of years. While traditionally the Dogrib people based their economy on caribou and fish and made summer excursions to the Barren Grounds and winter camps in the shelter of the trees, today, most Dogrib

A	Yellowknife
B	Dettah
C	Rae-Edzo
D	Wah Ti
E	Gameti
F	Wekweti
G	Fort Providence
H	Hay River
I	Enterprise
J	Fort Resolution
K	Lutselk'e
L	Great Slave Lake
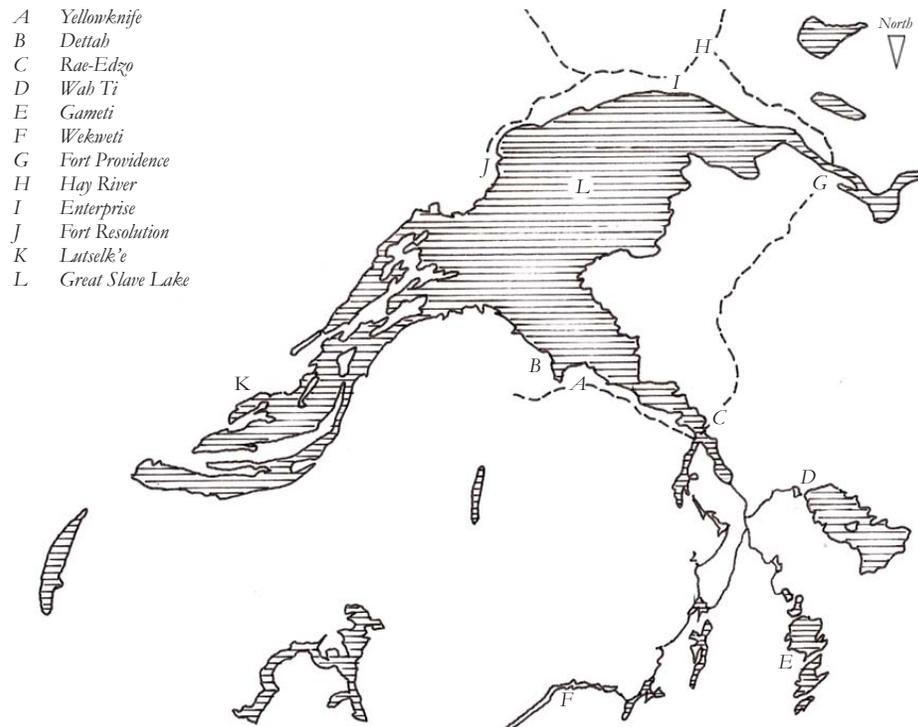
North

0.3 Great Slave Lake Communities (Author)

peoples live in and within close proximity to the communities of Rae-Edzo, Wekweti, Wah Ti and Gameti. Many also reside in the City of Yellowknife, the capital city of the Northwest Territories that was founded in the early 1930's when a series of prospectors and mining groups came into the area in search of gold. Today, as the smallest capital in Canada, Yellowknife has a population of 20,000 and is primarily a government town and service centre for the northern gold and diamond mines. It is within this cultural and geographical context, that the thesis explores the means by which the architecture of the learning environment can work to promote both cultural continuity and academic pursuits in the adult learning context.

In the first chapter *Educating North*, a variety of northern learning structures – both past and present - are investigated. Traditional approaches to education, including home-based and intergenerational learning experiences, are explored alongside the assimilative forces of the residential school that stripped children of their Aboriginal culture and values. The implications of these previous approaches to education – for cultural continuity and cultural disintegration - are examined. Lessons from each of these contexts are applied to the development of a contemporary educational environment.

The second chapter, *Designing from the Outside / Working from Within: Exploring Architectural Processes*, explores the role of the architect working within a geographical, cultural, and

physical grouping of which they are not a part. Throughout the chapter, a series of imposed relief efforts are examined as well as a series of collaborative development methods. From these investigations, the role of the architect is re-examined and reconsidered for work within this context. The chapter asserts that such projects should not be developed in isolation, but rather continuous dialogue and engagement with the local community is vital to their success. Local knowledge of the community alongside the trained knowledge of the architect are both integral components to the collaborative project whole.

A variety of contemporary perspectives and visions for continued northern learning are gathered and presented in the third chapter, *Listening to Stories: Gleanings from Denendeh*. These collective voices, stories and visions of local learners and community members provide the foundation from which the design proposition evolves. Throughout their personal narratives, the storytellers reflect upon mainstream education, question its applicability for contemporary Aboriginal learners, and ultimately outline the kind of education and resources that Aboriginal students' desire in accordance to their histories and future orientations. Among many important themes and issues addressed by participants, the chapter reveals the central importance of providing a supportive living community for students and families during their northern educational experiences.

The fourth chapter *Memory and Imagination: Building a Contemporary Northern Architecture* focuses on traditional northern architectures and how they responded to their immediate physical and social contexts. The chapter proposes that contemporary architectures should not strive to replicate these traditional forms, but rather they should evolve from the fundamental lessons of past architectures. In the contemporary context, there is the opportunity for northern architectures to be developed in accordance with the local climate and cultural context of which they are a part.

In the fifth chapter *Translation: A Student Living Environment*, the explorations are synthesized into a series of design elements for a congregate living environment for northern students. Based upon previous learning environments, traditional architectures, and the expressed needs of the contemporary student community, the design is composed of both physical and social elements that respond to the specific climatic and cultural context of the project. These diagrams and vignettes outline the essential relations for the northern student community. This initial design translation is not a detailed proposition but rather is a starting point from which further conversations and developments can evolve.

The final chapter, *Continuing the Dialogue* is not a conclusion, but rather a point of departure. Reflecting upon the perspectives presented throughout the work, it outlines various opportunities for continued investigations in the realms of both architectural process and architecture for northern education.

In the design and development of an educational structure, the thesis does not strive to impose a dependence-perpetuating solution upon a community, but rather finds its core in collaborative design ideals. The work is not conceived solely from afar, but instead local community members provide a collective vision and foundational shape for the evolving educational developments in their community. Ultimately, the thesis is rooted in the ideals that the opportunity exists to share knowledge on two opposing worldviews, integrate what works from both, and develop a strategy that leads to a more fulfilling educational experience for northern learners.

EDUCATING NORTH
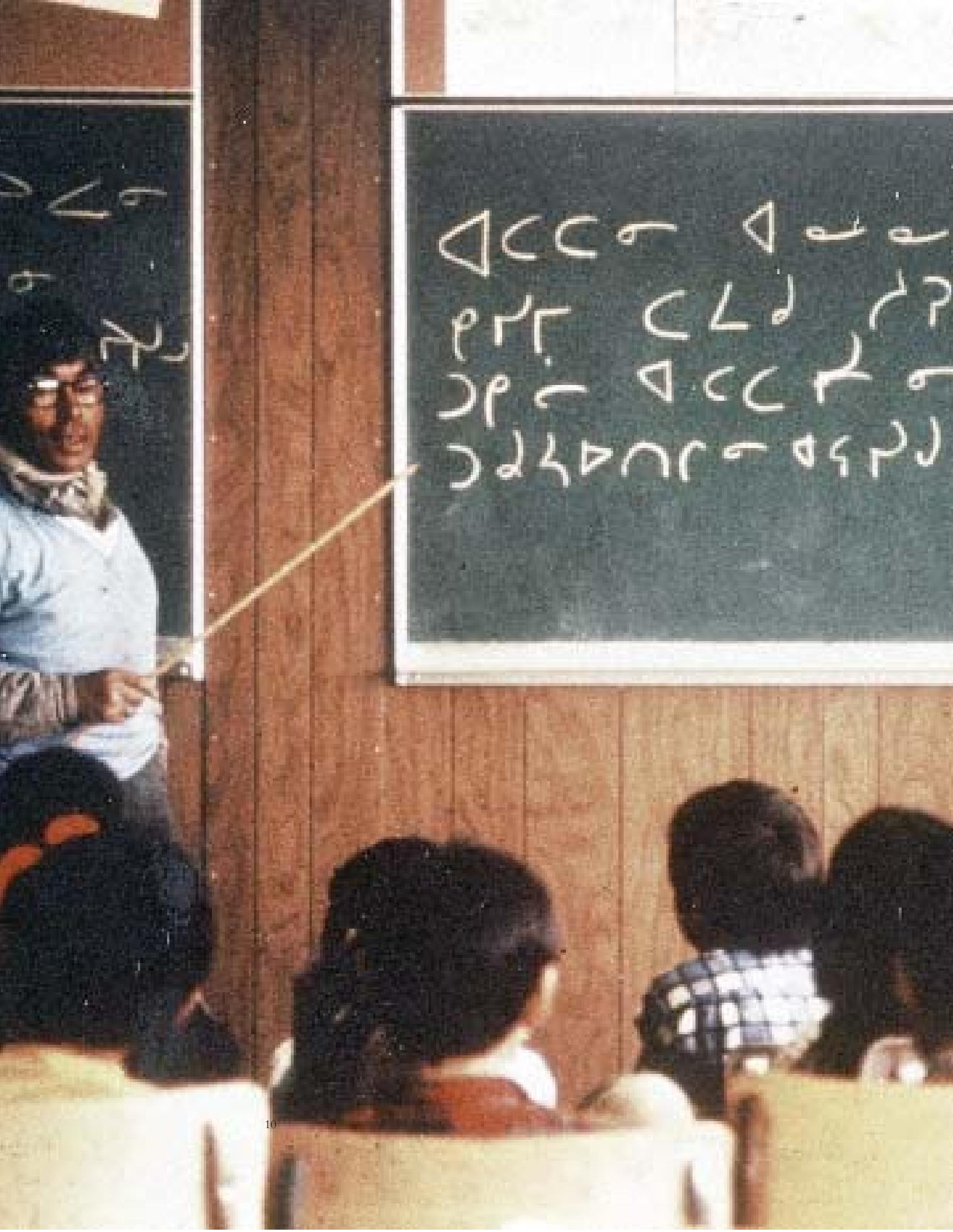
No aspect of a culture is more vital to its integrity
than its means of education.

- E. Hampton in *Towards a Redefinition of Indian Education*

Life on the Land

For thousands of years, indigenous peoples of Northern Canada used a variety of educational processes to prepare their children for the challenges that they would face in life upon the northern land. Known as *traditional knowledge*, these systems of knowing were composed of their own philosophical and value bases, and were spiritual in essence. Derived from the creator, traditional knowledge possessed a holistic vision and encompassed all areas of life including language, belief systems, thinking and behaviors, ecological teachings and a sense of kinship with all creatures and their surrounding environment.

Dr. Erica-Irene Daes offers further description of traditional knowledge bases and outlines several key aspects of these foundations of learning in Marie Battiste's book *Protecting Indigenous Knowledge and Heritage.* She notes:

1.1 Opposite

> "The heritage of an indigenous people is not merely a collection of objects, stories and ceremonies, but a complete knowledge system with its own concepts of epistemology, philosophy, and scientific and logical validity. The diverse elements of an indigenous people's heritage can only be fully learned or understood by means of a pedagogy traditionally employed by these peoples themselves, including apprenticeship, ceremonies and practice. Simply recording words or images fails to capture the whole context and meaning of songs, rituals, arts or scientific and medical wisdom. This also underscores the central role of indigenous peoples' own languages, through which each people's heritage has traditionally been recorded and transmitted from generation to generation." [1]

As in the past, today, traditional knowledge is deeply embedded in a community of people and in a place: it is both a social and a highly localized experience of knowing. Linked directly to a clan, band or community, traditional knowledge is a personal knowledge that cannot be separated from the bearer or codified into a concise definition. Rooted in

individual experience, it not only varies among cultural groups but also from individual to individual:

> "Those who have the knowledge use it routinely, perhaps every day, and because of this, it becomes something that is a part of them and unidentifiable except in a personal context. These personal cognitive maps are created by humour, humility, tolerance, observation, experience, social interaction and listening to the conversations and interrogations of the natural and spiritual worlds." [2]

While many commonalities exist between the diverse knowledge bases of Aboriginal peoples across the continent, it is important to note that there is not one universal definition for all forms of traditional knowledge. Rather, traditional knowledge is dependent upon a specific people and place.

In *Indigenous Peoples of the World: An Introduction to their Past, Present and Future*, Brian Geohring reflects upon the diversity of traditional knowledge bases amongst groups of indigenous peoples in North America and internationally. [3] Specifically, Geohring notes the unique 'life-worlds'[4] that evolve when groups of people develop in isolation, adapting and developing appropriate responses to their immediate environments. Within these life-worlds, he continues, all aspects of being are intrinsically connected to one another and whole life consists of balancing its parts: culture, economy, resources, technology and territory. In order for a culture to be complete, all aspects of this reality are woven into a coherent and self-sustaining entity.[5]

1.2 Learning on the Land

In *Myth and Meaning: Five Talks for Radio* by Claude Levi-Strauss, Strauss also emphasizes these diverse forms of traditional knowledge in his writings concerning myth and meaning. He stresses that unique forms of knowledge are not something that these cultures necessarily strive for, but rather that naturally result when groups of people, develop in unique and isolated contexts.[6] Naturally, the resulting individual and collective life-worlds are direct responses to their unique physical, social and spiritual contexts, resulting in unique forms of knowledge for each group. Dependent upon one's immediate context, traditional knowledge is an accumulated knowledge that is altered in accordance to one's place in relation to the universe.

Common within many traditional knowledge foundations both past and present, and among the Denendeh people of the Canadian North, is the ideal that life cannot be divided into segregated components. Mutual relationships exist among all forces and forms in the natural world: animals, plants, humans, spirits and natural forces are all mutually related and dependent upon one another. Humankind is not to dominate in such situations, but rather humanity is simply one component of the world and ecologies. As humankind can manipulate its environments through practical and ritualistic knowledge, so too can humanity be manipulated by its context.

Ultimately, traditional knowledge provides the framework within which Indigenous peoples live, learn and thrive as individuals and as a dynamic culture. Deeply rooted in the cultural, spiritual and social values of past generations, it enriches the present and provides the foundation for the future.

Our Elders are Our Books

Traditionally, learning was an intergenerational and lifelong process in which community elders provided guidance and stability. As the keepers of traditions and culture, elders were the primary influences in the education of the young of the community.

No universal definition can be applied to all elders from various cultural descents. Rather, an elder's role develops in accordance to their individual nature, personal experience and context in the community. Despite this reality however, in the *The Royal Commission of Aboriginal Peoples* several common aspects that are often embodied in the livelihoods and beings of community elders are outlined. Elders are described as "respected and cherished individuals who have amassed a great deal of knowledge, wisdom and experience over the period of many, many years." [7] The report continues: "They are individuals who have also set examples, and have contributed something of the good of others. In the process, they usually sacrifice something of themselves, be it time, money or effort. Elders, Old Ones, Grandfathers and Grandmothers don't preserve the ancestral knowledge. They live it."[8]

1.3 Dogrib woman mending a fish net with twine, Fort Rae, 1939

An Elder is a person who has received special gifts of experience and knowledge that they can return to the community. Age itself does not make one an elder, but rather elders are individuals who have been deemed by the community as exceptionally wise in the ways of their culture and the teachings of the Great Spirit. Men or women, elders are recognized for their wisdom, stability, and their ability to know what is appropriate in a particular situation.[9]

The title of Elder comes with great honor and distinction in one's community. Traditional elders do not seek status;[10] rather, it flows from the people. It is a community's responsibility

to seek out the Elder's gifts of knowledge and insight; the community looks to them for guidance and sound decision making.[11] Rooted in the vision that learners should have the opportunity to learn individually and personally through observation and imitation, Elders are neither prescriptive nor intrusive in their teachings but rather, they teach by example.

Traditionally learning was an intergenerational event in which elders played the most crucial of roles. In the learning process, Elders were repositories of wisdom for a community of people, and provided the vital links between past traditions and the emerging future of a people.

Listening and Learning: Oral Traditions

Traditionally upon the northern landscape, the stillness of the winter months provided the time for families and community groups to gather together indoors and to share in cultural myths, stories and traditions. With the community gathered together, learning occurred by listening. Elders passed along knowledge orally. While the stories were often told through simple words on the surface, in reality, these stories were multi-layered and addressed complex moral and ethical issues. This form of oral sharing provided a source of sacred laws to govern relationships within the community and the world at large: they were a society's instructions for the good life.

Storytelling was not only an educational opportunity but it was also a time for a people to gather together as a cultural community: storytelling was a community event. During the harsh winter season community members of all ages gathered inside large common spaces to share and listen to stories. There was no separation of the children and adults, but rather learning was an intergenerational community event.

Jean-Guy Goulet reflects on oral societies and their dependence upon cultural memory in his book *Ways of Knowing*[12]. In these contexts, he highlights that individuals in the community do not simply carry their own stories, but also those of their ancestors and extended communities. In the act of storytelling, the relationship between the speaker and the listeners is a personal one. Through the sharing of a common story, a common experience is shared: "One's story is rarely one's own, if you tell yours, others will be involved."*[13]* According to Goulet, one always knows the relationship between the informant and the person transmitting it: "Dene storytellers usually start by naming the people who told them the stories."[14] They present themselves as 'intermediaries' between an original speaker long ago passed away and a contemporary audience. As a collective memory and wisdom of a people, stories link the coming generations with the teachings of the past.[15] The past, present and future became one when an intergenerational community gathers together to share their stories.

Watching and Refining: Learning on the Land

During the long days of summer, knowledge came through experience gained in the physical world. For learners during this time on the land, the northern landscape around them was their classroom. During the summer months, Elders taught by example and young people learned by observation. Eventually, children made their own attempt under the watchful eye of a parent or elder, and as they gained more experience, their skills were refined. This form of experiential knowledge could change with time and experience as an individual found better ways of doing things.

Also regarded as *true knowledge*, this form of learning occurred through observation instead of by direct instruction. "The Indian people's non-directive approach is a way of guiding offspring. It determined a basis for a future lifestyle. We matured rapidly and we became adept at determining our own actions and making our own decisions, while being sensitive to the expectations of the collective and of our elders." [16] In this way, true knowledge was gained through individual contact and experience.[17] Children received little guided instruction as they learned to develop various kinds of competencies. This absence of directed learning meant that "children could acquire skills and self-control in more informal ways, including trial and error, imitation, modeling, participation and observation."[18]

In *Protecting Indigenous Knowledge and Heritage* Marie Battiste explores this form of land-based knowledge through the illustration of the annual hunt. As outlined by Battiste, each year an apprentice hunter would travel the land with an experienced older hunter. Rather than words, the learner would observe the cues to use in forecasting the seasonal and daily movements of wildlife, and also learn many other factors that affected the movement of other species including the time of day, temperature, humidity, the distribution of forage plants.[19] She continues to explain that "learning in this way was self-consciously empirical, especially at the individual level."[20] The consequences of one's actions taught them to modify their behaviors on their own. One learned not by asking questions but rather by watching and "silently observing how a trap is set, how a hide is tanned, and so forth."[21] It was felt that to interfere with the child's exploration of his or her environment would violate their individual right and ability to pursue and achieve their own goals.

Thus, during the summer months, the landscape was the classroom for northern learners and it was through personal experience and direct contact with the natural world that one truly gained access to knowledge. This personal experience, rooted in the nonverbal over the verbal and the experiential over the exposition of principles, worked to foster one's ability to learn and live competently upon the northern land.

1.4   Opposite: Boy setting rabbit snare

"I am strictly a trapper. I was born and raised in the bush. When I was seven years old, that is when I first started learning about bush life. I used to watch my brothers come back from the trap line. They would bring back marten and when they would go hunting, they would always bring back a moose or caribou. They are good hunters and trappers. They seldom failed when hunting, and I used to envy them because they were good in the bush life. Ever since that time I had one thing in my mind: I wanted to be a trapper. From then on, I tried hard to learn the ways of bush life. I learned most everything from my mother. She is a tough woman when it comes to bush life. Through hardships and good times we always stuck it out. We seldom complained for complaining is not the way of a true trapper. My mom, she did a good job. She made a good trapper out of me. She showed me how to follow in the footsteps of my ancestors."

- Jean Marie Rabiska in *Denendeh: A Dene Celebration*

New Owners in their Own Land

While Europeans made first recorded contact with Aboriginal societies in North America just after 1000AD, approximately two hundred years ago, the presence of outsiders began to have an assimilative effect upon traditional northern livelihoods. For those who had inhabited the North for thousands of years, this contact with new peoples meant many new ways of thinking: northerners were confronted with new forces in their traditional social and economic life-worlds.

The path of education that had been successfully followed for generations and that produced resilient, proud and self-reliant people, was no longer adequate preparation for life upon the new northern land. Traditional methods of education, rooted in oral traditions and observation, were suddenly viewed as archaic and inferior. "Simply stated, the western way was seen as the right way and if Aboriginal people were to advance and enter the modern world, they were to abandon the North American intellectual tradition categorized not as an intellectual tradition but as 'ritual', 'magic' and 'folkways'." [22] The western intellectual tradition was perceived to be the standard by which knowledge was to be measured: it was the superior tradition.

1.5 *View of the Hudson's Bay Company store at Lutselk'e, 1955*

1.6 *Indian Agent and RCMP Constable distribute treaty money, Fort Rae, 1939*

1.7 *Northwest Territories Council, 1962*

1.8 *The Oblate fathers at Rae, 1924*

1.9   Student at Aklavik Residential School, 1939

Taken from the Land

At this time, it was felt by many that if Aboriginal people were to be "reclaimed from a state of barbarism" a concerted effort was required to "introduce amongst them the industrious and peaceful habits of civilized life." [23] Adults were viewed as irredeemable: education was seen as the primary tool in effecting this great transformation of the Indian child from 'savage' to 'civilized'.

This new vision for Aboriginal education was formally conceived in Canada in the 1870s through a partnership between the Canadian Government and the Anglican, Catholic, Methodist, and Presbyterian churches. It was based upon the single conclusion that in order that they might one day become a part of broader Canadian society, Aboriginal children had to be removed from the 'evil surroundings' of their families, and kept constantly in the circle of 'civilized conditions' that a residential school environment could provide. [24] The proposed school system was inherently violent in its roots: "To kill the Indian in him and save the man" [25] was its formal mandate.

Across the country, a total of one hundred and thirty schools existed and were located in every province and territory except Newfoundland, New Brunswick, and Prince Edward Island. In the Northwest Territories, schools were operated at Fort Providence, Aklavik, Hay River and Fort Resolution[26].

North

*1.10 Residential Schools in the Northwest Territories (Author): In 1931, four residential schools were in operation in the
Northwest Territories at Fort Providence Mission (A); Hay River (B); Fort Resolution (C); and Aklavik (D).
By 1969-1970, "large pupil residences" were also in operation at Fort MacPherson (e); Inuvik (f); Fort Simpson (g);
Fort Smith (h); Yellowknife (i); and Chesterfield Inlet (j).*

Registering children from every Aboriginal culture including First Nations, Inuit and Metis,
the residential school system was a three part vision in the service of assimilation. The
educational experience removed children from their home communities and disrupted
aboriginal families, had a precise pedagogy for re-socializing children in the schools, and
upon completion of their studies, the system sought to integrate graduates into the non-
aboriginal world.

Separation from family was a primary component of the residential school system. Away
from the influences of home, it was felt that the Aboriginal child could be re-made into a
"self-supporting member of the state, and eventually a citizen of good standing."[27] Once
isolated from family and the influences of their traditional culture, the residential school
provided an all-encompassing environment of re-socialization for its students. In the
school environment, students were instructed in English and the use of native languages
was forbidden. Academic learning was guided by a standard curriculum common in schools
across the country. A half day of basic formal education was combined with a half day
of practical training in areas including elementary agriculture, gardening, blacksmithing,
carpentry and auto-mechanics for boys, and hand-loom weaving, dressmaking, fruit
preserving, crocheting, and other domestic skills for girls.[28]

1.11 Opposite: Residential School Dining Room

1.12   Residential School Classroom

While the academic and practical training of the school provided students with the skills required to participate in the Canadian economic environment, the Department and church also felt it of necessity for Aboriginal children to undergo more profound changes. Therefore, ethics courses were offered at all levels of study. In the first year, the students were taught the "practice of cleanliness, obedience, respect, order, neatness," followed in subsequent years by "Right and Wrong", "Independence. Self-Respect", "Industry. Honesty. Thrift." and "Patriotism. Self-Maintenance. Charity." In the final year, they were confronted by the "Evils of Indian Isolation", "Labour the Law of Life" and "Home and Public Duties".[29] Aboriginal spirituality was deemed savage superstition: Christianity best embodied the virtues and values of Canadian civilization.

Once the connection between child and community had been broken through the schooling experience, it was intended that contact should not be re-established. Instead of returning to their home communities, it was intended that the educated child would opt to engage directly in broader Canadian society. However, to the surprise of the residential school visionaries, students were not as easily assimilated as government officials who had originally conceived the ideals had expected. Duncan Campbell Scott, a leading official for Indian Affairs at the turn of the century noted that "the most promising of students are found to have retrograded and to have become leaders in the pagan life of their reserves." [30] They had not been transformed as intended, and ultimately, were not capable of moving their communities along the desired path to "civilization".[31] Anthropologist
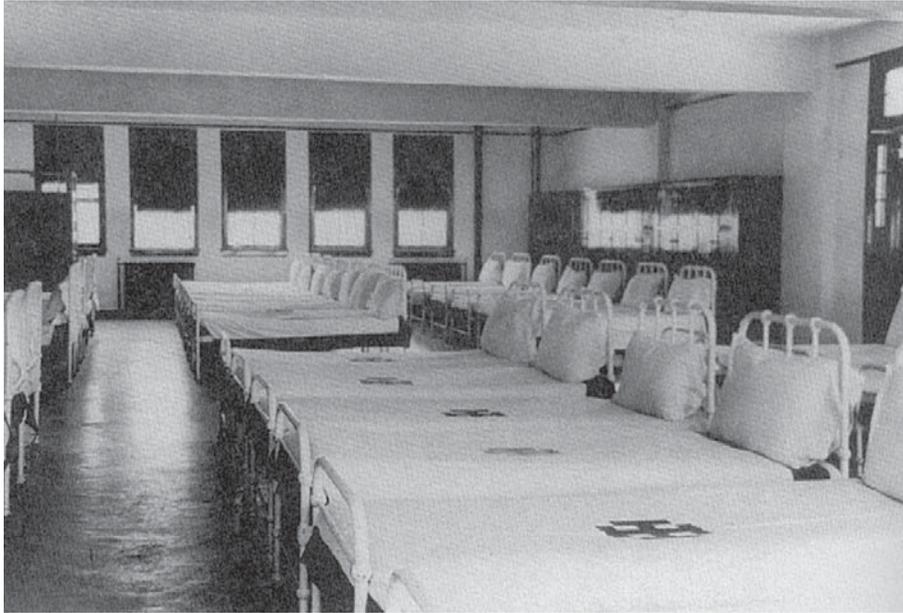
1.13 Residential School Dormitory

Diamond Jenness describes the challenge:

> "Schools accepted children when they were very young, raised them to the age of sixteen, then sent them back to their people, well indoctrinated in the Christian faith, but totally unfitted for life in an Indian community, and of course, not acceptable in any white one." [32]

What resulted was not a great transformation, but rather Aboriginal students who became marginalized in two cultures, deviants from the norms of both. A product of two worlds, they were caught in the conflicting pulls between two cultures: the white culture of the residential school and the realities of their native traditions.

It is important to note however, that there were some positive aspects of the residential school experience. Without the residential schools, many students would have never learned to read or write, or learn about ways of life other than their own. It was not education that in itself was bad, but rather it was the manner in which the residential schools were simply not accommodating to the needs or lifestyles of their students. By removing children from their families and home communities, assimilating them of their traditional ways and preparing them for life in a new culture, the residential schooling system ultimately instilled in children and their families that education and traditional livelihoods were in opposition with one another and could not share common ground.

I Lost My Talk

I lost my talk
The talk you took away.

I speak like you
I think like you
I create like you.
The scrambled ballad, about my word.

Two ways I talk
Both ways I say,
Your way is more powerful.

So gently I offer my hand and ask
Let me find my talk
So I can teach you about me.

- Rita Joe in *Voices Under One Sky*

1.14 Jane Ash Poitras, The Oblates
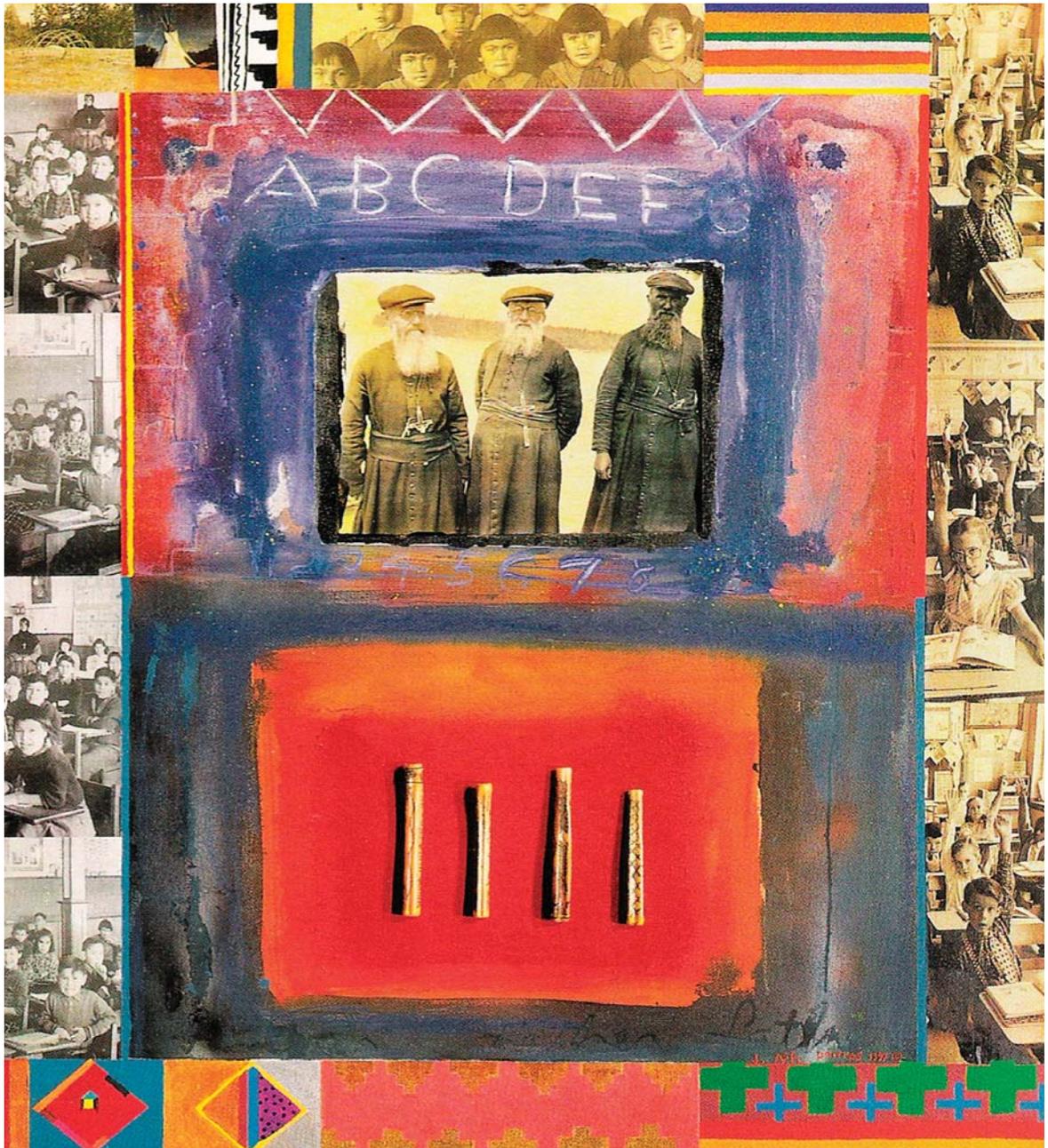
1.15   Hay River school girls, 1920

Residential Residue

In all aspects of daily life, the children of the residential school system were to learn the "Canadian" way. Removed from the family and home context, the educational experience was ultimately an attempt to disorient children and then re-orient them in a place filled with European meaning. A series of social pathologies resulting from the residential school system are outlined by John S. Milloy in *A National Crime*. Some of these issues include "the loss of language through forced English speaking, the loss of traditional ways of being on the land, the loss of parenting skills through the absence of four or five generations of children from native communities, and the learned behaviour of despising Native identity" [33]

Ultimately, children who had undergone a thorough re-education no longer spoke in their traditional language. Traditional customs were foreign and students had grown disrespectful of their 'ignorant' parents, family and village customs. They had grown to believe that the wisdom of their elders, those who for generations were the primary source of knowledge, was no longer considered knowledge but rather the superstitions of the savage. Returning from the schools, students were faced with a loss of self-respect for themselves, their home communities, and their all encompassing cultural identities.

Moving Forward

Over the past fifty years, a variety of educational endeavors have been undertaken by the Canadian government, Aboriginal and religious organizations. These developments have ultimately sought to move forward from the abusive legacy of the residential school and make positive progress in the realm of Canadian Aboriginal education.

Beginning in 1946, a revision to the Indian Act recommended that Native and non-Native children be educated together wherever possible. This era of integrated learning was rooted in values of providing an equal educational experience for all Canadian learners. Unfortunately however, the vision wasn't without its flaws. In 1969, "The White Paper" produced by the Federal Government addressed the challenge of discrimination against Aboriginal students within these integrated Canadian schools. These inadequacies were further documented in "The Watson Report" produced by the Standing Committee on Indian Affairs and Northern Development in 1971. In the context of the Canadian North, it was noted that the universal education proved to be equally abusive in nature. Ultimately, education in this form was simply "an assimilationist's iron hand concealed within a culturally sensitive glove based upon the assumption that the future for all in the North was a non-Aboriginal one." [34]

Responding to these concerns, in 1972, the National Indian Brotherhood produced a report entitled "Indian Control of Indian Education". Unlike previous decisions imposed by the Canadian Government acting on concerns of Aboriginal communities and interests, this report was based on First Peoples concerns and needs. The paper outlined three primary goals: first, that pride in oneself must come from the values of Aboriginal history and culture; secondly, that understanding one's fellow humankind entails interaction with non-Aboriginal people on an equal footing, and finally, that living in harmony with nature ensures the balance between man and the natural environment.[35] Alongside these stated goals, two educational principles were identified as being central to achieving them: parental responsibility and control over education. As noted in the report,

> "These educators who have had authority in all that pertained to Indian education have, over the years, tried various ways of providing education for Indian people. The answer to providing a successful educational experience has not been found. There is one alternative which has not been tried before: in the future, let Indian people control Indian education." [36]

Since this proposition, a variety of developments have been made in the realms of Aboriginal education that have ultimately sought to provide Aboriginal communities with greater control of education of their communities and integrate traditional values into the learning experience. Some of these initiatives have included Aboriginal teacher training programs. Alongside a revision of curriculums, these efforts have sought to bring

more Aboriginal perspectives into the learning environment. Native culture education programs have also been initiated alongside language instruction in twenty-three of the Canadian native languages.[37] Furthermore, as public awareness on the abuse endured in the schools have risen in recent decades, various religious and government organizations have also acknowledged and taken responsibility for their involvements in the residential school legacy.

In 1998, Jane Stewart and Ralph Goodale unveiled *Gathering Strength: Canada's Aboriginal Action Plan*, a long term, broad based policy approach in response to the Royal Commission of Aboriginal Peoples. Within the document, the *Statement of Reconciliation: Learning from the Past* acknowledged the Canadian government's role in the development and administration of the residential schools and offered an apology to Residential School survivors. It stated:

> "One aspect of our relationship with Aboriginal people over this period that requires particular attention is the Residential School system. This system separated many children from their families and communities and prevented them from speaking their own languages and from learning about their heritage and cultures. In the worst cases, it left legacies of personal pain and distress that continue to reverberate in Aboriginal communities to this day. Tragically, some children were the victims of physical and sexual abuse.
>
> The Government of Canada acknowledges the role it played in the development and administration of these schools. Particularly to those individuals who have experienced the tragedy of sexual and physical abuse at residential schools, and who have carried this burden believing that in some way they must be responsible, we wish to emphasize that what you experienced was not your fault and should never have happened. To those of you who suffered this tragedy at residential schools, we are deeply sorry." [38]

While for many Canadians these efforts could be viewed as hopeful developments, for many Aboriginal individuals and communities, the challenge of Aboriginal education within the Canadian context continues to remain problematic. Many perspectives reflect that throughout many of these propositions and developments, governmental and Aboriginal desires have not equated with one another. In many situations, these efforts and developments were merely just another failed strategy imposed from beyond. Ultimately, while the residential school era officially ended in 1996, [39] for many individuals and communities today, Aboriginal education continues to serve assimilative purposes.

The Architecture of Education

In moving forward, it is important to understand the events of the past – not to place blame or attempt to re-write history - but rather to learn from the processes of cultural disruption and make appropriate decisions for the future. The apology offered in the *Statement of Reconciliation* does not provide an end to the discussion of Aboriginal education. Rather, in the context of education in the Canadian north, it provides a starting point from which continued educational developments can occur.

In *Honouring our Past, Creating our Future: Education in Northern and Remote Communities,* Sheila Watt-Clouter discusses the various roles of education and the importance of developing relevant educational opportunities for learners. She notes:

> "Education is a means of learning, the way a people prepare themselves for life. All cultures and all peoples have education, but its form and effectiveness varies. The effectiveness of education is measured by how well it prepares people to handle the problems and opportunities for life in their own time and place. As the challenges of life change, education must also change – or the people will turn to self-destruction and perish physically and/or spiritually. Life has greatly changed for Aboriginal peoples, and our future depends on our ability to create new ways to prepare our people for life." [40]

The thesis investigations are rooted in the ideal that control over education and control over the learning environment are directly related. Alongside appropriate curriculums, pedagogy and a variety of student support structures, a reconsidered educational environment also has the potential to provide positive shape and new opportunities for northern adult learners.

Today, many northern learners leave their home communities to pursue learning at the post-secondary or adult level. Educated in foreign contexts, they are removed from their cultural, social and economic support structures. Unlike the past, when removal from the home served assimilative purposes, today, northern aboriginal people are asserting that the pursuit of higher education should not mean a forced choice between cultural identity and educational attainment.

In developing an adult learning environment for the contemporary north – both its architecture and the endeavors that are housed within - the challenge is to negotiate the conditions within which Aboriginal values, culture and identity can thrive alongside the academic demands of the present day. Though educating students in isolation from their home communities, a reconceived contemporary architecture has the potential to shape an appropriate localized and social learning experience that responds to the specific needs of a unique people and place. As a home away from home, this environment has the potential to provide the place where traditional values of generations past can be honoured and cultivated alongside preparations for the future.

DESIGNING FROM THE OUTSIDE / WORKING FROM WITHIN

Exploring Architectural Processes

"If you have come to help me, you are wasting your time.
But if you have come because your liberation is bound up with mine,
then let us work together."

- Lila Watson, Australian Aboriginal Woman, in *Intotemak: My Friends*

Architects in Aboriginal Communities

For several decades, Aboriginal communities in Canada and around the globe have been the recipients of a myriad of architectural and settlement schemes developed outside themselves. Within these strategies, great emphasis has been placed on critique – that is, on what has gone wrong in any given situation – leaving external designers attempting to provide transformative solutions for the benefit of the receiving group. With decades of results, it has been revealed that these imposed schemes and 'handouts' prove inadequate in many situations and often fail to meet the needs of the recipient communities. These situations have become a common occurrence in design and development efforts within Canadian Indigenous communities and therefore warrant further exploration.

Rodney Choromansky, a South African based architect believes that the problem is rooted in the fact that "professionals are often ignorant to the needs and priorities of the community"[1]. Recalling several projects designed for despairing communities throughout Africa, he notes that even projects conceived in the very noblest intentions failed to be embraced by the community for which they were developed. Consistently, buildings that were parachuted into the community to meet the apparent needs of a group of people sat empty. They failed to suit people's needs and instead they become an embodiment of governmental authority and consequently, prone to vandalism.[2] Many of these imposed structures and systems were developed in spite of, rather than in harmony with, local conditions and desires of the people.

2.1 Opposite

To varying degrees, the designer will always be an outsider while working with a community or client group. Yet, as it is nearly impossible for designers, who are trained on the outside, to learn completely about the culture of a people in the timeframe of a project schedule, complications arise when working with a cultural grouping far removed from one's own. As a non-Aboriginal designer, this raises issues for a thesis proposition working with an Aboriginal population in Canada's Northwest Territories, a physical and cultural context plagued with assimilative and imposed ideals both past and present.

Therefore, before the design endeavors continue, these issues are investigated through an exploration of architectural working processes, as well as the relationship between architecture and their recipient communities. First, a series of imposed efforts intended to "help" the recipient community are examined, followed by a series of alternative development methods by designers working alongside a community. Ultimately, the mandate of the architect is brought to the forefront. When working within a cultural and physical setting of which one is not apart, the architect is no longer one who designs for a group of people, but rather works alongside them throughout design and development processes. The design effort is one of collaboration: the local knowledge of the community and the trained knowledge of the architect are both integral components of the design process.

Imposed Theologies: Relief Responses

Traditionally, summer and winter dwellings were constructed by members of the community and designed in accordance to their collective needs as they engaged in seasonal activities on the northern land. The most notable northern winter home, the Iglu, could be constructed by two skilled men in one hour.[3] During the building process, one person was required to cut the snow blocks while the other person positioned them appropriately. As the builders were also the eventual inhabitants of the dwelling, appropriate design decisions, such as building location and diameter of the iglu circle could be established by the builders themselves according to needs of their families and broader communities. During the summer months, women and children of the family tended to the design and ultimate construction of the family tents, or *tupiks*. Tent covers were composed from skins of commonly hunted animals and as many as necessary were pieced together to an appropriate size to meet the family needs.

Traditional dwelling structures were not imposed upon family groupings, but rather the design, construction, and upkeep of traditional summer and winter homes developed in accordance with the immediate needs of family groupings and their broader community. There were no universal responses to traditional livelihoods in the north: no two dwellings or broader communities were the same.

2.2 - 2.4

Housing

In the 1950s and 1960s, as a result of death by starvation of several Aboriginal groups in the south Keewatin Barren Lands, the Canadian government deemed the traditional nomadic ways of hunting and gathering of the indigenous groups to be unacceptable. Thus, a cheap and practical method was devised to help to distribute services to people on the land. Indigenous peoples, who for thousands of years had dwelled according to the cycles of the land, were now obliged to move to designated centers or settlements, where services including welfare, health care and formal education could be more conveniently delivered.

The planning of these new northern communities was dictated by utility networks and the placement of individual buildings within the planning grid of the new community. All developments ensured that adequate electricity for light and cooking, fuel oil for heat, tanks and piping for water and sewage could be provided. Many of these low-cost rental housing programs were undertaken without the input of northern aboriginal peoples, and the results often failed to meet the needs of the inhabitants. Early prefabricated homes were poorly designed for northern climates, difficult to heat in winter and often too small to accommodate growing northern families. Of a standard North American nature, each home contained a living room, kitchen, dining room, bathroom, and two or three bedrooms.

> "The housing erected by the government to serve native populations was designed on a pattern suited to southern Canadian suburbs. The houses, unprepared for the arctic and sub-arctic, were small, cold and drafty. The first houses built and most of their successors failed to accommodate aboriginal lifestyle: native people had to adapt their lifestyle to the house."[4]

The standardized designs for the new homes did not allow for individualization or adaptations according to user requirements. Paying little attention to the extended family dwelling traditions of the north, the new constructions catered to the single family unit. It became increasingly difficult for family and other groupings of kin to share labor, food and social times.

2.5 - 2.7

2.8   Inside House, Wekweti, Northwest Territories

Victor Allen, a resident of Inuvik, Northwest Territories, discusses the problems of these imported constructions:

> "So a lot of those people who are running great big positions in the government, they put us in a square shack with a big picture window. So there you are. You put up the stove really high. Everything steams up. The floor is cold like hell and you figure you're quite happy there. The government then figures out you're a family man. So next year they give you a nice looking shack with tar paper walls with white trim and a stove. But there is not enough heat to keep the place thawed out. So in one part of the house you live; one part is cold storage. You've been drawn away from your old ways of living." [5]

Simply stated by Yellowknife Architect Gino Pin, "The transition from the basic nomadic settlement – a coming together of family – to the contemporary settlement – orchestrated by the planner – has not been a success."[6] The new dwellings that the settlement provided were ultimately foreign objects to their northern inhabitants. The open concepts of their traditional dwellings were replaced with private rooms, and common sleeping quarters with separate bedrooms. The tradition of cooking over an open fire was abandoned for counters that were too high and inappropriate for their users. The houses didn't meet the needs of local residents, but rather "the problem was shaped to fit the solution." [7]

Your Buildings

Your buildings, tall, alien
Cover the land;
Unfeeling smothers, windows glint
Like water to the sun.
No breezes blow
Through standing trees;
No scent of pine lightens my burden.

I see your buildings rising skyward, majestic,
Over the trails where man once walked,
Significant rulers of this land
Who still hold the aboriginal title
In their hearts
By traditions known
Through eons of time.

Relearning our culture is not difficult,
Because those trails I remember
And their meaning I understand.

While your buildings hide the heavens,
They can fall.

- Rita Joe in *Voices Under One Sky*

Communities

As Europeans arrived on the shores of North America, one of the principle affects on Aboriginal people was the physical displacement from their traditional residential locations and hunting and fishing grounds. These displacements or relocations often took the form of deliberate initiatives by governments to move particular Aboriginal communities for administrative or development purposes. Aboriginal homelands were altered as a result of land purchase agreements, treaty-making processes, and the establishment of reserves. In most of these situations, government officials viewed Aboriginal populations as the lesser, outside of modern society, and incapable of making the right choices. Therefore, decisions were often made on their behalf, often with little or no consultation with the recipient populations.[8]

The relocation stories of Fort Rae, Northwest Territories and Davis Inlet, Labrador serve as appropriate examples of imposed design ideals at the scale of the community. With their own histories of government imposed ideals, the stories of both communities outline the central importance of local involvement in design development efforts in Aboriginal homelands. The stories are also a reminder that social problems cannot be corrected by technical means alone: appropriate architectures are one component of a series of broader challenges faced by Aboriginal communities.

2.9 Fort Rae, July 1923
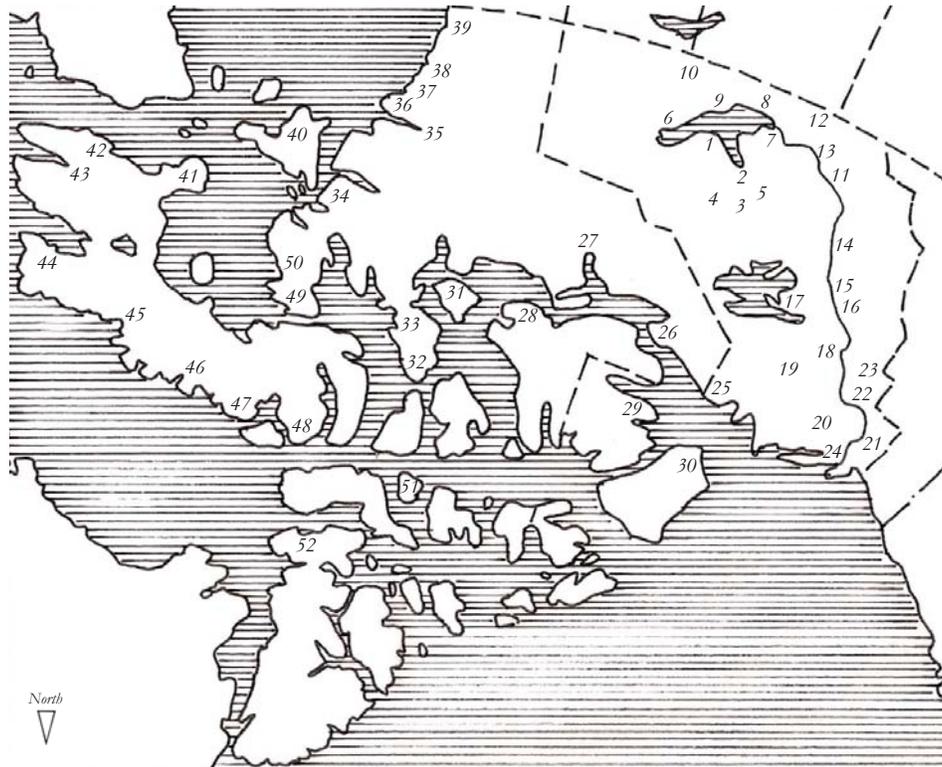
North

2.10 Northern Settlements (Author)

1	Yellowknife	14	Wrigley	27	Bathurst Inlet	40	Coral Harbour
2	Rae-Edzo	15	Tulita	28	Cambridge Bay	41	Cape Dorset
3	Wekweti	16	Norman Wells	29	Holman	42	Kimmirut
4	Gameti	17	Deline	30	Sachs Harbour	43	Iqaluit
5	Wah Ti	18	Fort Good Hope	31	Gjoa Haven	44	Pangnirtung
6	Lutselk'e	19	Colville Lake	32	Taloyoak	45	Qikiqtarjuaq
7	Fort Providence	20	Inuvik	33	Kugaaruk	46	Clyde River
8	Hay River	21	Aklavik	34	Repulse Bay	47	Pond Inlet
9	Fort Resolution	22	Fort McPherson	35	Baker Lake	48	Arctic Bay
10	Fort Smith	23	Tslightchic	36	Chesterfield Inlet	49	Igloolik
11	Fort Simpson	24	Tuktoyaktuk	37	Rankin Inlet	50	Hall Beach
12	Fort Liard	25	Paulatuk	38	Whale Cove	51	Resolute Bay
13	Jean-Marie River	26	Kugluktuk	39	Arviat	52	Grise Fiord

2.11 *Right: Rae - Edzo*
1   *Rae*
2   *Edzo*
3   *Marion Lake*
4   *To Yellowknife*
5   *To Fort Providence*
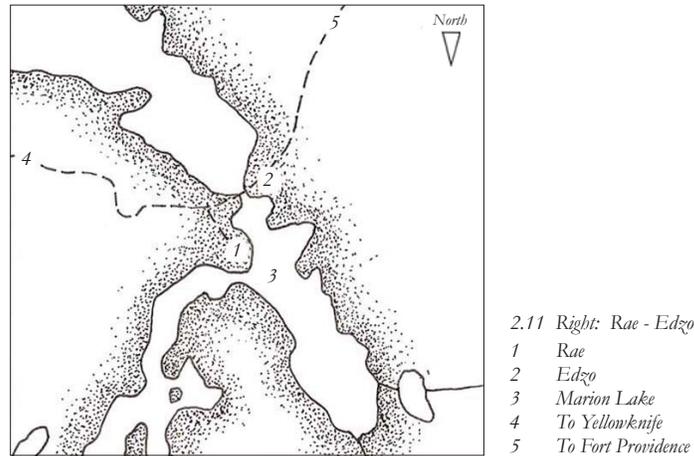
Fort Rae to Edzo

Today, Rae-Edzo is the largest Dene community in the Northwest Territories. Located along the North Arm of Great Slave Lake, the Dogrib people have lived in the Rae area for centuries, pursuing caribou and other game in small family groups until modern times. When a Hudson Bay Trading Post was established at Old Fort Rae in 1790, the Dogrib people began to go there to trade which resulted in a settlement.

Built upon Precambrian granite and granite gneiss, and surrounded by the shallow waters of Marion Lake, the Rae town site was originally attractive for its rocky prominences and expanse of lake and dark spruce bush. However, as it was later revealed, the settlement was far from ideal for a concentration of population. In the early 1960s the community faced serious sanitation issues due to poor disposal of waste materials and thus, consequent contamination of water. Many factors contributed to the sanitary state of the community: in certain geographic regions of Rae, the rock was reported to extend seven hundred feet underground and thus, the depressions in the site provided watertight containers for spring run-off where melted snow and other materials could naturally gather with no where else to go.[9] Of further detriment to the situation were the approximate five hundred and fifty sled dogs that were also kept in Rae throughout the year. In her 1973 paper entitled "From Rae to Edzo: Why the Move?" Mary Ann Hilleke describes these forces on the state of Rae's sanitation at the time: "Garbage and sewage from residences and dog manure mixed with run-off water… The polluted run-off water either runs directly into the water surrounding the settlement or remains in the yards where children play, dogs are tied and people walk." [10] As further noted by Hilleke, the people of the area were still adapting from a mobile life on the land to sedentary community living. Therefore, the precautions necessary for sanitary and healthy living in one sedentary place were still new concepts for the Dogrib people of Rae. It wasn't until an epidemic outbreak that resulted in death, that the government realized the need to examine the well-being of the community.

Due to these health risks, it was proposed by government officials that the people of Rae move the community to a new settlement, Edzo, located approximately twenty four
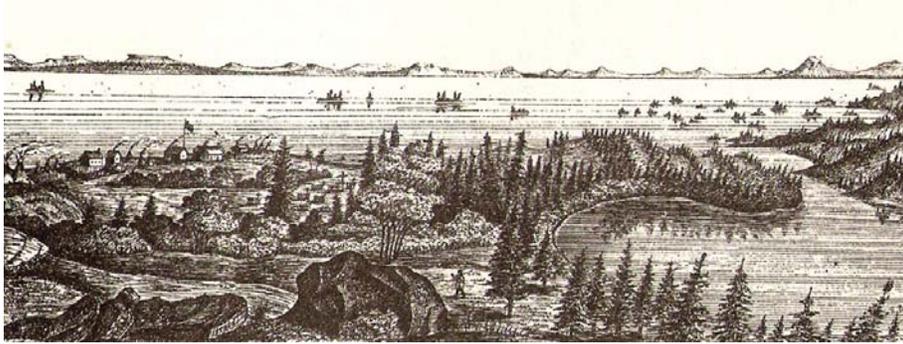
kilometers from Rae. The site was recommended for the future school and community area because it possessed sufficient area to permit a much larger development, with a water supply superior to that at Rae, and the option for a buried pipeline or pit privy for sewage disposal.[11] It was therefore deemed to be the most ideal site for the new community.

Instead of addressing the sanitation issues at the Rae town site, outside planners were called in to design the new modern facility. Under the voice of Chief Jimmy Bruneau, the Dogribs of Rae repeatedly explained why they did not wish to leave the traditional hunting and dwelling grounds of their ancestors and families.   As the construction of Edzo commenced, they continually stated that they would not move. However, instead of listening to their pleas, the government imposed a freeze on the building of subsidized housing in Rae, in hopes of further pushing the Dogrib community to move to Edzo. The concerns of people were held secondary to the functional opportunities that the new site invited.

Upon completion of the new community, the local people remained true to their word and refused to move to the new community. Today, over three decades after the Edzo relocation project was conceived, Rae continues to be the focus of Dogrib settlement in the Northwest Territories. The opposing forces of government imposed design and Dogrib commitment is now officially known as Rae-Edzo.

In a paper entitled "Crushing of Cultures: Western Applied Science in Northern Societies", Engineer Donald J. Gamble reflects upon his involvement with the relocation effort:

> "The decision to abandon Rae and to create a new town was based, to a large extent, on the advice of fellow applied scientists. As a young engineer I viewed my involvement in that project as the opportunity of a lifetime. It was a technological challenge for the obvious 'betterment' of a northern society. I plunged into the task with great zeal. Two years later, when the town was complete, I began to recognize that a big mistake had been made. Looking back

2.13 Dance on Treaty Day, Fort Rae

several years after that, I realized the applied-science approach to the issue was a large part of the problem and that it stood in the way of a decent solution to the concerns of a people who made Rae their home and in whose name the project was originally undertaken." [12]

After the construction was finished, it became clear that the relocation effort had been the vision of a team of outside 'experts'. Developed in isolation by officials in both Yellowknife and Ottawa, it disregarded the expressed needs and desires of the community - the people whom the outcome would most directly affect – in favor of the technical functional success of the proposal.

The story of Rae-Edzo presents various layers of learning for contemporary designers: "The primary lesson that indigenous peoples want outsiders to learn is that decisions made for natives by outsiders acting alone are useless and unacceptable. Such decisions, by definition uninformed, can only do harm." [13] Instead of confronting the problem and educating the local people to healthy living in a sedentary state, the cycles of dependence were perpetuated and the sanitation problems were left unresolved. Though initially driven by good intentions and the sanitation concerns of a population, the resulting proposition ignored the requirements of the local people. Their perceived needs and desires to remain upon the lands of their ancestors were viewed as second rate to the technical opportunities that existed at the new Edzo town-site. The scheme was ultimately rejected by the Rae community: "Edzo was a colossal error in technological, financial and human terms." [14]

2.14 *Labrador Communities (Author)*

A   Davis Inlet
B   Old Davis Inlet
C   Nutak
D   Natuashish
E   Goose Bay

Davis Inlet to Natuashish

The isolated Aboriginal community of Davis Inlet, Labrador, has a vast legacy of imposed development strategies and failed relocation efforts. Although located beyond the northern territories, the lessons learned from the stories of Davis Inlet and the relocation to Natuashish provide appropriate insights in the investigation of relocation efforts.

Similar to Rae, Northwest Territories, the original community of Davis Inlet emerged when a Hudson Bay post was established at Old Davis Inlet in 1869. Discussions about relocation for the Innu of the region appear in community records as early as the 1930s and continue for several years. The first physical relocation occurred in 1948 when Newfoundland authorities moved this population from Old Davis Inlet, to Nutak, approximately four hundred kilometers north on the Labrador coast. The local people were not consulted about the move to Nutak, but instead were taken to the new location by a boat where they were given tents, clothing and food. According to Government officials, the new site was noted for its ability to provide local populations with employment, food and wood. In reality however, the new location was devoid of trees and unable to provide hunting opportunities for the population. The Innu did not like the new location and "simply walked back to Old Davis Inlet."[15]

By the mid 1960s, the Canadian government again pushed the community of Old Davis Inlet to a new site, claiming that the present rocky town site allowed inadequate space for permanent dwellings. Alongside the prospects of a move, the government made

promises of new houses, running water and sewage systems, furnaces, and furniture at the new town site. Most Innu claim that they did not consent to move, but rather the decision was made by the priest, government officials, and the chief of the time.[16] The homes built at the new town site failed to live up to promises of the government. Construction of the community was slow, and the homes that were completed lacked running water and sewage systems. Plagued with leaks, the homes were cold and damp: the citizens of New Davis Inlet were made subject to deplorable living conditions.[17]

Many Canadians first heard of Davis Inlet in 1992, when six children died in a house fire while parents were out of the home. In January 1993, details of the conditions in Davis Inlet made national headlines as under the influence of gas sniffing, six children from the community were captured on video yelling that they want to die. The event sparked international media attention resulting in Canada officially recognizing the inhumane living conditions and social crises of Davis Inlet.

Responding the physical and social crises of the community, the Canadian government guided Davis Inlet in yet another relocation effort. However, this time, the community also expressed the desire to start new, to build fresh on a new town-site, with adequate resources and infrastructural opportunities to support the re-creation of their people. As

2.15 Child's Drawing from school workshop, Davis Inlet, 1992

noted in June 1992 by the Chief of the Mushuau Innu Band Council, Katie Rich:

> "It was the view of all people that in order to achieve a new and healthy life, we must relocate, to move away from this island, to a place where there can be better health and living conditions, a place where we can deal with the problems facing us. Relocation is the first priority for us, and this time, it will be an Innu decision, not the decision of the government or the church."[18]

The dream of a new community became a reality in 2002 when the community of Davis Inlet was relocated to their new home of Natuashish on the Labrador mainland, fifteen kilometers from the old site. The lead architect for the one hundred and fifty two million dollar re-construction[19] of the community was Harriet Burdett-Moulton. Of Metis descent, Burdett-Moulton practiced architecture for thirteen years in Iqaluit, and coordinated the planning process for the new community of Natuashish from 1994 to 1997. [20]

Burdett-Moulton led the community in a design consultation process that invited the Innu to control every aspect of their new community. To assist with the process two English speakers from the community were hired to communicate complex architectural and engineering concepts to the community in their native language. Throughout the process, "Everyone was consulted; everyone had an opinion."[21] Several decisions surprised the planners: Instead of developing the community to overlook Little Sango Pond, the community opted for an inland location on a site surrounded by trees and caribou moss. For after all, they shared, "Mushuan Innu means Barren Land People."[22] Mothers who preferred not be distracted at work, requested that the business district and school be distant from one another, while others stressed the importance of the school being located near a hill "where children could go sledding in winter."[23]

The final design for the community, laid out in the shape of a moccasin, contained a business district with an RCMP Station, store and band council office, a school and health care centre, as well as over one hundred and thirty residential units with allocations tied to extended family units. With running water, flush toilets, and adequate sewage treatment options in the newly formed community, Natuashish was deemed one of the most technically advanced settlements north of sixty. While it was hoped that the new development would provide a new and healthy re-birth for the people of Davis Inlet, opinions varied on whether the move would improve the lives of the Innu. "They're just moving the same social problems to a new location"[24] was a common sentiment upon the completion of the community.

Several years following the move, it appears that Natuashish has become the new home for the social challenges, violence, and alcoholism of Davis Inlet.[25] In a survey, eighty percent of women in the community of Natuashish identified that they had been victims of domestic violence, yet no safe house for those in abusive situations had been constructed

in the community. Despite high rates of alcoholism, no detoxification facility existed or a place to hold alcohol treatment sessions. While the Labrador Healing Strategy had invested seventy million dollars into social programming, little progress was noted in the community. In January, 2005 Ottawa approved twelve million dollars for over forty new houses, yet still no money for a safe house or the hiring of professionals qualified to deal with the social issues had been addressed.[26]

Cajeton Rich, a resident of Natuashish reflects upon the impact of the relocation: "No one believes that baths, toilets and running water are going to take away our troubles. Our problems will not disappear overnight." However, concerning the construction of Natuashish he notes benefits such as "the empowerment people have received in guiding every step of their new community, the job training that could improve their future and the self-esteem of living in dignified conditions."[27]

The relocation story from Davis Inlet to Natuashish contributes valuable insights to the discussion of architectural process. Engagement and collaborative design strategies can not be heralded as an end to community social struggles, but rather they must be recognized as one vital component among many in the multi-faceted process of community healing and re-building. Before the relocation, the community of Davis Inlet was plagued with poor physical living conditions and a series of social ailments – including addictions and substance abuse, as well as violence and domestic abuse. Though the relocation effort provided citizens of the community with new dignified living conditions, it appears that the specific social challenges of the community were addressed to a lesser degree. The lesson of Natuashish reminds us that the process of community healing and re-building cannot be solved by good architecture alone. Alongside technically advanced architectural strategies, it must be ensured that the appropriate social, cultural and economic supports are also in place in order that the architecture can truly be one contributing factor to the positive re-shaping of a community.

The histories of relocation in Canadian Aboriginal communities reveal daunting realities and challenges. While architecture can help to facilitate social change, it can't do it alone. Alongside new collaborative design processes and physical constructions, communities must focus equal energy upon the social challenges themselves, and work to develop the appropriate support structures according to the needs of community members.
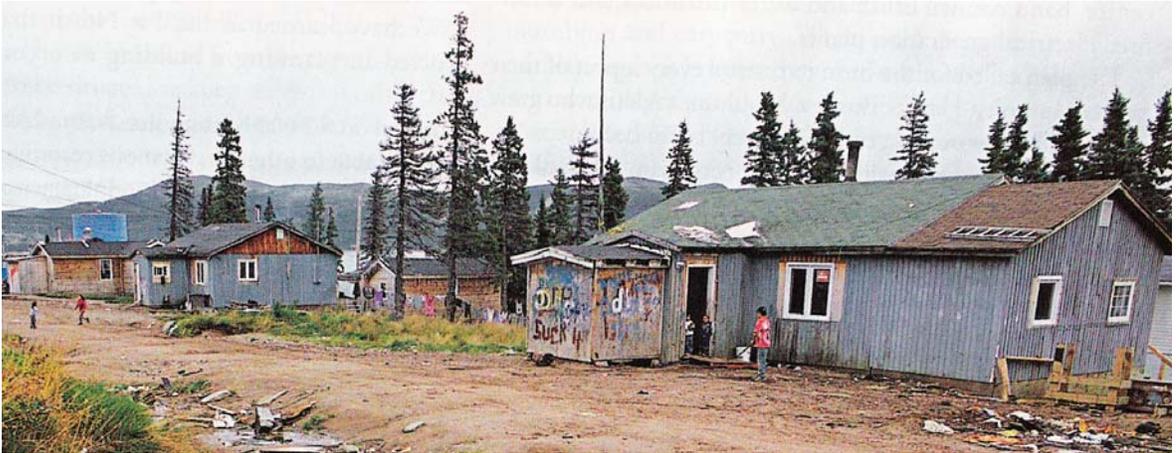
2.16 Davis Inlet, 1992
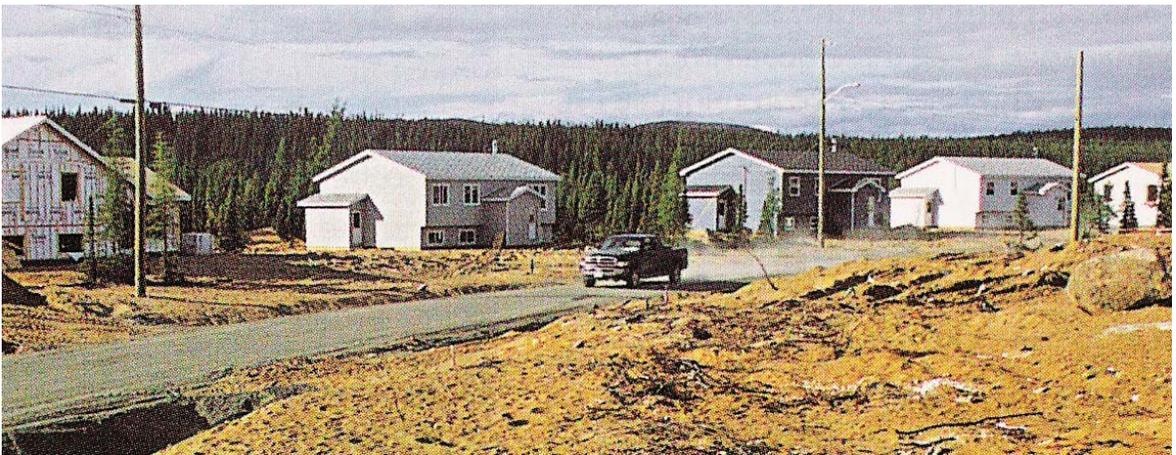
2.17 Natuashish, 2002

Learning from "Progress": Collaborative Alternatives

Several generations of imposed structures that have struggled to meet the needs of the recipient user groups have left many Aboriginal people to doubt the efforts of outside forces. On the scale of both individual buildings and the broader community, these imported ideals reveal that when architects operate in isolation, their efforts often prove inappropriate for the final end users. Instead of inviting a culture to thrive within, the newly imposed buildings and developments stifle traditions and force adaptation on the part of the community. In many situations, these buildings become prone to abuse and vandalism, or are entirely abandoned by the people for whom they were intended.

To bridge this divide between Aboriginal communities and outside designers, in recent decades, several architects have developed collaborative working methods for projects with user groups of diverse physical and cultural backgrounds. Reflecting on the challenge of working with a cultural community of which one is not a part, architect Marie-Odile Marceau, a partner at Marceau-Evans Architects in Vancouver and administrator of the historic Native Schools Project of British Columbia believes the answer to this challenge is simple: "It's about complete respect."[28] In any working situation she argues that it is both unrealistic and unnecessary to strive to fully know the other party in their entirety, however, in every working situation, and especially when working with Aboriginal groups, architects must offer their complete respect and become open to learning from the perspectives of those with whom they engage.

Thomas Hodne, an architect who works primarily with Aboriginal populations in Minneapolis, Minnesota further notes that "You can't simply design buildings for native people." Rather, he continues, "Architects must learn from what the Natives have to teach us. We are only their interpreters. We cannot prescribe solutions unless the Natives direct us to." [29] According to Hodne, architects are to serve primarily as listeners, and then they must strive to find ways to engage with Aboriginal populations, and encourage community participation in development processes. Glenn Murcutt, an architect who designs for various Aboriginal groups in Australia furthers these feelings: "The design role for the architect can only be as a facilitator."[30] Thus, because an architect can never fully know the group with whom they work, they must find meaningful ways to engage with a group of people, to encourage conversation and engage a community in an exploration process to ultimately draw forth a community vision from the group with whom they are working.

Leroy Troyer, an architect in Mishewaka, Indiana ensures that all projects begin with direct engagement with the community and an intensive visioning session. Troyer notes: "You need to take into account the whole community. They need to listen to each other as much as listen to the designer."[31] One method that Troyer has used to engage groups ranging in size from ten to five hundred participants in discussion and visioning is to

2.18 Manasc Isaac Architects' Driftpile School, Driftpile, Alberta.

2.19 The design for the main lobby at the Driftpile School was based on the image of an eagle feather generated from client consultation sessions.

have people write down comments, then share them in small groups. This process, he notes, keeps discussion from being dominated by more outspoken people and encourages community members to listen to one another. As well, he adds: "Through listening to your neighbors, a community of people can come to an understanding of their common values and interests." [32]

For the construction of a chapel building for a private college, the Troyer design team lived and worked at the college for several weeks. Before design efforts commenced, a team of architects from the Troyer Group spent several weeks at the college, living amongst and engaging in the life of the community for which they were designing. Design team meetings and interactions extended beyond the meeting room table to include sharing in community meals, academic discussions, religious worship, recreational and social events. Through living with a group of people, the design team was better equipped to address the needs of the community for which they were designing.

Vivian Manasc, principal at Manasc Isaac Architects in Edmonton, Alberta has worked with various communities for the design of schools on reserves in Alberta. In the inclusive proposal of the project, community members, including elders, teachers, parents and children engage in the vision for the new school and define the facility within the community context. Images for the project are explored through workshops, collages and visioning sessions resonate throughout the work. In this context, architects are not the sole designers, but rather, serve as facilitators of the inspiration, and transform the community's vision into a realized building, mediating between the worlds of conventional educational facilities design and traditional styles of learning and teaching. Manasc Isaac's client/user workshops provide an opportunity for relationship building with clients. At all stages of the work, the participation of clients is vital. Throughout the process ideas are discussed, evaluated, and incorporated into the overall design concept. The goal of these workshops, and the incorporation of communities in the creation of projects, is to get as many stakeholders as possible to invest their energy in a meaningful way.[33]

However, despite the creative nature of inclusive working methods, many architects engaged in community design processes report several problems with such collaborative efforts, primarily due to the client community's lack of knowledge on development issues, along with financial and time constraints.

Principal of Two Row Architects at Six Nations in Ontario, Brian Porter continues to experience challenges in collaborating with eventual user groups. Porter feels that creative engagement methods are required when working with a group of people who have rarely been invited to explore their own needs and furthermore, have been plagued with substandard circumstances. Porter stresses the importance of exposing a community group to their options and the various factors involved in building design in order for collaborative efforts to be of true value.[34] To address some of these concerns and attain user participation and input, Porter employs an interactive design activity in the initial phases of design. Used specifically in school design, he invites groups of children, teachers and other adults to engage and play with proposed program blocks cut to scale. He facilitates the process: initially, participants are encouraged to think about program relations, family groups and adjacencies between interior spaces. Then, relations to the exterior are added, followed by environmental elements such as the influence of the sun and wind. With each new round, the participants are given new issues to address. Through engagement in the process, students learn the various considerations involved in site selection and building design.

Marie-Odile Marceau employs a similar strategy in her work with various user groups. She describes her role at this stage of the project as "Hands off!"[35] She views this stage of the design process as her opportunity to listen to the group: as they work, as they argue, and as they explore design options together. Notes Marceau on this process: "The craft of the architect is in their ability to listen and to understand. From this process, the architect is then able translate the ideas and visions of the community into a functional building and an object of beauty."[36]

In these situations, interactive procedures are not intended to serve as primary design tools, but rather as devices to spark conversation and create interactions amongst community members. Later, the results are documented and analyzed for use by the architect. While the activity is not intended to produce a building design, in many cases, both Marceau and Porter noted that some basic design or organizational ideals are taken from these initial studies. As the project develops into a built form, participants are often excited to see how their efforts informed the final design.

Several Canadian projects expand upon these alternative working methods and architectural design principles. Applied in the context of several Canadian indigenous communities, they provide meaningful lessons in collaboration between designers and community user groups.

2.20 The Architect's rendering of the proposed Resolute Bay, "An Ecological Arctic Town"

Ralph Erskine and the Story of Resolute Bay

In 1953, the Government of Canada moved four families from Inukjuak and Pond Inlet, located on the east coast of Hudson's Bay and the northern tip of Baffin Island respectively, to Resolute Bay situated on the south-eastern shore of Cornwallis Island. At that time, Resolute Bay consisted of an airstrip and military base. As little effort was made by the government to provide infrastructure of housing for the newcomers, the Inuit constructed homes for themselves from salvaged timber and located their settlement four miles south of the airport. In the 1970s, petroleum and mineral exploration brought money and people to Resolute Bay. With the promise for growth and status as an arctic destination, the Government of the Northwest Territories declared that a new town was required for the projected population of twelve hundred people.

Swedish architect Ralph Erskine was selected to design and develop the new town site for the hamlet of Resolute Bay in Arctic Canada. Community objectives stated in the project brief, were for "a well equipped, socially integrated community with sufficient physical protection from the harsh climate." [37] As well, the design was to mediate between the group of indigenous peoples who had inhabited the location, and the several hundred new community residents yet to arrive. With two distinct cultural groupings living together
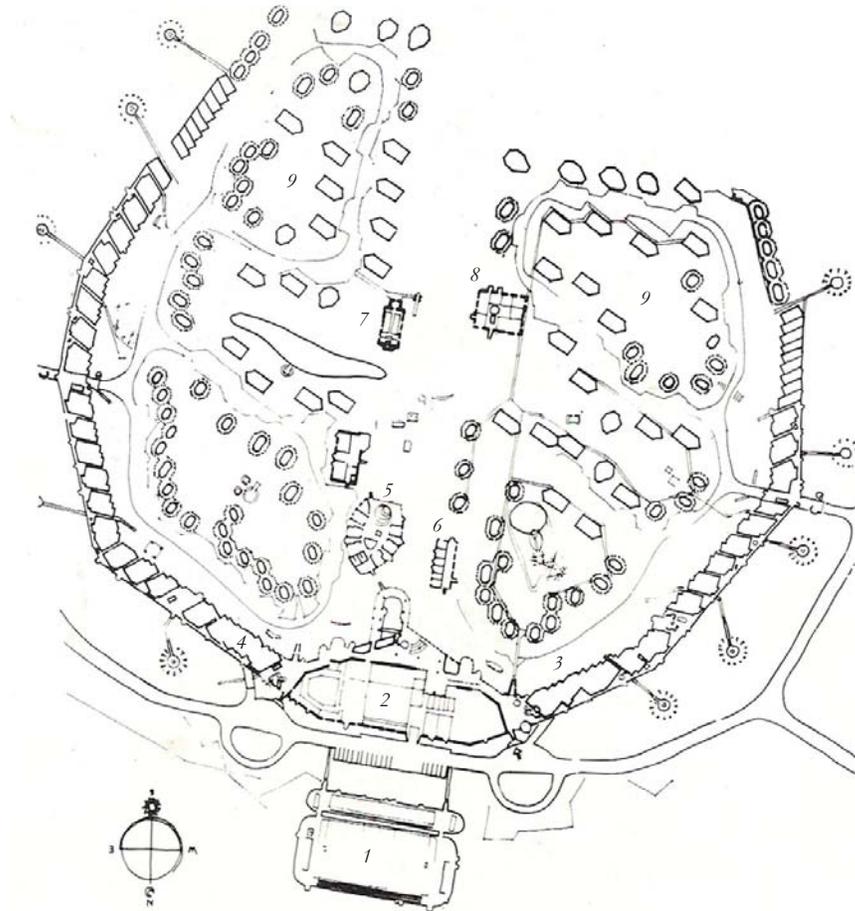
2.21   Resolute Bay Town Plan

1   Ice Hockey Rink
2   Town Centre
3   Hotel
4   Flats
5   School
6   New Houses
7   Historical Site
8   Relocated Church
9   Relocated Health Centre
10   Upgraded Houses

2.22 The completed terrace at Resolute Bay

within the community, the project presented several challenges for the designer: beyond the extreme climate and remoteness of the place, the designer was also presented with a unique cross cultural situation.

Erskine developed the project based on two fundamental principles: Firstly, buildings must be related to climate, and secondly, they must relate to the people who will eventually inhabit them and use them.[38] As well, Erskine believed that the architect had to rely upon the local population for working directions: "With sympathy (architects) can, of course, make intelligent guesses, but unless there is a dialogue between architect and user/client, the resulting building will not be as relevant to the needs of the occupiers as it could be."[39]

Thus, to compliment intensive research on the Arctic climate, Erskine employed collaborative working methods and engaged the local population at various stages of the design endeavor: from choosing the best site, to the disposition and design of the buildings. The final proposal for the community consisted of a walled town structure. Providing wind shelter, it helped to modify the extreme northern environment. It reduced snow drifting around the small buildings within, and created a feeling of protection, identity and togetherness in the cold desert situation.

Through a series of town meetings, the planners consulted with residents of Resolute Bay on site selection. Most residents preferred a site that was also recommended by the planners, however, later it was discovered that they favored the other sites just as much, but were simply agreeing with the consultants.[40]

Shortly after construction commencement, it became apparent that the future of the community, and its needs of new buildings, had been incorrectly estimated. Resolute Bay had not yet reached its projected population and construction efforts ceased. Today, with a population of approximately two hundred, the community of Resolute Bay sits on this same site grouped in semblance of the early vision.

While the project never came to full fruition, the lessons of Resolute Bay present several issues in collaboration. While great energy is invested in engaging community members in a collaborative design effort for their community, it must be recognized that local residents living in permanent settlements do not necessarily understand more about site selection for permanent high latitude settlements than any other interested party. Therefore, the ideals of local participation must be explored. Local people are not employed to make design decisions, but rather they provide insight to community experience and vision. Concerning the roles of the community in design processes, Erskine notes:

> "Firstly, they give the planner and the different inhabitants themselves information on varying consumer needs and preferences, which is particularly important in situations where different cultures are involved and the architect belongs to only one of these, or is a stranger to both. Secondly, it is vital for the success of the project that as many as possible of the future inhabitants willingly and knowledgeably share responsibility for the creation and therefore the consequences of the plans." [41]

Ideally, through collaborative processes a community is provided with a building that is best suited to their needs. Beyond this physical reality however, Erskine also notes that collaborative processes also provide local residents with the opportunity to engage in processes of "abstract thinking, of analysis, problem solving and decision making" that will eventually influence their home communities. Ultimately, it is hoped that these skills can be utilized in future developments and decisions on both the individual and collective scales.

2.23 *Quebec Communities (Author)*

A Ottawa
B Montreal
C Quebec City
D Sept-Iles
E Unamen Shipu
F Goose Bay

The Innu of Unamen Shipu

A "Housing and Cultures" design studio at Laval University in Quebec City was also developed upon these concepts of collaboration. It used local knowledge in the development of appropriate architectural forms in an aboriginal community. Coordinated by Professor Andre Cassault, the cross cultural design studio aimed to address the housing needs of the Innu of the northern Quebec native community of Unamen Shipu. Traditionally, the people of the area were a nomadic group. In 1954 the Canadian government created a reserve at Unamen Shipu and the Innu were moved into permanent houses. Like many indigenous groups across the country, the Innu of the region had little input on the design of their communities and housing. Instead they were subject to government imposed models of 'white architects'[42], which continue to prove unsatisfactory on both cultural and technological levels.

The focus of the studio was to design with, rather than for, a cultural group other than ones own. It was based upon principles of engagement with local people and close collaboration with Innu partners throughout all stages of the effort. As noted by Andre Cassault,

> "We, the professors and student-architects, saw our role as guides, people with a set of tools who could coach the Innu of Unamen Shipu in the conception of their homes. Our job was to solicit information, provide hypotheses to fuel debate amongst participants, and most importantly, listen: listen and translate what we heard, what we saw, what we felt into three-dimensional form."[43]

2.24 *Semi-transparent fibreglass cladding in a three season*
space allows the play of light in the interior while
promoting contact with the exterior landscape beyond

2.25 *View from interior of the three season space*
to the main area of the permanent living
space beyond

The design and research studio was based on three main premises: firstly, that housing forms are highly influenced by a community's culture and the daily life of its members; secondly, that Innu socio-cultural aspirations play a very important role in shaping the dwelling form; and finally, that it is important for the residents to have control so the house embodies a shape that is adaptable to their particular needs.

Within this context, students did not simply propose housing options based upon research efforts, but instead, they lived alongside the people of Unamen Shipu, engaging in daily life and extensive meetings with local community members. One of the goals of these meetings was to spark discussion among the local people concerning the patterns and characteristics of their daily lives, both individually and collectively. Through the experiences and insights of community members, the students examined various aspects of home design, and from these findings, initial design sketches were developed and presented to the community based upon these ideas. From this process of design and community consultation, the proposals evolved. They were not only a result of personal creativity but were largely based upon the established ideas as envisioned by the community. Based on these perceived ideals, it was the role of the designer to focus on finding better solutions for the community's spatial needs for traditional and domestic activities, and ultimately, to transform the vision of a community into a meaningful architectural construction.

The Unamen Shipu studio didn't immediately provide any profound conclusions; however, several lessons were presented. The process of community consultation and collaboration was slow, and a great deal more investigation and experimentation must be undertaken, in close relation with the Innu, before any lasting solutions can be found. However, through the act of collaboration it was clear that several great social gains were made. All peoples involved are in the process of learning to work together, defining vocabularies and clarifying objectives. For the young designers, it stresses the importance of listening to the experiences and needs of those with whom they design instead of allowing their own design ideals to reign throughout the proposals.
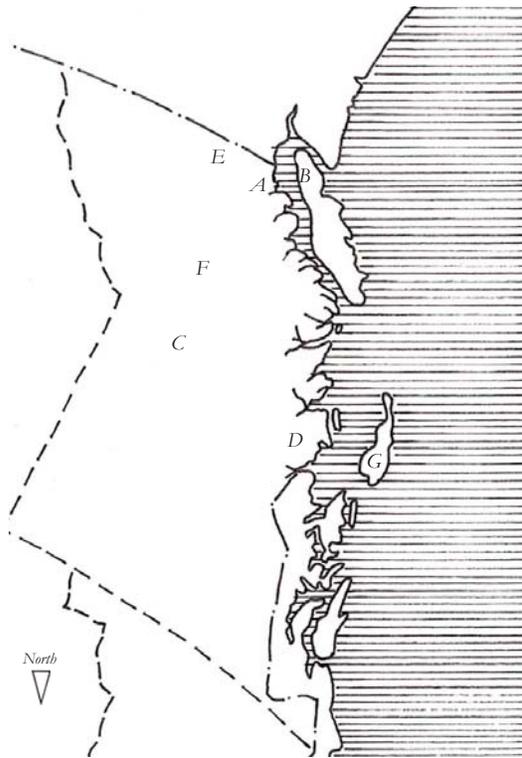
2.26 Communities in British Columbia (Author)

A   Vancouver
B   Victoria
C   Prince George
D   Prince Rupert
E   Seabird Island School, Agassiz
F   Stone Band School, Chilcotion Region
G   Sk'aadgaa School, Skidegate

North

The British Columbia Schools Project

Until the conception of the British Columbia Schools Project, school designs in many Aboriginal communities in the Province of British Columbia were standardized and had no reference to their unique physical, cultural or social situation. Like many buildings imposed upon native reserves, they were prone to vandalism and conveyed the message that the larger society did not value Native education or culture.

Coordinated by Marie-Odile Marceau [44] and the Canadian Bureau of Indian and Northern Affairs, the British Columbia Schools Program was developed in the belief that good architecture, developed in collaboration with the local community, could make positive contributions to both the learning experience and well-being of the broader community of which they were a part.[45] Operating from 1987 - 1993, the program was responsible for the construction of twelve schools across the province of British Columbia.[46]

Marceau had a clear vision for these educational endeavors and established two underlying principles that would govern the development of the architectural projects under her management: the first objective was to foster as much community input as possible. The second was to encourage innovative and stimulating architectural solutions which

would put forward the cultural identity and the local philosophy of education. Marceau firmly believed that when the community had driven project decisions, a greater sense of ownership, pride, and thus, responsibility for the final built form and activities that it housed would increase. Marceau placed no restrictions upon who could participate. Instead, the design of the school depended upon those who wanted to participate throughout the various stages of the project. "In some cases it was the entire community, while in other situations it was a smaller group of the most interested band members." [47]

Communities were assisted by Marceau throughout various stages of the project including the hiring of the architect, and providing input from design development through to the construction stages. In the initial stages of the project, the architects met frequently with faculty, students and the whole community to develop the design of the building. Presentations were held at community meetings and architectural ideas were presented in the form of models. During construction, wherever possible, local people were employed as design consultants, contractors, carpenters and suppliers. In some situations, local people received construction training and were involved in the building process on site. At the end of the project, each laborer possessed a complete set of tools. [48]

Three of the schools that were designed and constructed through the program include Seabird Island School, Stone Band School, and Sk'aadgaa Naay School. Each of the schools is located in a distinctly different cultural and geographical context of British Columbia and their individual designs reflect their respective physical and cultural contexts. As well, each school presents unique opportunities for learning in terms of both native architecture and the realities of collaborative efforts.

Seabird Island School
Located at the north end of the Fraser Valley near Agassiz, British Columbia, the Seabird Island School was the first school to be completed under the project. A collaborative effort between Patkau Architects of Vancouver and the local group of Coastal Salish peoples, the building program sought to produce a learning environment that would "promote the culture, language, and way of life of the Salish Indian community".[49]

In the final building, rather than the use of literal forms, a series of communal spaces were generated by the school to establish the desired relationships and First Nations identity, and achieve the desired environment for learning. The classrooms open onto a community green space encouraging close connections between the school and the community. Community connections are also encouraged in the interior spaces as the gymnasium that can also double as a community hall. The importance of Elders in the school environment is another vital component of the school: the design includes a language area, Elders spaces, as well as community clusters. The building, specifically in the activities that it facilitates, serves as a built embodiment and device of instillation of cultural values.

Stone Band School
Another school under the project, the Stone Band School, in the Chilcotin Region of British Columbia, developed a locally appropriate learning environment by other means. Designed in collaboration between the local community and Architect Peter Cardew, the school is also focused around the importance of the role of Elders in education of children in local language and culture. The centrally located resource area is recessed into the ground and is reminiscent of the traditional pit house. An indigenous architectural form of the area, the traditional pit house was home to both the dwelling and education quarters of the community. Traditionally, local elders guided the educational of the young of the community inside the structure. In the design for the Stone Band School, the structure pit house operates both structurally and programmatically like the traditional form. Not only housing the school resource centre, it also provides a place where traditional educational activities of the community can occur. The school encourages learning in both traditional and contemporary forms, and the role of community members of all ages in the process of learning.

Sk'aadgaa Naay School
Sk'aadgaa Naay School located on the Queen Charlotte Islands in Skidegate, British Columbia was designed in collaboration with Acton Johnston Ostry Architects and the Haida Gwaii peoples of the region. Programmatically, the school includes a designated area for Haida studies as well as multi-purpose space for community events. As a direct response to the wet climate of the region, a covered exterior space provides a protected play area for children and also has the potential to house outdoor community functions. Meaning '*house of learning*'[50] in Haida, the school was built on the reserve and was designed to serve both native and non-native children from the region. Upon its completion however, many non-Native parents in nearby Queen Charlotte City refused to send their children to school on the reserve at Sk'aagda Naay and instead opted for a more inconveniently located school a ferry ride away.[51]

This situation reveals a reality for designers and communities. While collaborative processes may help to instill some pride in the building and the educational activities it houses, it alone cannot instill harmony among peoples of differing cultural walks.[52] While architecture has the potential to provide a supportive learning environment for native students, it alone can't alter the inherent racism embedded within populations, or resolve these overarching challenges. However, it should be acknowledged that collaborative processes do promote a focus upon relationship building and community guided initiatives instead of immediate solutions. Furthermore, these processes have the potential to evolve into a final architectural form that carries symbolic meanings into its broader context. Architectures for Aboriginal education have the potential to convey the central importance of these learning realms: to native learners and to those beyond projecting stereotypes of these and other Aboriginal peoples.

Over a decade later, it is still unknown as to how these forms have actually influenced the learning that they house.[53] However, the program has presented several other positive spin-offs due to its collaborative nature. The British Columbia Schools project serves as an example of a positive relationship between educational and social philosophy that is played out in a localized context of slower, incremental and more localized evolution of ideas. Instead of providing its recipients with another hand-out, involvement in the process instilled a sense of community pride, optimism and commitment in local peoples and the resulting architectural excellence is prized by the community that it serves.

Consensus Design

A notable figure in the British community involvement movement is Architect Christopher Day. Considered one of the founders of the ecological movement in Britain, Christopher Day's Consensus Design Process has evolved through his commitment to collaborating with others. A preliminary explanation is straightforward enough: Consensus Design involves a group of people who strive for consensus through design. "Consensus Design is about everybody getting – if not what they originally wanted – what, after working together and listening to the whole situation, they have come to want."[54] All preconceived ideas about a project or a community must be abandoned: Each community and project require a unique response.

Based on the principle that non-professionals are involved in decision-making about issues that will affect them, consensus design is a process of collaboration and partnership between a community and design team that places equal weighting on local knowledge and the skills of trained professionals. "These two sorts of knowledge are the reason we engage – and need – experts. And because this is specialist knowledge and experience, it is, by definition, narrow. That's why we need teams to round out viewpoints – best of all, teams well-grounded in everyday life: 'ordinary' people."[55]

2.30 Natuashish Visioning Workshop, Davis Inlet, 1992

2.31 Building a Site Model

During the design stages of a project, Day facilitates interactive design workshops that can last anywhere from a few hours to several days. Regardless of scale of project or design workshop, all processes begin with a visioning session: What does each person hope to gain from the project? From these initial discussions a programmatic 'palette' of activities for the project is identified. From there, the design stage progresses with site studies before advancing to building design and modeling.

As a trained architect in this collaborative context, Day describes his role within this process as one of 'leading from the back'[56] and encouraging group participation: the success of the project depends on value from everybody. While Day places great emphasis on participant contribution, he also stresses the important knowledge of the designer gained through the experience of design or practical work experience. The architect is not to ignore the knowledge gained through the experience of education and work in the design profession, but rather use this knowledge to get a group thinking and asking the right questions. It is the architect's role to use these skills to provide architectural focus to the developments of the group: "You can draw somebody's attention to things like will the daylight be inadequate, or where will the sun be at this time of day, or won't this space be rather hard acoustically? We don't have to give the answers. We should just ask the right questions."[57]

While community participation is central in inclusive design processes, the Consensus Design Process reveals that it is still important to acknowledge the training and skill sets of the architect. The architect is trained as a place-maker, and ultimately, in the end, it is their responsibility to transform the needs and visions of a community into a functional three dimensional form that responds to the needs of a community. The idea of balance is fundamental in this process of working. As local knowledge has a vital component to share in a process, so too does the architect's voice have spatial and technical contributions to bring to a project.

The Collaborating Architect

Working with an Aboriginal user group in the Canadian North presents several challenges for the development of the work. It is clear that the proposal cannot be conceived and developed in isolation. Engagement with community members and prospective inhabitants is of necessity. When design developments are influenced by the user community and respond to local preferences and visions, a relevant architecture emerges. Beyond the built form, collaborative developments also equip local participants with transferable skills in planning, building design and construction methods, and kindle community ownership and empowerment from the experience of generating developments in one's community instead of merely reacting to them.

In collaborative design developments, the specific roles often reserved for the lead designer are shared amongst members of the community. Given this change from the "norm", the traditional roles of the architect require further examination from which a revised understanding of the architect emerges.

Two common definitions exist for the role of an architect. A primary definition outlines an architect as "One who designs and supervises the construction of buildings or other large structures; a person responsible for the invention or realization of something; a designer of building etc; someone who creates plans to be used in making something (such as buildings.)" [58] Within this designation, the architect devises the plan to be used in the creation of something (such as buildings.) A secondary definition describes the architect as "One that plans or devises; a person who designs and guides a plan or undertaking; person who brings about a specified thing; a person responsible for completing a particular plan or aim." [59] In this context, the architect is a coordinator and ultimately responsible for carrying a plan through to fruition.

In collaborative efforts, it is the second definition of the architect that takes on heightened meaning. In this context, the role of the architect is no longer the sole designer for the development, but rather as he or she shares this role with community members, the architect serves as the facilitator to guide the user group throughout the project. Ultimately, in collaborative processes, the architect is responsible for leading community members through the various stages of a design development.

While the architect's ultimate role is that of a place-maker, throughout the stages of the project, the architect must also find meaningful ways to engage with a group of people, foster conversation and draw forth a community vision. In these collaborative efforts, local people are not responsible for making the ultimate design decisions, but rather they provide the architect with insight into community experience and vision. From this engagement and interaction, it is the architect's responsibility to then translate the

ideas of a community into a functional building which embodies the values and needs of the community. Throughout the project, the local knowledge bases and personal experiences of a community are balanced with the architect's project overview and specific environmental, technical and design training: the lived experiences of a local people and the empirical knowledge of the architect are both integral components in the collaborative design whole.

On a broader scale, an architectural development that is rooted in values and perspectives of a local people and is communicated architecturally by the design skills of the architect has the potential to serve symbolic roles within its immediate context and broader realms. Architecture is a carrier of cultural values and visions: the nature of a built form conveys the importance of the activities and livelihoods that the architecture supports. Ultimately, when the design process is appropriate for its context and complimented by the skills of an engaged architect, these greater possibilities for architecture may be fulfilled.

Returning to the thesis context, it becomes clear that an architectural vision for a northern educational structure must be derived from those who will eventually inhabit and influence the learning environment. To ensure that a relevant northern educational structure can begin to evolve, the stories of the local population must be shared and in turn heard by the broader design team. These perspectives for northern learning – the local knowledge of the people of Denendeh – alongside the technical details and trained knowledge of the architect will eventually combine to create an environment for education in the north. Rooted in local vision and values, this architecture has the potential to symbolize and communicate the central importance of northern learning: to the immediate student body, the northern community, and realms beyond.

LISTENING TO STORIES
Gleanings from Denendeh

"You always need to start with where the students are.
Who are the students? What are their needs?
The biggest barrier to planning is growing to know the needs of community.
Anyone from the outside has to go and do a lot of listening.
That's the bottom line. It's a lived experience."
 - Aurora College Administrator, *Personal Interview, August 2005*

Gathering Together

Storytelling has always been a vital part of the cultural identity of Aboriginal peoples in Canada. Traditionally, stories were a primary means of education: they taught lessons and gave warnings. Storytelling was a communal event that brought people together to share a past and anticipate a future.[1] While many stories contained vital knowledge and cultural understandings, the lessons held within them were not always directly obvious to the listener. Reflecting on the non-directive nature of oral stories, an Elder in Edzo, Northwest Territories shared, "Our stories are for you to think with, as they were given to us for us to think with."[2]

Throughout the development of the thesis, many insights were gained through listening to the stories – the local knowledge – of the people of Denendeh. In a variety of contexts, children, students, parents, elders, teachers, leaders, architects, civic and educational leaders shared their stories of past educational memories, experiences of the present day, and visions for future learning in their homeland. Their stories presented various ideas and opportunities for northern learning: they presented much "to think with."

3.1   Opposite

Throughout the study, over one hundred individuals shared their stories and visions for continued adult learning in the north. All interviews and gatherings occurred between August 23, 2005 and October 7, 2005 and occurred at the Yellowknife Campus of Aurora College, at the Chief Jimmy Bruneau School in Edzo, Northwest Territories, or in other community and educational settings within the Yellowknife context.

Participants were interviewed individually or in small groups, participated in community meetings, group talking circles, or completed a questionnaire. While a set of questions guided the conversations, their open-ended nature invited the conversation to move and develop in the directions that the participants felt were of the greatest importance.
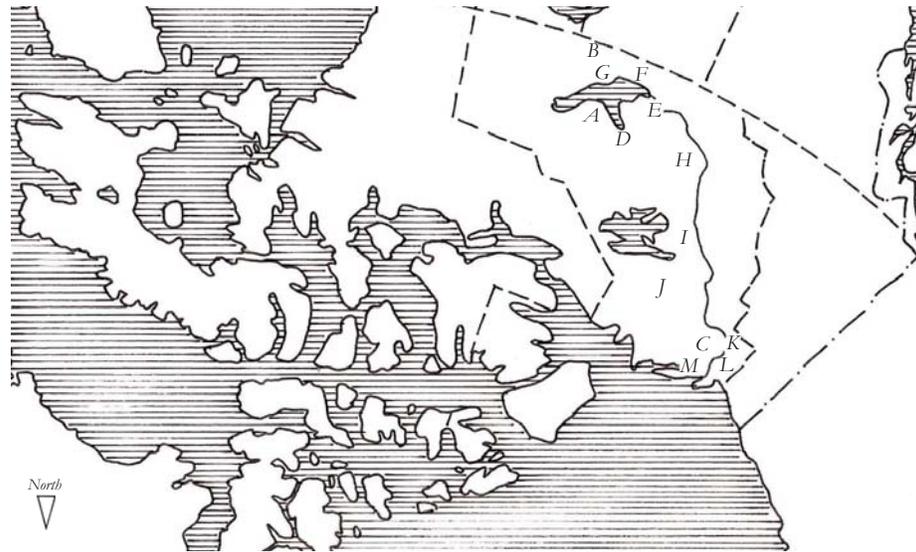
3.2 *Aurora College Locations (Author): Aurora College Campus locations include Yellowknife (A), Fort Smith (B) and Inuvik (C). Community Learning Centres are located in Rae-Edzo (D), Fort Providence (E), Hay River (F), Fort Resolution (G), Fort Simpson (H), Tulita (I), Fort Good Hope (J), Fort McPherson (K), Aklavik (L), and Tuktoyaktuk (M).*

The Yellowknife Campus of Aurora College, Yellowknife, Northwest Territories

The Yellowknife Campus of Aurora College provided the appropriate case study site for the development of the work. Within this context, both students and leaders at the college shared their stories of challenges and opportunities for the northern learning environment.

The history of Aurora College, as a campus-based institution, began with the establishment of the Adult Vocational Training Centre (AVTC) in Fort Smith in 1968. In the early 1980s, the government of the Northwest Territories proposed a return to a model of program delivery at the community level. Arctic College was established in 1984 with campuses in Fort Smith, Iqaluit and each region of the Northwest Territories. In 1995 two separate northern colleges were created: Nunavut Arctic College in the Eastern Arctic, and Aurora College in the Western Arctic.[3]

Today, Aurora College is the only post-secondary service provider in Denendeh and the broader Northwest Territories. With regional centers in Yellowknife, Inuvik, and Fort Smith[4], the college also operates twenty-three learning centers in smaller communities throughout the Northwest Territories. Each campus specializes in different areas and plays a unique educational role. In Fort Smith, trades training, Teacher Education and Social Work are the primary focus. The Inuvik Campus focuses upon Oil and Gas Training, Criminal Justice, and Recreational Leadership, while the Yellowknife Campus of the college deals largely with the Nursing program, Diamond Cutting and Polishing, Teaching Training and academic upgrading.

Currently, the Yellowknife Campus of Aurora College operates from a leased space in downtown Yellowknife in a building shared with religious and social service organizations. Each year, the campus serves approximately three hundred full time students and nearly twelve hundred part time students. The Yellowknife student body is made up almost entirely of Northerners, three quarters of whom are of Aboriginal descent. Students came from the city of Yellowknife and the surrounding Dogrib communities of Rae and Edzo, as well as from various regions in the north to study at the Yellowknife Campus.[5]

The Chief Jimmy Bruneau School, Edzo, Northwest Territories
Students and leaders at the Chief Jimmy Bruneau School in Edzo, Northwest Territories also shared their stories of northern learning and provided further insight into the investigation. Located in the Hamlet of Rae-Edzo, Northwest Territories, the Chief Jimmy Bruneau School is named in honour of the historic chief who lived from 1881-1975. During his leadership, the Chief Jimmy Bruneau saw many children removed from the community to attend residential school. While he felt the importance of this new education, he also experienced the pain of students returning home without bush skills, an understanding of their native language, and unable to communicate with their parents and elders. He saw that "the old white-run school system was destroying the people's culture and harming the children" and fought for years to create a school where children could be educated in both cultural traditions and the skills needed for participation in modern world: "I have asked for a school to be built on my land. That school will be run by my people, and my people will work at that school and our children will learn both ways: our way and the white man's way." [6]

Since 1971, the Chief Jimmy Bruneau School has been providing culture based education for children from Rae-Edzo and outlying Dogrib communities. Alongside a broad academic curriculum, today, the school continues to offer Dogrib language courses, the *Gonawoke* -"*Our Way*" culture course, an annual "*Trails of our Ancestors*" canoe trip, drumming and dancing opportunities, as well as childcare services, and parent and child development classes for both students and members of the Rae-Edzo community.

In the contemporary context, the school stands as a testament to Dogrib commitment to education while cultivating cultural values and models the Chief's original vision that "if children are taught in two cultures equally, they will be strong like two people." [7] At the elementary and high school levels, the school serves as an appropriate example of culture based learning. Furthermore, as some of the students in the Chief Jimmy Bruneau School community would eventually consider or pursue learning at the post-secondary level, participation in the life of the school allowed learners and leaders to share their hopes and concerns for students as they transition from this place of learning into a new educational environment.

She travels throughout the north on a regular basis for work.
She tells me about the young woman who approached her while
she was waiting to check in for her flight: "Could you take my
baby on the airplane with you?" Apparently this is common
procedure: The woman had spent the week in the hospital in
Yellowknife and was required to head south to Edmonton for
some further appointments. She simply needed someone to take
her baby back to its home community where they would be met
at the airport by the child's care provider. The baby boy – just
a few weeks in age - was sleeping. My friend obliged, and then,
after obtaining her boarding pass and checking her luggage, she
was handed a bottle, an extra diaper
and the infant - wrapped in a blanket.

Listening to Stories

As stories were told, the need for work on many fronts, not simply educational, became
clear. Participants voiced that for them, education is directly linked with other areas
of their lives that require addressing including heightened cultural identity, housing and
healthy lifestyles, childcare and parenting skills, as well as connection with existing urban
structures.

It was expressed that educational strategies should not tend only to academics and the
development of healthy minds, but rather to the development of the whole person. One
student shared that from her background all areas of life and facets of one's being are
interconnected: "We don't like to separate things. We don't like to compartmentalize things.
We try to look at the whole person."[8] As all areas of life and person are interconnected,
many expressed that educational efforts should be of a holistic nature.

Though one person's vision was never exactly the same as another's, many stories shared
several common elements. These ideas presented invite the pursuit of new explorations
and opportunities in the continued developments of the adult learning environment for
this context.

Community Living Opportunities: "We need to live together"

In a questionnaire circulated to full-time college students at the Yellowknife campus of Aurora College, students identified "Lack of Housing" as one of the most prominent barriers to their continued learning pursuits. A student at the college provided further description of the current housing situation at the Yellowknife campus: "Some of the facilities are really awful and there is no place for people to live. If we expect someone to come in from out of town, we need to provide them with a good place to live." [9]

While leaving home provides students with new surroundings and new beginnings, separation from their home contexts also removes students from their communities, families and extended support structures. Therefore, for many adult learners, attending school outside of their home community can be a lonely and isolating experience. A student from Inuvik, Northwest Territories shared that her biggest struggle has been living away from her family for a long period of time. "It's hard living here when I don't know many people" [10] she shared.

Instead of housing students in disparate locations across the city, many students expressed the desire for a collective living environment where they could engage in a collective student life. "When students live in random locations all over the city, we have no social life together. We need to live together. We need to get to know each other." [11] Furthermore, when asked about what cultural resources would make the learning experience better students identified "Community Living Environment" as their top choice. Commenting on the potentials of community living environments for students, an Aurora College administrator noted, "It's not simply about providing them with a place to eat and sleep and study. It's about providing them with opportunities to interact, socialize and build relationships."[12] Another administrator indicated similar sentiments, "A living community would encourage student support networks." [13]

The expressed need and desire for congregate student living arrangements invites interesting opportunities in northern educational developments. Instead of isolating students in segregated units across the city, a congregate living environment has the potential to invite social, cultural and academic supports to develop and thrive amongst the northern student body. A shared living environment could also provide the essential daily supports for learners who are away from their familiar community contexts while pursuing their education.

In this grade ten class, there are a handful of girls who are noticeably pregnant. The teacher inquires about the whereabouts of one in particular. "Oh, she's just in the nurse's station" a student assures the teacher. "Her baby dropped this morning. Not drop - dropped – as in born" she says with a laugh, "but you know - just dropped – in her stomach."

Childcare Needs: "Many students have families"

Students identified the lack of childcare as another major barrier to learning in the Yellowknife context. "Many students have families that they bring to school with them. Quite often it's a single mom with a number of children." [14] Not only do these students require a place for their families to live, they also require appropriate care for their children while attending classes. "Parents need to have the feeling they can come to school and not worry about their children," [15] shared an instructor.

One frustrated student felt that childcare should be provided on campus for students who are also parents. "How can single moms pay for daycare while going to school? Work, raise their children alone, go to school, and find time to study? I don't think so." *[16]* However, even for students who are able to access childcare while they are at school, many expressed the continued challenges of being a parent and pursuing continued learning. "Family life is a challenge" noted one student. "I'm still trying to be a father while being a full time student."[17] Another student shared finding time to study with a child at home is a constant challenge that continues to hinder her academic success.[18]

In response to the childcare challenge, a community leader recounted the story of an effort to bring young mothers back to school in the community of Rae-Edzo, Northwest Territories. Several years ago, the Lutheran Church in the community partnered up with the Chief Jimmy Bruneau School in Edzo to provide a daycare. She shares that the results were inspiring: "The single mothers came back to school." And today, she continues, "the majority of post-secondary graduates in Rae and area are female."[19]

The issue of childcare raises interesting challenges and opportunities for the continued development of the adult learning environment. Students with families require formal childcare services while pursuing continued learning, and also require support structures in their home environment to help them to meet both academic and parenting challenges. In future developments, childcare services could potentially be provided on campus or within direct access to the educational environment. As well, student living arrangements could be designed to facilitate communication, shared household and childcare duties between roommates and neighbors.

An Intergenerational Environment: "We need elders at the college"

Students, leaders and community members voiced the importance of community Elders in the educational environment, and felt that they were key players in the development of a culture based learning environment. Students felt that elders could bring various qualities to the adult learning environment including the gifts of communication, listening, history, patience, and basic understanding. Other qualities that they could contribute included acceptance of oneself, higher self-esteem, thankfulness, awareness, heritage, respect, self-discipline, brotherhood, friendship, pride, self-discovery, obedience, and faith. [20]

Several educational leaders voiced that Elders were the primary infrastructure for healthy continued learning opportunities. Various participants expressed a vision where Elders could play a pivotal role in providing opportunities for learning about various aspects of Traditional Knowledge. "Students need a chance to go to ceremonies, to learn traditional skills, to get help from the Elders, go to counseling, join self-help groups, and start doing research papers on all of these topics and hopefully these things will enable them to re-contribute to their communities." Another college leader expressed other desires: "We need Elders at the college teaching about oral traditions and the legends. What are they and what do they mean? How do we follow them?" [21] It was also felt by respondents that Elders could help students to learn their histories, understand the Residential School experience and the implications it has on learning opportunities today. "They need to begin to reflect and to make the connections to themselves. Even though I didn't go to residential school, how does this affect me?" [22]

To further this community living support structure, many students and educational leaders expressed that the presence of an older person in the living environment such as an Elder or a house parent would be beneficial to learners. "We need to have an older person around to talk to. It's important. We need supportive role models while we're away at school." [23] For many students, especially during the evenings and throughout the weekends, such a leader could provide added support for students removed from their home environment. On a daily basis, it was felt by many that "Students need someone who is part of their culture that they feel confident to go and talk to." [24]

Students and leaders who shared their visions believe that Elders have the potential to provide unique supports for northern learners. Several models for elders in the educational environment exist in educational contexts across Canada. These programs, including Elders on Campus and Elders in Residence, require further exploration. Ultimately, Elders in the learning context could serve to remind young people of their heritage, their own journeys, and ultimately, their responsibility to the future. Through sharing a living environment, elders could serve as guides and role models for students in an informal manner as well: "They could be mentors on a regular daily life basis – instead of when students feel like they need it." [26]

She didn't mind going to residential school. The nuns taught her all sorts of new things. She learned to crochet, to knit, and to cut out patterns in order to conserve as much material as possible. She tells me that she missed her parents while she was away, but that the Priest from Rae would visit bring a voice recorder with him. She and her sister would talk into it and he would take it back home to share their voices with her parents. (She laughs as she tells me about the time that she asked them to send lots of money and candy the next time he visited.) She would fly to school each year in a bush plane. She loved the airplane rides, but tells me that the ride home was always her favourite.

Community Gathering: "People need to feel Welcome here"

Many people felt that the learning environment should be identifiable, accessible and welcoming, not just for current students, but for all community members. "We need a space that is identifiable and we need to heighten awareness of continued learning opportunities in the community. We need a place where students can drop in and explore their options." [27] Many felt that this could be achieved by combining learning spaces with familiar civic resources such as the public library, an internet café, restaurant, housing or other such resources that different types of people may use on a regular basis.

Large gathering spaces that could be shared between the educational environment and the city were also suggested by participants. A leader at Aurora College shares her vision for such a space: "It would be nice to have an exterior space in the centre of the building, a gathering place in the middle that is protected – like being in the womb." She also shared the various functions that it could serve in the life of the college: "It would be an integral part of college, a grounding part of the college. We could have fire pits, a place for the ceremonial fire, for the feeding of fire, to cook on, a place out there to have an altar, a place to gather." Another college leader explained how events in such a space could help to attract the broader public to the learning environment: "Film festivals could happen at the college if we had our own building. We could hold drum dances, ceremonies, tea dances, wakes/funerals – ceremonies of all sorts, and everybody could come."[28]

The incorporation of public spaces and services into the learning environment has the potential to play a pivotal role in the life of the educational community and broader City of Yellowknife. The educational environment wouldn't simply be a place for learning, but also a place for civic experiences. Community events and other common services could be housed within the learning context and could informally serve to expose new learners to the educational context. Potentially, this could help to decrease the fear factor for prospective students, and help to make the learning environment and opportunities that exist there more approachable and accessible.

Collaboration: "There is no way we could do this on our own"

Many participants expressed the desire to collaborate with other educational and civic resources within the City of Yellowknife. This collaboration would not only have several economic benefits but would also be of positive social impact for learners and the broader Yellowknife population.

Many respondents felt that great opportunities for sharing resources and collaboration could exist through locating all educational facilities in close proximity to one another. Akaitcho Hall, the former residence for out of town students at Sir John Franklin High School was identified as a potential site for a new post-secondary development in Yellowknife. Located in close proximity to elementary and high schools, it was felt that this location would provide the desired adjacencies for different levels of education. As noted by an educational leader: "All issues don't need to be met in the same building or program, but interconnectedness with other agencies allows for immediate referrals and communication. Someone else can provide childcare but it needs to be accessible." [29]

Beyond the development of this immediate educational core, several participants voiced various benefits that could come from linking post-secondary learning opportunities with existing resources of the city including public transit, local businesses and institutions. One community leader noted several opportunities for the college to link with other existing resources in the city: "What would happen if we attached the college to a school? Might this house the teacher education program?" He also noted vacant commercial space in a new building beside the local Stanton Hospital: "Could the nursing program be housed there?" [30] Ultimately, it was felt that these adjacencies could allow for effective teaching and co-operative work experiences links. In the future, these relationships could provide positive educational and economic benefits for all those involved. Not only would the adult learning experience be improved through hands-on training, but upon graduation employers would also have access to skilled workers and students with appropriate employment opportunities.

"There is no way we could do this on our own" noted a northern educational leader. "Our success is dependent upon the support of the community and collaboration with other organizations." [31] The expressed need and desire for community collaboration in northern educational endeavors provides unique insights for future developments. Potential collaborative efforts between northern businesses, institutions and students provide many exciting opportunities for the northern community.

An Inclusive Environment: "We will live side by side"

As the northern learning community is composed of a diverse group of students, both in age, culture and current life situation, many participants indicated that the learning environment should be a community place where people of all walks can engage and gather together. Many participants felt that in order to begin to address the challenge of cultural difference, interaction and exposure with those who differ from oneself is essential.

One participant, whose family has lived in Denendeh for generations, spoke of the responsibility of her people to share about their land and heritage with others: "We signed a treaty to say we will live among non-Dene people. We will live side by side. These treaties are peace treaties. We will share." [32] Therefore, she continued: "As Dene people, we need to help to educate all people who are here. They are here in Denendeh. You have entered our territory. It is up to us, the Dene people, to teach others about us and what we are about." [33]

For her and several other northern students, it was noted that formal education in the north is not only meant for the Aboriginal person to become better educated in the non-Aboriginal school of thought, but rather it is also intended that the non-Aboriginal person become aware of local histories, traditional lifestyles, and the challenges of indigenous peoples as history has evolved today. Several respondents expressed frustration at this notion of Aboriginal culture in the learning environment. "Its kind of reverse racism against white people" noted one student. "They don't have to learn about white culture." [34] Another student expressed that "(Culture) has absolutely no relevance to education. Culture is individual and not the responsibility of the post-secondary learning environment" [35] while another student noted that another reason for not learning about local culture is that "Not everybody plans on staying in the North." [36]

While the prospect of learning about local culture proved frustrating for some, for other students who were not of Aboriginal descent, it was felt that learning about the local culture was both necessary and a sign of respect. For one student, it was necessary because "We are living with Aboriginals, in Aboriginal Territory." [37] Other students noted the practical implications of heightened knowledge about local culture. For future work endeavors, notes one student, "It will help understand cultural differences in our eventual clients." [38] Other students voiced the desire to not only learn about local Aboriginal cultures, but also be exposed to the various other cultures that are prominent in the Yellowknife context. One college student noted that "I think it's important to have a wide variety of cultural learning and experiences – not just one culture."

Diversity in the northern learning context contributes another interesting layer to the northern education dialogue. Future developments for adult learning should explore

She's half Inuvialuit. Her parents met while her father was working in the oil industry in the Beaufort Delta Region. Her mom was from the local community and her dad from South Africa. Her parents split when she was a young child, she moved south with her father and her past was rarely discussed. For her, *"Tuktoyaktuk"* was simply a funny word to say when classmates asked her where she was from. It wasn't until she returned to her home community before college that she was forced to come to terms with her heritage. As a *"half-breed"* in Tuk she was ridiculed: *"They hate white people there."* According to the locals, the white people come in, take over their land, marry the local girls, and when they've had enough, they take their children, their money and leave the place. The locals are left with nothing – except an embedded hatred for whites.

He detests the North but tells me that he will stay there to pay off debt, save money, and secure a place in the RCMP. He tells me of the various challenges he'll rise to in the coming months as he moves towards his career goals. They include strength training activities, endurance exercises, and the infamous lie detector test: he's nervous about that one. I inquire about any need for knowledge of local culture. He makes some comment about the drunks downtown that he'll have to deal with. The name Neil Stonechild isn't familiar to him. He's heard about the residential school system but he isn't too interested in learning more. He tells me that it's not his problem.

opportunities for continued dialogue and relationship building among diverse cultures, and also seek to provide opportunities for both formal and informal gatherings for diverse groups of peoples. Ultimately, the learning environment should not encourage segregation amongst students but rather promote a spirit of co-existence regardless of their background.

Students in Transition: "Saying 'Welcome' is not enough"

It was identified that prior to the learning experience there are several necessary structures required. Simply saying "*Welcome*" and "*Come and Learn*" is not enough: students require supports to allow them to explore interests and access potential vocational opportunities before their learning experience commences.

Many educational leaders at both the high school and post-secondary level expressed concerns about providing the appropriate links between the two levels of learning. "Kids need help seeing the connections between school learning and real life stuff. We need to make the tie-ins." [39] According to teachers and educational leaders, at the high school levels, learners need to understand the connections between their current learning and future life and employment opportunities.

Many felt that students required exposure to opportunities in continued learning and how these new found skills can be meaningfully applied in their home contexts or elsewhere. Leaders voiced the importance of investing time and energy into youth personal development and interests. "High school students need an opportunity to do some Career Exploration and Personal Development: What do I like? What are my gifts? What are some of my options for continued learning? How might I contribute to my home community?" [40] Another concern was that often students are unaware of the realities of their choices: "There is this disconnect between where people are at and where they want to go." It was felt by educators that schooling needs to provide students more work experience so can gain balanced exposure to the working environment. "People need to understand all sides of a job. Right now, they see the money and say 'I want that job.'" [41]

Many expressed that students require direct hands-on learning and apprenticeship programs in order to explore the connections between their education and real life work opportunities. Developed to address such challenges, the Kimberlite Career and Training Centre in Yellowknife is committed to providing opportunities in the trades at an early age and offers programs to high school aged students in the areas of Construction Technology, Hairstyling, Electronics, Small Engine Mechanics, and CADD systems among various others.

She was depressed by the reality that she found when she returned to her home community last summer. She knows that somehow there must be a way to inspire young people to get excited about life, but she doesn't think that simply telling them to 'be positive' and 'dream big' is going to do the trick: "How does one begin to imagine anything different than all that they've ever known?"

Others expressed that summer camp opportunities also strive to spark an interest in trades at an early age and aim to help students make informed post-secondary education choices. One such program is the Miramar Summer Camp that is offered for Nunavut youth during the summer months. As there are currently no trades programs in Nunavut, each summer, a group of youth from remote communities across the territory, come to Yellowknife for the week to learn more about opportunities in the trades. The program exposes youth to opportunities in the trades at an early age, aims to spark their interest in continued learning and to help them to make more informed educational and career choices for the future, and also provides them with opportunities to meet other youth from across the north. As noted by a Miramar leader, the program helps students to make informed career choices as "they can discover during high school whether or not they don't like something." [42]

Upon acceptance into a field of study, participants also expressed that new learners require supports while they transition from their home environment into a new context for learning. As many students are leaving their families, friends and home environments for the first time, various orientation, financial and social structures are necessary to ensure appropriate adaptation into their new environment and continued success in their new learning context. One college administrator shared her vision for an orientation week for students. In the program, students from small communities could come to the school before the year begins for a 4-6 day program. The orientation week would provide prospective students with an opportunity to get to know other students and introduce them to the college environment. As well, the week would also help to orient them to the town and provide them with the basic functioning skills for life in community.[43]

The understanding that students require supports before their educational experience commences presents new challenges for educational developments. While the solicitation of information and exposure to opportunities can occur in the high school setting, the adult learning environment could also provide transitional resources for students. Programs that expose students to fields of study, the campus living and learning context, and the broader City of Yellowknife, all have the potential to contribute to smoother transitions into the post-secondary environment and a more successful learning experience. In considering these opportunities, the built environment to house such opportunities also requires further exploration.

The Community Learning Centre was nearing the end of its eight week cooking program. There were six students in the class, and each of them was progressing well. They were all getting 80s and 90s in their course work, and they all had jobs lined up upon completion. There was one particular student in the group: always friendly and outgoing, she was a mother, grandmother and a wife. A few days before graduation, she committed suicide. The whole community was shocked. A school administrator is sharing the story with me. *"When I heard the news,"* she chokes up, *"I closed my office door and just cried: Oh, how did we fail this poor woman? How could we have better helped her to cope?"* She shares about some of the data from research that other people have pointed her to that states that one of the biggest times of failure and distress is when students finish up and actually have to go out and practice what they have learned. *"This is the fear factor that we haven't yet figured out."*

Growing in Culture and Technology: "Strong like Two People"

Many youth, young adults and educational leaders who shared their perspectives spoke about education as the key that unlocks the door to the future where Aboriginal nations will be prosperous, self-determining entities. For many who participated, education in the contemporary context has two main purposes: to build and enhance their understanding of oneself as Aboriginal and northern people; and to prepare them for life in the modern world.

However, while many respondents shared this belief in education, many expressed the fear that they would lose their unique cultural identity through leaving their home context to engage in formal learning. Addressing this concern, an administrator at Aurora College reflected upon her experience working with such students at the college. She noted: "We are dealing with first and second generation learners in the formal schooling system. Most students' parents never got an education, and if so, it was at a low level." [44] She voiced that cultural supports for students and their families are vital in this context: "Families don't have an understanding of where their education should go. They are fearful of what its going to do to their culture. They are scared that it will destroy it." [45]

A teacher at Chief Jimmy Bruneau School in Edzo shared a similar account expressing several of her students' fears of leaving home to pursue further learning: "I'm hearing

from many students that there is a fear of losing their cultural identity if they get swallowed up into a place like Yellowknife and they won't be in close proximity to their families." Many students fear pursuing continued studies in larger urban centers: "How do they fit into the system there? The loss of culture is a big fear – it's all that students know." [46] Reflecting on the theme, a student at the Yellowknife Campus of Aurora College noted: "Being away from home keeps me away from my traditions." [47] For her, culture in the learning environment is important: "Not all people want to lose their culture because of having to go away for school." [48]

For many Aboriginal students in the formal learning context, cultural awareness and appreciation has been diminished by the importance of academic success. Recounting previous educational histories, a leader at the college noted that in the past, "The system wasn't supportive. Two cultures were clashing and all kinds of things were happening. Today, we need to make the environment more supportive of students needs so people can realize that it's okay to come to school and that it's a good place to be." [49] In many situations, student's unique heritages have been minimized and their cultural histories clouded by shame. Students expressed the desire for the opportunity to openly acknowledge their heritage and have an outlet for sharing and experiencing their culture.

While gaining an education in the contemporary context, many northern leaders and learners expressed a desire for students to be able learn about the values and beliefs of their people and what it means to be an Aboriginal person in the modern world. They expressed a desire to learn Aboriginal languages and celebrate their cultures through traditional practices and ceremonies. They expressed the desire to learn the values and wisdom that sustained their ancestors long ago, and to use these values and wisdom to guide their behavior in today's world. They expressed the desire to face the future as Aboriginal people.

Ultimately, participants expressed the desire for a learning environment that encourages and invites students to thrive both in their own culture and in their academic studies, and that invites students to not only to participate in the modern economic society, but also to provide future leadership and development in their home communities. "We need to turn to the words of Chief Jimmy Bruneau and become strong like two people" shared an Aurora College leader. "Learners need to know that they can be strong in both their culture and strong in technology. Once you get those two things joining - then fear of education with decrease." Ultimately, she voiced the need to work towards an education that doesn't assimilate but rather respects the culture of its students. "If we get to the point where we can get strong and healthy people that are really centered in their culture, then the rest of the problem will go away" she shared. "Then, we'll have people who don't feel challenged by education – it won't change their culture or who they are. Students will then be able to pursue education for what it can do for them and for their communities." [50]

She tells me that she had to develop a thick skin while she was away at university, and now that she's done she feels like she needs it just as much at home. *"It seems that when I speak my opinion now, there is always someone muttering that I've become a know-it-all snob or too good for this place."* She comments that in this way, education can still be viewed as a 'lose-lose' situation. It changes individuals and their social position in the community. They can never return home the same person as when they left.

Gleanings from Denendeh

Reflecting upon the stories of Denendeh, many common themes and concerns were identified however few pertained to the specifics of the formal adult learning environment. Instead of focusing upon visions and desires for teaching spaces, classroom sizes, teaching pedagogy or course content, participants shared their desire for a series of social, economic and cultural support structures that could potentially assist students during their continued learning endeavors. Ultimately, the vision for a holistic learning environment, where students could balance their newly acquired academic and technical knowledge with their cultural traditions and personal lives prevailed.

Throughout the stories, several visions for adult learning were presented. Alongside their academic developments, students expressed the desire to live in community with other learners, while leaders of various walks voiced the potential support structures that could evolve in congregate living environments. Students communicated their needs for childcare support during their studies and the struggles they are faced with while attempting to balance both the demands of family and school life. Reminding them of their connection to the past and responsibility to their future, participants expressed the need for elders in the learning environment and various supports that they could provide. They discussed the divide that continues to exist between home and school contexts, and how continued education might continue to develop to help Aboriginal learners truly become "*Strong like Two People.*" Specific to the Yellowknife learning context, participants voiced various ways that continued learning could better collaborate with existing resources. They shared how the learning environment could become a civic place that is a welcoming place for peoples of all cultural walks. They expressed the desire for an educational structure designed to enhance both the individual and collective livelihood of a northern people.

Ultimately, a myriad of challenges and areas for development in the northern learning realm were identified throughout the stories. Lying far beyond the scope of the thesis, these themes present various areas for northern educational evolution and growth, as well as a

series of civic considerations for the broader City of Yellowknife. As northern learners and leaders prepare for the coming seven generations, these ideals will require continuous discernment and assessment. Architecturally however, the stories of Denendeh presented various design challenges and opportunities. The stories contained architectural ideals of intergenerational learning, community living, and a place for gathering that welcomes and invites interaction. The stories of Denendeh conveyed the desire for an architecture that ultimately invites a rigorous academic agenda and a rich culture to thrive alongside one another.

Traditionally, northern learners were educated in the congregate and intergenerational contexts of their homes. Today, students who are pursuing continued learning away from their home community have voiced the need for a supportive living environment. Not merely a place to eat and sleep, students have expressed the desire for a living environment that allows them to live and gather with fellow students and allow both formal and informal support structures to flourish. Thus, moving beyond the assimilative nature of the residential schooling experience and the isolation experienced in present day learning contexts, the thesis translation returns full circle to the development of a contemporary home for learners: the student living environment.

Inspired by the voices of today, the design translation explores opportunities that exist for a contemporary student living environment in Yellowknife, Northwest Territories. To inform the development of an initial series of design ideals, traditional northern educational and dwelling environments are examined. These historic models contain lessons on how learning and living environments were traditionally developed in harmony with their physical and social contexts. They instill the values, wisdom and dwelling patterns of the past and serve as appropriate architectural models for future design considerations. Rooted in tradition, they provide appropriate cues for the development of a contemporary living environment for northern students.

MEMORY AND IMAGINATION
Building a Contemporary Northern Architecture

"Shelter to us then was not only a barrier from the elements.
It was also a place where legends and knowledge of life
were passed on from elder to youngster.
It was a place of learning."
- Cajeton Rich in *Out of Davis Inlet*

Building North

Buildings and settlement patterns are material expressions of the cultures that construct them. Like any other culture, deeply embedded in the works of Northern Aboriginal populations are assumptions about appropriate patterns of production and consumption as well as suitable forms of social, economic and political behavior. For contemporary designers working specifically in northern Canada, there is much to be learned from the Aboriginal predecessors of the region.

As Pierce F. Lewis outlines in *Axioms for Reading the Landscape*, architectural forms and landscapes of this population not only reveal particular dwelling patterns, but of equal importance, they speak directly to their environmental and cultural values:

4.1   Opposite

> "The basic principle is this: that all human landscape has cultural meaning, no matter how ordinary that landscape may be... Our human landscape is our unwitting autobiography, reflecting our tastes, our values, our aspirations, and even our fears, in tangible, visible form. We rarely think of landscape that way, and so the cultural record we have 'written' in the landscape is liable to be more truthful than most autobiographies because we are less self-conscious about how we describe ourselves. Grady Clay has said it well: 'There are no secrets in the landscape.' All our cultural warts and blemishes are there, and our glories too; but above all, our ordinary day-to-day qualities are exhibited for anybody who wants to find them and knows how to look for them." [1]

The original inhabitants of the north were nomads. Their dwelling structures were seasonal and temporary, and therefore, very few historic and culturally relevant forms exist in the present day northern landscape. This has left contemporary designers with little built precedence to draw upon or guide them in the development of a current northern built form for the region. Therefore, it becomes of utmost necessity that designers gain an understanding of the foundations and workings of these indigenous forms of the past. These constructions reveal that for indigenous populations in northern Canada,

architectural integrity came directly from their physical surroundings and the extreme seasonal dualisms: constant dark and incessant light, winter and summer, inside life and outside life, frozen and thaw that governed life upon the northern land.

In the study of traditional dwellings of Northern Canada we learn about more than just the vernacular architecture of the region: within this architecture lies a set of attitudes about stewardship and appropriate modes for inhabiting the earth, as well as relationships with a larger natural and cultural community. These relationships provide appropriate and guiding models for the development of new architectural ideals and a cohesive cultural identity for northern Canada.

Tradition and Development

In an exploration of Canadian northern vernacular, the diverging ideas of tradition and modernity come to the forefront. It provides a challenge for designers as they strive to mediate between past ideals and contemporary developments.

Philosopher Hans Georg Gadamer has devoted much energy to the conversation between the two fundamentally opposing ideas of tradition and development. As Gadamer notes, the opposition between these two ideas implies a continuous discourse in which the prejudice of a given cultural legacy has to be continually reassessed against a critique that stems from another *'mode of beholding'*.[2] In a personal study of Gadamer's work, Georgia Warnke develops the argument further:

> "We understand history not simply because we make it but also because it has made us; we belong to it in the sense that we inherit its experience, project a future on the basis of the situation that the past has created for us and act in the light of our understanding of this past, whether such understanding is explicit or not." [3]

What Gadamer has in mind is a '*fusion of horizons*' where one tradition becomes gradually modified in light of an '*other*'.[4] In this context, we are not called to recreate history, but rather, we are to use historical precedents as the generators of contemporary developments and architectural innovations.

Hasan-Uddin Khan[5] editor of the publication MIMAR – Architecture in Development[6], an influential quarterly that promoted discussion upon the questions of tradition and development, also reflects upon the challenge: "Tradition and modernity are merely two sides of the same coin and must be dealt with simultaneously. Building can not be a rigid dogma but a living, organic, ecological project. It is about continuity, based on memory, common sense, and experience, and is the foundation of invention." [7] According to Khan, architecture rooted in cultures and traditions must extend beyond their histories to

4.2 Tent at sundown, Wah Ti, Northwest Territories

reflect contemporary concerns and expectations. Rather than looking backwards, these new developments must strive to transform the models of the past in order to act as a catalyst for the future. [8]

David Chipperfield supports such a notion in *Tradition and Invention*: "We must resolve the possibilities of a shapeless future with the significance of meaning of established forms and experience. That which has been with that which could be: memory and imagination." [9] Therefore, in developing a contemporary architecture for northern Canada, the architect's role becomes not one of recreation, but rather one of transformation. Past theories are not merely answers upon which one can rest, but rather they become instruments for future design decisions. In these situations designers are not to rest upon such established ideals but rather, but as outlined by author Philip Drew in *Leaves of Iron*, they are called to "move forward and, on occasion, make nature over again by their aid." In this way, he continues, "Pragmatism un-stiffens theories, limbers them up and sets each to work. Being nothing new, it harmonizes with many ancient philosophical tendencies." [10]

Thus, returning to the exploration of Aboriginal works in Northern Canada, we are to focus upon the ideals embedded within the architectural traditions – not on the actual forms themselves – and learn how these ideals provided shape for the built form and northern livelihoods. In contemporary designs, these historic built forms are not to be mimicked, but rather, their roots - the driving ideals that are inherent to their beings – are to generate the development of contemporary works.

Our Life is Part of the Land

One of the most fundamental physical characteristics of traditional northern architecture is the relationship between the dwelling and the land. A building's relationship to the ground not only affects accessibility but it also articulates the psychological connection of a people to their immediate landscape. For the original inhabitants of the north, there was no need to distinguish between built form and the surrounding environment: The constructed world was a natural extension of the northern surroundings. In *Denendeh: A Dene Celebration[11]* by the Dene Nation, an Elder in Rae, Northwest Territories further explains this idea:

> "Our life is a part of the land. We live on the land and are satisfied with what we get from it. No one person owns the land. It belongs to all of us. We choose where we want to go and our choice is respected by others whether in the settlement or in the bush. We have no word in our language that means 'wilderness' as anywhere we go is our home." [12]

Despite this original connection with the landscape, the modernist movement and the 'post cultural' information age invited a separation from the land and ultimately embodied an ignorance of architectural context. Instead of turning to the surrounding landscape in the making of architecture, modernism opted to rely upon technological solutions to keep out the weather and instead provide 'state of the art' environmental controls. The 'placeless' nature of the built form resulted: the integrity of architecture as a local and cultural expression was compromised. [13] As F. Kenneth Hare notes in *Canada: The Land*, the natural world has been forgotten and instead of responding to the surroundings in which they build, Canadians "have bulldozed sensitivity flat." [14]

Today, designs for northern Canada, like the rest of the country have become dominated by artificial things such as air-conditioned, heated and soundproofed spaces. For the inhabitants that dwell within these spaces, their connection with the landscape and the exterior world has become purely a visual one: they relate to the land from a detached perspective. In many recent developments, buildings are physically divorced from the northern land. A clear example in this case is the large percentage of contemporary northern buildings that sit on wood or steel piles above the ground in order that air can circulate between the heated building and the permafrost below. While this solves the issues of thaw bulbs due to the melting of permafrost[16], it creates a fundamental separation between the act of dwelling and life on the land: a condition traditionally foreign to northern life.

Contemporary northern architectures should strive to celebrate the relationship between the interior dwelling experiences with that of the surrounding physical context. In this way, the architectural conception of exterior landscape becomes less that of scenery, and more that of a dynamic and thriving dimension of the total living experience. Functional fluidity of both inside and outside activity is vital: these two dwelling experiences are interwoven.

4.3   Dogrib Skin Tent, Wekweti

4.4   Thule Whalebone House, Baffin Island

4.5   Iglu, Central Arctic

4.6   House, Kimmirut

4.7   House, Iqaluit

Building Materials

Learning from the Past

Traditionally, materials were derived from the immediate context of the dwelling, and with ingenious creativity were employed to construct a shelter to meet the needs of its inhabitants. In locations where trees were present, wood was commonly used as a structural element for both summer tent structures and winter dwellings. Beyond the tree-line however, northern dwellers were forced to explore the opportunities that existed in the rarest of building materials: ground cover, skeletal structures and animal skins.

The Baffinland Whalebone House is a notable example as it was composed of animal skeletons and skins, found stones and various ground coverings of its immediate Baffin Island context. Across the north, various materials of the land including moss, lichens, snow, and animal skins, served as insulating devices in many winter homes. Caribou skins served as an insulating shell for the Dogrib Caribou Skin Tent. The Iglu was composed completely of snow, a readily available resource. The Mackenzie Delta Wooden House operated in similar manners to both of these dwellings during the winter months, but was composed of wood, an abundant material in the western arctic.

North

4.8   Northern Tree Line (Author)

4.9 Snow

4.10 Trees

4.11 Skins

4.12 Bones

4.13 Ice

4.14 Stones

4.15 Driftwood

4.16 Moss, Lichen, and Ground Cover

Traditional materials, such as sticks and bones, were portable and could easily be transported to the building site. Other materials such as snow used in an iglu, were flexible and could be manipulated on site according to the builders' needs. Many materials served multi-purposes that were each vital in the daily life of the building. Animal skins with fur intact warmed the living and sleeping spaces of winter dwellings, or could be stripped to serve as a waterproof membrane for summer dwellings. An ice window above the door of the iglu brought light into the dwelling and also emitted light outwards upon northern landscape. Extraneous materials were not incorporated into the design for decoration, but rather the purpose of each material was clear. Structure, envelope, insulate, or to provide light, each material played a crucial role in the life of a building.

Contemporary Applications

In the present day context of the Canadian north, the traditional commitment to the creative employment of portable and flexible materials invites interesting opportunities for future architectural developments. It denotes an ideal of innovative use of the earth's resources and seeks to explore the opportunities that arise when one explores the possibilities that exist within common materials.

The exploration of functional and flexible materials such as corrugated iron serves as an interesting and appropriate example in this case. Used as an exterior finish in several projects by Yellowknife Architect Gino Pin, including the Kiilinik High School in Cambridge Bay, Nunavut, corrugated iron serves as an appropriate northern material. Ideal for its light, strong, and versatile nature, corrugated iron is also noted for its properties such as its economy, fineness of line, and the natural looking profile which imparts stillness to the sheet. It doesn't merely protect the building envelope but rather, like water, it also has the property of reflecting the quality of daylight as well as moon and starlight of the long northern winters.[17]

The re-use of existing buildings on the northern landscape contributes an interesting dimension to the dialogue of material usage in the north. The practice of building re-use in the north dates back to those who resided in an iglu during the winter months, moving from camp to camp as necessary. Throughout the winter, when it came time for groups of hunters or entire communities of people to move onwards to new territories, individual homes or entire settlements would be abandoned, and then become inhabited by the next groups to pass through the area.

In the capital city of Yellowknife, Northwest Territories, several buildings sit abandoned in the downtown core. Many of these structures have been abandoned due to new developments in the suburbs of the city, while others, simply unable to withstand the extreme climate have become prone to decay. In the contemporary northern context where imported construction material prices and labor costs are high, these building shells become the present day found objects in the landscape. They are readily available

4.17   Kiilinik High School, Cambridge Bay, Nunavut
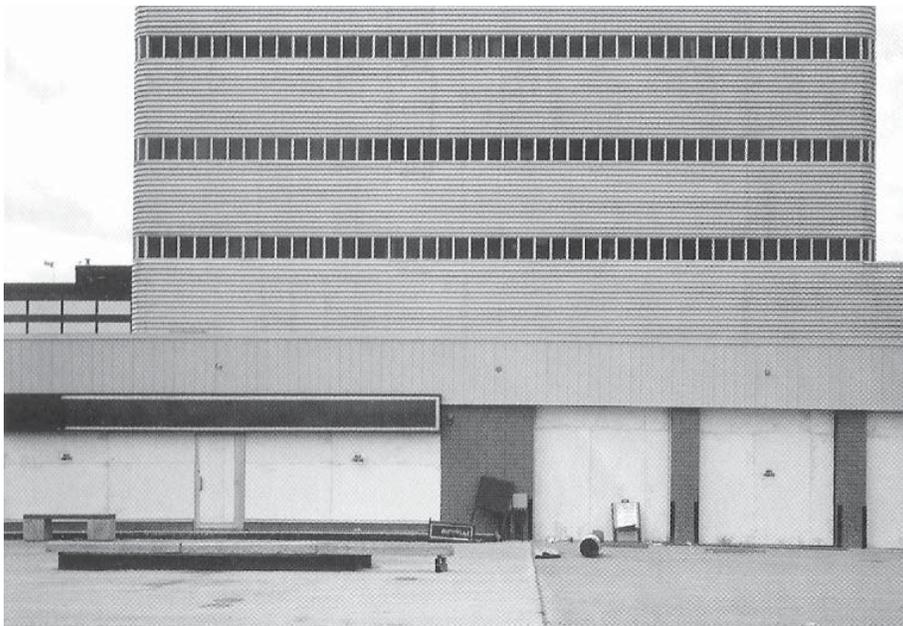
4.18   Abandoned Yellowknife gas station, Yellowknife, Northwest Territories

materials waiting to be utilized. When creatively reconceived, there is the potential for them to become re-inhabitable and thus serve as appropriate opportunities for urban revitalization efforts.

While it is impractical for contemporary developments to retrieve all of their building materials from the immediate landscape, the past does provide several key lessons for material usage in present day developments. Lightweight, flexible, and durable materials with high insulating values are ideal northern materials. Northern materials are multi-purpose: each material should be exploited to serve various roles in the life of a northern building.

4.19

Traditionally Tanned Hides

One of the most basic raw materials of the Dene is the traditionally tanned moose and caribou hide. It is a unique material which cannot be reproduced by industrial tanning techniques. It is strong, lightweight, form fast, easy to sew, warm and of characteristic snow white when bleached, or rusty brown when smoke treated for longevity. Tanning hide in the traditional way requires much skill and patience. First the hide is fleshed, scraped of hair, washed and stretched out to dry. Later the hide is scraped again, soaked and scraped again before being wrung out and dried. The next step in the tanning process is the arduous task of working the hide to a supple softness with a large bone scraper. Only then is the hide ready to be browned over a smoky fire.

- From *Denendeh: A Dene Celebration*

4.20   Stonecut by Native Artist Joe Talirunili illustrating summer and winter architectures:
      A skin tent and hunting by kayak in summer, and a snow house and dog team in winter

Seasonal Inhabitation

Learning from the Past

Originally, northern peoples lived on the land and were maintained economically, spiritually, socially and politically by a seasonal round of activities. Likewise, their dwellings also adapted according to the changing climate and immediate context. Throughout the cycles of the year, various forms of dwelling and modes of transportation emerged to support this movement of cultural groups as they canvassed the land in search of food and sustenance.

Traditional dwellings found in the Mackenzie Delta region outline how architecture responded to these seasonal changes and developed in accordance to materials available in the immediate context. In the winter months, dwellings were large in order that communities would dwell together within a central Wooden House. Excavated below ground level, these structures operated much like an iglu. The structure was composed of wood while turf and snow from the land provided the insulation and the building envelope. During these long winter months, all cooking, storage, living and sleeping areas were housed within the communal dwelling.
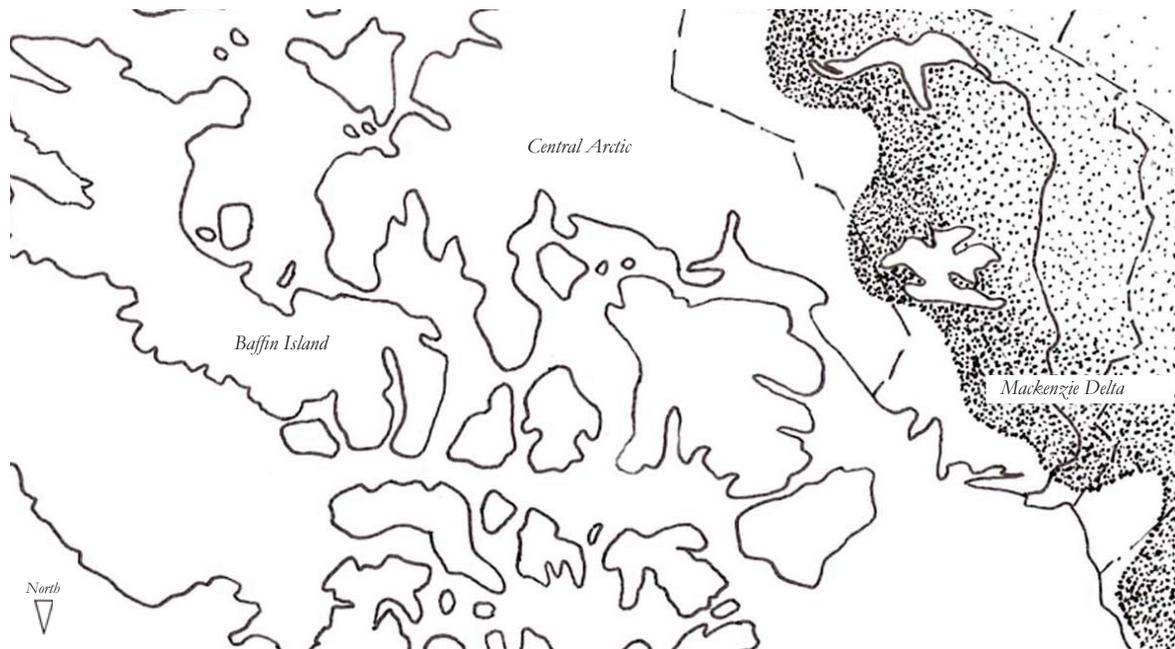
4.21 Northern Regions and Dwelling Types (Author)
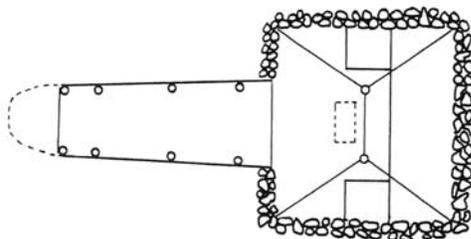
4.22 Baffinland Winter Stone House Plan
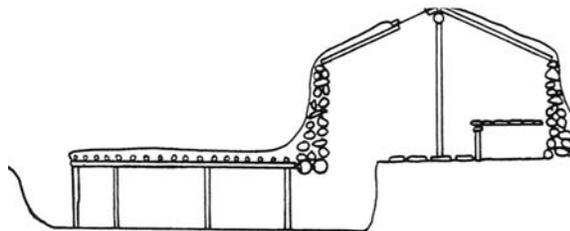
4.23 Baffinland Winter Stone House Section
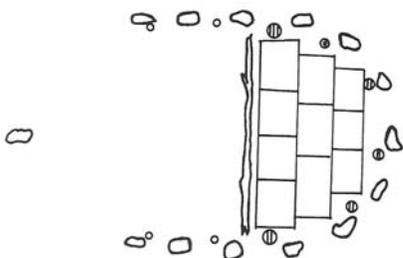
4.24 Baffinland Pole Ridged Tent Plan

4.25 Baffinland Pole Ridged Tent Section
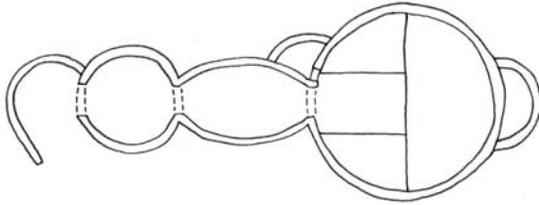
4.26 Central Arctic Snowhouse Plan (Author)
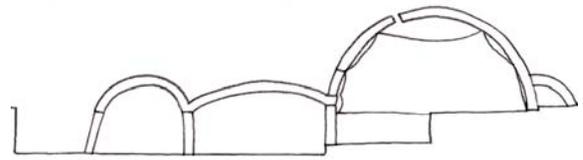
4.27 Central Arctic Snowhouse Section (Author)
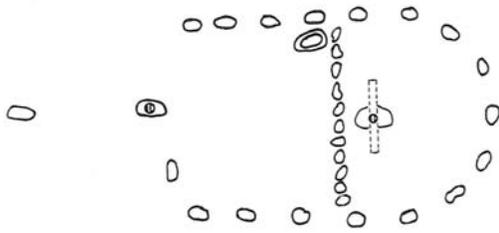
4.28 Central Arctic Thong Tent Plan
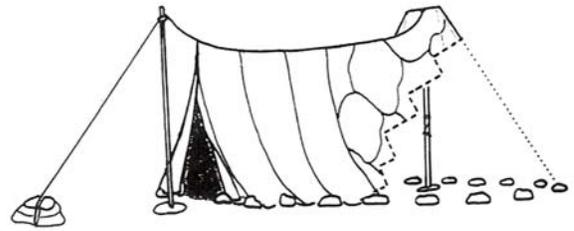
4.29 Central Arctic Thong Tent Section
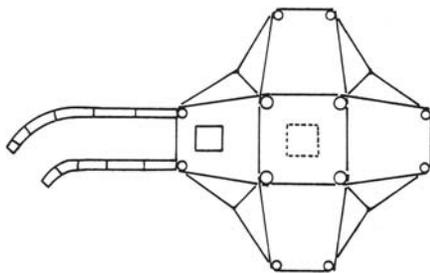
4.30 Mackenzie Delta Wooden House Plan
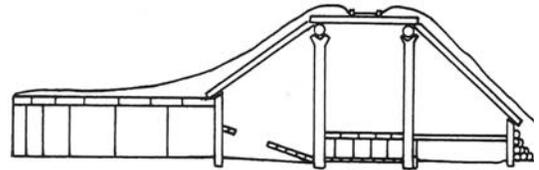
4.31 Mackenzie Delta Wooden House Section
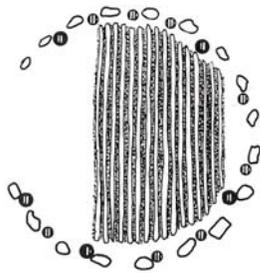
4.32 Mackenzie Delta Conical Tent Plan
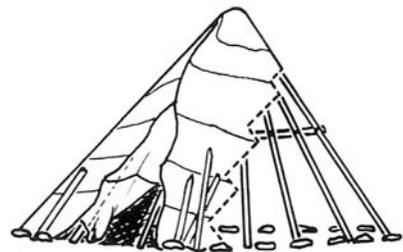
4.33 Mackenzie Delta Conical Tent Section

4.34   Above: Arviat Tourist Centre,
          Arviat, Nunavut

4.35   Right: Adaptable Exterior Wall,
          Closed and Opened (Author)
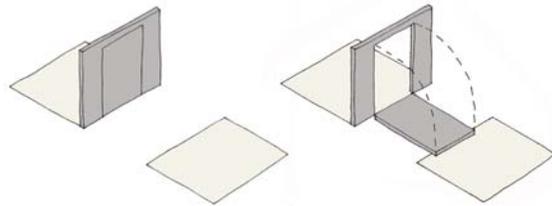
During the summer months, the people of this region dwelled in short pole conical tents, composed of wooden structures and animal skins covers. The shelter was primarily for sleeping and storage. All other activities occurred on the landscape beyond.

Across the north, lifestyles were altered in accordance to the changing seasons. In the Central Arctic, the people of this region dwelled in Iglus during the winter and tents during the summer months. In spring and fall, they lived in transitional dwellings called "*Qarmaq*." [18] These inter-seasonal dwellings were composed of the remaining Iglu walls and tunnel entry and the roof was spanned with skins supported by an interior pole. Inter-seasonal dwellings were also found in the Eastern Arctic as inhabitants transitioned from their winter sod homes to summer tent structures.

Contemporary Applications

In considering these dwellings in a contemporary context, it is not the actual traditional nomadic forms that are of greatest architectural importance, but rather the notion that with the changing seasons, the dwelling patterns of groups of northern peoples were also altered. Traditional dwellings responded to the changing seasons. Spaces contracted inwards during the winter months and energy was focused to the interior environment,
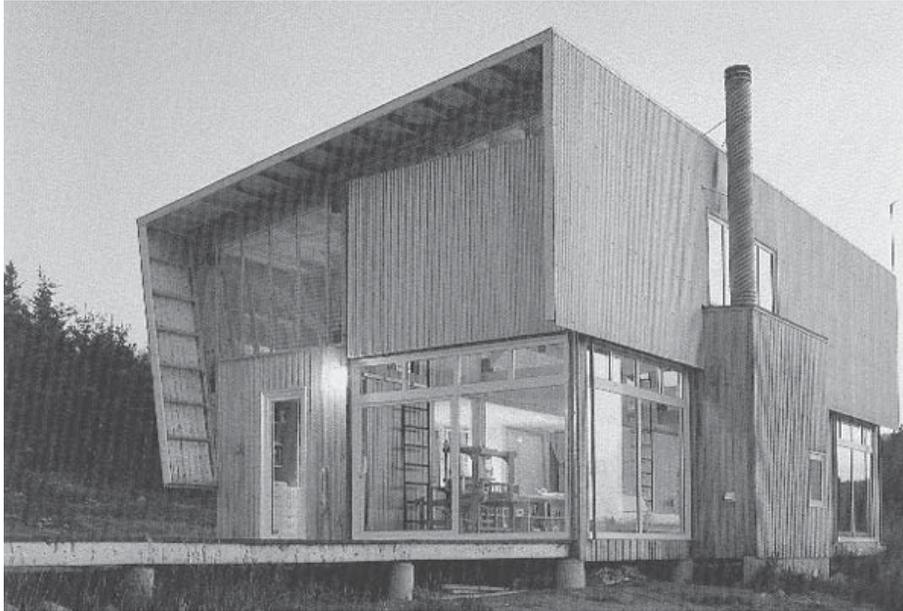
4.36   Above: Danielson Cottage, Smelt Brook, Nova Scotia

4.37   Right: Adaptable Exterior Wall,
          Closed and Opened (Author)
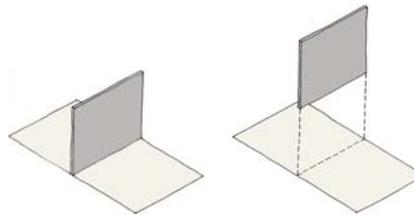
while in the summer, the building opened up and the surrounding landscape became the living context.

Swedish Architect Ralph Erskine has explored concepts relating to design and building in the cultural and physical climates of various global northern contexts. He has also devoted great energy to reflection upon architectural responses to the seasonal dualities that the north provides. He wrote of the importance of an adaptable architecture and states that houses and towns "should open like flowers to the sun of spring and summer but, also like flowers, turn their backs on the shadows and the cold northern winds, offering sun-warmth and wind-protection to their terraces, gardens and streets." [19]

Gino Pin, an architect in Yellowknife, Northwest Territories, explores this idea of seasonal inhabitation through the adaptation of the building envelope in several of his works. For a tourist centre in Arviat, Nunavut, Pin honored the extreme changes in the northern seasons in the design of the building envelope. During the summer months, a portion of the exterior wall folds down to provide a walkway and physical access to the building. In the winter, this element retreats back into the building envelope, and serves as another layer of thermal insulation during the cold winter months.

The adaptable structures of Brian McKay-Lyons, a Halifax based architect, offer several appropriate lessons for northern builders. While the Danielson Cottage located in Smelt Brook, Nova Scotia, enjoys views of the eastern Canadian coast, it is also equally exposed to harsh North Atlantic weather. To respond to these dual climatic realities, MacKay-Lyons designed a building envelope and floor plan that could be altered with the changing seasons and climates. As described by the MacKay-Lyons: "The building's skin is chameleon like, with interior and exterior sliding doors acting as 'eyelids', protecting the house and its inhabitants from the harsh north Atlantic climate." [20] In good weather, the great room on the main floor can be opened, dissolving the boundary between inside and outside, while in cold winter conditions, the entire box is shut down and the building's inhabitants retreat to a heated service core. Thus, throughout the changing seasons, the building responds and transforms from a summer viewing platform to an interior haven protected from the extreme wind, rain and winter cold.

Traditional northern architecture was an adaptable architecture that altered with the extreme dualisms of the northern seasons. Like the indigenous precedents of the northern landscape, contemporary architectural forms should also adapt both spatially and environmentally with the annual dualities that the north presents. The expansion and contraction of the programmatic spaces and the thermal layering and peeling away of the building structure, all contribute to an architecture of adaptability that constantly redefines the interior and exterior dwelling experiences, and thus the livelihoods of the building's inhabitants, according to the changing seasons.

Passive Controls

Learning from the Past
Traditional dwellings such as the Iglu did not oppose their natural surroundings, but rather they were designed in accordance to natural features of the site and an understanding of their immediate climatic context. Building section, orientation, envelope composition and program organization all responded to the natural conditions and invited ideal conditions to prevail when necessary while blocking out undesirable forces.

Before construction of the dwelling commenced, site selection occurred and building orientation was established. For those who dwelled in snow houses,

> "After the sea ice had frozen, they began to cluster their Iglus out on the ice on east or south facing drift slopes to avoid prevailing winds. East or south orientation of the individual houses kept snow from covering the ice window or ventilation nose of the Iglu. The passageways were turned away from incoming drafts. If built on land, the dwellings were nestled into the protective lee of cliffs or faced the beach." [21]

These choices had critical impact upon the project and helped to shield the inhabitants from the extreme winter weather.

4.38 Iglu Community
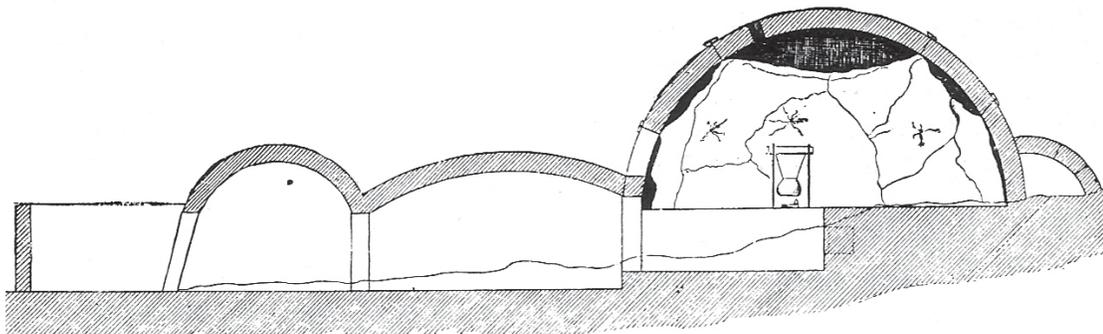
4.39 Iglu Section
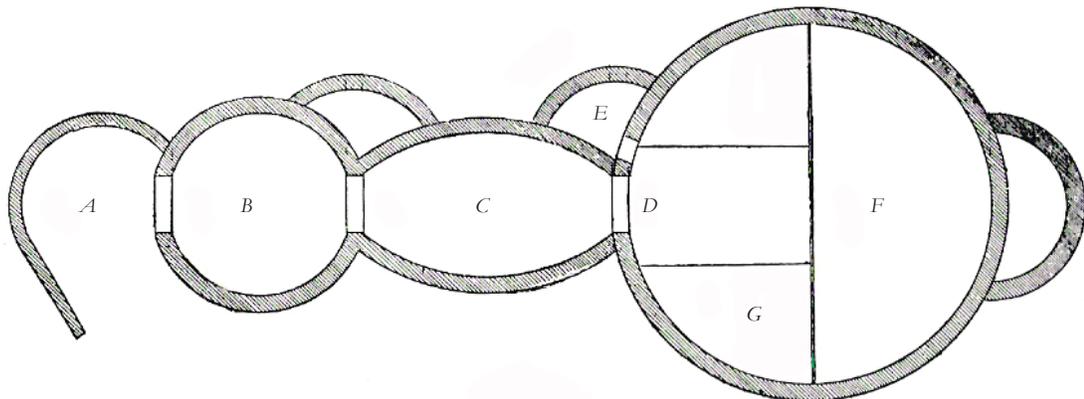
4.40 Iglu Plan: Curved wall to prevent wind and snow from blowing directly into the house (A); Entrance dome (B); Elliptical domed passage (C); The door to the main room is low, and the floor of the main room is approximately nine inches higher than the passage floor (D); Storage dome (E); Sleeping and Living Platform (F); Storage for lamps, food and other goods (G)

As outlined in the building section of the winter snow house, many natural environmental controls were traditionally incorporated into the design of vernacular dwellings. In the Iglu, the entry space vestibule was recessed into the ground creating a cold trap and forcing all cold air from the exterior to fall instead of entering the main living space. Once inside the main body of the structure, the living, sleeping, and storage platforms were elevated, and warm rising air moderated this space. All moisture from cooking and the inhabitants of the building escaped through a small vent hole over the cooking area.[22]

The building envelope of the Iglu was layered: built into the snow covered landscape, its parabolic form not only served structural roles but also operated as a snowdrift. As it became covered with more snow throughout the winter, an added layer of insulation was provided. On the inside of the structure, if necessary, a skin lining could also be hung from the structure to create an air trap and provide added thermal value for those housed within.

Contemporary Applications
Like their traditional predecessors, there are various ways that contemporary architectures can be developed to shield themselves from harsh arctic forces while allowing ideal climatic conditions to prevail.

Where possible, buildings should be oriented with their greatest exposure to the south and smallest to the north. Entries that are oriented away from prevailing winds and include air lock vestibules to mediate between interior and exterior are two other strategies that can be employed to maximize natural environmental conditions. Building sections can be designed to allow warm air to rise to living spaces and cold air to drop to cooler spaces.

Specific to this northern context, where the dualities in seasonal light are extreme, opportunities exist in envelope composition for natural daylight when window size and placement in the building section is given due attention. Orientation, location of windows, and the use of natural, passive and user controlled shading devices are the primary components in the balance of day lighting, heat gain and glare with an unhindered visual connection to the landscape beyond.

Designed by Kobayashi Zedda Architects of Whitehorse, Yukon, the Mayo Replacement School, in Mayo, Yukon provides an appropriate example in this situation. The Mayo school is an example of controlled southern exposure that works to combine a connection with the exterior landscape alongside the natural lighting of spaces and surfaces. Specifically, the building contains a highly articulated section including the use of ample clerestory windows to allow natural daylight to penetrate throughout the building. As well, south facing shading devices reduce undesired solar gains and glare during the summer months.[23]

The passive controls of traditional northern dwellings present several opportunities for natural approaches to thermal protection in contemporary developments. Building orientation, organization and section can all contribute to the interior experience of a building. They each work together to invite ideal climatic situations to prevail while blocking out undesired forces.

4.41 Mayo Replacement School, Mayo, Yukon

4.42   Main Foyer, Mayo Replacement School

4.43   Exterior Shading, Mayo Replacement School

A Light upon the Landscape

Learning from the Past

Composed out of necessity to protect communities of people from the elements, a clear communal architectural language and approach to living in the north evolved. In the construction of an Iglu, an ice pane over the door emitted light from the structure outwards to the landscape and served to guide travelers safely home during the long dark winter. Often during the long winter months, these glowing 'way-finding' windows scattered upon the landscape were the sole means of distinguishing a community from the natural landscapes in the arctic night.

While primarily serving the practical function of survival in the harsh context, this design element along with the light that was emitted through the Iglu's building envelope became poetic architectural masterpieces upon the northern landscape. Winter's dim light shone through the structure "in the most delicate hues of verdigris green and blue" [24] and radiated its interior warmth outwards upon the landscape beyond. Reflecting upon on the architectural quality of this winter snow house and its relationship to the northern landscape, Rudy Wiebe notes in *Playing Dead: A Contemplation Concerning the Arctic*:

> "The purity of the material of which the house was framed, and the elegance of its construction and the translucency of its walls, which transmitted a very pleasant light gave it an appearance far superior to a marble building and one might survey it with feelings somewhat akin to those produced by the contemplation of a Grecian temple reared by Phidias (the designer of the Parthenon). Both are triumphs of art inimitable in their kinds." [25]

Contemporary Applications

Like the traditional Iglu, contemporary northern forms such as the BoOl Tango Building in Malmo, Sweden designed by AB & Moore Ruble Yudell Architects & Planners have the potential to act as beacons upon the landscape. Composed of thirty housing units focused around a vibrant exterior courtyard, the interior living spaces in the Tango building are housed in glass towers that project onto the exterior courtyard space. While during the warm summer months, these glass envelopes can peel away to connect interior and exterior life, during evenings and the dark winter months, the glass towers glow like a series of lanterns in the garden when their screens of wood lattice are lit from behind. During these times, the towers operate as beacons: life held within is emitted outwards and becomes a light upon the landscape.

While sheltering their inhabitants from the harsh northern landscape, architectural beacons project outwards a visible sign of the culture and community gathered within. Ensuring that their inhabitants do not become overwhelmed by the landscape, these architectures act as 'way-finder's and help to guide their inhabitants back home while illuminating the life housed within.

4.44   The Iglu: A Light on the Northern Landscape
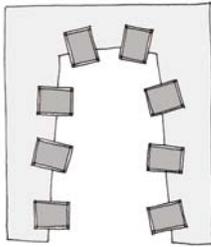
4.45   Courtyard Plan (Author)   4.46   BoOI Tango Building Courtyard, Malmo, Sweden

4.47   In the dark winter days, the lights of the interior living spaces shine outwards
         upon the exterior courtyard

Community Building, Community Buildings

While the harsh dualities of the landscape clearly influenced the evolution of traditional northern architecture, the landscape and climate was also pivotal in the development of many strong and thriving Aboriginal cultures in Northern Canada. Traditional northern architecture was community architecture. In its harsh environmental context, the built form provided the place where kinship and culture could thrive. Reflecting on the importance of community in the northern environment, Glenn Gould notes:

> "North shows you how much other people mean to you, how important community is. North is so vast, immense, that it diminishes you and you realize that you are still here and have companions. Community (in the north) is a matter of life and death." [26]

Dwelling within these community based environments was integral to survival on the land. Social interaction facilitated daily life during winter months on the landscape for indigenous peoples. Operating at various scales, traditional architectural forms evolved out of this basic need to living together as extended family groupings and as a broader community. Throughout the year, northern architecture provided a place where communities of people could gather, dwell and grow together.

Congregate Living

Learning from the Past
The long and cold days of winter provided the appropriate time for the coming together of families and communities. Multiple families, usually two, would share a living unit or a single snow house. Within each of these dwelling units were a series of multi-purpose spaces that were shared by the families. A sleeping platform occupied about half of the floor of the dwelling and was shared by the families. During the day, it served as the main living space and children's play area, and during the nighttime hours, it acted as a sleeping platform. Two side platforms housed the soapstone lamps and were also used for storage and food preparation. Wooden pegs or poles were driven into the floor and walls and provided hanging storage. Additional shared storage was located beneath the sleeping platform. [27]

Out of economy families would join together to share dwelling units and hunting surpluses. As kin and visitors congregated or joined other hunting camps, snow houses could expand by the addition of extra domes, or contract by blocking units previously inhabited domes from the main structure. The resulting forms for community architecture served both economic and social functions during the long winter months.

4.48   Snow house interior

Upon visiting a snow home in the central arctic in 1950, Anthropologist Edmund Carpenter was also inspired by the Iglulik snow house and noted the nature of an Iglu interior:

> "Visually and acoustically the iglu is 'open', a labyrinth alive with the movements of crowded people. No flat static walls arrest the eye or ear, but voices and laughter come from several directions and the eye can glance through here, past there, catching glimpses of the activities of nearly everyone."[28]

Individual family groups were not segregated into private residences rather an open concept approach to living provided its inhabitants with continuous opportunities for interactions with one another. While men were out on the land hunting during the winter days, women and children provided each other with company within the structures, and were able to share in household responsibilities including tending the soapstone lamp, cooking, meal time, and childcare duties. Homes, resources and entire winter livelihoods were shared within these winter dwelling complexes.

Contemporary Applications

The multi-family arrangements that northern peoples traditionally resided in sustained them both socially and economically during the long and harsh winter months. In the contemporary context, a shared living environment could also serve similar purposes and allow mutual support networks to grow amongst communities of people. Providing inhabitants with a safe and supportive living environment, a shared living environment could help to diminish feelings of isolation and invite social and economic networks to flourish throughout the changing northern seasons.

4.49 *Left: Erindale Student Residence,*   4.50 *Right: Urban Renaissance Development,*
       Mississauga, Ontario   *Boston, Massachusetts*
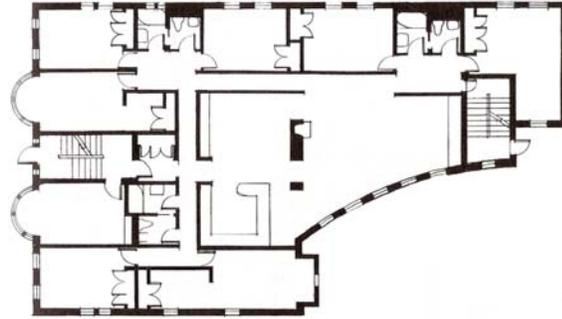
On an economic level, a congregate living environment would also allow for shared responsibilities amongst families, parents and children within the home. In *New Households, New Housing* some of these economic aspects of congregate living are outlined:

> "A shared environment encourages peer support and pooling resources. Household tasks can be done cooperatively and traded off, giving more time to single parents for job development and life improvement. Sharing also provides an informal basis for spontaneous cooperation in babysitting." [29]

In the development of shared living quarters for the contemporary context, a series of social housing developments present various spatial and programmatic opportunities. Each development contains varying scales of private and communal space for those housed within the development and elements for consideration in future developments.

Designed by Baird Sampson Neuert Architects of Toronto in joint venture with Fleiss Gates McGowan Easton Architect, the Erindale Student Residence at the University of Toronto's Mississauga Campus serves as an appropriate example in this situation. Designed for first year students, many of whom were away from home for the first time, the architects sought to create a smaller scale network of supports for students by arranging them in communal household units. These shared spaces were intended to support casual contact with other students and provide the space for hosting gatherings of friends and neighbors. Thus, in this communal living situation, the private bedroom quarters are the only personal realm for the inhabitants. Housing four students per apartment, all other facilities including living, kitchen, dining and bathroom spaces are shared by all of the inhabitants.

In a proposal for the Urban Renaissance development designed by Notter Finegold and Alexander Architects and located in Boston, Massachusetts, a greater degree of privacy is allotted to the inhabitants of the shared dwelling intended to be shared by three family

4.51 Left: Lee Goodwin Residence,   4.52 Right: Sarah P. Huntington House, New York
Bronx, New York
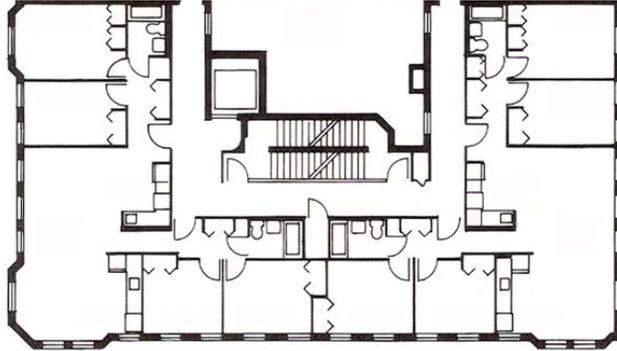
groupings. While all families share common public spaces including a communal dining, kitchen and living area with visual access to an outdoor children's play space, each family grouping is allocated its own private zone within the unit including private bedrooms and a bathroom.[30] This balance between open concept and private spaces allows for independent lives in the private family zones that are enhanced by shared communal spaces to promote peer support.

In another situation, the Sarah P. Huntington House apartments are designed to provide each family grouping with their own entrance doors, bedroom, bathrooms and kitchen space. Designed by Stephen Campbell and Roberta Washtington, the shared units are comprised of two private wings joined by a common dining and living space. While each of the noted developments offers varying degrees of private and shared lives, the Sarah P. Huntington House maximizes private space for each family grouping while "taking advantage of the emotional support and opportunity for child supervision afforded by shared living." [31]

Like traditional dwellings such as the Iglu that could spatially fluctuate as peoples gathered and dispersed in traditional winter communities, contemporary living spaces should also be flexible in order to meet the changing needs of a multi-family community. Developed by Phipps Houses, a nonprofit organization providing transitional and permanent housing for women in need, the Lee Goodwin Residence in the Bronx, New York contains a series of "swing" rooms shared between adjacent apartments. Accessible from both apartments, the adjoining room can be utilized by either of the connected apartments. The flexible space serves a variety of purposes: for a larger multi-family grouping, it can provide an additional bedroom, private study space or a play area for children. If desired, it provides the inhabitants of the two separate units with a mutual living space. Ultimately, it allows the dwelling space to accommodate the changing needs of its inhabitants.

Traditional communal dwellings present several social values that are still appropriate for today. An open concept multi-family dwelling experience allows for lives to be shared with a broader community, and presents the inhabitants with a series of social and economic benefits on a continuous basis. Consisting of both private and public realms, inhabitants can retreat into the privacy of their family groupings while benefiting from the support structure that the broader environment provides. Flexible spaces within the complex accommodate the changing spatial needs of the diverse community.

Connected Communities

Learning from the Past

Within traditional winter settlements, Iglu domes were often located in close proximity to one another and were connected by a series of short, interior passageways. Described as 'wonderful winter havens', these connectors allowed individual domes to become a part of the broader context and formed a fluid "little hive of human beings comfortably established below the drifting snows of winter" [32] that ultimately served to link entire communities together during the cold winter months.

A group of Arctic Scholars have documented a variety of these community living environments that were each developed in accordance with the specific spatial and programmatic needs of their respective communities. While each cluster was unique and was built according to unique community needs, many of the documentations contained a series of common elements including a shared entrance sequence, interior passageways and a communal space shared between several households. As well, many Iglu communities shared a series of amenity areas including storage spaces, as well as separate spaces for clothing, meat storage, as well as travel dogs and harnesses.

While these spaces allowed for sheltered passage throughout the complex, ultimately they served as large interior gathering spaces during the long winter months. Sheltering their inhabitants from the harsh northern climate, these shared spaces allowed winter living to extend beyond the household unit and promoted interactions and shared lives with a broader community. They were the physical connection between individual households and a broader community.

Contemporary Applications

As noted in Christopher Alexander's book *A Pattern Language*, "The simple social intercourse created when people rub shoulders in public is one of the most essential kinds of social "glue" in society." [33] While harsh northern climates can isolate their inhabitants, interior access to community life invites movement and socialization during all seasons of the year. Beyond the household, social interaction with members of the broader community continue to play an important role in the lives of winter communities.
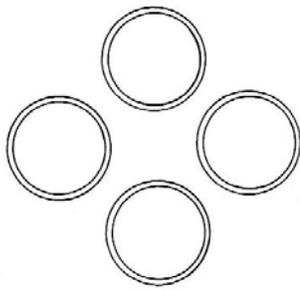
4.53 Four separate Iglu dwellings, 1960
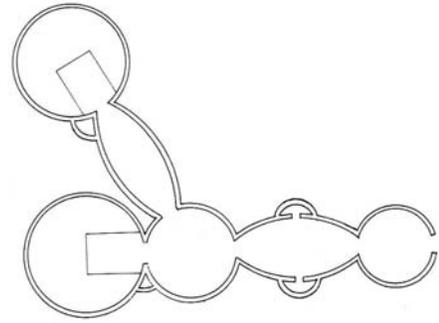
4.54 Two Iglus sharing entrance and protected access to storage units, 1960
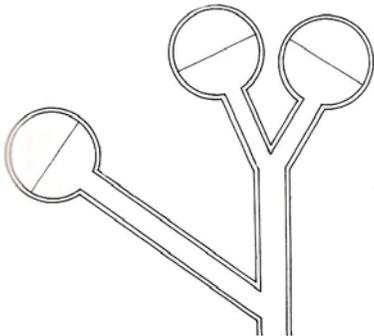
4.55 Three Iglus sharing an entry tunnel, 1914
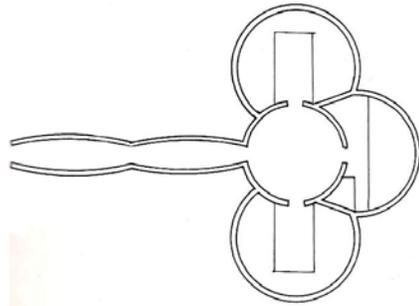
4.56 Three domestic Iglus situated around a common feasting room, 1823
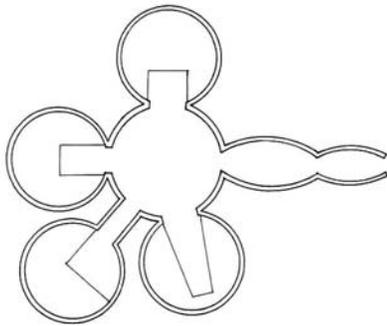
4.57 Four domestic Iglus leading into a domed gathering hall, 1922
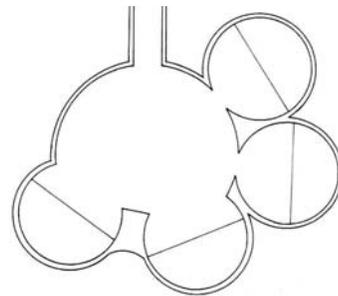
4.58 Iglu complex with four living chambers opening into a central dancing house, 1915
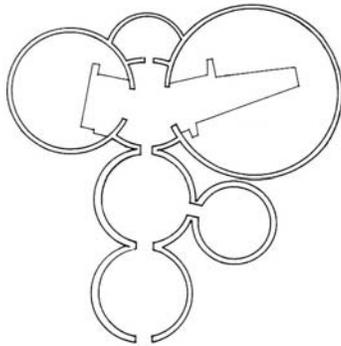
4.59 Iglu complex with two dwelling domes, rooms for clothing, dog harnesses, a meat locker, and a dog kennel, 1922
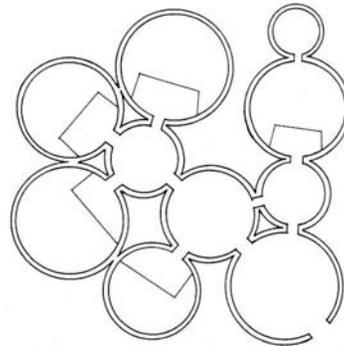
4.60 Five domestic Iglus sharing an entry, gathering area, and storage spaces, 1922

As explored in the works of various contemporary architects and developments, a vibrant interior environment including interior circulation routes, shared common spaces and the entry spaces to individual units can all be developed to encourage connection and interaction between community members throughout the changing seasons. In the Nya Bruket housing development designed by Architect Ralph Erskine and located in Sandviken, Sweden, multiple household units are arranged around a series of exterior courtyards each with their own common building for use by the entire courtyard community. Equipped with laundry facilities, a food preparation area and a multi-purpose space, these common buildings can be used for a variety of communal purposes including formal meetings, meals and celebrations, or on a daily basis as an indoor play area for children of the community. They provide the shared interior focal point where a series of households can gather together and community relationships can develop. While a common space that is accessed from outdoors is not ideal in the northern context, a multi-purpose gathering space that is shared between units and accessed by interior means could provide a place for northern residents to gather at a scale slightly broader than the individual household.

Beyond designated gathering spaces, interior circulation routes can also serve as a primary social space in large dwelling complexes and act not just as places of passage, but also as vibrant components for the social life of a community. In the Jystrup Savvaerkert, a Co-operative Housing Project located in Jystrup, Denmark, an interior street not only serves as circulation space but also as a multi-purpose gathering space for the co-operative living community. Designed by Danish Architect Jens Arnfred of Vandkunsten Architects, within the project, all units are afforded both physical access to the common interior street as well as visual access through doors and interior windows. Throughout the day, the street operates as a circulation space, play area for children, informal gatherings for adults, or as venue for a community dinner. Ultimately for the community, it not only provides circulation throughout the complex but it also provides opportunities for gathering at a scale beyond the household.

A larger scale example is the Student Union Building at the University of Alberta in Edmonton designed by Diamond and Myers Architects of Toronto. In this project, an interior pedestrian street, spanning nine hundred and fifty metres in length, is placed above a sheltered vehicular route and sky lit from above. On the ground floor, the building houses shops and restaurants and places for students to gather, while all residence spaces, located on upper levels of the development, are afforded visual and physical access to the main galleria space. More than just an interior passageway for the harsh Edmonton climate, the galleria is a primary point of socialization and invites a vibrant community life to thrive throughout the year.

Smaller architectural details, including access sequences to private units can also be developed to promote interaction between inhabitants. In several of his projects, Herman Hertzberger explores how entry areas and access stairwells can serve as primary place for social contacts between neighbors of all ages and connect multi-family households with the broader community context. In De Overloop, a project for elderly persons in Almere-Haven, Hertzberger designed the front doors of residential units with the option of opening as half doors. By opening only the top half of the door, inhabitants are able to open themselves to happenings beyond their household without fully exposing themselves to the public realm. In Kassel Donche, a multi-story housing project in Kassel-Donche, Germany, Hertzberger developed the entry sequence to dwellings as a central social space of the development. In this design, well-lit alcoves were provided in each stairwell landing that provided access six units. During the daytime, the central stair and adjacent alcove serves as a communal playground for children that can be easily monitored through glass doors from nearby living units, while at night they serve as meeting places for adults.

In each of these contemporary examples, interior circulation routes, access stairwells and entry areas each become extensions of individual units and an identifiable community space within the life of the building. They are not dismal places to be, but rather, sheltered from the exterior elements, become a place of life within the building that encourages interactions and communion among community members.
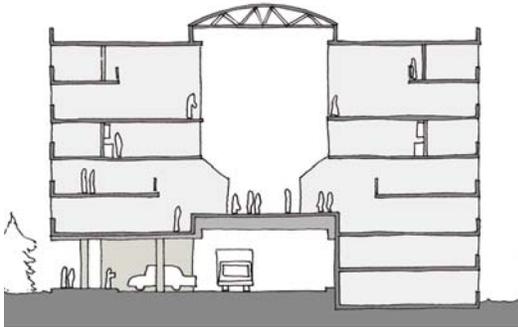
4.61   Top: Interior Pedestrian Street, Student Union Building,
         University of Alberta, Edmonton, Alberta.

4.62   Bottom: Student Union Building Section (Author)
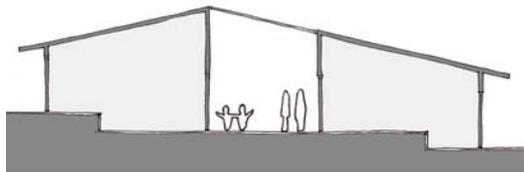
4.63   Top: Interior Living Street, Jystrup Cooperative,
         Jystrup, Denmark.

4.64   Bottom: "Glass Street" Section (Author)
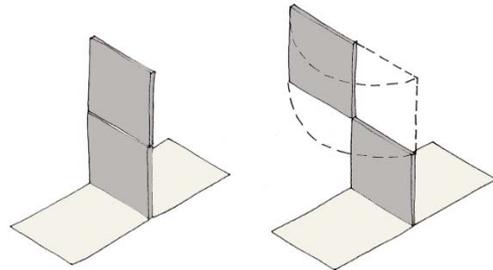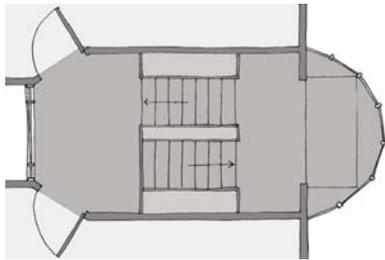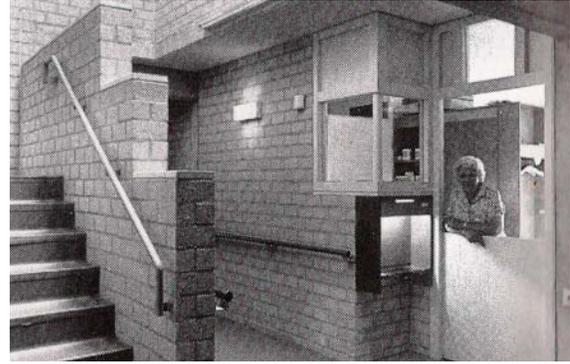
4.65   Top: Shared Stairwell and Unit Access.
          Kassel-Donche Housing Project, Kassel-Donche, Germany

4.66   Middle: Stairwell Meeting Place

4.67   Bottom: Communal Stairwell Plan (Author)

4.68   Top: Entrance to Units, "De Overloop" Residential Building for
          Elderly People, Almere-Haven, Germany

4.69   Middle: Dutch doors faciliate contact with the internal street beyond.

4.70   Bottom: Dutch Doors, Closed (Left) and Opened (Right) (Author)

Gathering Together

Learning from the Past

Within each winter settlement, larger communal structures were also constructed. As a venue for gatherings, socializing and the conducting of sacred activities at the largest of scales, these special structures were home to many festive occasions including feasts, games, song rituals, or feats by shamans throughout the long winter months.

Various explorers have recorded descriptions of these vast structures. Franz Boas recorded a Greenland Eskimo singing house that measured approximately twenty feet in diameter, and fifteen feet in height, with a lamp on a 5 foot snow pillar in the centre of the space. The explorer Vilhjalmur Stefansson reported a "feast house" that could house approximately one hundred people. Composed of snow blocks, it measured approximately thirty feet in diameter and was essentially an ordinary snow house built on a larger scale. Missionary accounts from Labrador reported structures as large as sixteen feet high and seventy feet in diameter.[34]

In most cases, these special structures were more circular in eastern arctic regions and rectangular in western regions and Alaska. The formal names of the structures varied in each arctic region. While referred to as *Qaggi* in Coastal Canada, towards Alaska, the structures were referred to as *Kashim*. In Greenland, they were known as *Qashe*. The materiality of the structures also altered according to materials in the immediate region. In the central Arctic they were essentially oversized Iglus and in the east they were expanded stone houses. In the west, where trees were available, gathering structures were composed of timber.

Gathering together was an intergenerational community event. Generally, while the community was gathered together within, a set order existed for the placement and roles of persons of various generations. Authors Molly Lee and Gregory A. Reinhardt offer further description of these organizations in *Eskimo Architecture*:

> "The company disposed itself in concentric rings round the house, married women by the wall, spinsters in front of them, and a ring of men to the front. Children are grouped on either side of the door, and the singer or dancer, stripped to the waist, takes his stand amid them and remains on the one spot all the time." [35]

Beyond feasting and dancing, communal gatherings in these large structures provided the perfect opportunity for Elders to impart knowledge upon younger generations through the sharing of stories. The very essence of storytelling, not only passed cultural values along to the young of the community, but it also reinforced the collective nature and the importance of a cultural community in the northern context. As noted by Rudy Wiebe in *Playing Dead: A Contemplation Concerning the Arctic*,
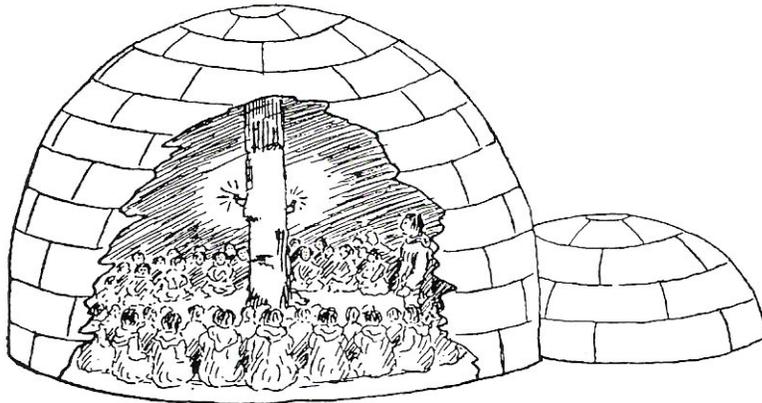
4.71 Baffinland Singing House Elevation
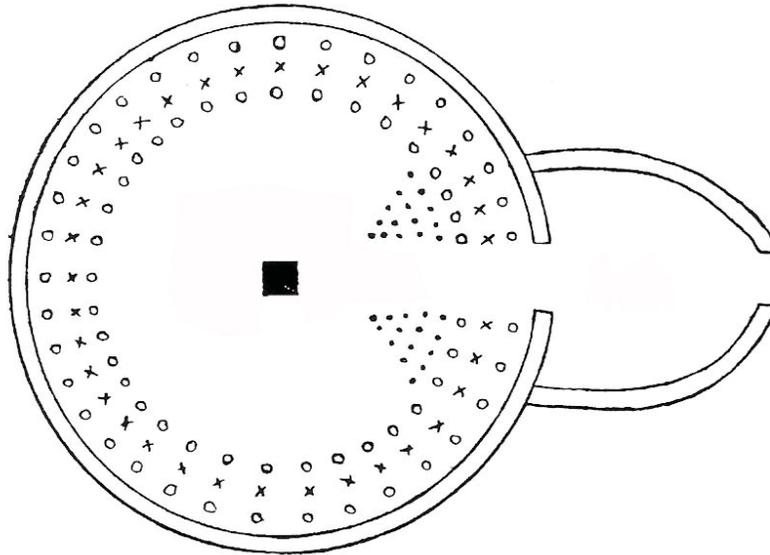
4.72 Baffinland Singing House Plan

"Story telling is the very affirmation of this sense of non-aloneness: the story teller and the poet or singer presupposes a community of listeners, otherwise nothing can be told. Stories and songs are beyond value. They are the construct of actions and spoken words by means of which humanity remembers." [36]

Yet while the forms, names, and material composition of these structures altered across the north, the function of the large gathering places remained the same. Serving both genders and peoples of all ages, these structures provided the place for formal gatherings, feasts and celebrations. They promoted gathering at the broad scale and provided the place for the coming together of an entire community of people.[37]

The Dogrib Hand Game

Two teams of an indefinite but equal number of men line up facing each other. Throughout the game the players maintain a kneeling-seated posture. One team at a time operates as the active playing team. Each of its members hides a token in one of his fists. A single member of the other team guesses, by means of a hand signal, and simultaneously for all the players, which fist of each man holds the token.

The style and impact of a hand game in action eludes precise description. The tempo of play is fast and hard, with the deafening clamor of drums and the shouted chants of the drummers accompanying the play. The intensity of the syncopated beat that goes from loud to louder as climaxes in the game occur imparts a driving quality to the play. In response to the throb of the drums, the players of the hiding team move in rhythm. From their hips up, the kneeling men bob, weave, and sway. One part of the play involves a crouching position to reshuffle the concealed token and then the raising of the torso and the offering

of the arms folded or outstretched to the guess of the opposing captain. The captain's guess may be delayed for many seconds or even for a few minutes as he calculates the disposition of tokens against him.

After the guess, the rhythmic movements continue as the members of the playing team open their fists to reveal the tokens and after a few seconds again go into the reshuffling crouch.

The two-syllable unit of chanting cry made by the drummers is delivered with wide-open mouth, head thrown back, with strained features by some and at full voice by all.

The members of the opposing team sit quietly watching the action. The guesser for their team is also in bodily repose, although his visual attention to the actions of the playing team is pronounced.

- From National Museum of Canada, Bulletin 205, *The Dogrib Hand Game*

Contemporary Applications

These communal ideals continue to be of equal importance in the present day context. As in former days, large scale gathering spaces invited for community building and are a place where communal kinship and cultural can thrive at the grandest of scales.

Designed by Patkau Architects of Vancouver, the Gleneagles Community Centre located in the suburban community of West Vancouver, British Columbia houses a diverse assortment of athletic and artistic activities for persons of all ages and plays a central role in the life of the suburban community where it is situated. On the exterior, a large timber roof folds over the building and provides architectural unity for the various components of the building. Inside, a three storey gymnasium acts as the connecting volume of the design and affords visual connections to each of the primary programmatic components of the building. These visual connections serve to further animate the diverse activities and events housed within the building.

The community centre is organized over three main levels: the lower level houses a gymnasium as well as a series of multi-purpose and service spaces. Street access is afforded on the main level of the building which also includes a lounge and café, childcare facilities and administrative offices. A fitness studio is located on the top floor of the facility from which both visual and acoustic connections to the gymnasium below are provided. The overlapping sounds between these spaces reinforce one another and invite for further community connections and interaction. As well, each of the main community spaces is afforded direct connections with the landscape beyond through glazing and framed views, as well as physical access points.

Composed of a variety of multi-purpose and interconnected spaces, the Gleneagles community centre houses the public congregate life of a community of people. Throughout the building, physical, visual and acoustic connections are afforded and ultimately serve to further unite the adjacent spaces, and promote connections between the events and the users within the space.

Designed by Larry McFarland Architects of Vancouver, another notable gathering space is found in the First Nations Longhouse located at the University of British Columbia in Vancouver. Referred to as the living room[38] of the facility, the Great Hall serves as the main gathering place for students and guests to the Longhouse. Though flanked with symbolic imagery including four totem poles representing the original West Coast peoples, it is not these symbolic representations alone that make the space an appropriate venue for cultural gatherings. In addition, the space is works because of its multi-purpose nature, and its ability to expand and contract in order to meet the varying needs of the community. An adjacent 'pre-event' space which is raised a level can provide additional gathering space when necessary or double as a stage for the main space when necessary. A kitchen is adjacent to the gathering space and is available for usage during celebrations

4.74   Gleneagles Community Centre, West Vancouver, British Columbia

4.75   Main floor cafe and lounge with views to the gymnasium below

4.76   Views are afforded to all three levels of the building from the gymnasium
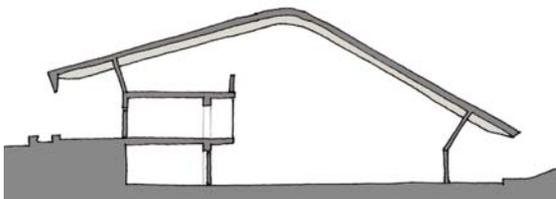
4.77   Gleneagles Community Centre Section (Author)
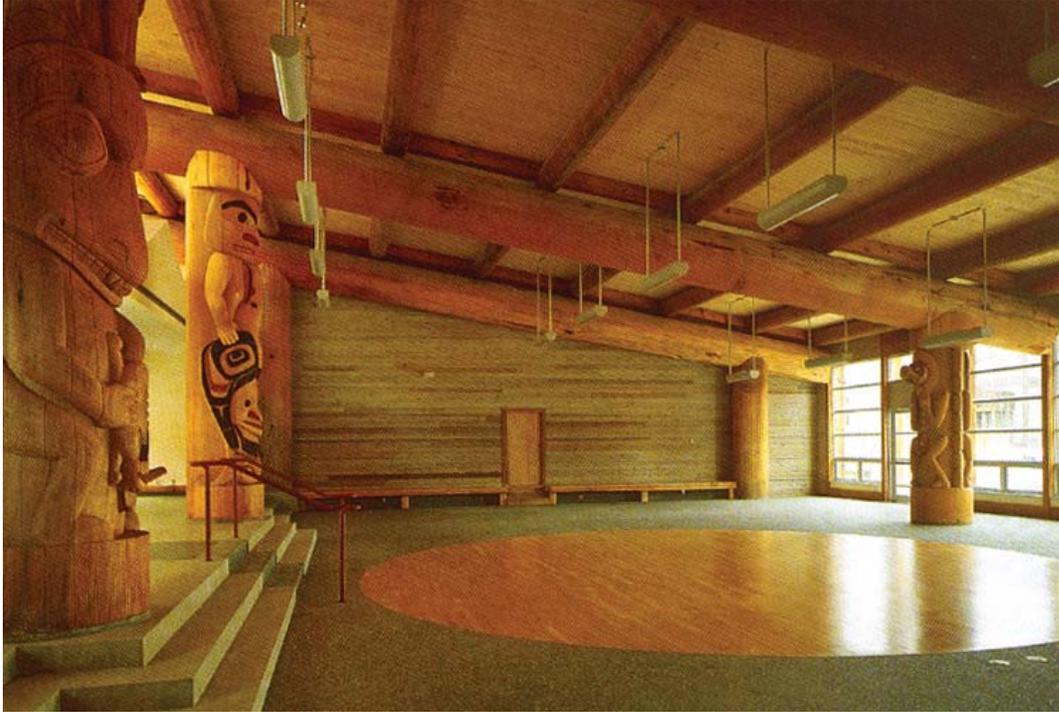
4.78 Great Hall, First Nations House of Learning, Vancouver, British Columbia
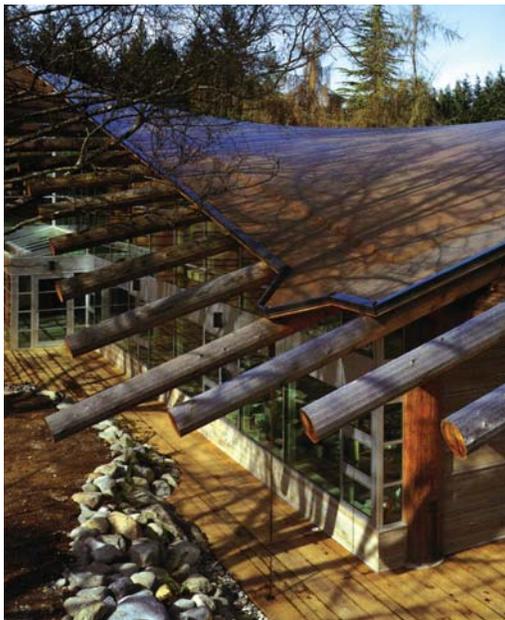
4.79 Exterior
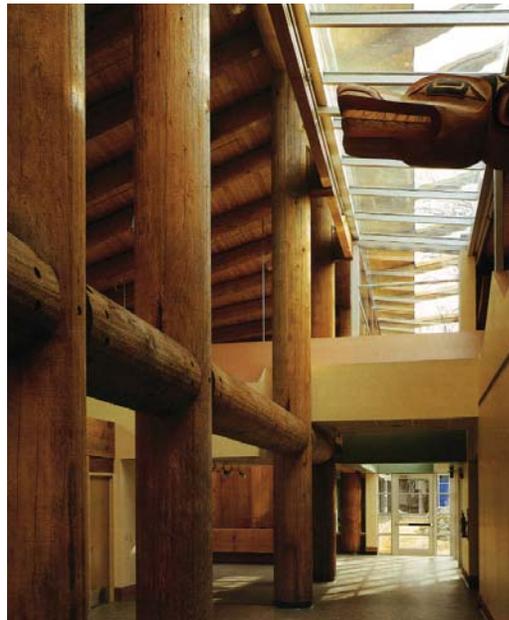
4.80 Entrance Hallway

and feasts. Directly accessible to the outdoors, the use of glass in structure and façade provides a sense of openness and subtle boundaries of the enclosure while inside. During warm months, inhabitants are free to expand outwards and gather outside as a community.

In the contemporary context, large multi-purpose gathering spaces such as those in the Gleneagles Community Centre or in the First Nations Longhouse have the potential to bring people a community of people together throughout the changing seasons. Multi-purpose in nature, these spaces can house a variety of community events. Accented by a series of visual and physical connections between adjacent spaces, the gathering space are connected to one another and possess the ability to expand and contract in order to meet the changing spatial needs for the events and people housed within.

Life on the Land

Learning from the Past
During the summer months, the landscape was a natural extension of the interior built world and a central component of daily northern life. For the long light days of summer, life extended outwards to the northern landscape. Life held within the traditional summer *tupik* was limited to sleeping and storage. All other daily activities including gathering, cooking, teaching, and learning occurred outside upon the northern land.

During the summer months, families and communities engaged in a series of seasonal activities including the preparation of food, clothing, shelter and modes of transportation for the long winter months ahead. As noted in *Denendeh: A Dene Celebration*, "Many Dene spent a great part of the summer making dry fish. The fish were cleaned, gutted, hung over poles in the sun for two or three days, and then smoked over a smoldering fire in a "smoke tent". Dry fish was then used in winter as food for people and dogs."[39] Other foods such as caribou and moose meat were also prepared by the Dene people during the summer months.

To support these seasonal activities, temporary structures composed of local materials including wood, driftwood and animal skeletal structures were constructed upon the northern landscape and served of two primary purposes. Racks for drying meat in the open air and sunshine were common in most summer communities. As well, frames to stretch, dry, prepare and tan animal hides were also built each year. Beyond these temporary constructions, the open landscape also provided ample space for the construction of travel devices including the snowshoe, toboggan, and a variety of northern boats including the kayak, umiak, and canoe.

4.82   Woman hanging white fish to dry

While the summer provided the optimal conditions for traditional activities and preparations for winter living to occur, the long days of summer also invited community gatherings to occur outside upon the northern landscape. When daily tasks were through, peoples of all ages gathered outside under the midnight sun to engage in a series of activities. For the Dene people, some of these activities included the Dogrib Hand Game as well as the Tea Dance. The natural landscape provided the backdrop where these intergenerational events could occur.

As the winter was a time for gathering inside as a cultural community, the summer was a time for life on the northern landscape. During the summer, the outdoor landscape was a primary component of the dwelling experience: it was a natural extension of interior living.

Contemporary Applications

Today, as in the past, an exterior gathering space could provide a place where the entire community could come together. It could be a multi-purpose space. On a daily basis, it could host informal activities including gardening, play areas, recreational spaces, as well as benches to rest and socialize. As well, it could play host to large formal events including cultural ceremonies and feasts, as well as a variety of other large community gatherings. It could be a place where traditional activities could be undertaken and observed.

However, as in the past, today it is perhaps not practical that all components of daily summer life occur outside upon the northern landscape. Instead, in the contemporary
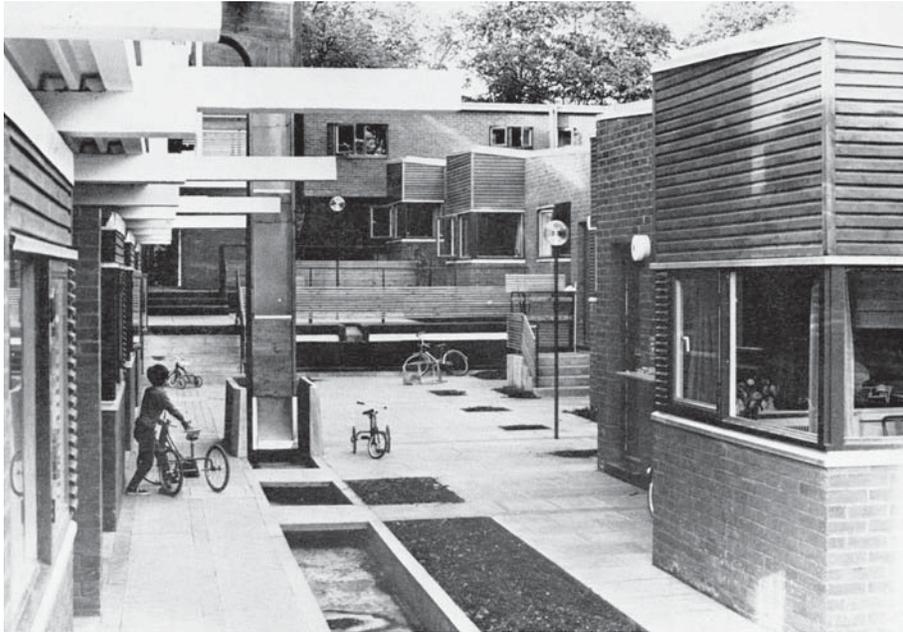
4.83   "Family Walk" at Clare Hall, Cambridge, England

context, architectures could strive to develop direct relationships between the interior and exterior dwelling experiences. Exterior areas could be developed for various uses and both physical and visual connections could be developed between interior and exterior living spaces to encourage a mutual exchange and fluidity between the two spaces.

Several contemporary dwelling environments model how such relationships between interior and exterior living spaces could occur. Designed by Ralph Erskine, Clare Hall is located at Cambridge University in Cambridge, England. A graduate college that houses families, students and fellows, the living environment brings together people from different cultural and academic backgrounds. Though designed with a primarily social agenda, the project also provides direct connections between the interior and exterior social dwelling experiences.

In the design for Clare Hall, all units are afforded either ground level entrances or balcony access to from the communal Family Walk. Inside the dwellings, all living spaces are afforded windows to or open directly upon the Family Walk. While this allows for incidental encounters in the common space and social contacts between residents to flourish, this connection also provides direct physical and visual connections between the interior and exterior student living environments. Children playing outdoors in the Family Walk area can be easily monitored from within, or food prepared inside in the kitchen can be easily transported outside for a summer dining experience. Ultimately, life both inside and outside are directly connected to one another in the design for Clare Hall.

4.84   Main Entrance, Jackson Triggs Winery

4.85 Right: Diagram of Great Hall closed (top) and
open (bottom) to the landscape beyond
(Author)
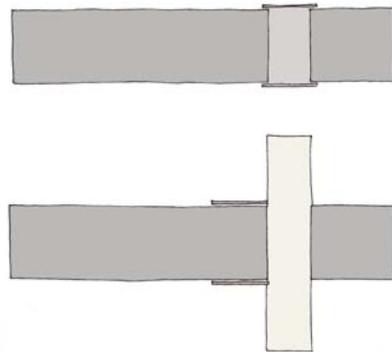
Another notable example is the Jackson Triggs Winery located near Niagara-on-the-Lake in Southern Ontario's Niagara Peninsula. Designed by Kuwabara Payne McKenna Blumberg Architects of Toronto, the winery presents a series of unique connections between the interior and exterior dwelling spaces of the building. Consisting of both a wine production area as well as retail facilities, the building is organized around two primary components. The production area of the facility is located to the west while the public spaces including wine bars, tasting rooms, retail area and café are all situated to the east. A double height Great Hall space, also the main entry area to the building, provides the connection between the eastern and western components of the winery.

The Great Hall is flanked to the north and south with two large sliding glass doors reminiscent of local barn architecture. During the warmer months, the doors can be opened to the landscape beyond and transform the space into a covered outdoor area. Alongside direct views to the vineyards beyond, the space is also afforded ample natural ventilation, cooling and light. Ultimately, when the sliding doors are open, the physical and visual distinctions between the interior and exterior realm become blurred: the two dwelling experiences bleed into one another.

In each of these contemporary situations, a series of visual and physical connections are presented to blend the interior and exterior dwelling experiences together. They each provide opportunities for the interior and exterior dwelling spaces to become natural extensions of one another.

4.86   A view from the vineyard, Jackson Triggs Winery

Lessons from the Land

If a meaningful architectural identity for northern Canada is to be conceived, as in the past, the physical and cultural landscapes of the north must once again become the generating force in design efforts. As embodied in the vernacular works of northern Canada, these landscapes must once again assume deeper roles of contextualization, heightening experiences, and embedding time and nature in the built world.[40] Within these landscapes, a promise exists that has the potential to provoke new forms of experience, meaning, and value for northern architectural culture. Not merely a recreation of past forms, a new approach to building in the north is derived from a series of lessons learned from traditional northern forms. Within this architecture is a clear recognition that both the natural and built worlds are intimately connected.

While not all of the examples cited in *Memory and Imagination* are physically situated within the Canadian North, each contemporary project offers valuable lessons to the discourse of contemporary northern architectures. Like the vernacular buildings of northern Canada, each project is developed in accordance to its immediate climatic and cultural context: these realms are the generating devices for the architectures that evolve. Rooted in lessons from their immediate context, these designs provide examples for how contemporary northern architectures could be developed to appropriately respond to their local landscape, climate and cultures.

Today, as the in past, northern architecture is an adaptable architecture. Like its physical context, a contemporary northern architecture changes with the seasonal dualisms. The materiality of the built form creatively employs multi-purpose, flexible and durable materials. With an economic spirit, it relies on natural environmental controls. In building orientation, section, plan and composition, it is developed to allow ideal climatic systems such as the northern sun to prevail while turning its back on undesirable harsh realities. As a light upon the landscape, a northern architecture radiates the life housed within upon the dark northern land, and beckons northerners home. Ultimately, northern architecture is intergenerational and community architecture. In its harsh environmental context, the built form provides the dwelling place where kinship and culture can thrive.

TRANSLATION
A Student Living Community

Breaking the mould means re-examination of the parts. It means making the project a role model, a leader in the quest for a viable community fabric. It means showing that use of outside space, building form, colour, texture and transparency can be manipulated to improve a way of life. It means provoking thought by example, so that subsequent projects go even further in pointing the way to an indigenous community plan devised primarily to serve people rather than goods and services.

- Harold Strub in *Bare Poles: Buiding Design for High Latitudes*

Community Living to Support Learning

The proposed student living environment is first and foremost, driven by the contemporary visions of the people of Denendeh and their desire for a community living environment for students and their families. In developing this environment, the initial design translations are guided by two foundational design considerations: the climate of the north and the cultural lives of its people. In the contemporary northern context, these applications have the potential to invite students to not only interact physically with their immediate climate, but also socially and culturally with their neighbours within their new living context.

This translation commences with a series of physical responses and spatial ideas to building in this northern context. Next, these elements are applied in a social and cultural context. Concurrently, the climatic and cultural responses to building provide the shape for the northern student living environment. The design propositions are not definitive architectural resolutions. Rather, referencing contextually specific traditional and contemporary architectures from diverse locations, these spatial strategies respond specifically to the social and cultural patterns of contemporary northern life.

5.1 Opposite

Ultimately, the series of design propositions presented in this chapter are the first step in a process of many potential architectural translations for the project. The descriptions and exploratory proposals are intended to provoke interpretations and suggestions for the continued design and construction of the living environment.

Northern Land: Responding to a Climate

Our Life is Part of the Land

The proposed responses to the northern climate outline a variety of ways that northern buildings could potentially be constructed in order to optimize and utilize the harsh climate. They demonstrate that like their traditional predecessors, contemporary northern buildings can also be developed according to their severe northern context instead of in spite of it. Traditionally, the constructed world was a natural extension of northern built forms. Like in the past, contemporary architectures can be developed to encourage functional and fluid relationships between the natural and built environment.

At Grade Access
At grade access is fundamental for providing a direct connection between a northern building and its surrounding landscape. In the contemporary context, a slab on grade foundation with a Thermosyphon system eliminates the need for separation between a building and the ground and instead allows for direct physical and visual access from the building. Composed of a passive ground loop charged with liquid carbon dioxide, the Thermosyphon process ultimately works to extract heat from the building and distribute air to the outside through radiator-like fins.[1] This process operates to reduce the maximum temperatures in the ice-rich native soil sufficiently below zero in order to stop thaw settlement. Whereas the previous placement of buildings directly upon northern ground resulted in *thawbulbs* - the uneven melting of permafrost beneath northern buildings and resulting structural instability of these buildings - the Thermosyphon system permits the permanently frozen ground below a building to remain unhindered. Ultimately, the Thermosyphon system eliminates the need to separate the building from the ground. A modern approach to construction, it allows for direct access to the northern landscape and provides the vital interconnection between indoor and outdoor living.

Threshold Detailing
With the building situated at ground level, there is an opportunity to develop a series of threshold details to further integrate the interior and exterior dwelling experiences. While visual connections to the outdoors can strengthen this relationship between the interior and exterior environments, other physical architectural details, such as floor and ground planes, surface treatments, and roof overhangs can also be developed to further integrate the built dwelling experience with its natural surroundings. Interior and exterior floor treatments of similar colour composition and located on the same plane invite the two spaces to blend together. The blurring of the distinction between life housed within and upon the landscape can be furthered by roof overhangs that extend past the building envelope to provide a sheltered exterior space along the perimeter of the building. Each of these details helps to blend inside and outside together and invites the two realms to flow seamlessly into one another.

5.2   At the Arctic Circle, the sun does not set on summer solstace, June 21. Fifteen exposures on the same slide of film
   illustrate the position of the midnight sun every ten minutes from 11pm to 1:30am.

Building Materials

Like traditional materials, contemporary northern materials also serve specific roles in the life of a building. Each northern material responds to its context in a unique and utilitarian way. Northern materials provide warmth: they store heat and radiate it to those housed within. Northern materials reflect light: they help to illuminate interior living spaces while reflecting light outwards upon the northern landscape. In both their individual compositions and in combination with other materials, northern materials provide a flexible and durable envelope within which northern livelihoods are housed. Several contemporary building materials present a series of unique opportunities for contemporary northern architectures. These include galvanized iron, wood, local stone, and various translucent materials. Each in their own way, these materials respond to the need for light, heat and connection with the landscape beyond in northern buildings.

Reflecting Light: Galvanized Iron
Reflecting light and heat, galvanized iron is an ideal building material within a northern context. Flexible in its application, galvanized iron is lightweight, durable, and easy to install, repair on site, and maintain throughout its lifespan. Not only does it provide a northern building with an exterior membrane that protects the envelope from both air and moisture penetration, galvanized iron is also a reflective material. When located on the exterior face of a building, it reflects light to the surrounding landscape and provides extra illumination for the dark northern landscape. This reflection also helps to create a

sun trap, a thermal condition that captures sunlight by the vertical surface and creates a thermal comfort zone for those nearby. For those standing in close proximity, *sun doubling* occurs as sun rays hit them directly and then again after bouncing off of the wall's surface. Additionally, snow and ice melts and the ground dries quickly in the springtime allowing gardens and other natural growth to thrive. Galvanized iron responds to the northern climate: while providing a protective exterior membrane for northern buildings, it also reflects light and heat to its immediate surroundings and outwards upon the northern landscape.

Insulating Spaces: Wood
A natural insulator, wood is an appropriate material for northern constructions. Durable and easy to manipulate on site, wood's low thermal conductivity and ability to reduce thermal bridge effects make it an appropriate material for both interior and exterior applications. Wood is appropriate for door and window frames because it provides a seamless thermal connection with the rest of the building envelope. On the interior, plywood finishes provide a durable surface treatment with a warm aesthetic appeal. Wood provides physical, visual and acoustic barriers between adjacent spaces making it an ideal material for interior doors and space partitions. In its varied applications, wood provides physical protection and aesthetic warmth.

Storing Heat: Local Stone
Native to the northern landscape, Canadian Shield stones are unique for their abilities to store heat, act as thermal masses, and ultimately radiate heat to those gathered around. On the interior of the building, stone can be used in a variety of capacities including as a floor treatment or in unique architectural detailing such as a hearth or accent wall. On the exterior, weathered stone can be appropriately incorporated into landscaped pathways or gathering areas. In both interior and exterior applications, the symbolic use of a local stone has the potential to provide both physical and social warmth for contemporary architectures in the northern Canadian Shield region.

Way-Finding: Translucent or Transparent Materials
Translucent or transparent materials, including glass and plastic, are notable for their abilities to provide a physical boundary while simultaneously reflecting light through their surfaces. When used on the exterior of a building, translucent materials provide privacy for those housed within while reflecting light from the interior of the building through its surface and outwards upon the northern landscape. When used as an interior window, or interior screening system, translucent materials can provide both physical and visual separations between adjacent spaces while still permitting light to enter these segregated spaces. In their varied contexts, translucent and transparent materials serve both climatic and cultural functions in the life of northern dwellings: they provide views to the outdoors and adjacent spaces, and reciprocally allow both natural light and passive solar gains to enter the building.

5.3 *Galvanized Iron*
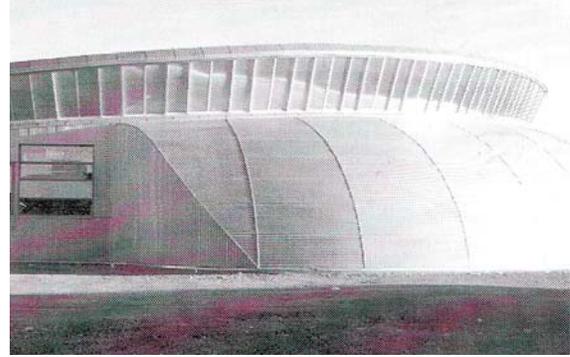
5.4 *Galvanized Iron Exterior Finish, Küllinik High School, Cambridge Bay, Nunavut*

5.5 *Wood*
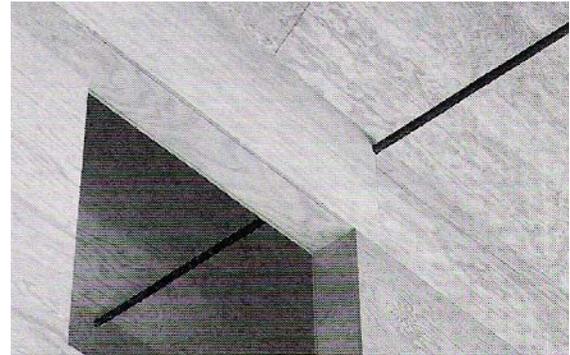
5.6 *Douglas Fir Plywood Interior Finish, Maison Goulet, Laurentian Mountains, Quebec*

5.7 *Local Stone*

5.8 *Floor with Exposed Stone, North Slave Correctional Facility, Yellowknife, Northwest Territories*

5.9 *Translucent Glass*

5.10 *Glowing elevation, Vancouver, British Columbia*
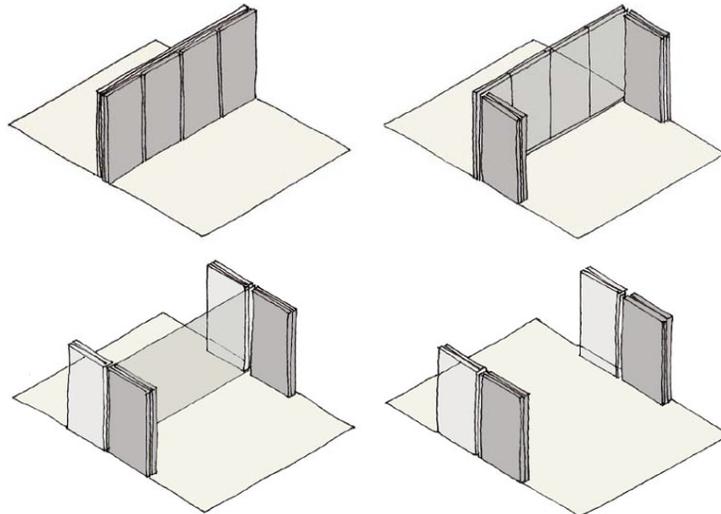
*5.11 An adaptable exterior wall system provides thermal protection during the long winter months and can open up to
the landscape beyond during the summer months. The diagram illustrates all layers closed (top left); the glass and
screen doors closed with exterior open (top right); the glass and exterior screens open with mesh protection (bottom left);
and all layers open to the outdoors (bottom right). (Author)*

Seasonal Inhabitation: An Adaptable Architecture

Insulate / Ventilate: Exterior Screens

Traditional northern architecture was an adaptable architecture. With the changing seasons, it responded to the changing climatic and cultural needs of its inhabitants. Today, like in the past, contemporary architectures can also be developed to respond intelligently to our shared and changing environment.

An adaptable exterior envelope that can adjust according to the exterior climatic conditions invites a building and its inhabitants to thrive throughout the changing seasons. The proposed exterior wall is layered and composed of a series of operable clear and translucent glass doors, retractable mesh screen doors, as well as a series of insulated thermal screens on the exterior. During the long and cold months of winter, the wall acts as an insulator and the multiple layers of the wall system close down to provide layers of thermal protection for those housed within. During the summer, the layers of the wall peel away and allow the interior environment to open up to the exterior landscape. A layer of mesh screen protects indoor spaces from pests and animals while still allowing natural ventilation to prevail within the building. Throughout the year, the role of the wall oscillates between sheltering the inhabitants gathered within and opening up to inviting inhabitants outwards to life upon the northern land.

Expand / Contract: Interior Sliding Partitions

Interior detailing also invites the interior spaces to adapt to the seasonal and changing needs of the inhabitants. Like traditional buildings (such as the Iglu) that housed spaces that could be added or blocked off according to user needs, contemporary dwellings can also adapt according to space needs. Sliding wooden doors located between adjacent spaces, enable flexibility so that rooms can be opened up or separated off depending upon the needs of the users. Through the use of screens, an upper floor loft space can be segregated as its own distinct space or exposed to the living spaces below. Between bedrooms, sliding doors can be opened to create one shared space for a family grouping, or retracted to provide separation between the two spaces. In both interior and exterior applications, an adaptable architecture invites building inhabitants to alter their environment. Throughout the changing seasons, the dwelling adapts to the altering climatic and cultural needs of the community.
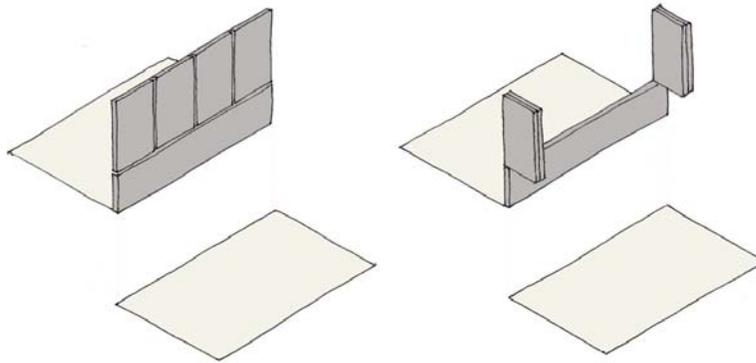
5.12 Operable shutters and partitions allow interior spaces to open up to one another or close down when privacy is desired.
Operable shutters in a loft space allow the space to be closed (left) or opened to a gathering space below (right).
(Author)
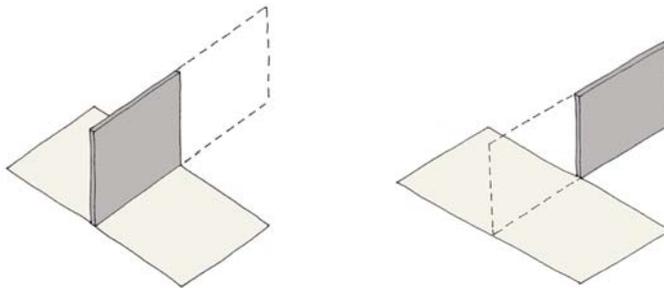
5.13   Sliding wall partitions can be closed (left) or open to adjacent spaces (right). (Author)

Passive Controls: Building with the Climate

Like in the past, the current goal of passive building controls in the north is to block out undesired climatic forces, while allowing northern sunshine to prevail within buildings. Building orientation, organization and cross section all contribute to the interior experience of a northern building, and can be manipulated to allow natural controls to prevail in contemporary constructions.

Building Orientation and Entry
In order to invite southern sunshine to thrive in the dwelling environment while protecting the building from cold temperatures, wind and blowing snow, northern buildings should be oriented to expose their largest faces to the southern sun. The smallest exposures should be oriented to the north, and for added insulation, should be sheltered by trees or natural land features. An air tight entry vestibule located at grade is an appropriate entry sequence into a northern dwelling as it provides an air tight trap for inhabitants as they move in and out of the building. As a buffer between interior and exterior life during the northern winter, the entry sequence should be located away from prevailing winds in order to prevent wind, rain, or snow from blowing into the dwelling when the door is opened. As well, the entry should be sheltered overhead and ideally, protected by the building.
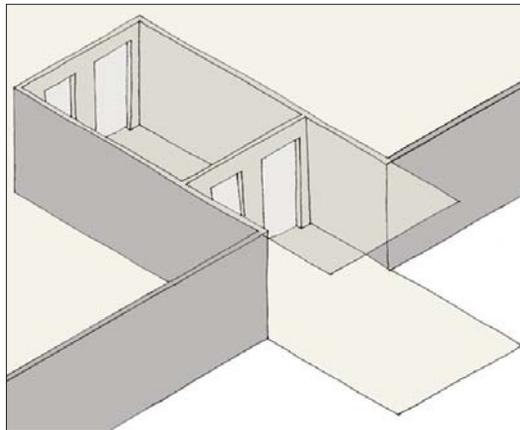
5.14   *Air Lock Entry Vestibule (Author)*
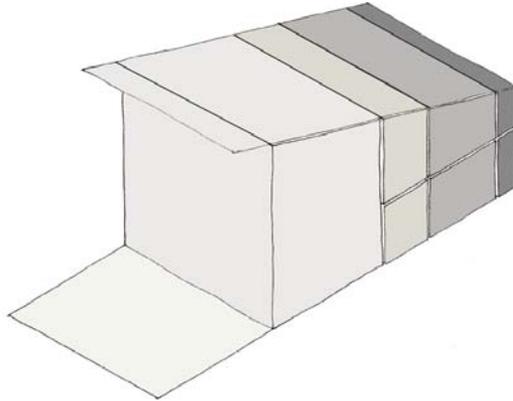
5.15 *In both building plan and section, interior and exterior living spaces are afforded southern exposures. Service and sleeping spaces provide insulative layers for living spaces housed to the south, and the northern exterior wall also houses storage cupboards and shelves for additional thermal protection. (Author)*

Layered Plan and Building Section

Inside the dwelling, the arrangement of programmatic spaces can be organized to provide a natural thermal layering from exterior elements. Sunlight is welcomed in living spaces and shunned in sleeping areas during the long northern days of summer. Therefore, living areas should be located to the south where they have adequate natural lighting and the resulting thermal gains. Sleeping, storage and service spaces should be located to the north because these spaces do not require the natural light of the southern sun. Instead, these rooms can serve as "insulation" to block the harsh climatic forces from the north.

This idea of thermal layering can also occur in the development of the building section. When northern buildings open up their largest face toward the south, great opportunities exist for exposure to sunlight, natural day light and thermal gains. Northern buildings should close down and afford only their smallest exposure to the north to ensure that heat loss is minimized. Sloped roofs can contribute to this opening up and closing down, and furthermore, can also allow for natural snow removal from the roof surface.

Layered Building Envelope

As the primary role of the building envelope is to protect the inhabitants from the exterior temperatures by reducing the degree of variation between outside and inside to almost nothing, the translation proposes that wall sections should differ according to their orientation. North facing sections should have as few openings as possible, and they should be small. To the north, shelving and storage units on the exterior wall can provide added thickness and thermal protection to those housed within. South facing walls should have the ability to open up and adjust chameleon-like to major shifts in the outside temperature. While in the summer they can peel away to allow natural light and ventilation to prevail, during the cold winter months when daylight hours are few, an additional thermal layer such as exterior screens can close to help minimize the heat loss during the months of cold and darkness.

Natural Day Lighting, Views and Ventilation

Northern architecture is exposed to the qualities of the sun, and therefore has the opportunity to control these qualities and use them to optimize function. Through the use of control devices including shading elements and light shelves, low winter rays can be manipulated to penetrate the building while blocking out the hot sunshine of the long northern days of summer.

Windows are required to serve multiple purposes in the life of a building. At high latitudes, however, openings often fail during the winter months when they are expected to simultaneously provide natural light, views and ventilation. Operable windows intended to provide natural ventilation for the building leak moist warm air to the outdoors when the window is opened during the winter months, often resulting in the sash freezing to the frame. Thus, throughout the winter months, the window is forced to remain either totally closed or partially open resulting in either a lack of ventilation or cold arctic drafts that result in heat loss from the dwelling during the winter months.

A potential window composition for northern dwellings could separate individual window functions from one another. Each window opening could be designed with its own unique purpose - either to provide natural daylight, views to the outdoors, or natural ventilation. These goals could be achieved through various typologies, including picture windows, clerestory openings and ventilation portholes.

Views to the Outdoors: The Picture Window

Picture windows located at eye-level provide direct views to the surrounding landscape. The proposed window is composed of a wood frame with two panes of insulating glass separated by twelve millimeters of airspace for optimal insulation. An outer pane of glass (unsealed in order that any vapour around the edges of the interior glass can freely diffuse to the outside) provides a storm window effect and protects the insulating glass from the chilling action of the wind. This further reduces heat loss through the window surface, allowing a relatively still layer of air to form against the outer window pane, and ultimately providing further thermal resistance for the window. To provide protection from the hot summer sun, the picture window is equipped with a sun shade on the exterior of the building to block out direct summer rays while allowing winter sunlight to penetrate the building. Deciduous planting on the exterior of a building could also serve to block out summer sunshine, while allowing light and heat to enter the building during the winter months.
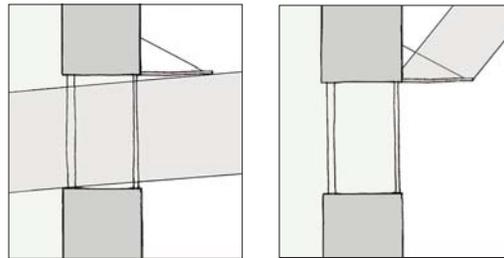
5.16   *During the winter months (left), low rays of sunshine are emitted through the picture window. During the summer months (right), an exterior sunshade blocks direct sunlight from the building interior. (Author)*

Natural Daylight: The Clerestory

Clerestory windows are proposed to bring natural light into the building. Whereas skylights are prone to leaks in the summer and ice build-up in the winter, clerestory windows with a roof overhang are proposed for the architectural translation. During the winter months, low angled light is emitted through the clerestory windows and reflected off of the sloped ceiling, allowing natural light to penetrate deep into the building. In the summer months however, the intense and direct sunlight is blocked out by the roof overhang, greatly reducing the harsh summer glare and heat in the interior dwelling space.[2] Instead, the diffuse indirect rays wash the building with light, optimizing both heat gain and light.
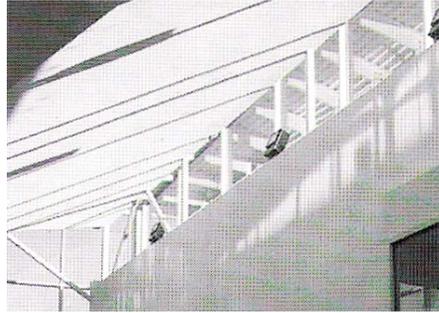
5.17 Left: The Nunavut Legislature Building, Iqaluit, Nunavut
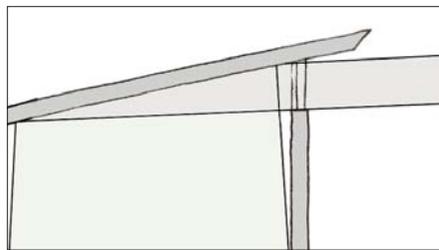
5.18 During the winter months, low winter rays are directed into building and reflected off of the ceiling and into the main living spaces (Author)
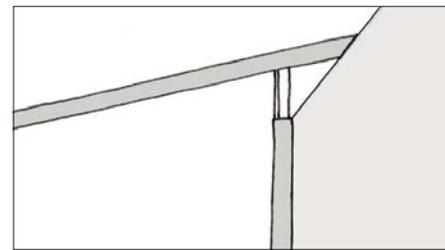
5.19 Warm summer rays are blocked from the building interior by a roof overhang during the summer months (Author)

Natural Ventilation: The Porthole

Ventilation Portholes are designed to provide natural ventilation for the building throughout the year. Small, compact, and equipped with a mesh fly screen, portholes reduce the amount of heat that could potentially be lost through poorly sealed window units, while still keeping the space naturally ventilated throughout the year. Furthermore portholes can be used in areas where views or natural light are not necessary yet where ventilation is required. These might include areas such as the kitchen or bathroom where moisture content is great. Though accompanied by a larger air exchange system, ventilation portholes ultimately allow users to control their environments.

The proposed responses for the northern climate provide various opportunities for the tectonics of building in the north. Northern buildings are a part of their landscape: they are developed in accordance with the climate instead of in spite of it. Composed of materials designed to store heat, radiate warmth, and reflect light within and outwards upon the northern landscape, northern buildings are design in accordance with their surrounding environment. They block out undesirable conditions, and allow the ideal conditions to prevail. Northern architectures are adaptable architectures. Both their exterior envelopes and interior arrangements can be altered in accordance with changing needs and the changing seasons. Ultimately, northern architectures are connected with their immediate context: they provide both physical and visual connections with the landscape while also protecting the inhabitant from the harsh northern context.

Northern People: Responding to a Culture

While the physical environment and northern climate dictated how traditional architectures were technically constructed in the north, the social and cultural organizations of a people dictated what people built, the size of dwellings and the specific living arrangements housed within. In the process of building, the traditions of northern peoples "were their blueprints; social rules, their building code."[3]

The socio-cultural component of the translation, the community living environment, is comprised of a variety of living spaces that are not isolated, but integral to the broader whole. The proposition is developed at three primary scales: the household, the cluster, and the community. At each scale, the community living environment is designed to allow for both intentional and incidental interactions to occur among fellow learners, their families and community members. Ultimately, the design provides the spaces where community members can gather together throughout their daily lives and build mutual contacts and supportive relationships with one another.

Multi-Family Units: Shared Lives

Traditionally, during the long winter months, northerners dwelled together in multi-family and intergenerational living environments. Within these congregate environments, resources and duties were shared, and community members helped to support one another socially, economically and spiritually. Today, many of these qualities continue to be appropriate in the development of contemporary living arrangements for northern students.

The proposed multi-family living unit possesses various physical and social qualities that contribute to the student living experience. The plan for the multi-family living space is open concept. Spaces bleed into one another and allow for altering and adapting occupancies as per the users changing needs. Like many of its winter dwelling predecessors including the Iglu, the social organization of the proposed multi-family living space consists of a common area for all inhabitants and a series of adjacent sleeping spaces for designated family units. Architecturally, the shared common space consists of a double height space that houses a kitchen and open living area. An intermediate loft space overlooks the main area and provides an additional living area with physical and visual connections to the spaces below. All private spaces, including bedrooms and washrooms are single storey in height and are located beyond the loft spaces on the north side of the building.

The proposed multi-family unit has the potential to house a combination of individuals, single or dual parent families and community elders. In order to accommodate this diverse array of inhabitants, a series of adaptable architectural elements are present in order that

inhabitants may adapt the environment to best suit their changing social and spatial needs. Fundamentally, like traditional dwellings that served multiple purposes throughout the day and year, the main living area is open concept and multi-purpose and has the ability to serve a variety of roles.

The dwelling also contains a variety of adaptable architectural elements. Each bedroom is equipped with a small interior window glazed with translucent glass that can be opened or closed when desired. When privacy and quiet is desired, the window can be closed. If contact with the living space beyond is preferred, the window can be opened providing both a visual and audio connection to the main living spaces. As well, sliding doors between bedrooms can also be opened or closed as required by the inhabitants. While some family groupings may prefer to open the door and dwell in a shared space, other individuals may choose to close the door for more privacy. In the public realm of the dwelling, the loft space overlooking the main living area can also be segregated by a series of interior screens. When the screens are closed, the loft spaces provides another private living space that could serve as a play area, study room, or alternate living area

Climatically, various physical qualities mediate between the interior and exterior living environments throughout the multi-family unit. Access to the multi-family unit is through a private air lock vestibule. During the winter months, this space helps to block out the harsh northern climate, provides a space for storage of winter clothing and outdoor supplies, while also serving as a zone for watching and waiting. Within the unit, all main living spaces are afforded southern exposure while sleeping and storage spaces are located to the north. During the warmer summer months, glass doors and exterior screens in the main living space can open up and provide direct access to the outdoors inviting the landscape beyond to become a vibrant part of the student dwelling experience. During the winter months, these exterior screen doors close down to provide privacy and an added layer of thermal protection for those housed within. In the bedroom, interior clerestory windows allow natural light from neighboring areas to filter into the space. On the exterior wall, small ventilation portholes provide both natural ventilation and some natural light for the interior space.
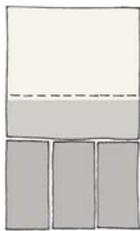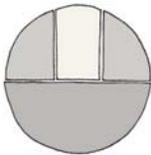
Multi-family living provides ample opportunities for shared resources while still providing individuals and family groupings with private space and livelihoods as necessary. The shared unit is designed to house diverse gatherings and events inside during the winter months, and also forges a direct relationship with the outdoors during the summer months. Ultimately, the multi-family unit strives to provide an intimate setting where students can receive support and form mutual relationships with others during their educational experience. It promotes the sharing of daily livelihoods.

5.20   *Top Left: In the traditional Iglu, living, sleeping and cooking spaces were shared by several family groupings (Author)*
5.21   *Bottom Left: In the proposed multi-family living unit, common living and cooking spaces are shared by multiple family groupings. Movable partitions allow sleeping spaces to expand and contract according to user needs. (Author)*
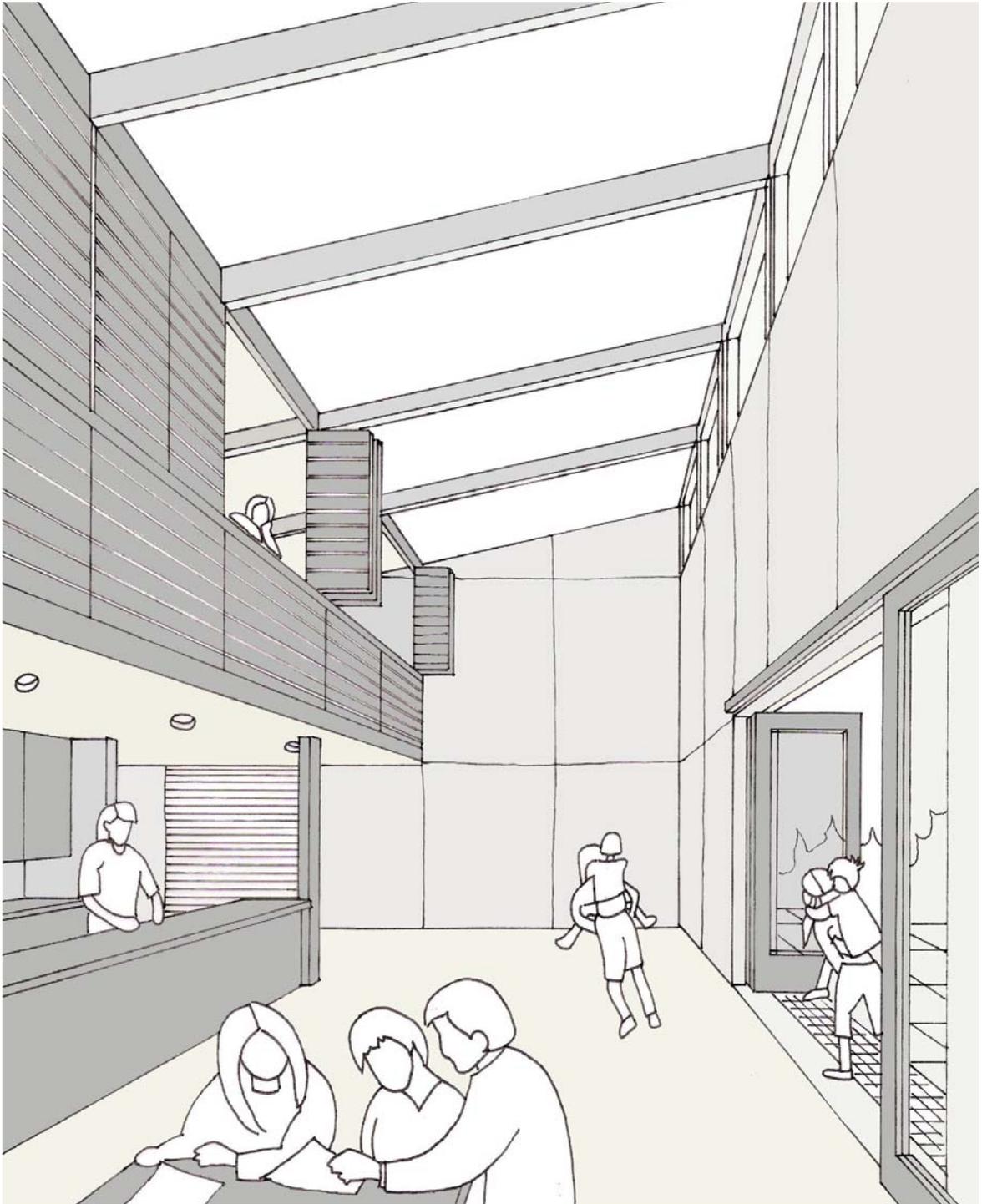
5.22   Multi-Family Living Unit (Author)

5.23   Adaptable Bedroom Space (Author)

Cluster Groupings: Extended Families

Traditionally, northern lives extended beyond the household. In many traditional northern snow houses, a common space was shared between several multi-family groups. Adjacent to the dwellings, these shared gathering spaces provided the place where northern peoples could connect throughout the year. In the proposed student living environment, gathering spaces at the scale beyond the household also provide opportunities for community connections.

The proposed cluster gathering area is shared by two multi-family units and can be physically accessed on the interior from both adjacent household units. While accessible from the ground floor, interior screens on the upper level of neighboring units can also be opened to afford visual connection to the gathering space below. Multi-height, multi-purpose, and finished with durable wall and floor treatments, the gathering space has the potential to serve various programmatic roles throughout the day and year: it offers a place for shared meals, group meetings, and study groups. As well, it has the potential to house traditional community activities or to provide an easily monitored play area for children throughout the year. Specifically when privacy or quiet is desired within the multi-family living unit, a shared cluster space can provide an alternative to gathering in the household unit.

The function of the gathering space can expand and contract throughout the changing seasons. During winter months, the interior space is sheltered by a layered wall system consisting of glass doors and an exterior screen system. During the winter moths, cluster gatherings draw inwards to the core of the space. During the summer months, the entire south facing wall can peel away. The glass doors and thermal screens retract allowing the cluster space to extend into the landscape, essentially becoming a large covered exterior space.

Throughout the year, the cluster gathering space has the potential to house larger scale gatherings and to provide a supportive environment for students and their families to gather together. Ultimately, the cluster space provides a multi-purpose space that encourages interaction among units, and invites friends and neighbors to connect throughout the changing seasons.
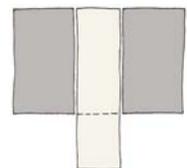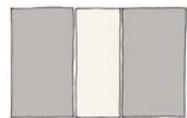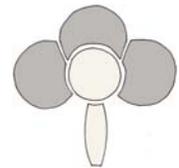
5.24   Top Right: In this traditional Iglu, a central gathering space was shared by three domestic Iglu units (Author)
5.25   Middle Right: The proposed cluster space could be shared by two multi-family units (Author)
5.26   Bottom Right: During the summer months, the south facing wall could open up to the exterior landscape beyond (Author)
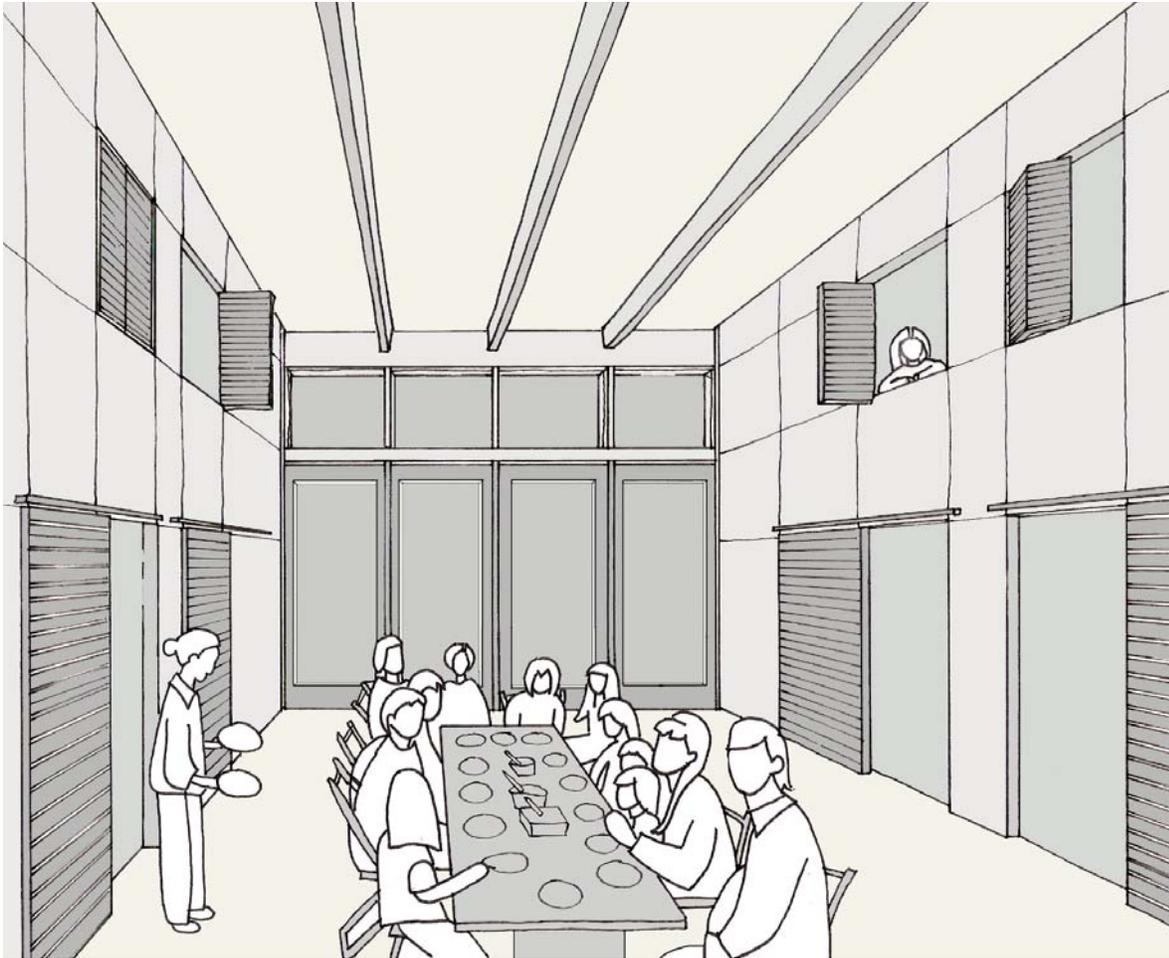
5.27   *During the winter months, the Cluster Space could provide an interior environment for groups to gather together. Among many potential activities, the space could house communal meals (Author)*
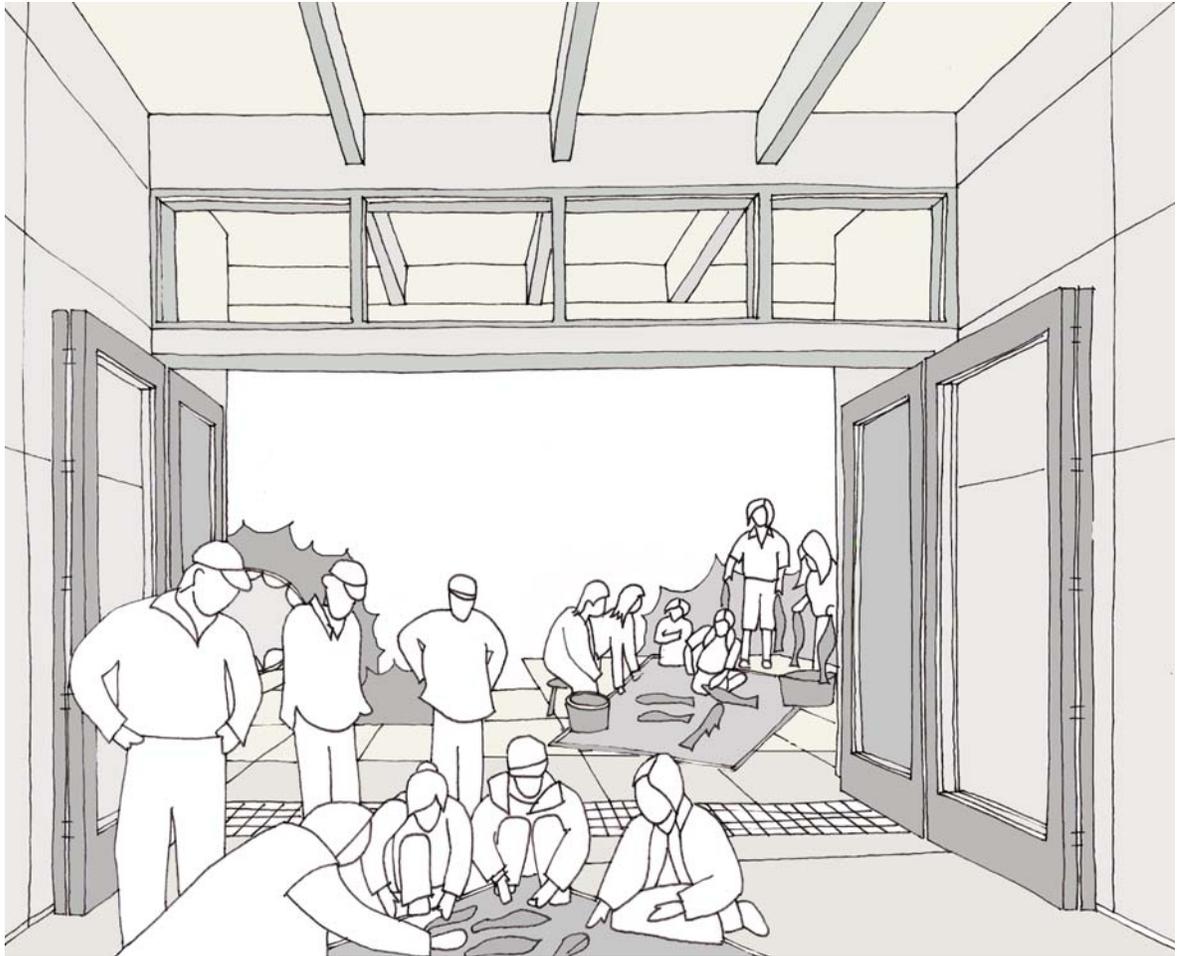
5.28   *During the summer months, the cluster space could open to the outdoors.*
       Connected with the landscape beyond, the sheltered space could provide a protected
       environment where traditional activities and gatherings could occur (Author)

5.29 Interior passageways connect people and spaces throughout the year and provide a place where community members can informally meet and gather (Author)

Interior Circulation: Community Connections

To further encourage community connections throughout the year, a series of interior circulation routes have the potential to operate as both social and environmental connectors for the northern student community. Designed to connect cluster groups with larger gathering and living spaces, the proposed circulation routes do not merely operate as sheltered passageways but rather are developed to provide students with a variety of opportunities for encounters and gatherings with other inhabitants.

Within the multi-level space, stairways, ramps and overhead walkways invite a connection with the multiple levels of the building, while seating alcoves, a mail area and notice boards all invite informal pauses and spontaneous gatherings. From the wide passageways, views are afforded through interior windows to other programmatic spaces to occur further connecting the various components of daily life. Ultimately, the interior circulation system shields inhabitants from the harsh northern climate and provides a means for both physical and social connection with the entire community throughout the changing seasons.

Gathering Together: Interior Community Space

Like the traditional gathering houses that allowed an entire community to assemble together, in the contemporary context, an interior gathering space provides a place for a variety of cultural meetings, feasts and celebrations. The proposed gathering space is open concept and designed to house events of a variety of scales and content. Composed of a series of spaces located on multiple levels, the space possesses the ability to expand and contract in order to meet the changing needs of the northern learning community. When separated, these smaller spaces can serve as a series of classroom spaces or house smaller group meetings or events. Through the use of operable interior partitions, these smaller spaces can open to one another to become a congregate space. In this context, spaces located on the upper level serve as a mezzanine space and afford views to the gathering space below.

The main gathering space could also contain a large hearth composed of local stone. During cultural ceremonies and traditions, the hearth could become a focal point for the celebration and provide a place for the ceremonial fire. In other contexts, the fire could also serves as an invitation to gather, and the space surrounding it could provide a warm environment for smaller groups to gather. Beyond the hearth, other important programmatic features and adjacencies to the gathering space could include kitchen facilities for large feasts and gatherings.

Like the multi-family and cluster spaces, the main congregational space also has the ability to open to the outdoors throughout the year. During the warmer months, the exterior protective layer, glass and screens can be stripped back, leaving a large roof overhang to provide shelter from the elements. The overhang also provides an appropriate focal point and stage for outdoor formal events. The resulting intermediate space provides a spot where both interior and exterior dwelling experiences can blend together. During the weeks and months when dwelling outside is not possible, the screen doors invite natural air in while still protecting inhabitants from outdoors pests and animals. On colder occasions the glass doors can grace the south wall, maintaining a visual connection to the outdoors.
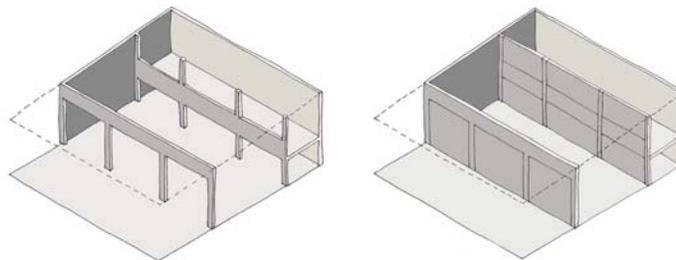
5.30   Left: When partitions are open, adjacent areas serve as a mezzanine for the main gathering space below (Author)
Right: Neighboring areas house smaller gathering or classroom spaces when partitions are closed (Author)

5.31 The main gathering space could provide a venue for events such as the Dogrib Hand Game while adjacent spaces on the upper level could provide additional viewing space. (Author)

Throughout the year, this main interior gathering space provides a place for the entire student body to gather together: it serves as the primary venue where students and the broader community can congregate together for social and cultural gatherings at the grandest of scales.

The Drum Dance

When a Dene dances with the drum,
it is time of reflection and self-evaluation.
To dance the drum dance is to know oneself.
When the Dene dance the drum dance,
they are at their closest to the Creator.
When the Dene dance with the drum,
they dance separately but together in harmony.
To dance as one requires respectful relationships.
Yet they dance separately respecting the spirit of one another.
There is no desire to control or have power over one another.
The power comes from the voice of the drum.
They dance in a circle, like the drum and like the earth.
To dance as one means survival as a people.

- *Dene Kede Curriculum*, Northwest Territories Education, Culture and Employment
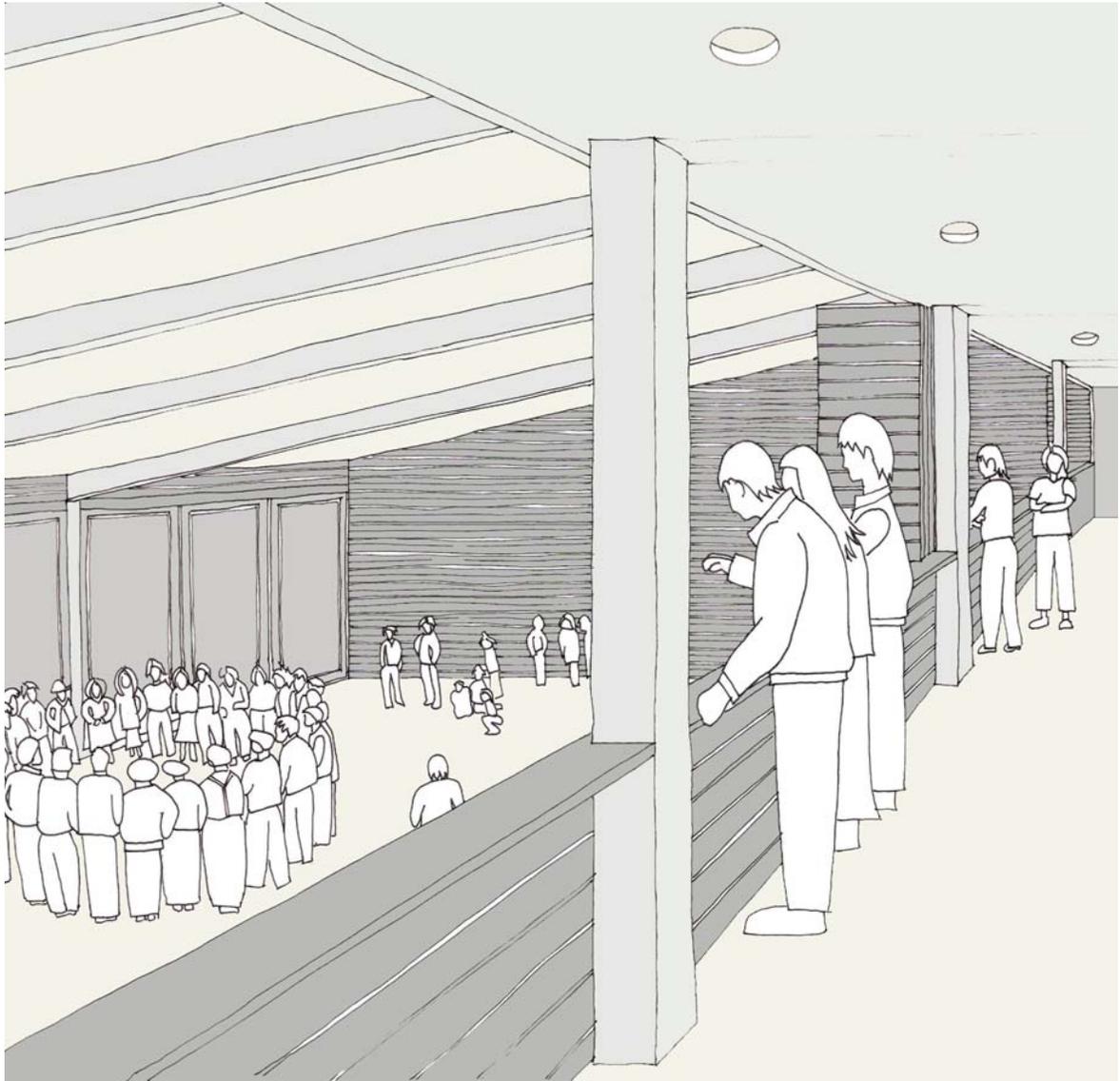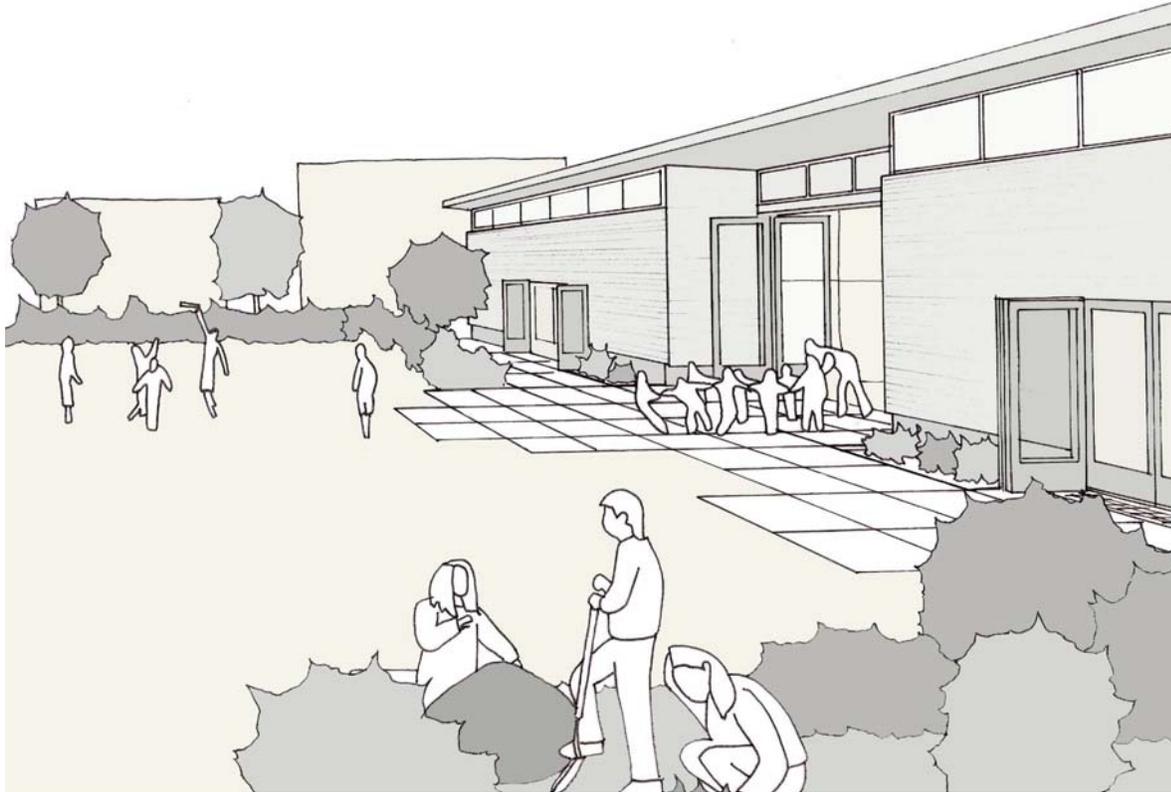
5.33   During warmer months, the exterior landscape could provide a place for community gathering, recreation, and traditional activities. (Author)

Life on the Land: Gathering Outside

Traditionally, northern living was not contained but rather was understood as an expansive experience. The indoors and outdoors were linked rather than separated: northern living was a part of the immediate northern land. In the contemporary context, the exterior gathering spaces continue to have the potential to be developed to enhance the natural extension of the interior dwelling context.

Womb-like and protected, the proposed exterior living space is surrounded by the student living complex and provides an enclosed and protected area for living on the landscape. On a daily basis, exterior living spaces could host informal activities including gardens,
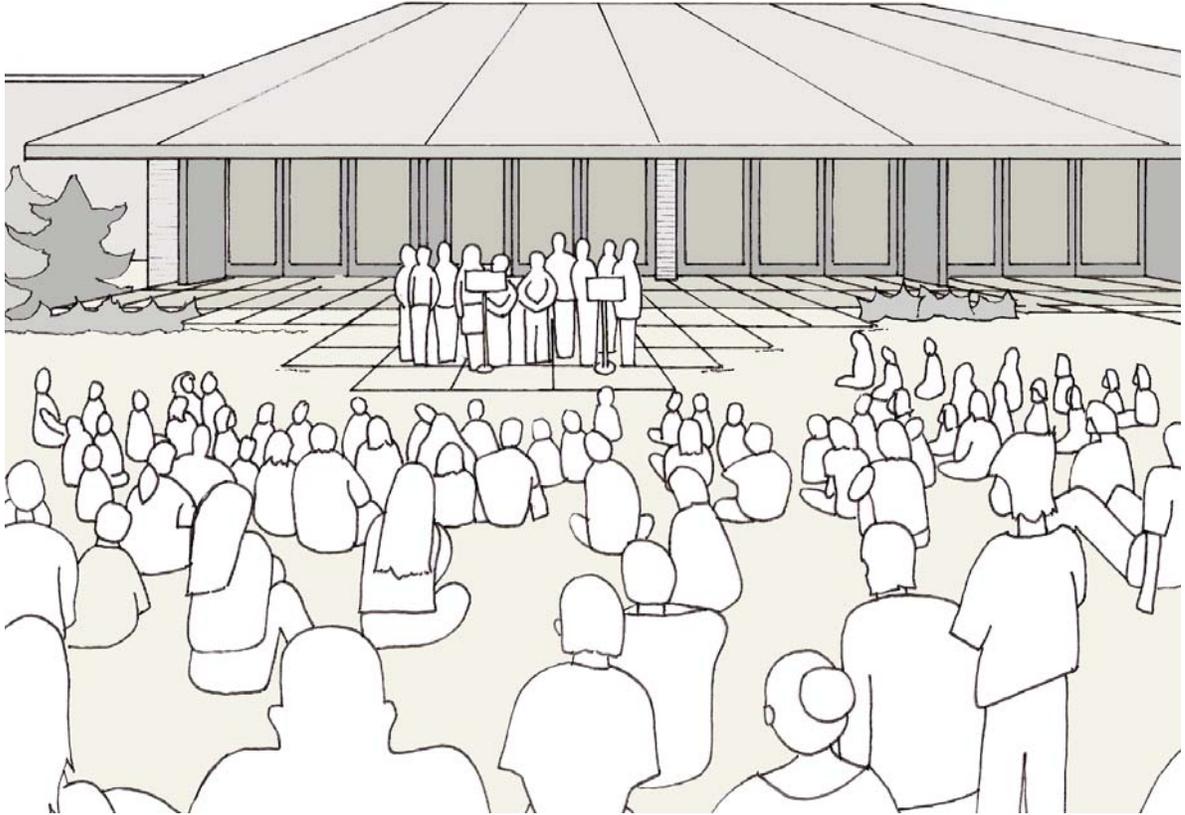
5.34 A roof overhang and patio surface provide a focal point and stage for formal outdoor gatherings. (Author)

play areas, and spaces for recreational activities. On a formal level, it could house a variety of activities including large meetings and cultural celebrations, or provide a place where the entire student living community could come together upon the northern land.

All interior living spaces - including the multi-family units, shared cluster gathering areas as well as the large interior gathering space - open outwards towards the exterior gathering area. During the summer months, these two dwelling experiences are physically connected. They blend into one another and are reciprocal and interrelated. During the dark and cold winter months, the light of the life housed within the complex is reflected outwards upon exterior gathering space. The building serves as a beacon upon the northern landscape.

Culture and Climate: Merging the Realms

At all scales of the project, the design strives for the desired cultural conditions while adhering to the necessary climatic conditions for northern building. Social and cultural agendas for contemporary works cannot operate in isolation but must also adhere to northern climate needs. Both the social community and physical environment are vital components to the northern project whole.

In traditional developments, the section and material composition of northern dwellings ultimately shielded northerners from their harsh winter environment, and the desired social organizations guided the layout or plan of the winter dwellings. For example, in the annual organization of the Iglu, the section and material composition of the building provided shelter from the external environment. Because of this, winter spaces did not require southern exposure, and the plan was ultimately dictated by the most desirable social arrangements. In the contemporary context however, northerners live within the same dwellings throughout the year and through a variety of means, therefore the contemporary northern building is designed to adapt to the changing seasons. During the winter months, it remains important to shield inhabitants from the harsh northern forces, while opening the main living spaces – both interior and exterior - to warm southern exposures. With the light of the summer months, it is important to block light from sleeping quarters, while opening living areas to the midnight sun. In the contemporary context, these climatic conditions must be considered during all seasons and at all social scales of the complex including the multi-family, cluster, interior and exterior gathering spaces of the northern development. This interrelationship – between climate and culture – adds a challenging new dimension and a commitment to negotiations in contemporary design efforts.

A series of diagrams outline how these climatic and social proposals could operate concurrently in the context of the proposed student living environment. Though the propositions differ in form and degrees of openness and closure, several common characteristics exist amongst each of the options. Each design is focused around a large shared outdoor gathering space. Each design places an emphasis on the building's openness to the warmth of the southern summer sunshine where the exterior space is sheltered from northern cold and wind. Ultimately this form provides a distinct area for social and cultural activities. All interior community spaces embrace this community forum, and can open to it. On the northern perimeters of the proposals, there is interior circulation, air-lock vestibules to individual units, as well as parking and storage. These programmatic elements provide further protection from northern elements, and invite the main living spaces and community life located to the south to flourish.
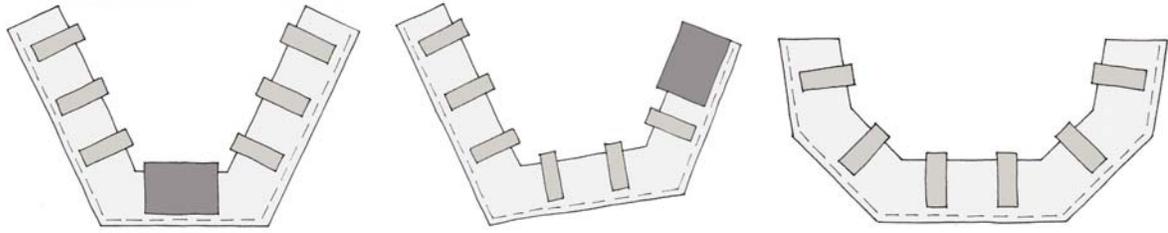
5.35 In each of the potential community configurations, the multi-family living units (light), the shared cluster spaces (medium), and the community gathering space (dark) open to the south facing exterior area. In each proposition, interior circulation routes and private access to units can be located on the northern perimeter of the development. (Author)

Building in Context: Site Considerations

The proposed translation ideals do not dwell in isolation, but rather exist in the context of a specific site and a broader civic community. In the continued development of the project, several important site characteristics –- social, cultural and environmental - could be considered. These relationships and direct connections have the potential to empower students and enable them to move beyond the student living environment to dwell and form relationships within the broader civic community.

In *Bare Poles: Building Design for High Latitudes*, Harold Strub outlines several qualities upon which seasonal site selections were made. Traditionally, proximity to food was an important criterion for selecting a living location. An abundance of fish and game for harvesting was vital to provide inhabitants with sustenance throughout the seasons. Beyond access to food, it was also important that a site have access to adequate means of transportation. Therefore, direct waterfront access was essential: rivers, lakes, sea shores or sea ice each provided northern mobility throughout the changing seasons.[4] Other important site features included views from the site to the most likely land and water approaches. These sightlines enabled community members to watch for returning hunters, changes in weather, game prospects, or the arrival of an enemy in the community. For the construction of temporary dwellings, the site had to be well drained and contain the ability to house four or five families in separate tents or houses, as well as space for drying racks, smoke houses, storage platforms or meat caches.   The site had to be suitable for orienting dwellings away from the harsh northern winds while opening to warm southern sunshine, and in order to construct and insulate the dwellings, local building materials including trees, animal bones, stones or ground cover, were required within close proximity.[5]

Today, as in the past, contemporary sites should be considered for their ability to provide inhabitants with the appropriate connections with their families, neighbours and broader contexts while providing protection from the northern climate. For the northern student living community, an appropriate site is vital to the success of the project. While the site

5.36   *Yellowknife City Map (Author)*

A	*Akaitcho Hall Site*	J	*Kam Lake*
B	*Current Aurora College Site*	K	*Range Lake*
C	*Proposed Aurora College Site*	L	*Frame Lake*
D	*Downtown*	M	*Jackfish Lake*
E	*Old Town*	N	*Long Lake*
F	*Latham Island*	O	*Niven Lake*
G	*N'Dilo*	P	*Rat Lake*
H	*Jolliffe Island*	Q	*Back Bay*
I	*Airport*	R	*Yellowknife Bay*

5.37 *Downtown Yellowknife Educational and Cultural Facilities (Author)*
   Akaitcho Hall Site (A); Sir John Franklin High School (B); St. Patrick Catholic High School (C);
   Weledeh Catholic Elementary School (D); Kimberlite Career and Training Centre (E); Aurora College
   North Slave Trades and Technology Centre (F); Northern Arts and Cultural Centre (G);
   Yellowknife Public Library (H); Northern United Place (I); City Hall (J)

for the living community will ultimately be dependent upon the location of the proposed Aurora College Campus, several influential factors – both civic and environmental - could be present in both the location of the campus and the student living environment and each have the potential to positively influence northern living and learning endeavors.

Whereas a decentralized suburban location has the potential to isolate students from each other and the broader civic community, a central location for the living development could help to empower students by connecting them with one another, and the broader social, cultural, economic, and educational communities of the City of Yellowknife. The downtown core of the City of Yellowknife and specifically, the Akaitcho Hall site presents multiple opportunities for northern learning. As outlined in the Aurora College building report, the site has adequate space to provide for future development needs[6] and could provide a locus for a new educational hub in the city's downtown core.

Currently, the site is surrounded by a large proportion of educational facilities including two high schools, an elementary school, as well as the Kimberlite Career and Training Centre, a trade exploration centre for high school and college students. Locating both the Aurora College campus and the student living environment within this educational hub would provide both students and the broader community with various benefits. The

5.38   Downtown Yellowknife Civic Amenities (Author)
  Groceries (G); Drug Store (D); Post Office (P); Cash (C); Retail (R);
  Eating Out (E); Bar (B); Movie Theatre (M); Fitness Facilities (F)

resulting adjacencies of learning facilities and the proposed student living community could help to create a central learning core for the city. It would encourage resource sharing between the various centers for learning and allow for additional support structures to flourish between leaders, students and their families.

Beyond educational adjacencies, the central site also contains the potential to connect students with resources and opportunities in the broader civic context. Situated along a secondary vehicular artery of the city, the hub is located near Yellowknife transit routes, and is within walking distance to the downtown core. By foot, public transit or vehicular access, inhabitants of the area would be provided with direct access to public amenities – including stores and restaurants, employment opportunities, and recreational facilities - as well as the natural attractions of Great Slave Lake. These all have the potential to invite students to pursue opportunities within the broader civic context.

While students could benefit from the centralized location, direct access to public transit and the broader city, the downtown core would also benefit from the presence of this educational endeavor. While residential densification in the downtown core would aid existing downtown revitalization efforts, the development could also house services, such as a café or laundry facilities, that could be shared with the immediate neighborhood, the broader college campus and the downtown area. The project would not be an enclosed community rather it would become a new piece of the Yellowknife urban fabric.

5.39   Yellowknife Connections Map (Author)
Solid: Public Transit Routes
Dashed Gray: Ten and twenty minute walking radii

Responding to its physical northern context, ample southern exposure and shelter from the north either achieved by existing buildings or vegetation is desirable in to maximize passive solar gains within the new construction. As well, a site that is large enough to house multi-family and cluster living opportunities in close proximity to one another, and possesses the ability to house both interior and exterior living spaces for the community and to be shared with the broader city when desire, could also be desirable. A potential site could also contain a building that could possibly to be converted for re-use or have recycled materials available to be used in the construction of a new building.

Community Building, Community Buildings: Supporting Northern Learning

Returning to the words of Winston Churchill: "First we shape our dwellings: then our dwellings shape us," [7] a series of implications of the first design translation are explored. As in the past, the living environment once again becomes the foundational setting for learning and a place where valuable teachings, cultural values and lessons for survival on the northern land can be explored. Environments are created to reflect these needs, simultaneously integrating the realities of the northern climate.

The proposed student living environment contains qualities that have been important to northern people and their modes for dwelling and learning for generations. Like traditional living environments, lives are shared within the student community. Dwelling does not occur in isolation, but rather it is a communal experience. For students and their families who are away from their home communities and support structures, shared living allows for daily companionship and mutual support networks to compliment daily learning and living experiences. The living community is intergenerational. On both a daily and formal basis, Elders bring wisdom and guidance to students in the community. To support the rearing of children, open concept dwellings, shared cluster spaces, as well as protected exterior gathering spaces with physical and visual access from interior living environments all allow for ease of supervision of children. The entire community supports the lives of families and children.

The student living environment provides a place where both the traditional and modern ways can be followed and learned. On a daily or formal basis, and within the living or gathering spaces of the environment, Elders share cultural stories and model traditional activities. Encouraging traditional activities to occur alongside academic pursuits, the student living environment enables both traditional and contemporary activities to co-exist. The intergenerational, interconnected and flexible nature of the proposed living spaces ensure that "Even if young people are doing homework and studying for school – they can hear native language, stories and learn traditional knowledge and skill. Thus, even if youth are not actually listening to stories they can still hear them." [8] In this living and learning environment, both traditional values and contemporary learning are pursued and celebrated.

Ultimately, the proposed living environment moves beyond assimilative educational experiences of the past to provide a supportive living environment for contemporary northern students. Although removed from their home communities, the living environment provides the foundation for continued learning. As a home away from home, it provides the place where students can pursue traditional knowledge and cultural continuity alongside their contemporary academic endeavors.

they collect the artifacts to study the past
out of the bone fragment, chipped from stone and delicate
cedar weave is written a history long forgotten.

in all this where is the truth?
what is the history?
maybe history should not be the question,
for history is written
not passed on in the story at the bighouse,
or in a lesson to the young.
yet while the archaeologist's artifact
and the historian's document
remain important,
too often, the record shows the history
from the historian's own living eye.

the truth is perhaps
in the elders who remember
who are living and looking to the young.
what can be comes from
the spirit of the past,
the wisdom of the elder;
and the new strength of the young.

the history is alive,
not be found in an old site,
but present in the people.
and when the record changes to tell
a more accurate "history"of our people,
then the true spirit of our past,
present and future can be given,
and in return valued.

-Frank Conibear in *Voices Under One Sky*

CONTINUING THE DIALOGUE

It's not as some people keep referring to us as looking back. We are not looking back.
We do not want to remain static. We do not want to stop the clock of time. Our old
people, when they talk about how the Dene ways should be kept by young people, they
are not looking back, they are looking forward. They are looking as far ahead into the
future as they possibly can. So are we all.
- Georges Erasmus in *Denendeh: A Dene Celebration*

Continuing the Dialogue

Building Collaboration, Building Community: A Home for Northern Learning documents the
initial stages of a collaborative design development for a student living community in
Yellowknife, Northwest Territories. The thesis ultimately asserts that in order for relevant
built forms to evolve, architecture must not only seek new programs but also restructure
the social relationships of those involved in the place-making process. In the context
of working with an Aboriginal user group, this process of work must no longer be a top
down strategy governed by the architect, but rather a lateral approach to design where
local community members are involved throughout project developments.

The thesis explorations are not finite conclusions for design processes and the architecture
of northern education, but rather, they provide a starting point from which continued
investigations can evolve. In future stages of project development, a variety of creative
and interactive opportunities could be employed in order to engage community members
in both a meaningful and comfortable manner throughout project developments. As
people participate effectively in different ways, these opportunities could range from
discussion groups, workshop forums, and collaborative efforts with local schools, to design
sessions, and community mapping, games, and site development activities. While these
processes and design ideals could extend to other projects in the northern community
and beyond, specific to the development of a student living community, a core visioning
group, architecture workshops for children, and apprenticeship programs for youth and
adults, each have the potential to invite participation from community members of all
ages in continued developments.

6.1 Opposite

Finding a Direction: A Core Visioning Group

The involvement of the community in the initial visioning stages of a project and throughout the duration of the work is critical. This approach to working is rooted in the ideals of shared leadership and community empowerment: from the beginning of the project, the community generates and inspires ideas instead of reacting to those imposed upon them. The core visioning group - potentially including Elders, community and educational leaders, high school and college students from Yellowknife and surrounding communities, members from outlying Dogrib communities, or any other interested local citizen - could provide a foundation throughout project development. The group could identify pertinent issues, work with the architect and broader design team to clarify the project goals, and provide the project with community exposure.

Building Future Leaders: Architecture Workshops with Children

During the programming and design development stages of the project, workshops with children and teenagers could engage young community members in interactive design activities. These workshops would help participants to gain an understanding of important spatial relationships within a building as well as with the broader community. Students could also be invited to think about the building's relationship with the environment and the potential influences of the natural elements of the sun, wind and cold temperature. Shelagh Nation, a South African architect who also conducts workshops with high school students in South Africa outlines several opportunities for learning in the book *Opportunities for Relevance*. Reflecting upon workshops with students she notes: "The children learn how to select a site, determine a brief for a community building, produce basic sketches and even construct a model." [1] Through these types of workshops, skills are gained that have the potential to influence children and the broader community on two primary scales. Firstly, in the short term, students provide vital insights for design developments in their home communities. Then, beyond these immediate contributions, students also gain skills that can be reapplied in other community contexts. Nation concludes, "The child who has gained basic knowledge about how to select a site and how to read architectural drawings will be more likely to sit on a community committee where he or she will be able to make informed decisions about a prospective building project." [2]

Cultivating Local Skills: Apprenticeship Programs for Youth and Adults

There are also potentials for youth and adults to be involved in the construction, management and administration stages of a project. Apprenticeship programs for youth and adults in the community present great opportunities for the local community. Primarily, these opportunities allow contemporary building construction to follow the traditional educational style of generations looking after one another and learning through observation and hands-on experience. As well, during the project development stages, buildings can be designed to match both human and material resources in the local community. Then, by linking local students with trained trade's people in the community, apprenticeship programs not only create meaningful work opportunities for young people, but they also

enhance skills training for future employment opportunities. Beyond these new tangible skill sets, apprenticeship and employment programs also contribute to the local economy by keeping project dollars in the local community. Ultimately, these approaches seek to best respond to community needs, preferences and concerns: through direct involvement during the construction stages of a project, the local population is provided with greater influence and control of developments in their home community.

Building Collaboration

Today, many groups – both nationally and internationally – successfully employ collaborative processes for design developments. In many of these situations, collaborative processes are utilized to achieve a final end goal: insights and ongoing discussion from the group ensure that the final design appropriately reflects community values and meets local needs. While these outcomes are also desirable for projects among Aboriginal populations, in this unique socio-cultural context, the design process assumes a heightened role. When working with Aboriginal populations, collaborative processes are utilized not only for the potential built product, but also for the variety of benefits that could potentially be gained throughout the design and development process.

The approaches undertaken in the thesis investigations and those proposed for future works are rooted in the belief that community involvements in design efforts have the potential to create more appropriate and relevant architectures for the end user group. As well, these processes also provide community members with tangible skills in planning, design and the construction realms, as well as a sense of ownership and responsibility for the final built forms. Built by local people for the local people, those engaged in the project may also feel the pride from the experience of generating proactive developments in their community instead of adapting their livelihoods to solutions imposed upon them.

While collaborative processes profess a variety of positive spin-offs, ultimately, architectural processes and forms cannot alone be heralded as the solution to community challenges. While both the process of working outlined in the thesis and the proposed student living community has the potential to positively influence northern learning, it must be understood that the architectural proposition is but one component - among many - in a broader dialogue for northern learning. In the context of northern education, architectural strategies are part of a broader spectrum potentially including relevant curriculums and course content, trained teachers and appropriate pedagogies, and other supports for students. These structures – alongside the architecture of education – each have valuable contributions to make to developments in the northern educational experience.

As collaborative design processes begin to take hold, a variety of questions and challenges will require continued dialogue and investigation. Fundamentally, collaborative processes are rooted in ideals of long term development over short term relief. Thus, at the outset of the project and throughout the duration of collaborative developments, additional time and financial resources are required in order that adequate interaction between the design team and the broader community can occur. These values conflict directly with contemporary architectural projects governed by time and budget constraints. However, while the cost-effectiveness of collaborative processes can be debated,[3] ultimately, if collaborative processes are to take hold, a primary shift in philosophy – from immediate solutions to longer term developments – is required. Collaborative processes offer long term human gains that cannot always translate into tangible financial terms in the immediate context. Thus, as a design community, creative strategies for overcoming these obstacles will be required throughout the duration of collaborative works.

Beyond constraints relating to time and budget, other social challenges will also require continued investigations. At their core, collaborative efforts rely upon a community's ability to reflect upon their local experiences and make appropriate decisions for the future. In many Aboriginal communities however, where citizens have rarely been invited to provide input into their own dwelling realms, many have had little exposure to alternate opportunities and instead are unaware of potentials that exist for their community. Furthermore, through generations of marginalization and dependence based operations, many have grown to believe that their opinions aren't valid. They have grown accustomed to substandard conditions and are simply content to get what is offered. Thus, for designers working within these contexts, creative and flexible working strategies will be required. While working within a common philosophical framework, a flexible template of collaborative approaches will be required with all user groups. A common prescription will not apply in all situations: individuals and communities will each respond to collaboration in a variety of ways and to differing degrees. Ultimately, these questions and challenges - among many other areas of investigation - will require further exploration. Now, and in years to come, they will form the foundations for continued dialogues and developments.

Fulfilling Mutual Promises

Today, within the cultural mosaic of Canada, collaborative working processes provide an alternative approach for working relationships among Aboriginal and non-Aboriginal neighbours. In a context previously afflicted by imposed architectural strategies that failed to meet community needs, collaborative processes provide new grounds for meeting together: they propose a fundamental shift in working relations and ultimately provide a new paradigm for architectural design efforts.

The treaties that once formalized and continue to bind all Canadian peoples – Aboriginal and non – provide an appropriate foundation for these new relationships. Traditionally, through treaty agreements, the deepest of differences were set aside in favour of a consensual and peaceful connection among differing peoples. Parties involved were not to surrender their fundamental cultural precepts in order to make an agreement to coexist, but rather, they were to communicate their joint desire to live together in peace, to embody their own laws and institutions while respecting each other, and to fulfill their mutual promises.[4] Today, in the contemporary context, these historic treaty agreements provide the appropriate grounding for continued relations and developments. As Canadian citizens - both Aboriginal and non – we are all *treaty people* [5]. In our varied domains of life and labour, we all share the mutual responsibility of building a home where respect and co-existence is prominent, and where individuals and communities can thrive alongside one another.

In the realms of architecture and design, engaging in collaborative working processes are one way that design professionals can contribute to this broader challenge. These new models of working invite design professionals to fulfill their responsibility as *treaty people:* throughout the various cultural contexts of Canada, they provide opportunities for fulfilling the mutual promised housed within the treaties.

At its core, the thesis strives to fulfill these common goals of mutual responsibility not only through the design for a student living community to support northern learners, but also through the collaborative design process by which it is conceived. At its core, the thesis promotes an alternative paradigm for continued architectural work: these design relationships culminate in a community living environment for northern students that encourage cultural continuity, educational endeavors and a direct relationship with the broader northern environment to thrive alongside one another. Ultimately, through these processes, the project serves as a vehicle for building collaboration and building community amongst Aboriginal and non-Aboriginal neighbors.

It is time things changed. It is time the gulf between us was acknowledged, explored, bridged where possible and accommodated where not. Neither group is going to disappear. We must both deal with our unresolved feelings of grief, anger and guilt before we can recognize that the future is our common challenge. It is essential that we start explaining ourselves to each other so that we can make choices for the future – together and separately – based on accurate perceptions of the two realities. Perhaps then we can begin to leave the pattern of the past behind us.

- Rupert Ross in Dancing with a Ghost: Exploring Indian Reality

Appendix

Consultations with community members in Yellowknife and Rae-Edzo, Northwest Territories provided the foundations for the thesis developments. The following documentation outlines procedures that were required both before the community consultation process could begin, and throughout information gathering efforts in the northern context.

At the outset of the work, funds to support the thesis pursuits were received through the Northern Scientific Training Program in March, 2005. Managed by the Department of Indian Affairs and Northern Development, the Northern Scientific Training Program provides funds to Canadian university students pursuing northern topics from all disciplines and in multi-disciplinary fields. A brief description of the thesis endeavors including project objectives, methodology and the significance of the research to the broader northern community was required in the NSTP application process.

In addition, research involving human subjects conducted at the University of Waterloo requires ethics review and clearance through the Office of Research Ethics. The ethics clearance application included a summary of the proposed research, outline of the research methodology, participant recruitment methods, study locations, and the potential benefits and risks from the study. Methods of gaining informed consent of all participants, was also scrutinized. An Information Letter, together with a consent form was developed for distribution to all participants prior to thesis consultations. These documents included background information on the researcher and the nature of the research, as well as the roles and rights of the participant within the research project. Ethics clearance for the study was issued by the University of Waterloo in June, 2005.

Finally, a Scientific Research license was obtained through the Aurora Research Institute (ARI), as required for all research conducted in the Northwest Territories. Community

consultation was a central component of the ARI research licensing procedure. Contacts with the Campus Director, at Aurora College in Yellowknife; the Principal, at Chief Jimmy Bruneau School in Edzo; and the Mayor of the City of Yellowknife, were developed at this stage in the work, enabling receipt of written support for the research, in order that the ARI license could be obtained. In August, 2005, a Scientific Research License was issued by the Aurora Research Institute.

While in the north, community consultations occurred in a variety of educational and civic contexts in both Rae-Edzo and Yellowknife, Northwest Territories. All consultation occurred between August 23 and October 7, 2005. Participants in the study included high school and college students, parents, teachers, educational leaders, elders, northern architects, and civic leaders, with participants being generally willing, and eager to contribute to project development. Consultations occurred through both formal and informal means, at the Yellowknife Campus of Aurora College and the Chief Jimmy Bruneau School in Edzo, and involved fourteen individual interviews and three group talking circles.

The themes and topics of these interviews and group talking circles were flexible, however, initial topics of discussion focused upon the personal educational experiences of northern students and leaders, current barriers to education, visions for the northern educational landscape of the future, as well as the role of culture in the northern learning environment. In collaboration with student leaders at the Yellowknife Campus of Aurora College, an anonymous questionnaire was also developed for distribution to the broader student body at the campus with sixty one questionnaires being completed. The student leaders presented the findings of the questionnaire survey to the Aurora College Board of Directors in November, 2005.

Beyond these methods of formal information gathering, a variety of informal consultations also occurred throughout project developments. At the Chief Jimmy Bruneau School in Edzo, these included daily participation in Dogrib culture and language classes, and time spent with a local Rae elder employed at the school, who frequently shared her life stories and pictures. Other informal contacts were also established through the school's Career Information Centre, with students who were investigating future educational options, sharing their post-secondary educational goals, opportunities and concerns. All these community consultations, both formal and informal, greatly influenced the development of the thesis work.

The Adult Learning Environment:

A Questionnaire for Students at the Yellowknife Campus of Aurora College

Part A: You and Your Home Community

1. Where is your home community?
    a. Yellowknife, NT   = 38/61
    b. Rae, NT   = 4/61
    c. Inuvik, NT   = 4/61
    d. Fort Smith, NT   = 4/61
    e. Fort Providence, NT   = 4/61
    f. Wrigley, NT   = 1/61
    g. Deline, NT   = 1/61
    h. Aklavik, NT   = 1/61
    i. Lutselke, NT   = 1/61
    j. Jean Marie River, NT   = 1/61
    k. Arviat, NU   = 1/61
    l. Grimshaw, AB   = 1/61

2. Where do you live while attending school?
    a. Out of Town Students:
        Broader Yellowknife   = 13/61
        Student Residence   = 10/61
    b. Local Students:
        Broader Yellowknife   = 38/61
        (Including 'with parents', 'with children',
        and 'in expensive apartment')

Part B: School and Learning

1. What are you studying at Aurora College?
   a. Nursing Access   = 14/61
   b. Nursing   = 35/61
   c. ABE   = 10/61
   d. Computer Technology   = 2/61

2. Why did you choose to pursue further education?
   a. "I wanted to become a registered nurse" (Nursing)
   b. "To make a better future for my son and I" (Nursing)
   c. "My home community lacks nurses" (Nursing)
   d. "To support my family" (Nursing)
   e. "To finish the basics so I could pursue other goals" (ABE)
   f. "To help my boys to do their homework and to be a good provider" (ABE)
   g. "To have a better future" (ABE)

Part C: Barriers to Learning

1. Which of the following do you think are barriers to continued learning?
   (Check all that apply.)
   a. Financial Challenges = 42
   b. Poor Housing = 28
   c. Pregnancy and Childcare Issues = 24
   d. No educational opportunities in Home Community = 17
   e. Difficulty Learning in the Formal Learning Environment = 13
   f. Racism = 12
   g. Absence of Aboriginal Culture/Languages = 8
   h. Other:
      i. Too much Aboriginal stuff – kind of reverse racism against white people
      ii. Not enough funding for a month
      iii. Instructors unaware of what its like in the communities
      iv. Family Life – still trying to be a father while being a full time student
      v. Health Issues

2. What have been barriers for you in your educational pursuits?
   a. "Housing availability"
   b. "Leaving home"
   c. "Living away from my family for a long period of time. It's hard living here without knowing a lot of people."
   d. "Finding time to study with a child at home"
   e. "Having a child and dropping out"
   f. "I have 4 children and my husband is employed in our home community. We split our family in half during the school year."
   g. "Family Obligations"
   h. "Balancing school and personal life"
   i. "Finding peers"
   j. "Finding and affording daycare"
   k. "Pregnancy – need to find childcare"
   l. "Financial Challenges – have part time job"
   m. "Money, money, money… for tuition, childcare, high living expenses in Yellowknife."
   n. "Racism"
   o. "Health Issues"

Part D: Continued Learning Opportunities

1. If you had the option, would you prefer to move away for school, or attend school in your home community?
    a. Away = 36/61
        i. "To experience new places and new challenges."
        ii. "No distractions."
        iii. "To have an experience on my own, meet new people and explore."
        iv. "Increased independence."
        v. "My home community will slow me down. I have too many friends there."
        vi. "To experience life on the outside world."
        vii. "Challenge of new environment – being out of comfort zone"
        viii. "Meeting new friends and different environment to refresh your mind and spirit."
    b. Home = 25/61
        i. "It's where I want to work."
        ii. "Closer to support structures."
        iii. "Too many distractions in the big city."
        iv. "Less disruptive for family"
        v. "I'm married, could not separate for years, nor afford two homes or move family away."
        vi. "To stay close to my family."
        vii. "It's better for my children. They are finding it hard to adapt to life in Yellowknife."
        viii. "More resources that I am familiar with."

2. Which of the following resources do you feel would be of benefit to students if they were available in the educational environment? (Check all that apply.)
    a. Childcare at School = 35
    b. Student Housing for Individuals = 38
    c. Student Housing for Families = 37
    d. Student Lounge Spaces = 28
    e. Access to Elders / Cultural Resources = 24
    f. Health Services = 18
    g. Counseling Services = 16
    h. Educational Opportunities in Home Community = 15
    i. Meeting Rooms = 10
    j. Other:
        i. "Counseling for all – regardless of race.'
        ii. "Exercise facilities."
        iii. "Better Library services with extended hours."
        iv. "Better parking."
        v. "Fitness facilities for mind, body, spiritual connection and wellness."
        vi. "Housing: even for Yellowknife residents, and available year-round, not just during the school year."

Part E: Aboriginal Culture in the Learning Environment

1. Do you think it is important to have Aboriginal Culture in the learning environment?
   a. Yes = 43/61
      1. "I think it's important to have a wide variety of cultural learning and experiences – not just one culture."
      2. "To learn traditional systems which western culture is lacking."
      3. "To help understand cultural differences in our eventual clients."
      4. "Forms better relationships by eliminating myths and misunderstandings."
      5. "To keep the culture alive – so we don't forget our language and where we come from"
      6. "Being away from home keeps me away from my traditions."
      7. "To keep our culture going for the next generation, so that we can teach our children and their children."
      8. "Its part of living in the north."
      9. "We are living with Aboriginals, in Aboriginal Territory."
      10. "Not all people want to lose their culture because of having to go away for school."
   b. No = 12/61
      1. "Too busy."
      2. "They don't have to learn about white culture."
      3. "Not everyone plans on staying in the North."
      4. "It has absolutely no relevance to education. Culture is individual and not the responsibility of the post-secondary educational environment."
      5. "N/A. I am not Aboriginal."
   c. No Response = 6/61

4. What cultural resources do you think would improve the Aurora College learning experience? (Check all that apply.)
   a. Community Living Environment = 21
   b. Place for Cultural Ceremonies and Spiritual Practices = 19
   c. Access to Elders at School = 17
   d. Aboriginal Language Instruction = 16
   e. Aboriginal Resource Centre = 8

Part F: Architecture and the Learning Environment

1. In which of the following situations do you learn most effectively?
    a. Seated at a desk = 32
    b. Group Discussion = 32
    c. Working Indoors = 21
    d. Listening to a Lecture = 19
    e. Informal Seating Arrangement = 18
    f. Working Outdoors = 12
    g. At Home = 10
    h. Computer Based = 9
    i. Other:
        i. "Hands on experience is best."
3. If you could change anything about your current living environment, what things would you change?
    a. "Have dormitories available."
    b. "Activities for kids during the winter months, and for parents and children on weekends."
    c. "Have family day at school."
    d. "A better library."
    e. "Campus life – or a real campus!"
    f. "More time to do homework."
    g. "A gym."
    h. "Cafeteria"
    i. "Parking."
4. Describe an ideal learning environment:
    a. "Open, fun, interesting, respectful."
    b. "A building with a traditional theme and artwork from Aboriginal artists."
    c. "Bright, open, natural."
    d. "More comfortable and home-like place."
    e. "Proper lecture theatres; shower, exercise and gym facilities; multi-purpose rooms."
    f. "Lecture Hall."
    g. "Increased space for program growth."
    h. "Extra-curricular activities."
    i. "Quiet and respectful."
    j. "Good views out the windows."

Part G: Future Opportunities

1. What opportunities would you like to pursue in the future?
    a. "To do what I love and to pursue Nursing as my career."
    b. "To become a registered nurse and have a big family."
    c. "Nursing in my home community."
    d. "To become a good role model for my kids."
    e. "A career in nursing along and one more child."
    f. "To bring my family back home and work as a nurse in my home community."
    g. "Family – to have children."
    h. "Working in a healthy environment and having a family."
    i. "Working in the communities."
    j. "A job in southern Canada."
    k. "To have a job that I enjoy."
    l. "Challenging and interesting work."
    m. "Job, family, traveling throughout the north."
    n. "A well paying job, housing that I can afford, and a few trips out a couple of times a year."

2. How is your education helping or hindering you in achieving these goals?
    a. "Helping – I am working towards getting my job that I have wanted for a long time."
    b. "Hindering – I can't have a life because it's taken up with school work and too much homework."
    c. "Hindering – I want to start a family but students don't get money for maternity leave because they don't work. So taking time off from school without money hinders the chance of starting a family."
    d. "I have a child and want more but school is my priority right now."
    e. "It is helping prepare me for the healthcare system and will assist me with getting jobs in smaller, rural communities."
    f. "It will improve future family and job opportunities."
    g. "Education is leading to a university degree which will open new doors to my future."

Part H: Other Comments

1. Is there anything else that you would like to add?
    a. "I think the school needs more accommodations."
    b. "Aurora College needs a gym, fitness room, and also a cooking class."
    c. "Aurora College needs to look at an individual holistically to help them achieve success."
    d. "I would like to learn in a more natural environment and not so based on southern or western views and technology."
    e. "Please recognize that there are people from many different cultures attending college. Whenever "cultural" activities are discussed it always focuses only on northern Aboriginal culture."
    f. "I would like to see more activities and learning opportunities for non-Aboriginal people."
    g. "We need more money. I am pregnant and have a boyfriend, and we don't have enough money to last the month."
    h. "I think that Student Financial Assistance should take into consideration that not everyone is able to pay tuition, books and bills on $1100.00 a month."
    i. "Student discounts at various businesses, better childcare, gym…"
    j. "Let us speak more often…"

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TRANSLATION

1   Thermosyphon refers to a method of passive heat exchange based on natural
        convection which circulates liquid in a vertical closed-loop circuit without
        requiring a conventional pump In construction in higher latitudes including
        Northern Canada, heat pipes are used to prevent ice-rich permafrost from
        melting below buildings. At the bottom of the heat pipe, heat from the
        ground warms the liquid and converts it to a vapor. Cooling from the heat sink
        fins above ground releases this heat to the atmosphere and causes the vapor
        to condense on the outer pipe wall, which then drains back into the liquid pool
        at the bottom of the heat pump.

2   An alternate to the roof overhang could be a light shelf located on the exterior of the building beneath the window surface. A light shelf would not disrupt light penetration into the building during the winter months. During the summer, direct summer rays would strike its surface and then be reflected indirectly in the interior living space. Either option, an overhang or light shelf, can function in the northern context.

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3   While many argue of the inefficiencies of collaborative efforts, several architects, including Vivian Manasc of Manasc Isaac Architects in Edmonton, Alberta, challenge these perceptions. Manasc argues that a collaborative client centered approach actually saves time and money in the end by reducing the number of iterations of a project. "If you listen well, do your research well, you get it right earlier," notes Manasc. "And that empowers the staff and reduces frustration that can build on both sides."

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