ARCTIC ADAPTATIONS

NUNAVUT AT 15 – CANADA AT THE 2014 VENICE ARCHITECTURE BIENNALE

Competition Brief

UNIVERSITY OF TORONTO, TORONTO
NUNAVUT HOUSING CORPORATION, IQALUIT
LATERAL OFFICE, TORONTO

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Introduction: Arctic Adaptations

2014 marks the 15th anniversary of the founding of Nunavut. However, Canada’s largest, most northerly territory is still unfamiliar to many Canadians. The myth of the Canadian north is tied to its unique geography – vast, sparsely populated, fragile, and sublime. Yet Nunavut, like the entire Arctic region, is undergoing dramatic transformation as powerful climatic, social, and economic pressures rapidly collide. In Nunavut, over 50% of the population is under the age of 25, making it a young, dynamic nation. Simultaneously, most Northern municipalities are under pressure to address ongoing social and economic challenges regarding health, housing, education, and employment.

The theme of 15 is echoed in the team structure. Working in collaboration with five Nunavut-based organizations, design teams – comprised of a Canadian architecture office and a Canadian school of architecture – will develop a 15-year vision plan for both a regional (territory) and architectural (building) scale on a particular theme. The themes are: Arts, Education, Health, Housing, and Recreation. Arctic Adaptations seeks to foster a collective discourse in schools, amongst architecture practices, and within Nunavut communities, on a proactive architecture motivated by progressive social and environmental responsibility.
Map of Nunavut and its Communities distributed over nearly 2 million square kilometres. Communities are connected to each other and to the South only by plane year-round, and by boat in the summer months.
Introduction to Nunavut

Before the arrival of other peoples in the North, Inuit had always lived a nomadic lifestyle in *ilagiyunavaktangat* or camps. In the Baffin region alone, families lived in over 100 locations in kin-based camps. Although the process of relocation to communities began as a response by Inuit to the presence of traders, explorers, and missionaries, it took new form during the ‘settlement’ period between 1940 and 1960. During that time, Inuit were moved off the land and into communities for a number of reasons, including policing, education, and the provision of health care for remote populations and reports of starvation among some Inuit camps (Kirmayer, Brass & Tait, 2000; Indian and Northern Affairs Canada (INAC), 1996).

The changes imposed on Inuit in order to achieve this goal were rapid and dramatic—this was not a gradual progression from a traditional to a modern way of life, but a complete transformation. As a result, families were severed, people were sent away never to return, and the way of life changed completely.

Today, there are 25 communities in Nunavut ranging in size from populations of 110 to 7500. All of the communities are geographically isolated and are only accessible by air, water, or snowmobile in winter. Nunavut has a very young population. In 2011 52% of the Nunavut population (31,906) was comprised of those 24 years of age and younger. While the North is increasingly becoming a mixed cultural population, 85% of Nunavut’s population is Inuit. Further, 68% of Nunavummiut speak the Inuit languages of Inuktitut or Inuinnaqtun (Statistics Canada, 2011).

Today, all Northerners are facing a new collective transformation together; a climate changing change climate where warming temperatures are challenging notions of permanence and transience alike (everything from melting permafrost foundations to shifting migration patterns of major food sources). However this rapidly warming climate is also yielding what many view to be unforeseen opportunities, including stretched transportation windows in the Arctic archipelago. These effects of climate change are especially challenging in Nunavut, with both a very young history as a territorial government and a youthful and growing young population confronted with these challenges and opportunities embedded in a terrain that is experiencing such rapid change.
Introduction to Housing in Nunavut

“As people travelled across the land and through the seasons, the sizes and composition of the camps and the dwellings they constructed changed dramatically. In summer, camps broke into smaller units often consisting of only a single family and people lived in skin tents... In winter, people congregated in larger camps and lived in sod/bone houses called qarmat or in snow houses called igluit. These dwellings could accommodate larger family groupings... and additional rooms could be added.” (Uqalurait 226)

The anthropologist Marcel Mauss argued that a strong relationship exists between the spatial organisation of traditional Inuit house forms and the social morphology of the families they sheltered. During the 1960s, conscious attempts were made to restructure the daily routines of Inuit families through the introduction of Euro-Canadian architecture and home economics classes. (Dawson 2002)

Anthropologists such as Peter Dawson have studied how Euro-Canadian houses, first introduced in the Canadian North in the 1950s and 1960s, have been used, appropriated, and transformed by their inhabitants. Many of the key activities pursued in the houses – food preparation, eating, crafts, storage, personal needs, sewing, and socializing and maintenance of equipment—were ill-accommodated in the Euro-Canadian layouts introduced in the North. This study, while by no means exhaustive, revealed the many ways people use houses in the North. For instance, Dawson’s visits to Inuit households in Arviat in 2002 revealed that at times, family members preferred sleeping together in a single room, often the living room (Dawson 2003). In other situations, family members will swap bedrooms or use them as playrooms, storage rooms, or workshops, making spatial designation much more flexible than in other contexts. Furthermore, housing types were often ineffective in responding to cultural practices and traditions of the Inuit. For instance, large-scale cooking introduces moisture and condensation, meat carving damages finishes and the making of crafts such as carvings produce dust – all of which contribute to incidences of housing-related health issues. (CMHC 2005) Steps were made to enhance cultural relevance and sustainability of housing through some of the work of the Northern Housing research division at CMHC during the early 2000s.
Housing has always been a pressing issue in Nunavut, and even more so today, with insufficient homes available, high numbers of existing houses requiring major upgrades and repairs, and a hidden homeless population. Current construction techniques, combined with unique challenges to building in the north have left a scene where local housing organizations struggle to keep up with demand. This has resulted in frequent overcrowding in houses, effective homelessness (as 1 in 5 Inuit households provide shelter to homeless individuals), long waiting lists for new housing, and a significant portion of the housing stock in need of repair. (NHC 2012)

Many factors play a role in high cost of construction in the North, including land development costs, freight costs and labour shortages, among others. Single-family detached housing is the most expensive, while high-density apartment buildings are the lowest. Similarly, location is significant to cost. For example, shipping costs can vary as much as $200,000 when shipping materials for a “five-plex” housing complex to either Arviat or Taloyoak.

These conditions are perpetuating a heavily subsidized rental residency population in which very few Northerners own their own property or house. A 2012 report, “Framework for the GN Long-Term Comprehensive Housing and Homelessness Strategy” prepared by Nunavut Housing Corporation provides a thorough overview of the urgency of the housing challenge. The document observes: “If the occupancy rate does not change, then Nunavut will need 11,165 housing units by 2037. This is an increase of 2,615 units, or an average increase of 97 units each year from 2010 to 2037.” (NHC 2012)

The Government of Nunavut (GN) and Nunavut Housing Corporation would like to see more market rental and home ownership properties. However the challenges of purchase costs, lifespan of buildings, and cost recovery of mortgages remain a challenge. Is there a way that new housing stock may be more affordable for a vast majority of the population to enable a shift away from heavily subsidized accommodations? Is there design potential to pair housing with other programs to address this challenge?

Notwithstanding the significant housing shortage, the idea of the house— as an emblem of private ownership—remains somewhat foreign to Nunavummiut. Households will often accommodate extended family and multiple generations for various lengths of time, both because of community traditions and housing shortages. (NHC 2012) These diverse lifestyles—some voluntary, some imposed by housing shortages—challenges current conceptions of housing types.

**Design Challenge for Housing in Nunavut**

It is estimated that 150-200 new units need to be built annually in Nunavut to reduce overcrowding and be on par with projected growth. (NHC 2012) However, proposals for new Nunavut housing typologies should be mindful of the lessons learned from past importations of housing. The current pressure is for quantity of housing, but how can cultural and lifestyle desires be addressed without negatively impacting deliverable quantity?

**Urban Scale and Environment**

There is a strong emphasis by the NHC on building multiplexes for construction cost and land availability reasons. These building types have the potential to address the
tradition of communal housing. However, in their current configurations, multiplexes do not address the importance of access and relationship to the land, nor do they currently provide enough communal spaces, nor storage, both of which are key to any northern household. How might new typologies better reflect contemporary Inuit household expectations of utility, cultural practices, and relationships to the community and the land?

At the urban scale, design proposals should reconsider conventional patterns of aggregation and ownership, and take into account Northern cultural and climatological sensibilities. The reality of a changing climate will also confront the idea of permanence, both at the urban and the architectural scale. How might interior and exterior zones of the house be distinguished by temperature? Could interior climate of the house play a role in distinguishing use or degrees of collectivity through temperature?

Some researchers and locals have observed that there is the potential for more and better communal spaces in the exterior public realm around housing, in the semi-public or shared spaces within housing clusters, and the shared spaces within the individual units of housing (at the family scale). How might landscape (stairs, grading, the space beneath houses) be better integrated into the conception and use of the house? How might housing better incorporate the parking and storage of snow-mobiles, ATVs, boats, hunting equipment, winter gear, etc?

Infrastructure and Construction
The various infrastructural and environmental systems servicing existing Northern communities and housing are also called into question. The NHC’s 2012 report states: “Water and sewage is trucked to and from homes in communities without utilidors. Twenty-two of Nunavut’s 25 communities have no alternative means for water and sewage delivery. And the utilidors in Iqaluit, Rankin Inlet and Resolute Bay do not reach all homes. This is an extremely inefficient and costly way to provide these services, but the alternative of retrofitting a water and sewer delivery system is capital-intensive.” (NHC 2012) Regarding energy and heat sources, homes are heated by imported oil, and oil-burning generators provide electricity in all communities. How might new housing proposals address emergent opportunities for the integration of infrastructure, energy, and services? With respect to construction, how might construction techniques work with the challenges of building in the North, including the reality that all building material is sent up during a yearly “shipping window” by sea-lift?

Program and Site
Both building type and building programming are ripe for reconsideration. With its 15th anniversary approaching, Nunavut now needs a 2030 vision for the promotion, delivery, and availability to housing across the territory, design teams should represent this vision at two scales: (1) a territorial or regional scale – thinking about networks, community building, urban accessibility; and (2) an architectural and typological scale. The regional scale should describe how the proposal positively impacts a larger territory: through networks of mobility, trade, exchange, etc..., and how it impacts environment, species or multiple communities. The architectural scale should describe ideas about site, and temporal changes of the building through seasons with respect to users, program and building performance.

It is up to each team to determine the site(s) and program(s) relative to the theme of housing in Nunavut. The expectation is that teams will select site and program based on in-depth research on the challenges and opportunities which Nunavut faces relative to the provision and expansion of housing. Which communities are either
in greatest need, or already thriving, or beginning new initiatives? And how might typologies respond to local conditions that vary across communities?

**Key questions and design goals are summarized below:**

- How can one conceive of housing that is better adapted to the culture of Nunavut, to the traditions of changing and extended familial units, of communal and daily practices and how these merge within a contemporary, ‘urban arctic’ context?
- How might the clustering and configuration of housing support greater communal interaction?
- How can building systems work with climate and geography (and geology) rather than against it?
- How might housing respond to the extreme range of temperature and light conditions?
- How can the exterior spaces around houses be conceived as part of the domestic realm?
- Can housing be more self-sufficient in terms of energy, waste, water and/or food?
- Can housing/construction be conceived in such a way as to facilitate upgrade and self-repair?
- Are there hybrid construction systems that incorporate local building materials and knowledge with imported building materials and knowledge?

**Quick Facts**

- Slightly more than 1,200 Nunavummiut did not have a usual home at the time of the survey and were living temporarily in another person’s dwelling. This represents approximately 4% of the population in Nunavut. If a similar rate were applied to Canada as a whole, that would be 1,400,000 hidden homeless.
- Nearly 1 in 5 Inuit households provide shelter to homeless individuals. 1/3 of occupied dwellings housed temporary residents without a usual home elsewhere in the 12 months prior to the Nunavut Housing Needs Survey.
- 23% live in homes that are in need of major repairs, such as a new roof, structural repair, or plumbing repairs.
- In Nunavut, 49% of the occupied dwellings (4,030) were below housing standards, meaning they were either crowded or in need of major repairs or a combination of both.
- Many Nunavut homes are overcrowded; the average household consisted of 4.6 people. In other Canadian households the number is 2.5.
- To bring housing levels to Canadian par – 3,000 units need to be built immediately.
- The NHC recently completed 1,011 new public housing units – mostly multiple-unit buildings – at an average cost of $405,500. Detached three bedroom houses in Iqaluit recently sold for $510,000. (NHC, Summary 2013)
Resources

Housing


*Carter, T., Jacobucci, C., and Janzen, T. “Inuit housing needs: a Coral Harbour, Nunavut case study.”* *Prairie Perspectives.* 116-134

Cold-Climate Housing Research Center (CCHRC), website: http://www.cchrc.org/


*Nunavut Housing Corporation. Igluliqatigiilauqt $\text{"Let's Build a Home Together":} Framework for the GN Long-Term Comprehensive Housing and Homelessness Strategy.* 2012.


"Trucks and Housing Concern Cape Dorset" *Inukshuk,* April 10, 1974, p. 10-11.

**Architecture**


**General**


Inuit Tapiriit Kanatami. 5000 Years of Inuit History and Heritage. https://www.itk.ca/publication/5000-years-inuit-history-and-heritage


Competition Information

The Challenge
The focus at this stage of the competition is on strong ideas, rooted in thorough research and addressing clear, specific issues. Design intent needs to be clear, but not necessarily extensively resolved at a formal or tectonic level.

In developing proposals, teams are encouraged to carefully consider what issues the project is addressing? How does it respond to the region’s climate and geography in particularly appropriate ways? How does the project respond to the challenges of dispersed communities? To the challenges of energy and infrastructure? To local cultural traditions in modern ways? To seasonal patterns which already exist?

Design responses should focus on building typologies rather than forms. The interest is not in how a building might recall the form or appearance of existing vernaculars, but how it learns from traditional (and contemporary) programmatic or temporal performance. What programs are brought together in ways that leverage local traditions, and produce new collective realms, or new economies? Projects are encouraged to expand notions of sustainability beyond the technical or the building envelope, to consider social, cultural and economic sustainability specific to Canada’s North.

The projects should address two scales: the regional scale and the architectural scale. (See Design Challenge for further elaboration.)

Eligibility
Any student currently enrolled or graduating in 2012-13 academic calendar from one of the five participating schools may enter the Arctic Adaptations competitions. Participating schools are Dalhousie University, University of British Columbia, University of Manitoba, Université de Montréal, and University of Toronto. Each school will run a competition on one of the five designated themes.

Registration
Each team - comprised of two students - is required to register by emailing register@arcticadaptations.ca. Each team must register by July 15, 2013 if participating in the theme of Housing. In the registration email include which school you are registering from, your names, and your preferred contact email address. Arctic Adaptations organizers will send your team a registration number as confirmation of registration.
Submission
Each team should consist of two eligible students. The team should thoroughly document their proposal for Arctic Adaptations at the two scales, on two boards sized 24” x 36” laid out horizontally. **Board 1** should document a design strategy at the regional scale. **Board 2** should document an architectural scale.

Boards are to be submitted as a PDF with the following filename designation:
registration#_schoolname_1.PDF
registration#_schoolname_2.PDF
More submission information will follow.

Schedule
May 20, 2013, - Competition opens
July 15, 2013 - Q & A period closes
July 15, 2013 – Registration closes
August 15, 2013 – Submission due
August 25, 2013 – Winner selected
August to November 1, 2013 – Project development with AA design team.
June 2014 - exhibition opens at 2014 Venice Biennale in Architecture
2015-16 - exhibition tours Canadian venues

Jury
The jury to select a winning student team will consist of Arctic Adaptations team members including academics, architects, and the Nunavut-based organization.

Prize
One winning team will be selected and have the opportunity to continue to develop the proposal in collaboration with one of the Arctic Adaptations architecture firms and the Nunavut-based organization. This project will be one of five presented in Canada’s pavilion in Venice in 2014. The Arctic Adaptations team will facilitate travel to the north for the selected student team, and will work with them in coordinating their role within the design team structure that is suitable to all parties. The selected students will be recognised individually and as a representative of their school.