

Toward
A Situated Practice
Rooted in Indigenous Knowledge



### **Title Page**

### **Project Title**

Decolonizing Architecture of Kalaallit Nunaat -Toward a Situated Practice Rooted in Indigenous Knowledge

### Semester

MSc04 Architecture 2025

### Institution

**Aalborg University** 

### **Department**

Architecture, Design and Media Technology

### Group

23

### **Supervisor - Architecture**

Joel Peter Weber Letkemann

### **Supervisor - Technical**

**Endrit Hoxha** 

### **Project period**

03.02.2025 to 02.06.2025

### Number of pages in the main body

170

### Number of pages in appendix

17

### Number of pages in the material catalogue

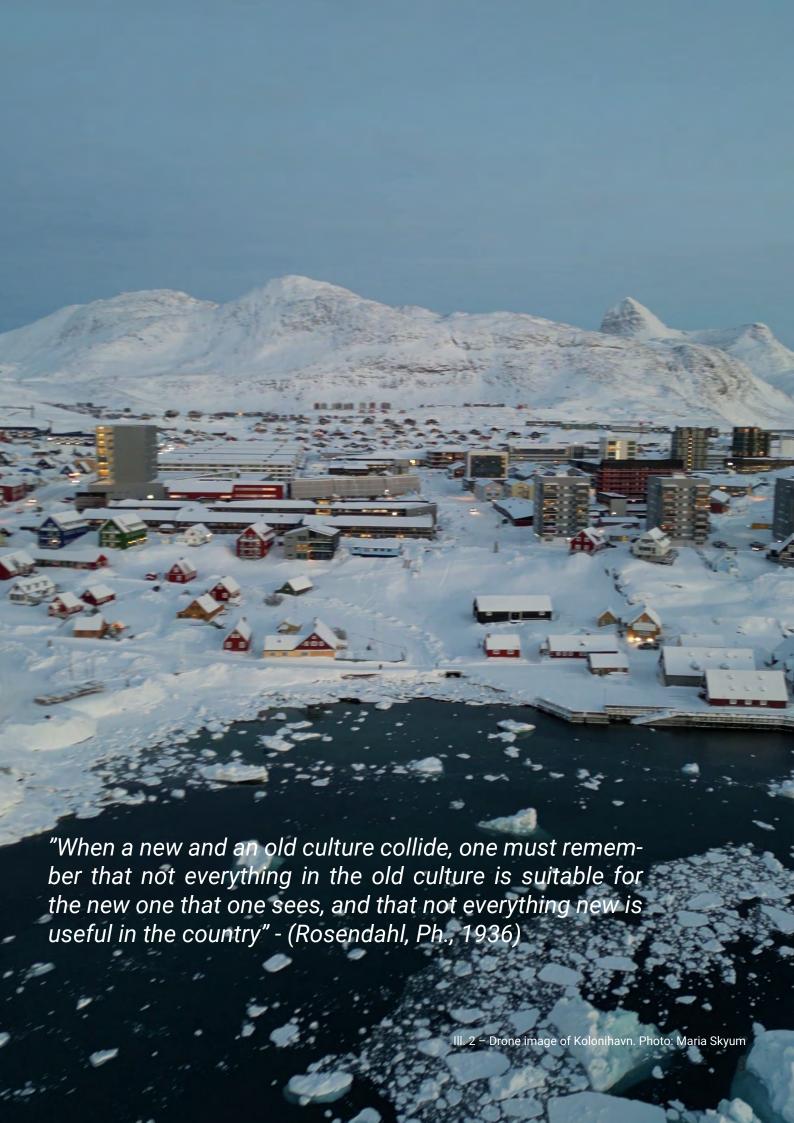
30

### **Authors**

Jonas Rasmussen & Ulloriaq Kristian Lennert

Jonas Rasmussen MSc04 Architecture 2025

Ulloriaq Kristian Lennert MSc04 Architecture 2025



### Introduction

Decolonizing architecture of Kalaallit Nunaat is a project intersection of architecture and indigenous knowledge, that challenges traditional architectural practices by prioritizing the learning process, community engagement, and cultural understanding over physical design outcomes. This work does not follow the typical master thesis projects their always emerge from the "classical architectural framework", instead our project de-emphasizes the pursuit of an outstanding, optimized design solution based solely on technical data collection. Instead, it seeks to unlearn inherited systems and relearn through dialogue, experience, and Indigenous knowledge. It introduces a situated methodology that is more relational, socially embedded, and culturally responsive. Central to this approach is a decolonial perspective that recognizes the historical discounted of Inuit voices in their architectural development. The site of investigation is Nuussuaq, a residential district in Nuuk, Kalaallit Nunaat, where the project explores how lived experience, material memory, technics and community narratives can inform new spatial strategies rooted in personal care, connection, and communal actions.

The decolonial approach disrupts the standard, linear progression from analysis to solution, replacing it with a layered methodology grounded in listening, unlearning, and re-situating knowledge. This approach embraces slowness, uncertainty, and necessary detours, allowing space for cultural complexity, emotional knowledge, and lived experience to shape the work - Time is not a factor, but process is.

### **Readers Manual**

The thesis consists of the main report Decolonizing architecture of Kalaallit Nunaat - Towards a Situated Practice Rooted in Indigenous Knowledge and an additional material catalogue Situated Materials: A Catalogue of Local Materiality.

This report is not structured in a traditional way but focuses much more on introducing the reader to Greenlandic culture through explanations, stories and own experiences. In this project, there is a special emphasis on cultural understanding, which is essential for any meaningful architectural intervention. The report therefore seeks first and foremost to inform you about cultural and architectural considerations, before presenting several design practices which led to a final proposal. When that is said, the process is not a recipe to "a final design solution", but is more about the framework for reflection, dialogue, and collaborative thinking. Therefore, the physical design proposals appear much later in the thesis-because the journey of learning and reimagining is weighted more heavily than the design. The aim is not to arrive at a finished solution, but to initiate conversations and open new directions for architectural practice in Kalaallit Nunaat.

### Acknowledgements

First and foremost, qujanaq to our supervisors, Joel Letkemann and Endrit Hoxha, for your thoughtful guidance, critical questions, and unwavering support throughout this project. Your insight and encouragement helped shape both our process and thinking in meaningful ways.

We would like to extend a heartfelt qujanaq to the residents of Nuussuaq, Naja, Hans Ole, Cecilie, Regine, Gerda, and Kelsie, for welcoming us into your homes and generously sharing your experiences. Thank you for engaging in important conversations and helping us understand the everyday realities that shape life in your community.

Qujanar to Niklas and Norja for generously letting us stay at your apartment during our trip to Nuuk. Your hospitality meant a lot and made our fieldwork both more comfortable and more enjoyable. Qiijaammilaarnaraasi!

Qujanaq to Ilisimatusarfik – the University of Kalaallit Nunaat, for making our workshop possible, and to the students for taking part. Your thoughtful contributions enriched the dialogue and helped ground our speculative work in lived experience.

Qujanaq, Inge, for inviting us into your office at Nunatta Katersugaasivia Allagaateqarfialu – Greenland National Museum & Archives at the Department for Protected and Preservation-Worthy Buildings. Your time, reflections, and deep knowledge of architectural heritage in Kalaallit Nunaat added an invaluable perspective to our project.

We are also grateful to the team at Nunatta Katersugaasivia Allagaateqarfialu – Greenland National Museum & Archives at the Architectural Archive, for providing copies of the original drawings free of charge. These materials were crucial in understanding the architecture of Nuussuaq.

Qujanaq to the Arktisk Institut for granting us access to your remarkable photo collection. Your archives brought historical depth and visual richness to our work.

Finally, qujanaq to everyone who has kindly given us permission to include their work, whether images, art, or other materials. Your generosity have been a great help for us.

## Get to Know the

My name is Ulloriaq, and I'm 26 years old at the time of writing this thesis. I grew up in Sisimiut, Kalaallit Nunaat—also known as The Pearl of the Coast. I was raised alongside my little brother and big brother by our strong and determined mother, whose resilience has shaped much of who I am today.

After finishing elementary school, I continued directly to high school at KTI in Sisimiut. Since there are only four high schools in Kalaallit Nunaat, it was a unique experience that brought together young people from across the country, expanding my perspective early on.

Following graduation, I took a two-year break from school and worked as a building caretaker (vicevært). This job gave me insight into the everyday realities of housing conditions in Kalaallit Nunaat, knowledge that would later influence my academic interest.

In 2020, I moved over 3.000 kilometers away to Aalborg to study architecture. It was my first time living away from my family, and although the distance was challenging, it allowed me to grow both personally and academically. During my studies, I became especially interested in social sustainability. Yet throughout my education, I kept feeling the absence of other cultures, including Kalaallit Nunaat—its culture, people, and built environment—in the curriculum and discourse.

This thesis is my opportunity to working what truly matters to me: working with and for Kalaallit Nunaat and its people, exploring architecture through a decolonial lens that reflects lived realities, Indigenous knowledge, and the deep connections between place, identity, and community.



III. 3 - Ulloriaq

### **Minds**

### **Behind**



III. 4 - Jonas

My name is Jonas Rasmussen. I was born and raised in a small town called Ny Nørup – or as I like to call it, the navel of the world – in a classic nuclear family with a mother, father and a little sister. My childhood was completely traditional: I played football, played hide and seek, built LEGO and got the obligatory skin scrapes.

After primary school, I went to secondary school and then started HTX, where I chose a field of study with a focus on technology and design. After high school, I took a couple of sabbaticals with work and a classic "find-your-own-trip" to Asia. Later, I moved to Aalborg to study Architecture and Design – a big step for a village boy like me.

Design and creation have always come naturally to me. Already at the age of 10, I was building LEGO sets recommended for 18+. In primary school, I did an internship at Tegnestuen RUM, and my choice of a design-oriented high school field was completely obvious. Using my imagination and creating something new has always been central to me – as my grandmother used to say: "Jonas, you simply have such a good imagination."

When I heard about the opportunity to work with Greenland in the context of my thesis, I was immediately sold. I have always wanted to visit Greenland and experience the country with my own eyes. I had no prior knowledge or relationship with Greenland, but curiosity drove me. At the same time, Greenland began to fill more of the news — especially with stories that pointed to social and political challenges. This only made the project even more relevant to me in our time.

Together with my friend Ulloriaq, I saw the thesis as an opportunity to work with his culture and life story. Having to design something for a context with completely different requirements, a different climate and a significantly different culture was new material for me – and precisely because of that, it was enormously inspiring and meaningful.

### **Abstract**

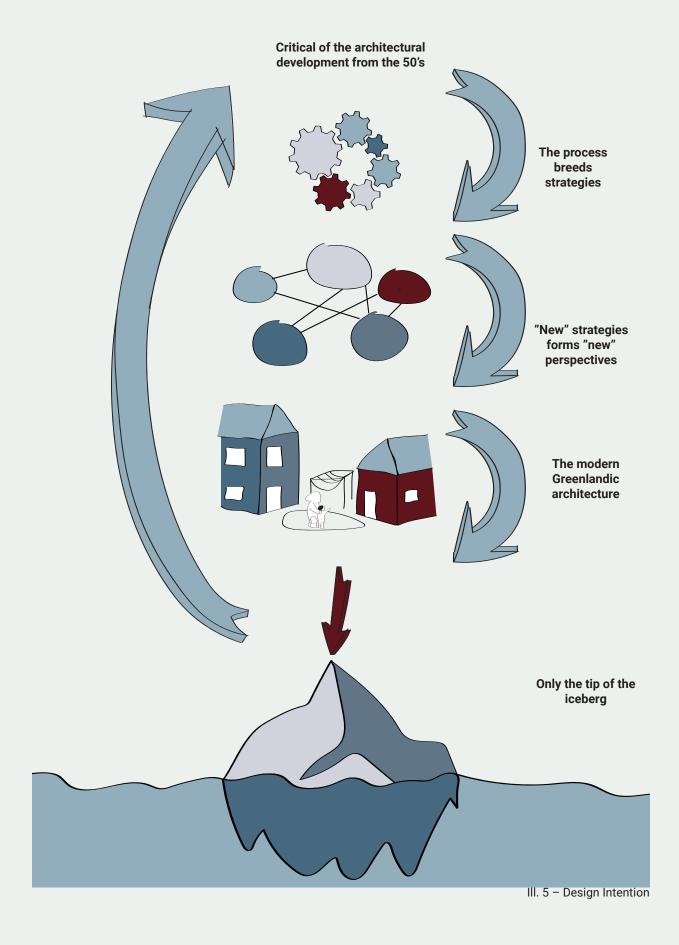
This thesis explores how architectural practice in Kalaallit Nunaat can be reimagined through Indigenous knowledge systems, lived experiences, and principles of decolonization. Responding to the enduring influence of Danish colonial spatial systems, the project seeks to develop culturally grounded, place-responsive architecture that support Inuit identity, autonomy, and sustainability. Through a situated methodology involving fieldwork in Nuussuaq, resident interviews, participatory workshops, and speculative design, the thesis surfaces insights into everyday spatial practices, material traditions, and relational ways of living.

Rather than proposing fixed solutions, the thesis introduces a framework of Situated Acts, adaptive design "strategies" rooted in cultural specificity and ecological awareness. The work draws on Indigenous concepts of care, reci-

procity, and temporality, challenging dominant modernist paradigms and opening space for alternative architectural futures. In dialogue with decolonial theory and vernacular traditions, the thesis advocates for an architecture that listens, remembers, and acts with humility.

Ultimately, this thesis is both a critique of imposed design norms and a call to reorient architectural thinking toward practices that are responsive to the land, the people, and the plurality of futures in Kalaallit Nunaat.

### **Thesis Intention**



### WAYFINDING

### **INTRODUCTION 12**

LAND OF THE KALAALLIT 13
COLONIAL AND POLITICAL HISTORY 14
COLONIAL ARCHITECTURE 16
CONTEMPORARY ARCHITECTURE 18
CULTURAL REVIVAL MOVEMENT 19

### **SETTING THE FRAMEWORK 20**

VISION 21 METHODOLOGY 22 PROBLEM STATEMENT 24 MOTIVATION 26

### **KNOWLEDGE SEEKING 28**

SEEKING WITH CARE 29
GATHERINGS 30
HUNTING 32
TRADITIONAL INUIT CULTURE 34
SASSUMA ARNAA 35
INDIGENOUS SUSTAINABILITY 37

### THEORETICAL LEARNING 48

THEORETICAL FRAMEWORK 49
DESIGNS FOR THE PLURIVERSE 50
SPECULATIVE DESIGN 52

### SITUATED LEARNING IN NUUSSUAQ 54

PRESENTING NUUSSUAQ 55
TYPOLOGIES ON SITE 58
FUNCTIONS 64
SOCIAL ZONES 68
PRACTICAL FUNCTIONS 74
INFRASTRUCTURE 78
TERRAIN 84
NOLLI MAPPING 86
THE STORY OF KAASSASSUK 87
CASE STUDIES 88

### LIVED EXPERIENCES 95

INTERVIEWING METHOD 98 WORKSHOP AT ILISIMATUSARFIK 112 CONVERSATION WITH INGE 117

### **RENSPONSES IN RELATION 120**

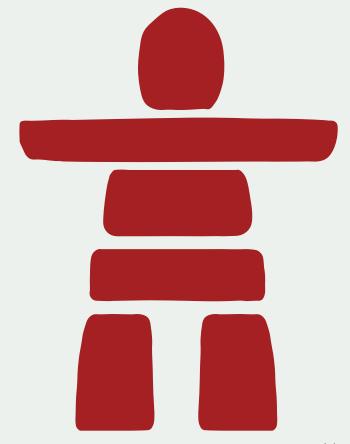
SITUATED ACTS OF DECOLONIZATION 121

### **CONCEPTUALIZATION 130**

USING KNOWLEDGE TO FORM 131
THE BUILDING 134
BUILDING PERFORMANCE 137
DESIGN RESPONSE PLAN 138
DESIGN PROCESS 139
THE FACADE PROPOSAL 145
LIFE CYCLE ASSESSMENT 147
THE UNIT 155
DESIGN PROCESS 154
THE CHOSEN SOLUTION 159

### **OUTRO 162**

CONCLUSION 163
REFLECTION 165
BIBLIOGRAPHY 167
LIST OF ILLUSTRATIONS 168
APPENDIX 171



# AALLAQ Introduction III. 6 – Ice on the sea in Nuuk



In Kalaallit Nunaat, there is a strong tradition of storytelling, passed down from generation to generation as a living memory. One such story, as told by Arnâluk, an elder, to Knud Rasmussen, tells how the Earth came to be.

It fell from the sky, forming land, mountains, and stone. From this new earth, small children rose from the soil, appearing among willow bushes and dwarf shrubs, covered in leaves, small and unable to crawl. They were nourished by the land itself.

As they multiplied, they called dogs into existence, stamping the earth until the animals rose from the soil. Back then, there was no death, no sunlight, only darkness, lit by burning water in lamps. But when the world grew too full, a great flood came. Afterward, the people wanted light, it came, and with it, death. From then on, the sun, moon, and stars appeared formed from those who passed, rising to the sky to shine. (Rasmussen, 1925)

People are of the land, not separate from it.

Kalaallit Nunaat (Greenland) is home to barely 57.000 Kalaallit (Greenlanders).

III. 7 - Map of Kalaallit Nunaat

### **Colonial and Political History**

In 1721, when the Christian missionary Hans Egede and his followers came to Kalaallit Nunaat everything changed. The purpose of Hans Egede coming was originally to find the Norsemen who had settled around year 1000. Seeing that they had completely disappeared, Hans Egede decided to settle anyway and to turn the Inuit Christian. Trade and mission stations sprung up along the coast.

Hans Egede learnt the language, translated the bible and trained Inuit to become missionaries themselves. Christianity started to spread, and Inuit were slowly becoming dependent on the trades and started to settle around them. Angakkut (shamans) were the cornerstone of the Inuit religion and were Hans Egede's biggest obstacle in his mission. In order to remove their power and status in the society, Hans Egede ridiculed them. (Jørgensen & Engelbrechtsen, 2025)

FASSES DE MARIO DE DE LA CONTRACTOR DE L

III. 8 - Statue of Hans Egede in Nuuk

From the time Hans Egede came, Kalaallit Nunaat had been an isolated society, which would require permission from the State of Denmark if one wanted to enter. It was like that for a couple of hundred years, and changed only when Denmark got occupied by Nazi Germany in 1940. This became a turning point for Kalaallit Nunaat.

With Denmark unable to rule the island, contact was made with the U.S., and they started to supply Kalaallit Nunaat with goods in exchange for cryolite. Various products were exported to the U.S. and that period was a period of economic development for Kalaallit Nunaat. After five years of occupation, Denmark was freed. UN was founded, and Denmark was now obligated to improve the conditions of its colonies. In 1947, Denmark elected a new government, and they began to worry what would happen if they did not develop Kalaallit Nunaat and whether they'd turn to the U.S. who had supplied them during the war and gave them an economic development.

Hans Hedtoft, the prime minister at the time, created a commission, *Grønlandskommissionen*, with 16 members, in which only five of them were Kalaallit. Hans Hedtoft asked whether or not to open and develop Kalaallit Nunaat. The answer was yes and so began the biggest change in the history of Kalaallit Nunaat.



III. 9 – Hans Hedtoft in Kalaallit Nunaat. Photo: unknown photographer, Arktisk Institut

In March 1950, the commission concluded their work and published the G-50 report. With it, Kalaallit Nunaat was now to start the economic development, improvement of the living conditions and health care. But the country is vast and with a population of only 20.000 at the time, meant that people would need to be concentrated. The municipalities were reduced from 60 to 16. The number of settlements needed to shrink. The economy was to be based on and developed primarily through fisheries, and that development was to take place in four cities where the sea does not freeze in the winter: Paamiut, Nuuk, Maniitsoq and Sisimiut. That meant mass construction of housing.

In those four cities, harbors, roads, electricity plants, hydro plants, etc. were built. The state owned 'Den Kongelige Grønlandske Handel' (The Royal Greenland Trade) kept most of its monopoly of goods, while 'Den Grønlandske Tekniske Organisation' (The Greenlandic Technical Organization) was established to take on infrastructure projects. It was also at that time unions started to form.

When women gained their voting rights in 1948, they formed the union 'Kvindeforeningen' (Women's Union) with Kathrine Chemnitz as its foreperson. One of their courses/events was about the housing conditions. (Olsen, 2016) An outtake from one of the courses they held says:

III. 10 – Blok P in Nuuk. Photo: unknown photographer, Arktisk Institut

"The homes that were built in Greenland were designed like homes in Denmark, suited to Danish conditions. The needs of Greenlandic hunter and fisher families were different; they required space for flensing catches and plucking birds, as well as outbuildings for storage. Apartments were inspected and criticized, and proposals for improvements were drawn up." (Olsen, 2016, p. 38)

The Women's Union knew at the time that the new housing was in no way fitting of the Greenlandic culture. The transition from settlement life to the structured rhythms of living in a city marked more than just a physical relocation for many families.

Displacement was not just geographic, it was cultural. It was a shift in identity, community, and traditions. Life was built on mutual reliance in the settlements. Tasks were shared, and survival was communal. When families moved to the city, they were met with isolation masked by urban structure. The values that once held their communities together were strained under new economic and social pressures. With higher living costs in the city, both parents were forced into labor, not of their choosing, but of necessity. The labor was often in fish factories or other unskilled jobs. This left children to be alone, raising themselves in new and unfamiliar environments. (Olsen, 2016)



III. 11 – Factory workers. Photo: unknown photographer, Arktisk Institut

### **Colonial Architecture**

The built environment in Kalaallit Nunaat stands as a highly visible manifestation of the colonial history. As Joar Nango, a Sámi architect and artist who advocates for Sápmi architecture and traditions, says during an interview about his exhibition *Girjegumpi* at the Nordic Pavilion of the Venice Biennale, "The stories of colonization are embedded and dealt within the field of architecture." (ArchDaily, 2023). Architecture is not neutral, it tells the story of imposition, culturally and identity-wise.

With the establishment of 'Den Kongelige Grønlandske Handel' (KGH), color coding of the buildings was introduced as a way to categorize the built environment. Each color represented a specific function. Green for police, yellow for hospitals, red for trade and schools, so that people could navigate around different buildings. (Kommuneqarfik Sermersooq, 2019) It reflects an underlying assumption that the locals needed a visual system in order to be able to navigate colonial infrastructures.

Further effects of colonial planning and control can be seen in the housing developments of the post-war era. As described by architect and building heritage specialist Inge Bisgaard, Danish housing policies during this time deliberately excluded Greenlanders from participation in the construction sector, while encouraging them to remain in traditional roles such as hunting and

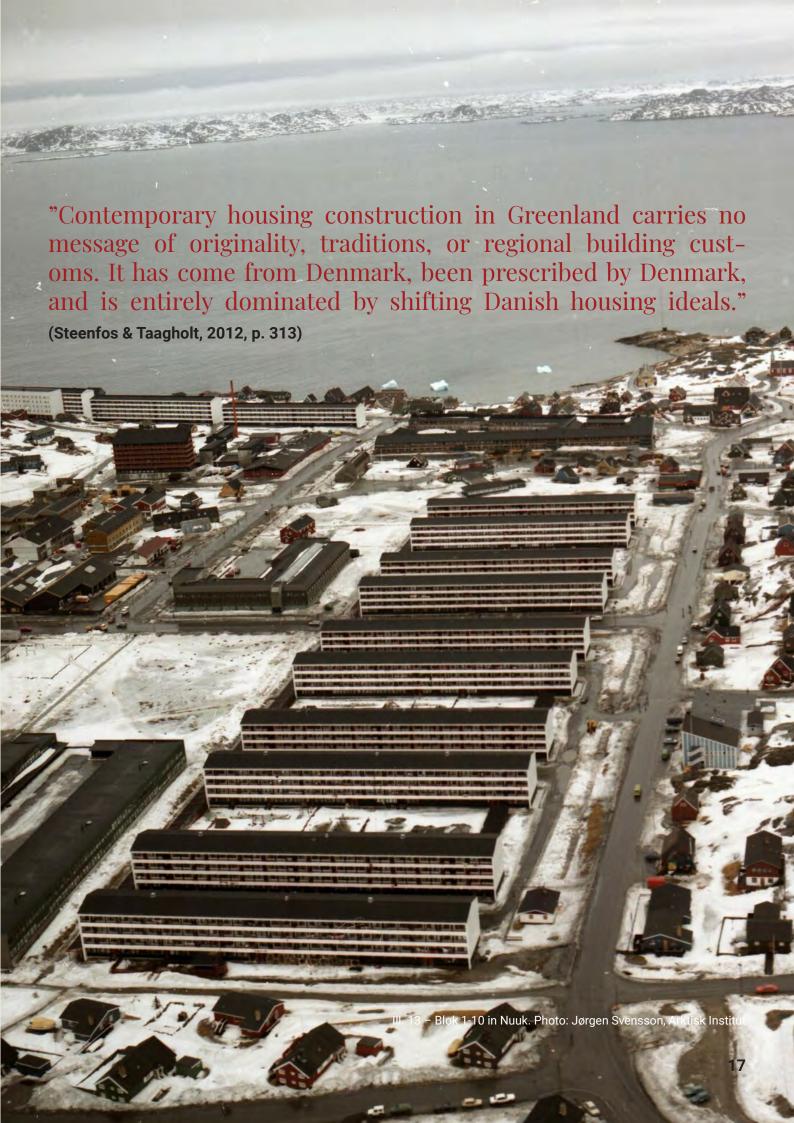
fishing. Labor was imported from Denmark, and the local population had little to no involvement in shaping their own built environment. This lack of agency contributed to widespread misunderstanding around ownership and maintenance, as many residents believed the state remained responsible for their housing.

The standardized Danish housing models, based on European functionalism and prefabricated systems, were introduced in response to increased urban migration. These structures were efficient but poorly adapted to local conditions or cultural needs. Over time, such architectural approaches not only reinforced dependency but also contributed to social segregation and a sense of alienation from the spaces people were meant to call home. As Bisgaard notes, the transition from a subsistence-based to a wage-based society happened rapidly, and many people were not adequately prepared for the responsibilities that came with it. See Appendix 1 for full interview with Inge Bisgaard.

In Kalaallit Nunaat, the presence of the Danish-style housing serves as the imprints of the Danish colonial power. They tell stories of external control and the Western notion of universalism. Architecture becomes a tool in which cultural hierarchies were subtly reinforced, and in that way carries traces of historical dynamics.



III. 12 – Colorful houses. Photo: Regitze Margrethe Søby, Arktisk Institut



### **Contemporary Architecture**

The contemporary architecture of Kalaallit Nunaat can be categorized in two; projects from Danish firms, and projects from local firms. There are only certain types of projects that the Danish firms usually do. In an interview by Radio-Canada journalist Matisse Harvey spoke with Helena Lennert – partner of the Nuuk based firm 'tnt nuuk' – and she revealed that the local firms are often excluded from large-scale projects with the reasons being that they can not demonstrate similar experience. (Radio-Canada, 2025)

Local firms are caught in a vicious cycle; to qualify for large-scale projects, they must demonstrate prior experience with similar work – yet they are denied that very experience because they are excluded from those projects in the first place. They possess local knowledge and insights to climatic challenges and culture that external firms do not have. Looking at how these Danish firms describe their work in Kalaallit Nunaat, it becomes clear immediately how they work with architecture.

KHR Architecture, a Copenhagen based firm, have done several large-scale projects in Kalaal-lit Nunaat. Including, Nuuk Center, the first shopping center in the country with an administrative building of eight floors. It is one of the largest buildings in Kalaallit Nunaat and is 25.000 m2. In their webpage, KHR Architecture says:

"The central building should be experienced in connection with reflections of the sky's light, as a visual extension of the landscape" and "The center's color scheme is inspired by the landscape of Nuuk, which has informed a distinctive architectural treatment of the center's facades." (KHR Architecture, nd)

All of the building's facades have been covered in metal meshes resulting in the building being given the nickname by the locals "The Cheese Grater" (Sermitsiaq, 2012). Returning to the interview by Radio-Canada, the supposed reason for the metal mesh is so that snow can collect on the mesh which would give the expression of

an iceberg, as told by Johan Rosbach, partner of the local firm Qarsoq Tegnestue, and continues like this: "It is [the] view of an outsider to think that we need an iceberg on land [when] there are already many in the fjord and in the water." (Radio-Canada, 2025)

The way external architectural firms present and realize their projects in Kalaallit Nunaat reveals a tendency to focus on symbolic interpretations of the landscape and nature. A project like Nuuk Center demonstrates how architectural narratives are often shaped by aesthetic concepts such as light reflection, color schemes inspired by natural surroundings, or abstract references like icebergs. While these ideas may have good intentions and are poetic, they often stem from an outsider's perspective that often overlook the everyday realities, cultural context, and climatic challenges. Today, Nuuk is undergoing a rapid wave of construction, with many large-scale buildings being designed by firms from outside the country. Although these firms may have good intentions, their emphasis on visual integration with the landscape frequently comes at the expense of meaningful cultural engagement and practical responses. This growing pattern highlights a need for more context-sensitive approaches - ones that move beyond romanticized representations of nature and instead center the needs, values, and lived experiences of local communities.



III. 14 - Nuuk Center. Photo: Kenny McFly, CC BY 4.0, via Wikimedia Commons.

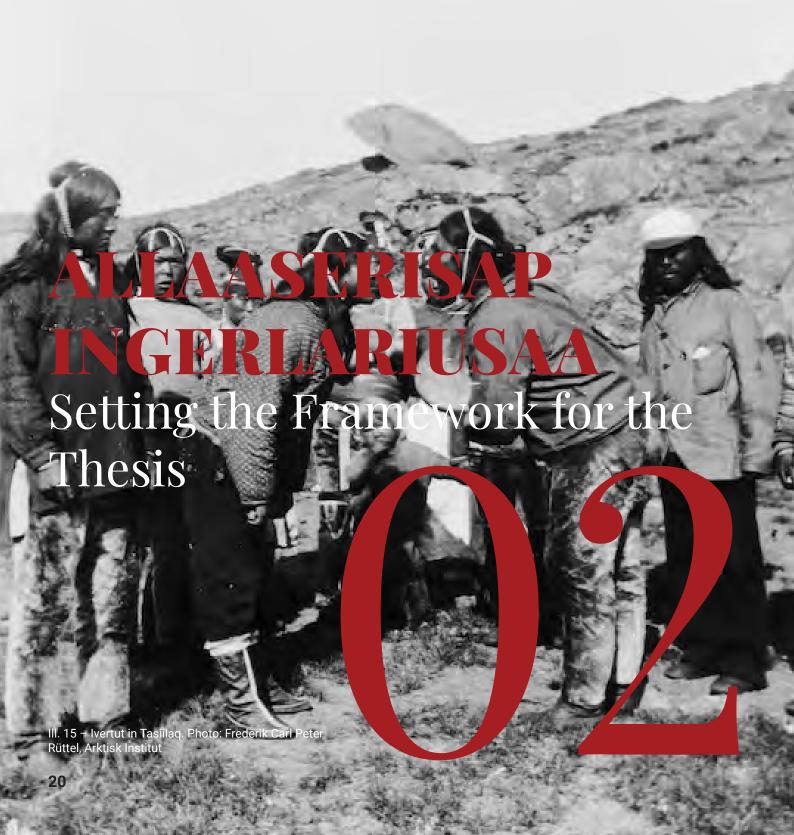
### **Cultural Revival Movement**

Today, Kalaallit Nunaat is in the process of decolonizing the many cultural practices, identity and traditions that had been oppressed since Hans Egede first came. There are many amazing activists such as Aka Hansen – a film director and writer who is one of the prominent voices in the debate on decolonization in Kalaallit Nunaat.

Aka's most recent publication and debut book Manifesti explores themes such as gender, feminism, queerness, matriarchy, systematic discrimination of Inuit, language and culture, and just overall, the multifaceted ways that colonialism is still being practiced today. (Hansen, 2014) In her book *Manifesti* Aka says:

"To me Decolonize basically means taking back what was taken from our people; worldviews, traditions, lands and pride of being Indigenous Peoples." (Hansen, 2024 p. 73)

Very often, the word decolonize triggers a defensive response. Rather than rejecting existing systems, decolonization, which is also the case of this thesis, seeks to explore ways of restoring value of Indigenous knowledge systems, cultural practices, and spatial autonomy. It engages decolonial thinking as a constructive framework. The main purpose is to set a foundation for recovery and recognition of indigenous perspectives in the field of architecture in the context of Kalaallit Nunaat



### **Vision**

The vision for this thesis is an architecture for Kalaallit Nunaat that emerges from the land, culture, and lived experiences of its people, an architecture that listens, adapts, and remembers. Moving beyond imported typologies and static material systems, it proposes a spatial language rooted in Indigenous knowledge, care-based practice, and relational design. This vision embraces the temporal, the seasonal, and the shifting, where buildings are not seen as permanent impositions but as participants in the ecology of place.

The architectural vision is about embracing an architecture of reclamation, one that re-centers Inuit worldviews and respects the soul of all things. In doing so, it aims to contribute to an evolving built environment that reflects the identity, culture, and resilience of Kalaallit people.

### Methodology

This thesis adopts a decolonial and pluriversal methodology that prioritizes Indigenous knowledge systems, lived experiences, and culturally grounded design practices in Kalaallit Nunaat. The research moves away from conventional, extractive approaches by centering relational, place-based methods grounded in respect, and community engagement. It has been a process of constant reevaluation when new knowledge is gained.

### **Knowledge Seeking**

The research is qualitative, critical, and participatory. It is deeply situated in context and shaped by lived experience, narrative knowledge, and Indigenous understandings of nuna (land) and community. The methodology blends fieldwork, ethnography, speculative design, and architectural analysis, with an emphasis on listening and learning.

### **Situated Learning**

To gain a deeper understanding of everyday spatial practices and the legacy of colonial architecture, the research team conducted a field trip to Nuuk. During this period, the team lived in an apartment on the site that is the focus of the case study, to experience its spatial qualities first-hand and observe patterns of use and disuse, spent extended time on-site to engage with the built environment, climate, and social life of the area, and did informal observation, drawing, photography, and note-taking to document spatial conditions and material culture.

### Listening

Two types of interviews were conducted during the trip to Nuuk, which are residential interviews and an expert interview.

### **Resident Interviews:**

Conversations were held with residents of Nuussuaq to understand their experiences of living in the space, their relationship to the building and surrounding landscape, and their cultural practices in everyday life.

### **Expert Interview:**

An interview was conducted with a local architect in Nuuk to gain insights into traditional and colonial architectural practices in Kalaallit Nunaat, and what the future might bring for architecture in Kalaallit Nunaat.

### **University Workshop:**

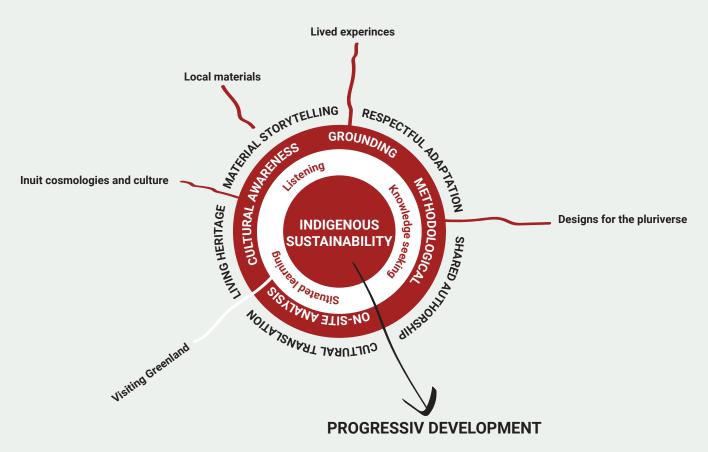
Dialogues were conducted with university students to explore their visions for the future. The speculative conversations aimed to surface values, hopes, and alternative imaginaries that can inform more culturally grounded and future-oriented architectural approaches.

### **Cultural Learning**

Throughout the research process, a significant focus was placed on learning from the Greenlandic cultural practices, oral traditions, and relational understandings of the world. This included reading and integrating Inuit cosmology, storytelling, and traditional knowledge into the conceptual framework. Approaching knowledge gathering as situated, not extractive – meaning that knowledge was treated with care and respect, and not as "data" to be harvested. It was important to allow cultural learning to shape the design principles and the final design interventions.

### **Architecture as Response**

Insights from fieldwork, interviews, and workshops were synthesized through thematic analysis of narratives and lived experiences, identifying recurring concerns and colonial architecture, values, and needs. Design response, where themes were translated into a set of decolonial design principles. Architectural application, where these principles were tested through model-making, and by working with different everyday scenarios.



III. 16 - Process of the thesis

### AJORNARTORSIUTINIK OQARIARTUUT Problem Statement

The architectural language of Kalaallit Nunaat continues to reflect the legacy of Danish colonial influence, at the expense of Indigenous spatial traditions and cultural expression. This has contributed to a built environment that insufficiently represents the identity of Kalaallit Nunaat and fails to support the cultural continuity of Inuit communities.

As Kalaallit Nunaat progresses toward greater autonomy, there is a need to decolonize architectural practice by re-centering Indigenous knowledge systems, values, and design principles. Principles that make the most of available resources, with minimal interventions that can produce significant and meaningful changes. Ones that are rooted in traditional knowledge and community-based knowledge.

How can the architecture of Kalaallit Nunaat be reinterpreted and adapted to reflect contemporary Inuit culture, identity and needs through Indigenous knowledge systems, principles of Indigenous sustainability, and lived experiences?





### **Motivation**

This thesis is motivated by a concern for the enduring presence of colonial spatial systems in Kalaallit Nunaat and their impact on cultural identity, everyday life, and the built environment. While movements toward political and cultural autonomy are gaining strength, architecture in Kalaallit Nunaat largely remains shaped by Danish design paradigms from planning to material choices and spatial organization. These often fail to reflect Kalaallit values, culture and relationships to land.

This thesis is driven by the need to question these dominant Western systems and to explore how architecture can instead support Indigenous worldviews, sovereignty, and sustainability.

The thesis emerges from the belief that space is not neutral. It holds memory, identity, and power, and that reimagining it through a decolonial lens is a necessary part of building a future grounded in justice and continuity. It seeks to center Kalaallit knowledge systems, lived experiences, and material practices, not as cultural supplements, but as primary foundations for design. The project aspires to contribute and be the steps to an architectural language that is locally rooted, culturally alive, and open to the plurality of futures imagined by the people of Kalaallit Nunaat.

This is a topic that is more relevant than ever. Through the plan "Together for Healthy Homes – Renovation Initiative of the Government-Owned Housing Stock", Naalakkersuisut (government) has announced a multi-billion initiative to renovate Inatsisartut's (Parliament) housing. (Naalakkersuisut, 2025)

This presents a significant opportunity to explore how these renovations can move beyond technical upgrades to become culturally grounded interventions that reflect Kalaallit ways of living, strengthen residents' sense of ownership to their buildings, and foster deeper care and connection to the built environment.





### **Seeking with Care**

Working with architecture in the context of Kalaallit Nunaat requires more than technical understanding or design ambition, it demands deep engagement with the cultural, historical, and ecological realities of the place. Knowledge seeking, in this context, is not a neutral act but a relational and ethical one. The histories of colonialism, assimilation policies, and imposed spatial logics have created deep imbalances in whose knowledge has been valued in the making of the built environment. Therefore, gathering knowledge is not simply about collecting data, but about listening - to the land, to lived experiences, and to the traditions that continue to shape everyday life in Kalaallit Nunaat. It is a way to begin restoring the role of Indigenous perspectives in design processes and to ensure that any architectural practice emerging from this context is responsive, respectful, and grounded. In this sense, knowledge seeking becomes an act of humility, responsibility, and care - a foundational step in working toward a decolonial and situated architectural practice.

### **Gatherings**

Based on own personal experience of growing up and living in Kalaallit Nunaat, social gatherings are among the most significant aspects of everyday life. While fostering communities historically served practical survival purposes, the cultivation of community remains a core value for many today. The Kalaallit are a highly social people, and any opportunity to gather with family and friends is often embraced.

One notable example of this cultural practice is the kaffemik, which reflects the hospitality and communal spirit characteristic of Kalaallit society. Although the term kaffemik is derived from Danish, the Greenlandic word *kaffisortitsineq*, which translates to "having people over for coffee", more accurately captures its meaning. A kaffemik typically is an open-house format, where guests are invited to attend at any point within a designated time frame set by the hosts.

Kaffemiks are held to celebrate a wide range of life events, including birthdays, weddings, baptisms, confirmations, holidays, graduations, a child's first day of school, or the first successful hunt. These gatherings usually include traditional Greenlandic foods, cakes, and offering of coffee and tea. Beyond the food and festivities, the kaffemik serves as a vital expression of social cohesion and mutual care within Kalaallit communities.

### **Typical Challenges**

The kaffemik, as a central social tradition in Kalaallit culture, presents a range of spatial and functional challenges within the home. Due to the high number of guests, the entrance area often becomes congested. In winter, this issue is intensified by the volume and bulk of outdoor footwear, which accumulate at the threshold. Snow and ice brought in on soles melt, creating puddles that makes the floor slippery and difficult to keep clean. Navigating this space often requires stepping over or on top of others' shoes, contributing to a sense of spatial discomfort and disorder. Similarly, outerwear such as winter jackets and snow pants requires considerable space. During kaffemiks, it is common practice to stack jackets in the bedroom, often directly on the bed, as available storage solutions are typically insufficient to accommodate the volume of outerwear.

As guests arrive in waves throughout the designated time period, interior spaces such as the kitchen and living room become densely occupied. Seating quickly reaches capacity, leaving many guests to stand while eating and socializing. This continuous flow of visitors challenges the conventional domestic layouts.

Moreover, the consumption of food and beverages, typically including a variety of cakes, traditional dishes, coffee, and tea, leads to the rapid accumulation of used tableware. Plates, bowls, utensils, and cups pile up quickly, necessitating ongoing dishwashing throughout the event. The kitchen can become overwhelmed by this continuous cycle of use and cleaning, especially with smaller kitchens.



### Hunting

Hunting holds a significant place in local culture and is widely anticipated each year, particularly with the opening of the caribou and muskox seasons on the 1st of August. This date is often treated as a celebration in its own, marking the beginning of a cherished tradition.

For recreational hunters, the reindeer season runs from August 1st to the end of October. During this period, families and friends often spend their weekends hunting, which typically involves sailing out from the city and staying in tents or cabins.

The animals are typically butchered upon returning from the hunt. Entire reindeer or muskox are transported back, requiring considerable space for processing. This work is often carried out in the kitchen, living room, or utility room (bryggers), if it is spacious enough.

Beyond its practical value, hunting is deeply fulfilling; it fosters a strong sense of self-sufficiency and connection to nature. There is a profound appreciation for the fact that these animals have lived freely in the wild, untouched by captivity.

### **Typical Challenges**

Hunting requires a substantial amount of gear, including outdoor clothing, rifles, knives, carrier harnesses, and other equipment. Storing these items presents spatial challenges within the home, particularly in standardized housing layouts that do not accommodate such seasonal or bulky belongings.

The butchering of reindeer or muskox demands a large, free floor area. The process can be messy, with blood and tissue difficult to remove from textured surfaces once dried. This makes material choice and surface durability critical in spaces used for processing game.

Moreover, the storage of meat places additional demands on the home. It is common for households to own two or more chest freezers, which require significant space and are often placed in utility rooms, hallways, or even living rooms when no dedicated storage area is available. The visibility and placement of such appliances reflect an ongoing tension between traditional practices and the spatial constraints of modern domestic architecture.



### **Traditional Inuit Culture**

Prior to colonialism, Inuit had their own religion and way of understanding the world around them. They lived a seminomadic lifestyle as hunters and gatherers following the seasons and wandering patterns of animals they hunted.

According to Inuit world views, a human has a soul, a body and a name soul. The main soul tarneq is what gives the body life and personality. Tarneq is connected to the body and breath. And when the body dies, the soul leaves the body and moves on to one the death kingdoms, heaven or the underworld. Where tarneq gives you life, atip tarnia (the name soul) gives a newborn skills of a deceased one which a newborn has been named after. (Engelbrechtsen, K. & Thomsen, J., 2013)

Inuit religion has this term inua, meaning its person, owner or its master. Inuit believe that everything on *nuna* (nature) has a soul, and when something has a soul it means that they are alive and must be treated with respect. It's very important to not violate that respect, as inua will take revenge. It is an abstract idea and so it is best to tell one of the most known inua:

### Sassuma Arnaa

### The Mother of the Sea - told by Nâlungiaq to Knud Rasmussen

Long ago, when the world was still young and people did not yet know hunger, danger, or taboos, there lived a young, orphaned girl at Qingmertoq, a large settlement. As the community prepared to cross the fjord in lashed-together qajaqs, no one took notice of her. She tried to climb aboard the qajaqs but was pushed into the sea.

Clinging to the edge of a qajaq, she begged to be pulled up. But instead, her fingers were cut off, one by one. As they fell into the water, they transformed into the animals of the sea: seals, whales, walruses, and fish.

The girl sank to the bottom of the ocean, where she became Sassuma Arnaa, the Mother of the Sea. Though she had been cast out and forgotten, she became the guardian of all marine life, feeding the very people who had once rejected her. But she never forgot their cruelty. When disrespected by pollution or breaking taboos, she withholds the animals and brings hunger. (Rasmussen, 1926) Only an angakkoq (shaman) can journey to her realm to comb her hair, soothe her anger, and restore the balance between the humans and the natural world.

This myth speaks deeply to Greenlandic values, respect for nature, the consequences of imbalance, and the interconnectedness of all living things. As you continue to read this thesis, consider the spiritual and cultural layers that have shaped life in Kalaallit Nunaat for generations.





# **Indigenous Sustainability**

This section will focus on the Indigenous technologies, highlighting the significant elements that have shaped the culture and identity through thousands of years.

It has been approximately 4.100 years since the first people arrived in Kalaallit Nunaat. The Inuit demonstrated a highly developed ability to adapt and innovate, repurposing new materials, refining advanced hunting techniques, crafting sophisticated fishing tools, and developing advanced clothing and transportation methods.

Inuit, up until the 19th century, are defined by their existence as a nature society, a way of life where people lived in close interaction with nature and were directly dependent on natural resources for survival. The technology, social structures, and daily life were adapted to nature's rhythms and resources. (Nunatta Katersugaasivia, nd)

Living and thriving under extreme natural conditions forced them to develop a system, philosophy, and mindset centered around maximizing the use of limited resources to ensure survival. The cultural narratives, such as taboos, myths and stories, were not merely symbolic but functioned as regulatory systems to maintain balance between human needs and ecological limits. Breaking these taboos was believed to disrespect and provoke the anger of spirits or ancestral forces, as is mentioned with *Sassuma Arnaa*. These narratives reinforced community-wide responsibility and humility in the face of nature's power.

This capacity for innovation was consistently anchored in a cultural logic that prioritized balance, respect, and reciprocity with the natural world.



### **Traditional Inuit Housing**

Living a seminomadic lifestyle with seasons required a housing that supported that. Many assume that Inuit lived in igloos year-round, which is only partially true. They were used only as temporal hunting houses, and were not that common in Kalaallit Nunaat. (Lee & Reinhardt, 2003)

They lived primarily in two types of houses. In tupeq (tent) during the summer, and illu or issummik illuliaq (peat house) which was the winter house.

In the summer, they would prepare for the winter and store provisions. In the winter, they would live in *illut* (plural of illu) in a more permanent place.



III. 25 – Family in front of their *illu* in Nuuk. Photo: Unknown photographer, Arktisk Institut



III. 26 – Family in front of their *tupeq* in Tasiilaq. Photo: Gudrun Maja Kristensen, Arktisk Institut

### Illu (Winter Dwelling)

The traditional illu represents a highly specialized architectural response to the extreme Arctic environment. The roof structure typically consisted of rows of driftwood or whale-rib rafters, over which smaller wooden crosspieces were loosely arranged. These elements were supported by a central ridgepole, establishing an interior height of approximately two meters.

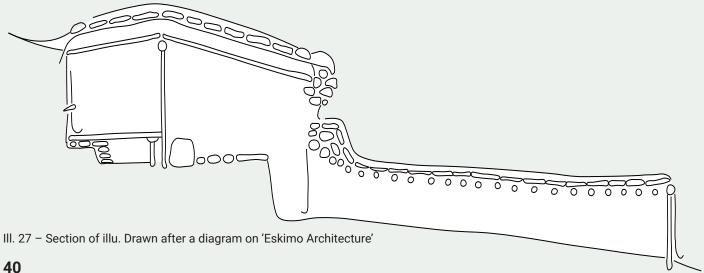
The roof covering comprised old boat or tent skins stretched over the rafters, secured with stones, and subsequently layered with turf to enhance thermal insulation. Load-bearing vertical poles transmitted the weight of the roof directly to the ground, either bare or stone-covered, ensuring structural stability. (Lee & Reinhardt, 2003)

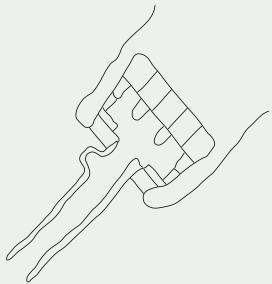
To further improve insulation, blocks of sod were sometimes placed around the interior walls. The windows were made from scraped strips of seal-gut membrane, set into stone frames. These allowed natural light to enter the space. Sleeping platforms, situated along the interior walls, measured approximately 1.8 meters in depth and were elevated about 45 centimeters above the floor. These platforms were divided by seal-skin partitions, providing private areas for individual families. While the walls were primarily constructed from turf, they were occasionally lined with insulated skins for reasons of both comfort and hygiene. (Lee & Reinhardt, 2003)

Interior furnishings were modest yet highly functional. Each family possessed a small wooden lampstand laid on a stone pedestal, providing both illumination and heat. Storage needs were met with boxes made from driftwood, while wooden clothing racks were suspended above the gulleg. (Lee & Reinhardt, 2003)

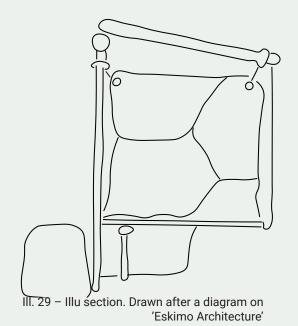
The tunnels served as a wind lock and kitchen space, and were insulated using a combination of animal skins, old tent or boat coverings, wooden planks, and seal ribs as structural supports. (Lee & Reinhardt, 2003)

This architectural tradition is a testament to material ingenuity and ecological adaptability. Every component, whether wood, stone, turf, or animal byproduct was repurposed with care. Nothing was wasted. From seal-gut windows to whale-rib rafters, the turf house exemplifies a mode of living grounded in resourcefulness, reciprocity, and intimate ecological knowledge. This is the essence of Indigenous sustainability: using what is available, respecting the land and animals, and creating responsive environments with minimal waste.





III. 30 – Illu plan drawing. Drawn after a diagram on 'Eskimo Architecture'





#### **Tupeq (Summer Dwelling)**

The tupeq represents a refined and adaptive form of Indigenous architecture, varying in form and construction across different regions and groups. Based on their structural typology and regional origin, tents can be categorized into four primary types: arched, ridged, conical, and domed. Among these, the large single-arch tents of East and West Greenland are the best known and most thoroughly documented. (Lee & Reinhardt, 2003)

The *tupeq* was typically constructed on a truncated elliptical floor plan, outlined and stabilized by stones. The central feature was a tall, sawhorse-like wooden doorframe, forming a prominent archway. Long poles extended from the perimeter and converged above the doorway, where they were lashed together with skin thongs in front of a crossbar, forming the primary structural frame. Inside, a raised sleeping platform made of wooden planks rested on stone and turf foundations, elevating sleeping areas from the cold ground and improving thermal comfort. (Lee & Reinhardt, 2003)

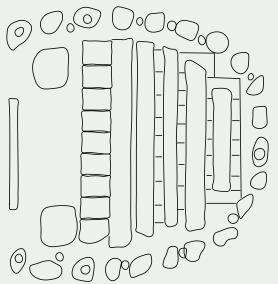
The tent covering consisted of two distinct layers stretched over the wooden frame. The outer layer was made of oiled sealskins with the hair removed, while the inner layer retained the hair and was oriented inward to enhance insulation. A tupeq would require up to sixty sealskins in total, reflecting labor-intensive nature of construction. In West Greenland, the choice of materials, particularly the use of caribou skins in the inner layer, could also function as a marker of social status and hunting skills. (Lee & Reinhardt, 2003)

The tent entrance was covered with a curtain composed of alternating strips of winter- and summer-tanned seal intestine, creating an artful, light-filtering pattern of contrasting bands. Waterproofing of the exterior was achieved either by turning the skin side outward or by applying a thin layer of blubber to the surface. Construction techniques demonstrated remarkable material sensitivity and technical skill. Sewing was done using a technique known as blind stitching, performed with needles made from gull or hare bone, and thread made from the tendons of caribou, seal, or narwhal. (Lee & Reinhardt, 2003)

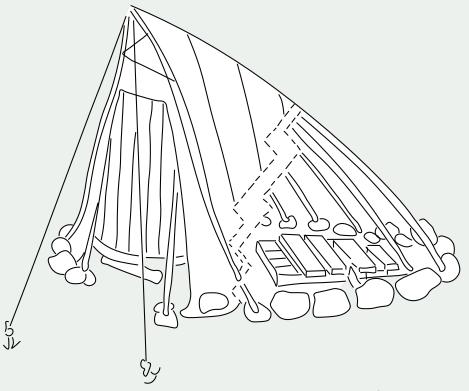
The tupeq is an example of not only architectural adaptability but also a deep, culturally embedded understanding of materiality. Within this structure, a single material, such as seal skin, is transformed into multiple architectural elements with distinct functions: from the waterproof, hairless outer covering to the insulating inner lining, and even to the translucent, decorative entrance curtain made from intestine strips.

Each component reflects a unique manipulation of texture and treatment, maximizing the functional and aesthetic potential of the same organic resource. This layered use of materials where one type of skin becomes shelter, insulation, and ornament is a testament to Indigenous ingenuity and an intimate knowledge of ecological systems.

Such multiplicity of use is not merely practical; it is an expression of a relational worldview in which resources are respected, used efficiently, and given continued purpose. Material choices are shaped by experience, environmental conditions, and social meaning. The *tupeq* becomes more than a tent, it is a mobile architecture of care, memory, and survival, where every stitch, skin, and structural form encodes a profound connection between people, materials, and place.

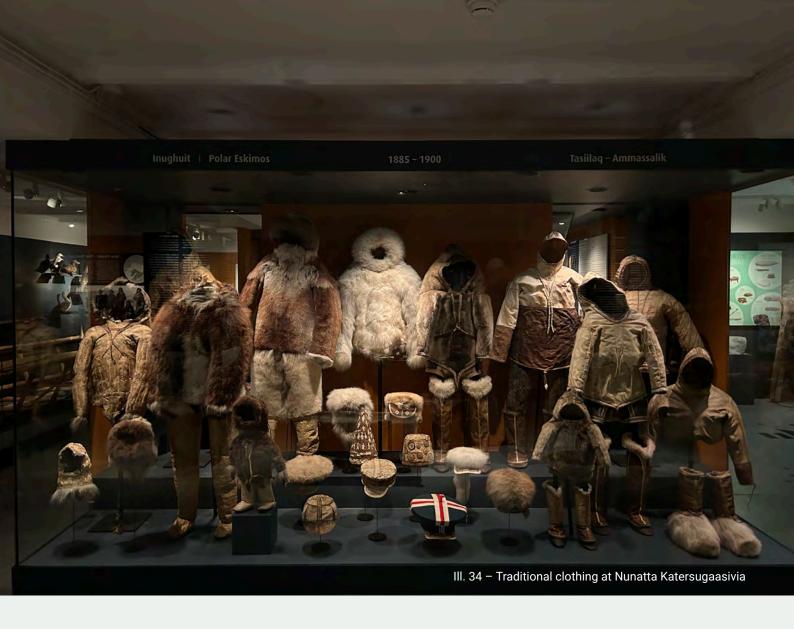


III. 31 – Tupeq plan drawing. Drawn after a diagram on 'Eskimo Architecture'



III. 32 – Tupeq drawing. Drawn after a diagram on 'Eskimo Architecture'





### **Clothing**

Inuit clothing demonstrates a highly developed understanding of material use, grounded in generations of practical experience with local resources. Clothing was made primarily from animal skins such as seal, caribou, and polar bear, selected for their specific insulating properties.

Caribou skin was particularly appreciated for its ability to retain warmth, due to the hollow structure of its hair that effectively traps heat. Seal skin, on the other hand, was known for its durability and water resistance, making it especially suited for outer garments. By combining inner and outer layers of skin, Inuit clothing formed a natural insulation system that was both efficient and adapted to Arctic conditions.

One of the central garments was the *annoraaq* (anorak), a hooded, windproof jacket made from animal skins. It offered protection from snow,

wind, and moisture. Women often wore something called *amaat*, which had a large hood designed for carrying babies on their backs. This ensured that the child remained warm and in close physical contact with the mother.

Another important piece of clothing was the *kamik*, traditional waterproof boots made from seal skin. Their soles were reinforced with tougher hide, and their flexible construction allowed ease of movement in snow and ice. The layered build helped to preserve warmth while keeping the feet dry, which was vital in preventing frostbite during long hunting trips. (Gulløv, et al., 2004)

These garments illustrate the practical and refined use of available materials, tailored to the demands of the environment.

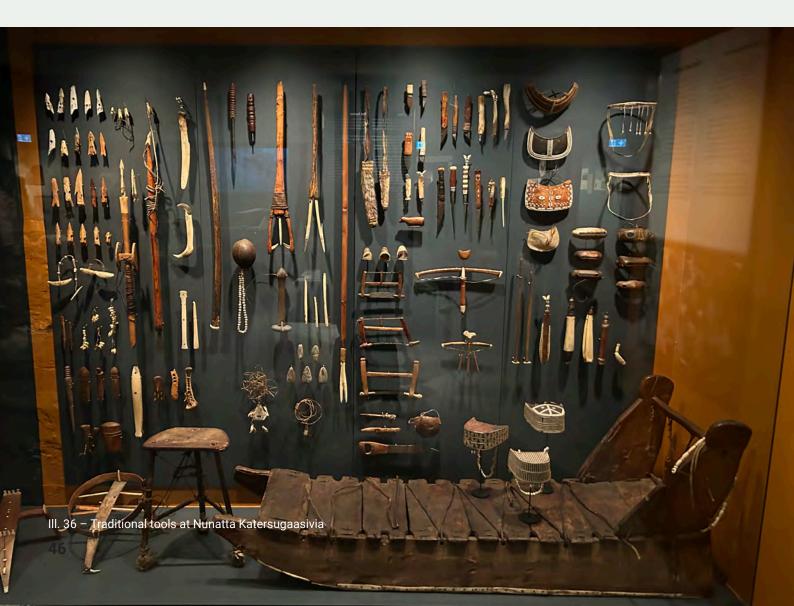


#### **Tools**

Seals were the most important catch, which led to small communities being spread along the 2.000 kilometer-long coastline of western Greenland. It is important to remember that families relied almost entirely on their own catch and the processing of that catch. Therefore, having the right tools was essential, whether for cooking, slaughtering animals, or sewing.

The constant exposure to nature gave the Inuit an extraordinary knowledge of materials, forming a deep connection with their environment that allowed them to innovate and push the limits of what was possible with available resources. Their tools, crafted with great skill, reflect this resourcefulness.

For example, the harpoon; a highly advanced tool for hunting sea animals. Its detachable, iron-tipped head was attached to a line and loosely connected to the shaft, allowing for precision and flexibility. Thrown with a stick to boost power and accuracy, the harpoon was tied to an inflated seal bladder that slowed the wounded animal. On impact, the barbed tip embedded in the prey and sometimes rotated to prevent escape. Once struck, the prey, often a seal, was further hindered by the capture bladder. The harpoon shaft itself could then be retrieved and reused, demonstrating the Inuit's resourcefulness and ingenuity. (Gulløv, et al., 2004)

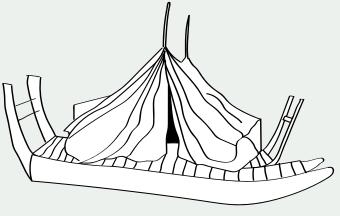


### **Transportation**

The Inuit developed specialized transport suited to their harsh environment, using *qajaq* and *umiaq* for summer sea travel and *qamutit* (dog sled) in winter. These were efficient, adaptable, and made from natural materials like driftwood.

The *qajaq* is sleek and was used for hunting marine animals. Built to match the user's body, they were made from organic materials, including tightly prepared skins treated with ash, oil, or urine.

On land, dog sleds were used for long-distance travel and heavy loads. Built strong yet flexible, they often included harnesses made from carved bone. During hunting trips, sleds could also serve as beds, offering insulation with reindeer skins and tent covers. (Gulløv, et al., 2004)



III. 38 - Transitional tent on sled



# IIIISIMATUSARNEQ

Theoretical Learning



III. 39 – Arsarnerit (northern lights) in Nuuk

### **Theoretical Framework**

This thesis draws on decolonial and design literature that challenge dominant Western design paradigms and prioritize Indigenous worldviews. Central to this is Arturo Escobar's Designs for the Pluriverse, which proposes a design approach grounded in relationality, autonomy, and cultural pluralism, advocating for ontological diversity in the ways we shape and inhabit the world.

Speculative Design is used as a tool to imagine alternative futures that move beyond colonial frameworks, opening space for Indigenous-led visions of spatial and cultural sovereignty.

### **Designs for the Pluriverse**

Designs for the Pluriverse critically examines contemporary design practices by exposing their entanglement with patriarchal, capitalist modernity and the historical traditions from which they emerged. Taking an ontological perspective, Escobar identifies the deep-rooted limitations of dominant design paradigms and calls for a fundamental rethinking of design's role in shaping the world.

Layered Processes of Transformation

Escobar argues that design is not neutral, it is a political tool deeply rooted in the structures of modernity. As discussed earlier in relation to architecture in Kalaallit Nunaat, design has been a tool in colonialism. In Kalaallit Nunaat, this was clearly expressed following the island becoming a part of Denmark, initiating a process of systemic transformation through design, planning, and policy. (Olsen, 2016)

The post-war era symbolizes a global architectural shift toward functionalism, standardization, and mass production was transforming built environments through the promise of efficiency and progress. New materials such as concrete, steel, and industrial composites, alongside emerging construction technologies, redefined the architectural profession and urban space globally. (Escobar, 2018)

Yet in Kalaallit Nunaat, these global movements intersected with a radically different reality: a cultural shift to a rapidly industrialized one. This was not only a local adaptation of international trends, but it was also a forced acceleration of social, economic, and cultural transformation. Architecture became a tool in this restructuring, importing not just forms and materials but also values and spatial logics that disrupted Indigenous ways of living and relating to land.

As Arturo Escobar critiques, modernist design under industrial capitalism was reshaping life through mass production and techno-functional aesthetics, with little regard for plural lifeways or place-based knowledges. In Kalaallit Nunaat, this meant that so-called development did not merely "improve" housing conditions, it imposed new spatial norms and disconnected communities from traditional ways of living. The application of modernist architectural ideology is what Escobar calls a "massive design failure".

The transformation of Kalaallit Nunaat during this period was not one-dimensional. It involved the imposition of global architectural ideologies of the time, a national political project of assimilation to a Western one. These layers of change, technological, political, spatial, and cultural, did not unfold sequentially but were entangled, producing a moment of rupture that continues to shape the built environment.

# Who is Arturo Escobar?

Escobar is a Colombian anthropologist and design theorist who has worked closely with Afro-Colombian communities, environmental movements, and feminist organizations.

He is currently affiliated with the PhD Program in Design and Creation at Universidad de Caldas and is a Research Associate at Universidad del Valle in Cali, Colombia, his place of origin (American Academy of Arts & Sciences, 2025).

### **Need for a Paradigm Shift**

Escobar argues for a paradigm shift in design, moving away from conventional industrial, engineering, and architectural methodologies to a more participatory, ethically driven, and socially engaged practice.

Escobar believes contemporary design must shift toward ethical, participatory, and justice-oriented practices. Indigenous Peoples with their cultural resilience, traditional ecological intelligence, and historical resourcefulness, holds the potential to not just participate in this shift but to lead it. Design here does not need start from scratch, it can emerge from within, guided by the lived knowledge of communities, the rhythms of the land, and the values of relationality and care. It can be an alternative way of approaching sustainability in the building sector, one that challenges modernist legacies and opens space for a pluriversal architecture to emerge.

#### **A Situated Practice**

Escobar suggests an architectural alternative way to approach architecture. His invitation to "design otherwise" finds ground in vernacular architecture. Highlighting it as being a space of possibility instead of seeing it as rigid traditionalism. An opportunity for social and environmental renewal integrating local materials, ecological awareness, and cultural sustainability.

The traditional vernacular in Kalaallit Nunaat embodies a relational architecture that responds to the seasonal rhythms, material resourcefulness, and social practices. Rather than erasing the the modernist era and building vernacular, we can ask ourselves: how can these structures be reimagined and reoriented through vernacular principles? Can material and spatial languages of the past be reactivated to transform standardized housing into more relational, climate-attuned, and community-oriented spaces?

In the face of spatial standardization imposed by colonial modernization, the vernacular presents a path toward cultural and ecological restoration. In Kalaallit Nunaat, traditional architectural forms were never static, they were adaptive and responsive to the land. Reclaiming these principles, rather than replicating forms, allows for a situated design language that can give new life to the housing of modernist era. By applying vernacular logics to modernist principles, architects and communities can initiate processes of spatial healing that are locally grounded, material sensitive, and culturally empowering.

### **Beyond Inspiration**

It is not enough to simply take inspiration from traditional architecture. Design must go beyond adopting radical ideas at a surface level. It must critically examine and challenge its own foundations, histories, and inherent limitations. Design, as a historically delimited practice, is shaped by capitalist, and technocratic logics that have constrained its possibilities. Recognizing this is essential if we are to move toward what Escobar calls counterdesigning, a mode of design that arises from different worldviews, lifeways, and onto-epistemologies.

This shift requires that design is understood not only as the creation spaces, but as a cultural practice that shapes, and is shaped by, everyday life. It informs how people experience the world, form identities, and interact socially. To design otherwise is not merely an aesthetic or technical choice, it is an ethical commitment to rethinking the very role of design in shaping futures.

## **Speculative Design**

Speculative design emerged in the early 1990s as a counterpoint to mainstream, market-driven design practices. Popularized by Anthony Dunne and Fiona Raby, the approach has since evolved into a broader field that challenges the conventions of traditional problem-solving in design. By decoupling design from commercial constraints, speculative design opens a space for critical reflection, imaginative thinking, and socially engaged futures. (Dunne & Raby, 2013)

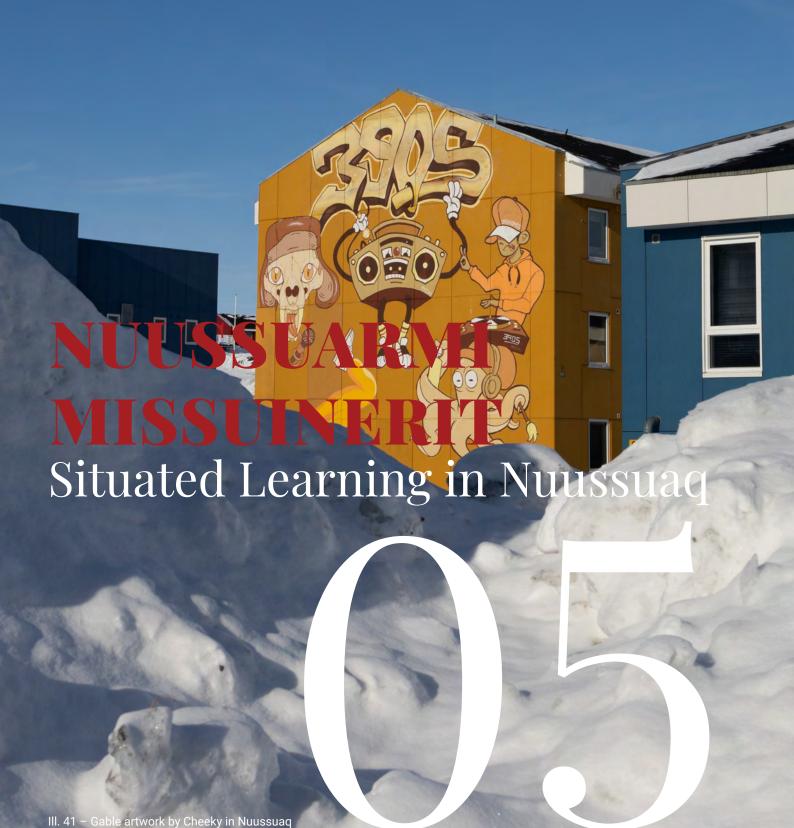
Initially known for its dystopian narratives, the method has gradually shifted toward more constructive visions, encouraging designers and citizens alike to imagine not only what could go wrong, but also what might go right in alternative futures. (SpeculativeEdu, 2020)

As Dunne and Raby write, dreaming is powerful. It can inspire new possibilities or distort reality, but above all, it reveals our desires. (Dunne & Raby, 2013) In an era where global challenges often seem insurmountable, and visions for the future are replaced by vague hopes, speculative design becomes a valuable tool. It allows us to envision the kinds of futures we want, and those we want to avoid, by critically engaging with social, cultural, and technological change. Rather than offering solutions, speculative design presents scenarios. These "what if" narratives invite reflection and debate, provoking new perspectives and ways of thinking about the present. (Dunne & Raby, 2013)

While design is often understood as the practice of solving problems, speculative design reframes it as the practice of asking questions. It uses fiction, provocation, and imagination to examine value systems, behaviors, and assumptions. Its power lies not in delivering a fixed outcome, but in opening up a space for dialogue, especially around complex, so-called "wicked problems". (Dunne & Raby, 2013) As Dunne and Raby suggest, speculation can become a catalyst for reimagining our relationship with reality and redefining what design is for.

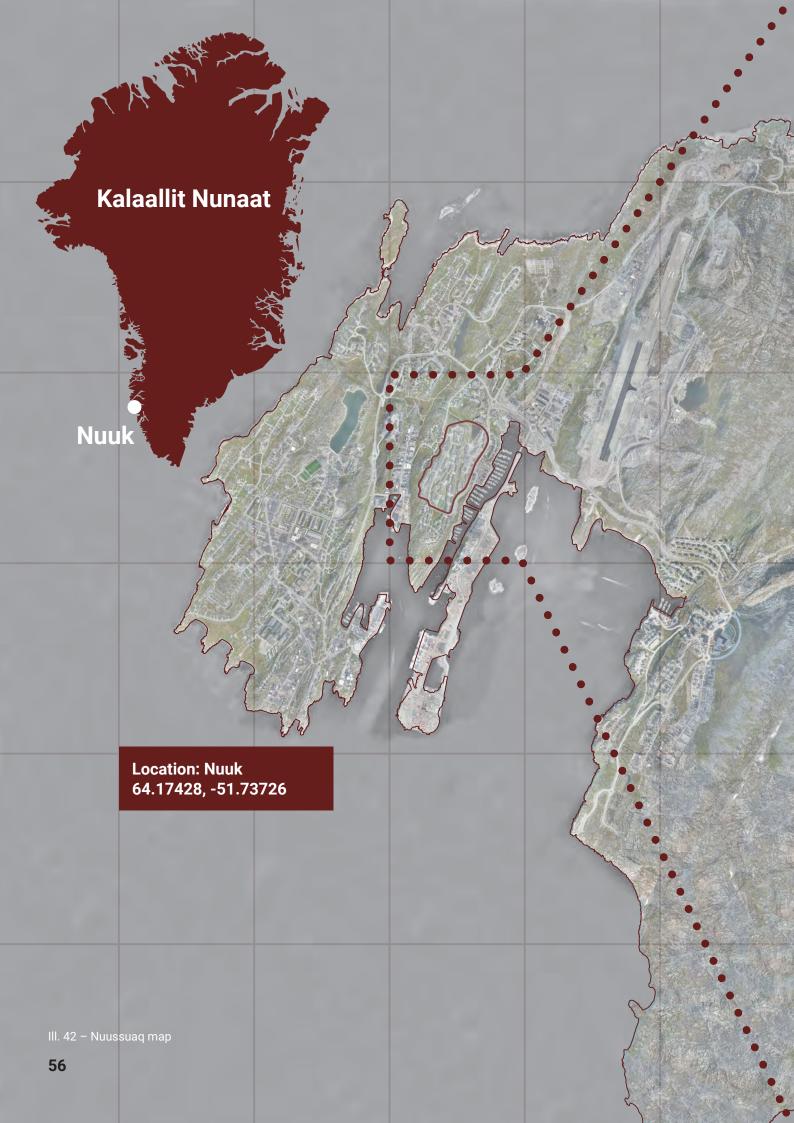
Speculative design is particularly relevant to this project because it supports a process of reclaiming authorship over futures. In the context of Kalaallit Nunaat, where colonial structures have historically dictated the built environment, speculative design offers a platform to amplify voices that were previously excluded. Rather than repeating patterns of top-down planning, as seen during the era of GTO, this project seeks to foster bottom-up imagination. Speculative design becomes a way to return agency to the people of Kalaallit Nunaat, enabling them to co-create futures grounded in their own values, identities, and traditions.

This is not about prediction, but about preparation and possibility. By creating space for alternative futures to be imagined, especially by those who were denied participation in the past, we can shape a more adaptable present. We cannot foresee what lies ahead, but through design, we can illuminate paths that lead to more inclusive, culturally grounded outcomes. Speculative design thus becomes a method for repair, for reorientation, and ultimately for decolonization through design, not by replacing one system with another, but by expanding what is possible when local knowledge, memory, and imagination are allowed to lead.



## **Presenting Nuussuaq**

The following section presents the analytical work, which constitutes a central part of the project. During our visit to Kalaallit Nunaat, the fieldwork has given us the opportunity to work in an investigative and targeted manner, which has ensured a high quality of analysis. This has made it possible to focus on precisely those aspects that are particularly relevant to the project's problem. In addition to the analytical work, extensive photo documentation has also been carried out, which contributes to supporting the visual and contextual insights in the analysis. They will be presented with mappings, pictures from the site, and collages.

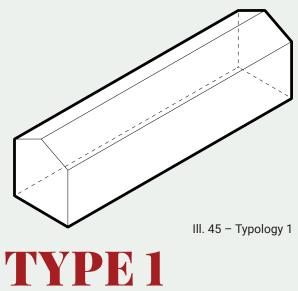


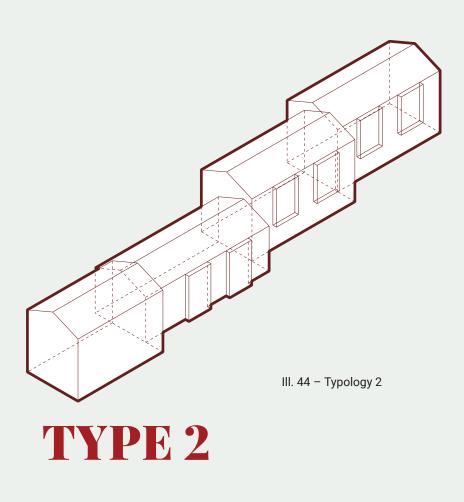


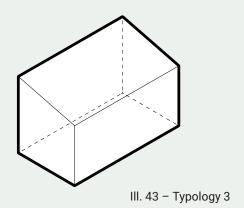
Typologies on Site

The following shows a breakdown of the different housing typologies found on the site. The buildings are divided into three general categories: Type 1 and Type 2 constitute the building type on which the project is based, while the remaining buildings are grouped into a third category. Although these latter buildings are not identical in their expression, they contain visual and functional variations that make a finer division less relevant in this context.

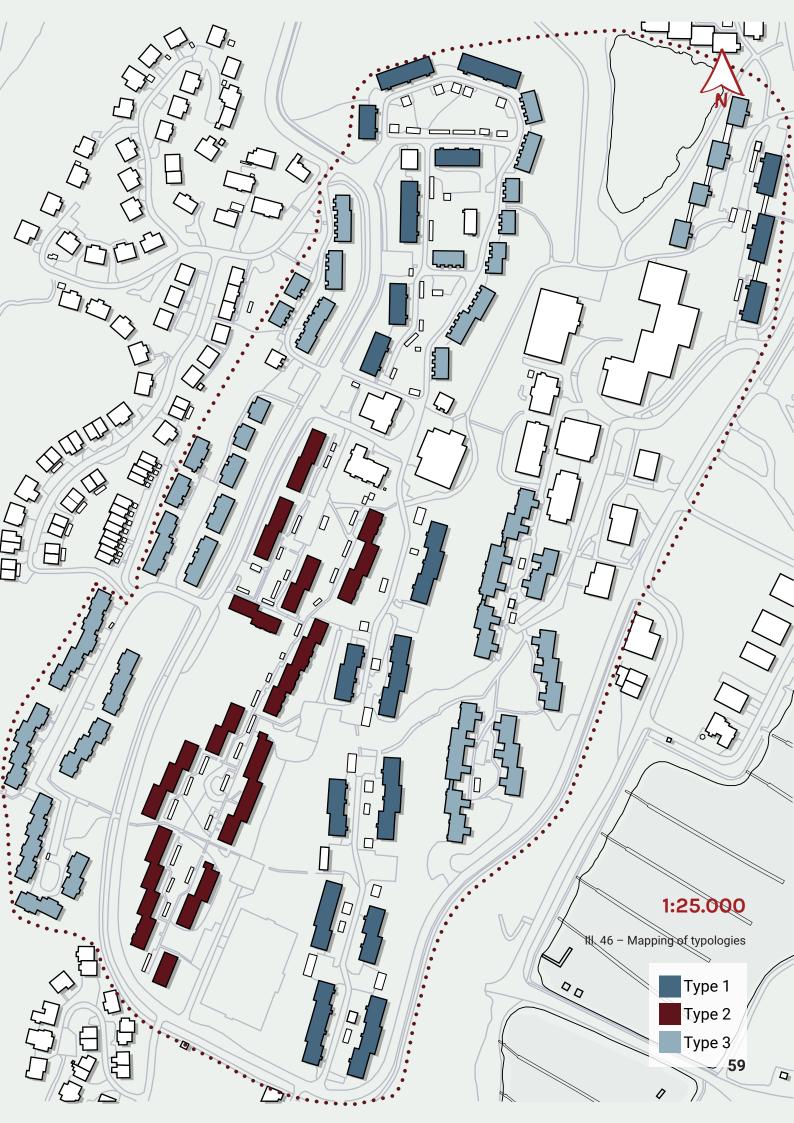
The choice to focus on Type 1 and Type 2 is due to the fact that these constitute the largest proportion of the buildings in the area, and that they appear relatively uniform in both architecture and structure.







TYPE 3









These storyboards offer a visual narrative of our site, capturing moments where architecture meets daily life. Through collage, we highlight material conditions, signs of wear, and how the built environment adapts or fails to adapt to local needs. From practical modifications to quiet acts of resistance, the images reveal where architecture supports tradition, and where it stands in tension with it. Together, they form a layered reading of place, shaped as much by people as by design.



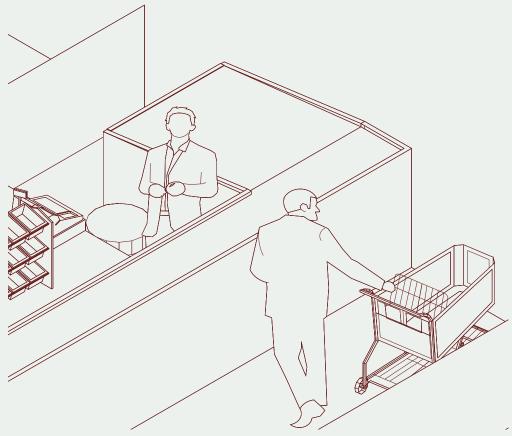


### **Functions**

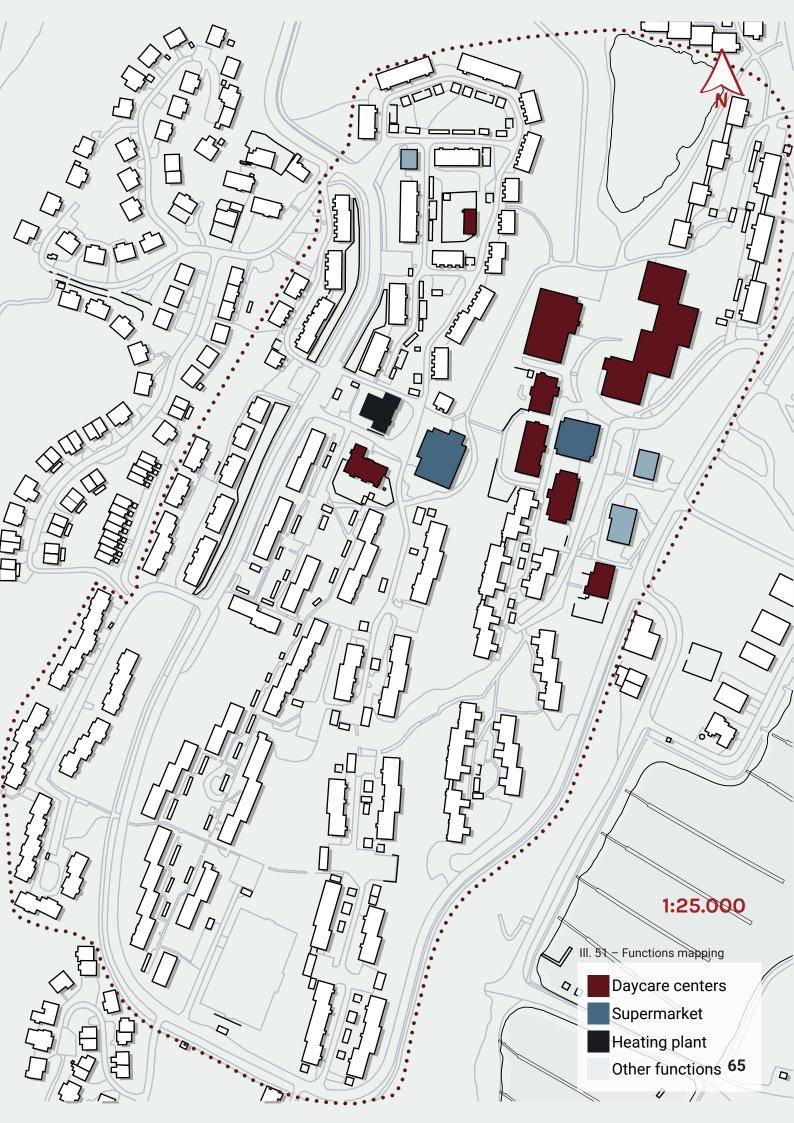
The primary function on the site is residential. However, as illustrated on the right, the area also accommodates a number of supporting functions that contribute to everyday life.

These include technical infrastructure such as a central heating system, as well as shopping opportunities in the form of two supermarkets. In addition, the site hosts a range of daycare facilitie including a nursery, kindergarten, and school, ensuring that the daily needs of residents are largely met within the local area.

Looking beyond these basic functions, however, the area lacks broader programmatic diversity. There are few spaces for community interaction, cultural engagement, or leisure activities, which limits the site's potential as a vibrant and socially connected neighborhood. This underscores the need to introduce new public functions that can support community life, promote inclusivity, and enhance the urban quality of the district.



III. 50 - Supermarket illustration



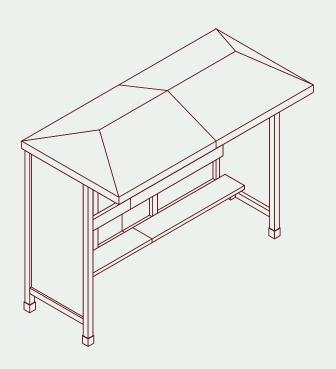




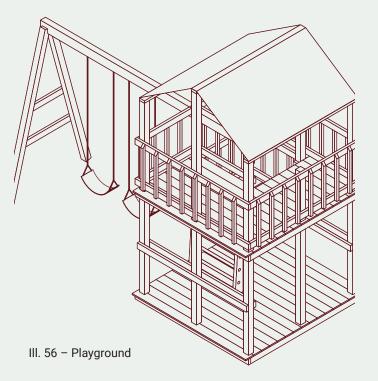
### **Social Zones**

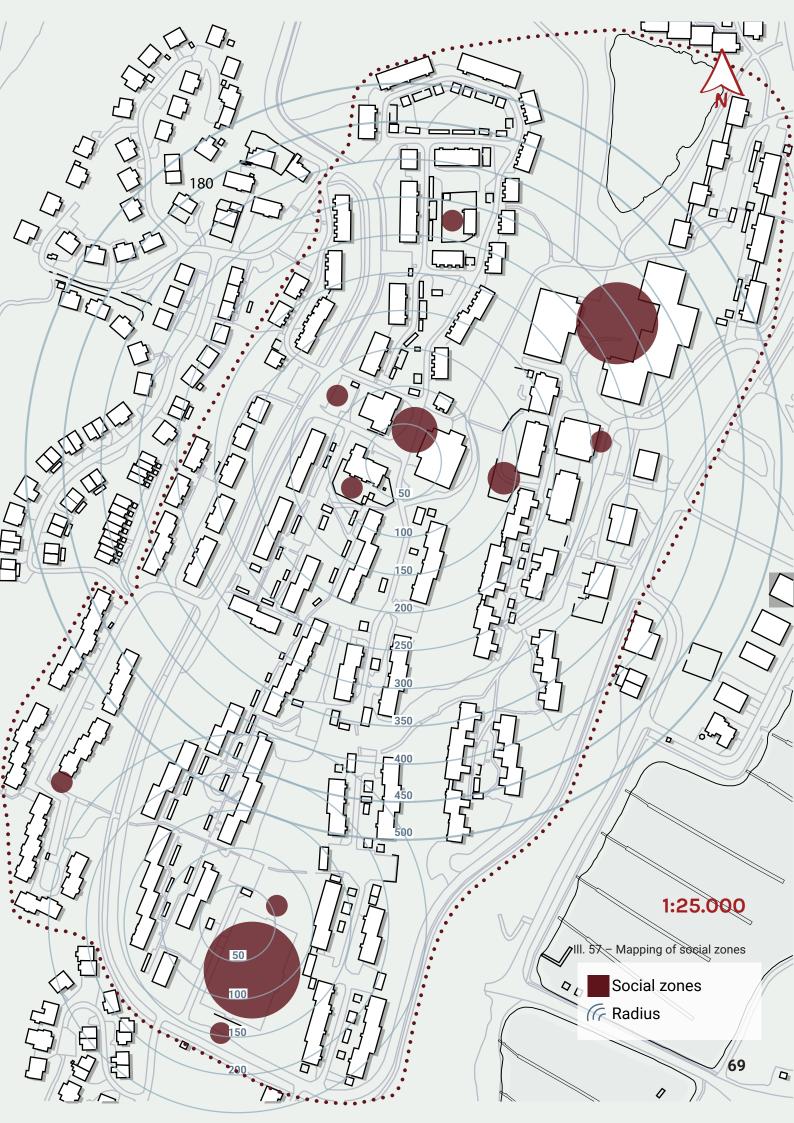
In relation to the possibilities for social interaction and meeting places, these are primarily linked to functional nodes such as the grocery store, playground or school. The majority of meetings between residents take place outdoors, as there are no actual shared facilities in connection with the housing developments, where people can gather across households. The spontaneous meetings therefore typically occur in connection with everyday functions – for example, while shopping or when moving through the area and meeting neighbors and acquaintances.

The location of the individual home also plays a significant role in relation to access to these shared meeting places. Since many of the functions are concentrated in one area of the site, there is a significant difference in distance to the shared functions, depending on where on the plot you live. This distance has a direct impact on the residents' experience of community and their opportunity to engage in informal social interactions in everyday life.



III. 55 - Bus stop shed









In Kalaallit Nunaat, the dry climate makes outdoor drying a practical and enduring tradition. Clothes are frequently hung outside, with many apartments having ordinary drying racks permanently mounted beneath windows, an architectural adaptation to both the environment and the limitations of interior space.

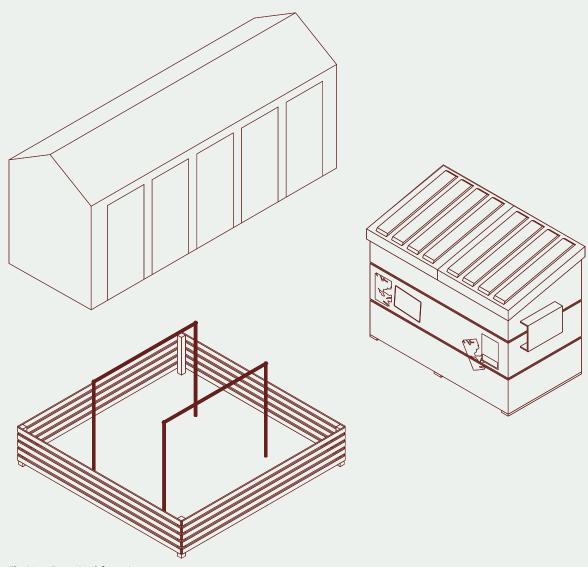
These installations are not just functional, they reflect how architecture in Kalaallit Nunaat evolves with daily life. In some apartments, small exterior boxes serve as natural freezers, used for frost-drying foods in winter months. These adaptations speak to a resourceful interplay between climate, culture, and an architecture that goes against cultural practices.



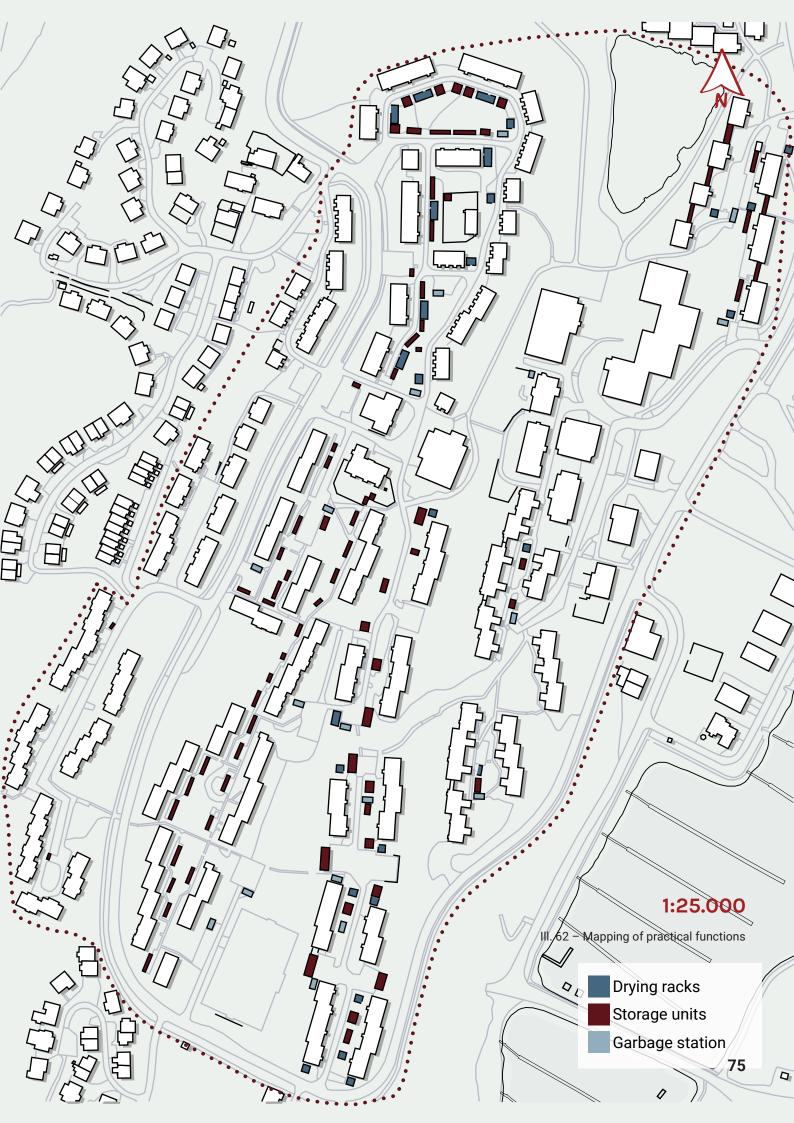


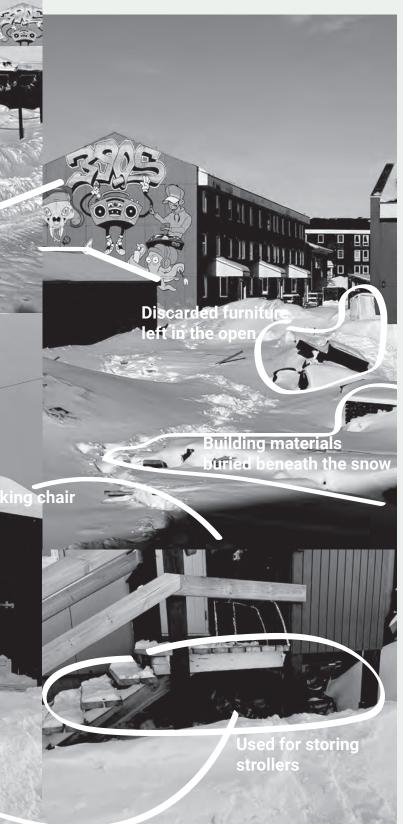
# **Practical Functions**

The area features many small sheds and extensions used for storage, drying, waste sorting, and recycling. These functions are placed outside the main buildings, occupying undefined outdoor spaces and fragmenting the urban environment. In the harsh climate of Kalaallit Nunaat, many of these structures appear worn and damaged, affecting both the visual quality and the sense of care in the shared space.



III. 61 - Practical functions



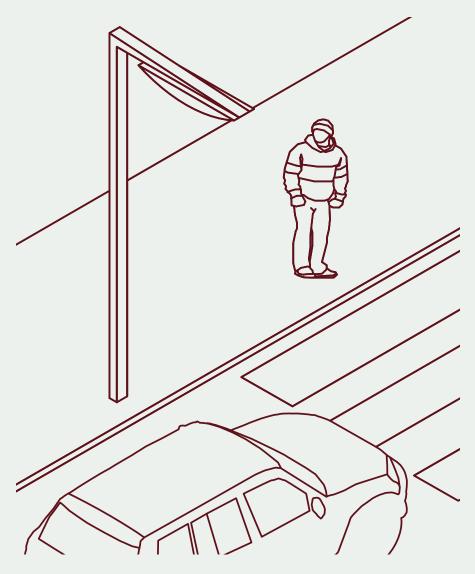


Our site walk in Nuussuaq revealed several issues affecting the urban space. One major challenge is the lack of storage, with many belongings left outside, even in cold March weather, sometimes blocking access roads and entrances due to overcrowding.

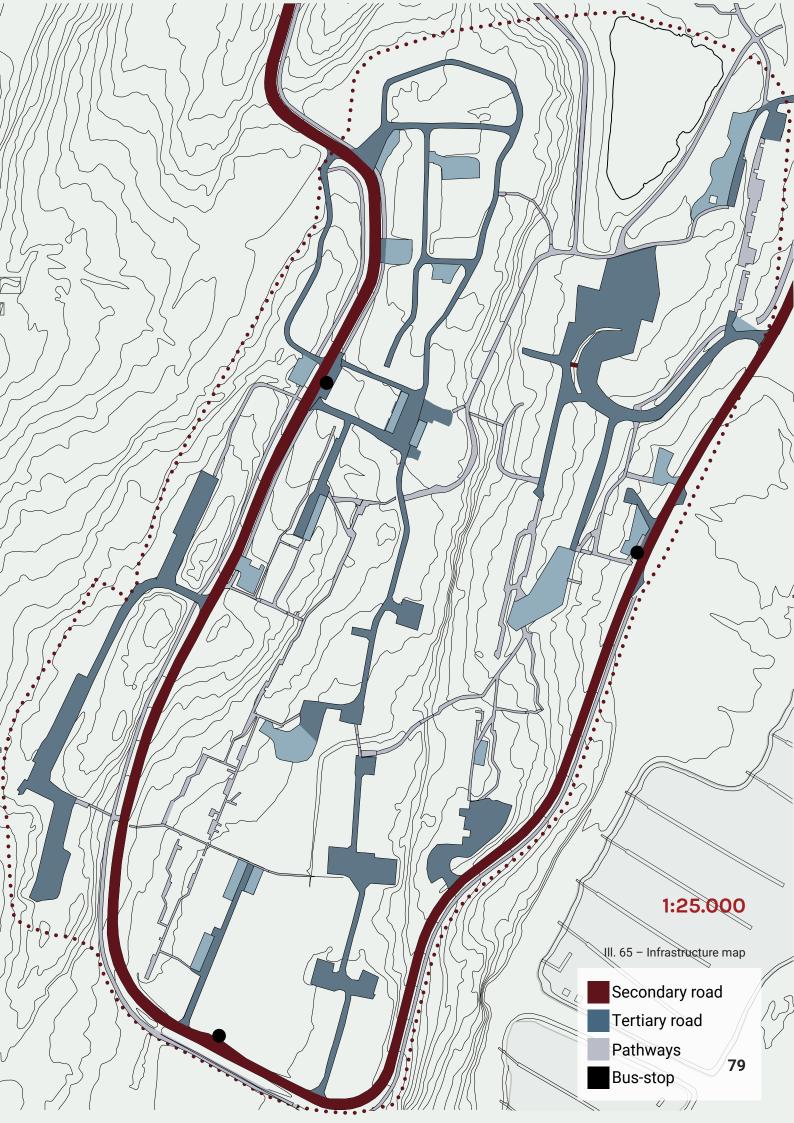
A related issue is the reuse stations, which, though a positive initiative, are often overloaded. There's a clear mismatch between the volume of waste and the stations' capacity and maintenance, making the current setup insufficient for the area's needs.

# Infrastructure

The site is bordered by a secondary road connected to one of Nuuk's busiest main roads, but traffic here is light and mostly limited to residents, taxis, and a single bus route. The internal roads are designed for slow traffic without sidewalks, creating a shared space dominated by cars. Despite designated parking areas, informal parking often spills into road spaces, reducing potential for social or recreational use. In contrast, a well-connected network of footpaths offers easy pedestrian access between buildings, supporting walkability in daily life.



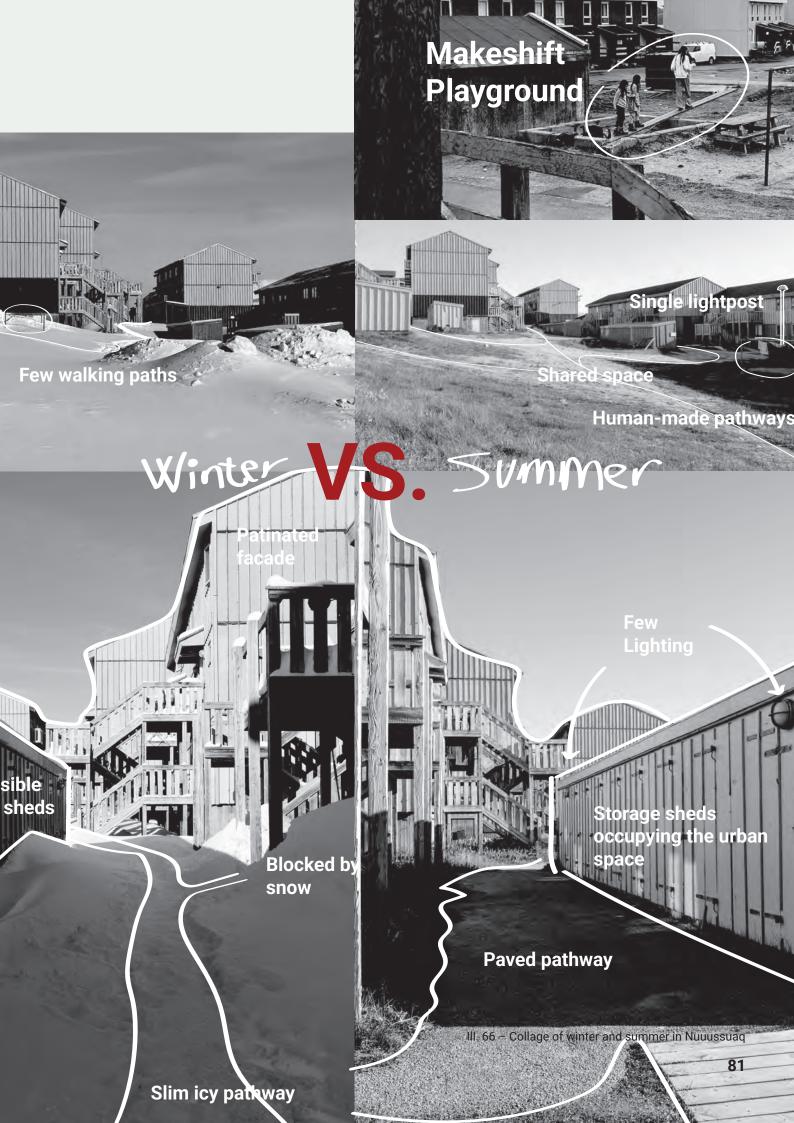
III. 64 - Infrastructure illustration



In the summertime, Nuussuaq feels bright and open, its colorful buildings standing in contrast to the surrounding rock formations that define the landscape. Despite the warmth, there are only minimal outdoor activities and few seating areas, with no vegetation or flower gardens to soften the hard edges of the urban space. Cars fill the area, weaving between worn houses that clearly need a loving hand—something that becomes obvious when they're parked close to the buildings. Children have fun on playgrounds or on the rough surfaces of dirt and gravel, taking advantage of the good weather in a neighborhood that feels both lively and strangely empty of people.

In winter, Nuussuag is wrapped in silence, transformed into a frozen winter wonderland. The cold settles deep into every surface, almost pausing the urban area in time. Harsh weather and icy winds sweep through the streets, making movement difficult. The ground is slippery, uneven, and often buried beneath thick snow, requiring each step to carve a new path. Snow barriers line roads and entrances, shaping the urban space into narrow corridors between high drifts. Yet despite the challenges, the snow brings a quiet sense of coziness-blanketing the worn buildings and muffling all sound. The harshness is softened by stillness, and the entire settlement rests within the most beautiful landscape, where mountains and sea blend into a bright, endless whiteness.



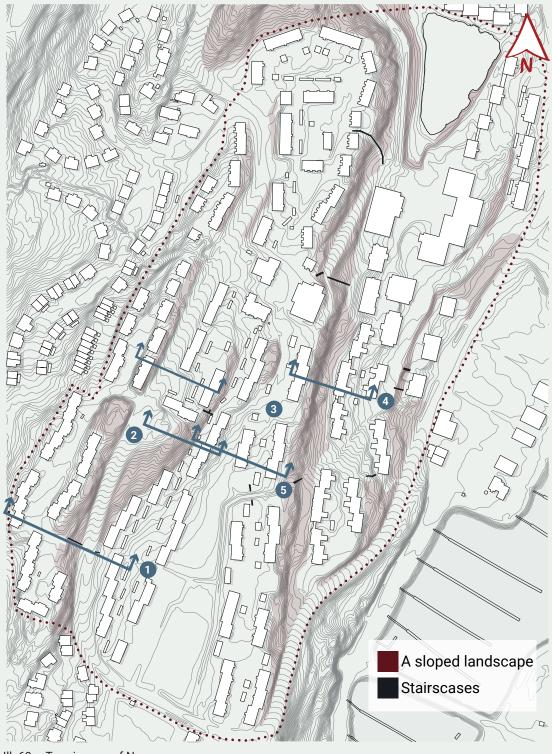




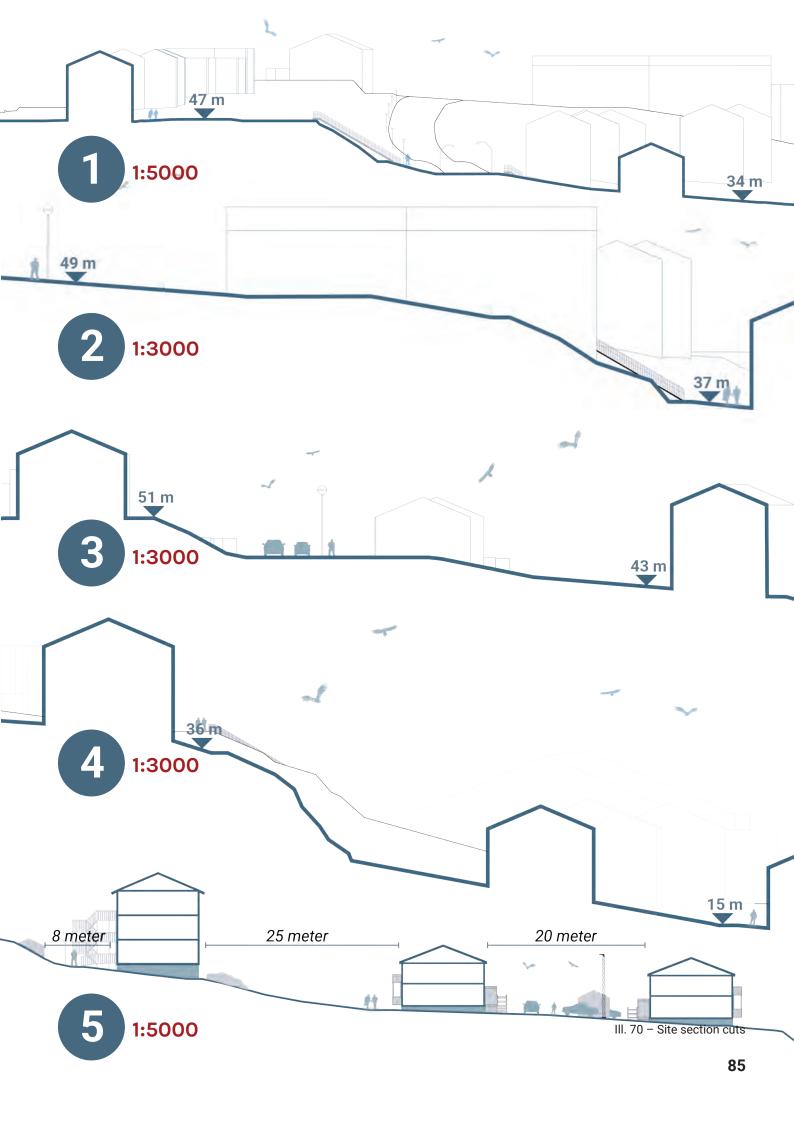


# **Terrain**

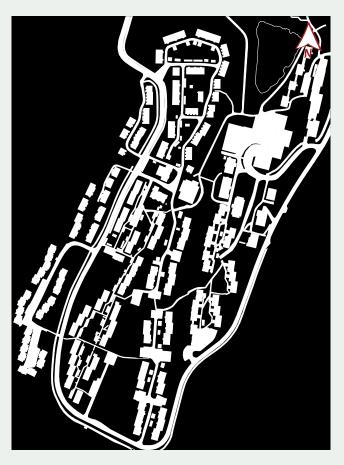
One of the main challenges on the site is the varied terrain. Within just 250–300 meters, the elevation ranges from about 10 to 50 meters, creating steep and uneven ground. This makes access, building placement, and infrastructure complex, but also offers architectural and landscape potential. The following sectional drawings illustrate these terrain conditions.

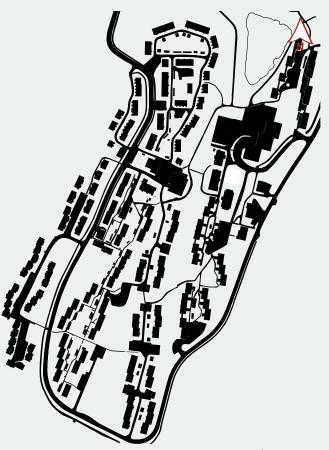


III. 69 - Terrain map of Nuussuag



# **Nolli Mapping**





III. 71 - Nolli maps of Nuussuaq

With the Nolli map, the relationship between public and private spaces is analyzed - how much space is set aside for public access, how these areas are connected, and how much space the homes take up. The map also examines the layout of the streets (how movement and connections between the areas work), the functions of the buildings and their openness (how they contribute to the public space and create life and activity), the edge zones (the transitions between public and private spaces and the relationship of the buildings to the street), spatial continuity (pedestrian friendliness, any breaks and dead ends and the general experience of moving in the area) as well as scale and proportions (the relationship between buildings and streets, where open spaces support larger communities, while narrow streets and more enclosed areas create a sense of intimacy).

The housing stock in the area consists of clusters of blocks of flats that face each other and form semi-private spaces. This creates the opportunity for more intimate communities within each cluster and among residents. In the case of the larger buildings, there is a tendency to establish slightly larger and more open spaces. To the southwest, between two residential clusters, there is a large open space, which is, however, separated by a road.

The street course and the road network in the area are perceived as unmanageable, and the connection between the different parts of the area is weak, which results in poor pedestrian friendliness and low visibility.

The scale relationship between the buildings and the streets supports the formation of smaller communities in the housing clusters. This is due, among other things, to the low buildings and their orientation from south to north, which contributes to a more human scale and a denser residential structure.

# The Story of Kaassassuk

Long ago, in a coastal village, there lived a boy named Kaassassuk. He was small and slow to grow, with unusually large nostrils. Though once cared for, he was soon mocked and pushed aside. The adults ridi-culed him, and the children followed. He stood each day at the edge of the communal house, never truly welcomed in.

One day, an old man told him to leave and find Pissaap Inua, the Spirit of Strength. Kaassassuk walked alone, beaten and humiliated. In the mountains, a strange spirit appeared and flung him through the air. When he landed, he found toys scattered around him. "These are the things that keep you weak," said the spirit.

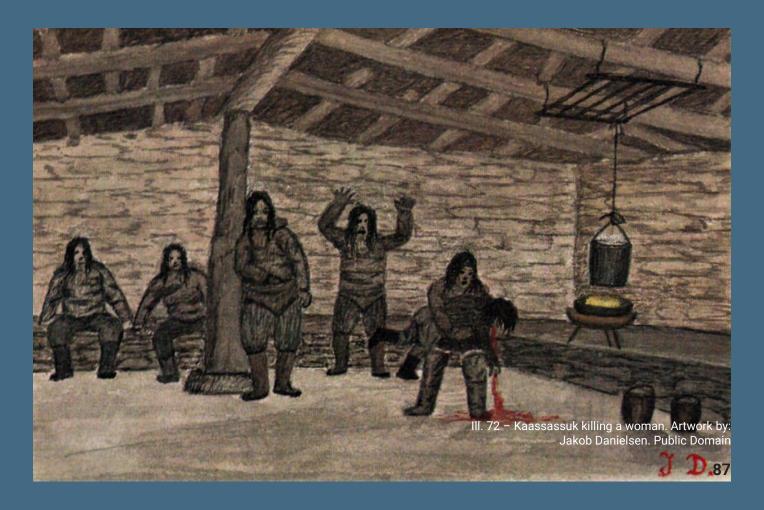
Each day the spirit threw him again. The toys became fewer. His body grew stronger. When none re-mained, the spirit said:

"You are strong now. But wait. Do not show it until the time is right."

When three polar bears appeared and no one dared act, Kaassassuk knew it was time to show his strength, stepped forward and killed them with his bare hands. He gave the smallest to the hunters and said nothing. He later killed the whole village, except for the two elderly who had always treated him right. (Bjerre, 2017)

This story is not only about strength. It is about those we choose not to see. Kaassassuk was excluded not because he lacked strength, but because the community refused to recognize his worth.

As we design the spaces we live in, homes, gathering places, cities, we must ask: Who are we including, and who are we leaving out? Architecture shapes more than buildings. It shapes belonging. This story reminds us that everyone de-serves a place inside, not at the threshold, but within.



# **Case Studies**

This thesis draws on two case studies that offer different but complementary insights into context-sensitive design.

The Modern Seaweed House on Læsø revives a traditional material, eelgrass, for use in contemporary construction. It shows how local, sustainable resources can be reimagined to meet modern needs, offering inspiration for material experimentation in Arctic contexts.

The Hoop Dance Indigenous Gathering Place focuses on process. Rooted in Indigenous worldviews, it was developed through deep collaboration, ceremony, and respect. Rather than applying symbolism superficially, the design emerges from relationships and cultural responsibility.

Together, these cases highlight the importance of both material grounding and ethical process in creating architecture that responds to place and people.



# **Modern Seaweed House**

**By: Tegnestuen Vandkunsten** 

**Project Name: Moderne Tanghus** 

Location: Læsø, Denmark

Architect(s)/Studio: Vandkunsten

**Year of Completion: 2013** 



III. 73 – Facade close-up. Photo: Helene Høyer Mikkelsen

On the Danish island of Læsø, seaweed houses have a long tradition of using site-specific materials. Seaweed was historically used as a roofing material, as the island community had limited resources, especially in relation to wood. In the 19th century, seaweed was therefore used as a substitute, and the characteristic roofs became known for their durability and excellent insulation.

In 2013, Realdania, in collaboration with Tegnestuen Vandkunsten, initiated a project that aimed to revive and further develop this unique building tradition in a contemporary context. The result was the *Modern Seaweed House*, which combines traditional materials with modern building techniques and design principles. The house is built immediately next to Kalines Hus, an original and worthy of preservation seaweed house, which Realdania has purchased and preserved.

What is special about *Modern Seaweed House* is how it reinterprets traditional building practices in a contemporary perspective. For this house the seaweed is used in three ways: as an insulation material, as interior padding and as visible cladding on the facade. The natural properties of seaweed, high insulation, fire resistance and resistance to pests, make it a highly sustainable material. The project demonstrates how modern construction technology can use traditional materials while still complying with Danish building regulations. In fact, the house complied with current building regulations all the way up until 2020. (Realdania, nd)

By reusing and further developing old building traditions in a contemporary context, Modern Seaweed House demonstrates how a special craft can be preserved and revitalized, while promoting a more sustainable approach to contemporary construction. This approach to the use of site-specific materials serves as a significant source of inspiration for this project. In a context like Kalaallit Nunaat, where resources are limited, Modern Seaweed House serves as a springboard for experimenting with the use of local materials in construction. In the long term, this approach can help integrate local materials as a permanent and valuable part of future architecture in Kalaallit Nunaat. Especially with the abundance of seaweed on the shores of Kalaallit Nunaat.









# **Hoop Dance**

**Project Name:** Hoop Dance Indigenous Gathering Place

**Architect(s):** Indigenous Design Studio at Brook-McIlroy

**Location:** Mohawk College in Hamilton, Ontario, Canada.

**Involved parties:** Mohawk College, Indigenous students of Mohawk College, Elders and members of the Six Nations First Nation, Mississaugas of the New Credit First Nation Communities.

**Function:** A space for celebration of First Nations, Métis, and Inuit culture. Outdoor space used for outdoor teaching, ceremonies, music, dance, performances, informal space for daily use for individuals or study groups.

**Year of Completion: 2016** 



To get a better a understanding of the philosophies of the Indigenous design studio of Brook McIlroy, a talk with Ryan Gorrie, a principal of the firm, was done. Ryan is a member of Bingwi Neyaashi Anishinaabek (First Nations). Brook McIlroy describe themselves on their webpage, as being driven by "a uniquely Canadian design ethos derived from research into place, diverse cultures, Indigenous word views, sustainability, natural materials, and the application of new technologies." (BrookMcIlroy, nd)

This case study combines the analysis of the project with insights from a conversation with Ryan.

### **Cultural Context**

Hoop Dance is located on Treaty 3 Territory, the homeland of various Indigenous groups. The space stands as a permanent and spiritual presence of Indigenous cultures, emphasizing Indigenous placemaking as a vital agent of reconciliation. It is conceived not merely as a built form but as a ceremonial and educational ground inspired by Indigenous beliefs. The design consists of five key elements: an open-air pavilion, a fire circle, a water garden, a traditional garden, and the Seven Sisters Garden featuring Indigenous crops.

The Gathering Place celebrates First Nations, Métis, and Inuit cultures and honors the long-standing history of Indigenous peoples on the territory. (BrookMcIlroy, nd)

As told by Ryan, the project embodies a design approach deeply rooted in Indigenous worldviews, emphasizing respect, relationships, and responsiveness. A foundational aspect is strong Indigenous leadership within institutions, leaders who not only guide but also propel the project forward. The process is sustained by relationships grounded in ceremony, offerings, and gifts to the land. These gestures go far beyond formal consultation; they demand long-term presence, care, and attentiveness.

### **Site and Climate Response**

The pavilion is situated within one of the campus parks at Mohawk College. It is carefully oriented according to the cardinal directions, aligning symbolically and physically with the Medicine Wheel. The open-air structure allows the space to accommodate seasonal gatherings and ceremonies, responding both climatically and spiritually to the natural environment. (BrookMcIlroy, nd)

Listening and observation were critical during early phases of the project. As Ryan notes, the words of Elders were treated with the utmost respect. At the same time, the openness and energy of youth offered a dynamic counterbalance. Working with both generations required gentleness, truthfulness, and emotional awareness, as the design process itself carried emotional and cultural weight.

### **Materiality and Construction**

Material and spatial choices reflect a careful balance between cultural symbolism and practical needs. The interior circle is formed by lathed Alaskan Yellow Cedar poles, up to 6.5 meters long, supported by a galvanized ring beam. This material, chosen for its strength and natural longevity, and is meant to weather naturally and be maintained with care. (BrookMcIlroy, nd)

As Ryan explains, the Alaskan Yellow Cedar was left undressed to promote natural weathering and evoke traditional milling techniques. The rough finish also invites a tactile, grounded experience. The layered spatial organization references the traditional Longhouse, reinforcing cultural continuity. The circular bench invites interaction and rest, supporting the pavilion's function as a space for community and connection.





# **Spatial Organization**

The spatial design of the pavilion is inspired by the traditional Hoop Dance and structured according to the Medicine Wheel. The circle is divided into four cardinal directions: north, south, east, west, which also represent the seasons, stages of life, and the four sacred medicines. At the heart of the structure lies a communal fire pit, which serves as a gathering point and ceremonial focus. (BrookMcIlroy, nd)

The open-air pavilion fosters a strong, permeable connection with the surrounding landscape. Its form invites non-linear movement, reinforcing Indigenous understandings of space as dynamic and interconnected rather than static or hierarchical.

In the search for common values across generations, the team identified shared concepts such as circular movement, fire, natural materials, and references to traditional architecture. These became anchors for an iterative design process rooted in ongoing dialogue and adaptation.

# **Symbolism and Identity**

A strong ethical stance guided the design team's use of cultural symbolism. As Ryan states, Elders played a crucial role in defining what is off-limits, helping the designers avoid appropriation. Symbols were not copied directly; rather, their meanings were translated thoughtfully into built form. "When the meaning becomes invisible," Ryan said, "they become acceptable". It shows how sacred knowledge can and must be protected while still informing architectural expression.

Several symbolic elements are integrated into the design: the hoop itself represents the life cycle, healing, and social cohesion. The outer hoops mark the thirteen moons of the lunar year. The four quadrants of the structure align with the Medicine Wheel, signifying the four directions, the seasons, the stages of life, states of being, natural elements, and sacred medicines—all converging in the center to represent harmony and interconnection.

The structure's dynamic spatial qualities suggest that it, like nature, is always in motion, a central belief in many Indigenous worldviews.



### **Conclusion**

The Hoop Dance Indigenous Gathering Place has implications that extend well beyond its site. It challenges architectural practice to engage directly with Indigenous ways of knowing, not as aesthetics, but as processes grounded in relationship, ethics, and place. The architect must listen, participate, and learn rather than extract or interpret from a distance.

The project serves as a model for how architecture can contribute meaningfully to reconciliation, not through symbolic gestures but by creating spaces that hold cultural integrity and community ownership. It demonstrates that architecture, when done in this way, becomes not just a form, but a vessel for truth, care, and transformation.





# ENGAGING THE SITE

# **WHAT**

As part of the initial phase of the project, a field trip to Greenland was undertaken with a focus on the specific area. During the stay, a number of qualitative studies were carried out, including both classic interviews and methods inspired by participatory design. Through conversations with residents, participant observation and visual documentation, knowledge was collected about everyday life, usage patterns and experiences of the built environment. The methods used and their significance for the analysis are explained in more detail in the following sections.



The purpose of this approach has been to create an in-depth and context-specific insight into the lived life on site. Instead of working from generalizations or external assumptions, the ambition has been to understand the local conditions on the residents' own terms. A user-centered approach is considered essential in the development of architecture that not only works technically, but is also socially and culturally sustainable.

# 3 WITH WHOM

To create an architectural foundation that builds on the experiences and insights that have been gathered through the fieldwork. The knowledge gained through the meeting with the residents and their surroundings will form the foundation for a design strategy that is adapted to the specific needs and potentials of the site. The goal is not just to formulate a physical solution, but to contribute with an approach that respects and strengthens the existing life and community in the area.



# **Interviewing Method**

### **Residents of Nuussuaq**

As part of our fieldwork, we conducted semi-structured interviews with residents of Nuussuaq in their homes. These informal conversations over coffee allowed us to engage with daily life both relationally and spatially, as participants not only shared their stories but also physically showed us aspects of their homes they valued or struggled with.

Guided by open-ended questions, the interviews explored themes such as personal background, everyday routines, past housing conditions, the role of nature and community, and visions for future living. Rather than following a strict format, the conversations unfolded organically, fostering dialogue, trust, and co-reflection.

This method emphasized context, reciprocity, and lived experience. It allowed us to center residents' voices in the design process and gain a grounded understanding of how home, identity, and environment intersect in everyday life.

# Workshop

A participatory workshop was held at the university with students to explore alternative architectural futures in Kalaallit Nunaat. Inspired by decolonial and methods that promote dialogues, the workshop created space for critical reflection and speculative thinking through drawing and open conversation.

Participants responded to prompts and thematic questions related to housing, materials, community, and climate. The process prioritized imagination, multiplicity, and local knowledge rather than fixed outcomes.

# Interview with Inge

In addition to interviews with residents and workshop participants, there is a semi-structured expert interview with Inge Bisgaard, an architect and building heritage specialist with decades of experience in Kalaallit Nunaat. Her insights are not presented as a stand-alone transcription, but have been carefully synthesized and integrated into the analytical chapters to support and contextualize key themes such as ownership, material practices, and the colonial legacy in architecture. Selected statements from the interview are used to deepen the analysis and provide professional perspective alongside community voices.

# **Meet Hans Ole**

Hans Ole is a retired fisherman and hunter living in Nuussuaq, Nuuk. Born in Qeqertarsuaq and raised in Qasigiannguit, his life has taken him across much of Kalaallit Nunaat through his work as a trawler skipper. After a serious work injury in the early 1990s, he was forced into early retirement and has since dedicated his summers to hunting and fishing, gathering provisions for the winter. His everyday life is closely tied to nature, tradition, and the rhythms of seasonal subsistence, while his reflections reveal both the strengths and the challenges of navigating modern urban life in Nuuk.



### The Value of Home After Homelessness

Hans Ole's concept of home is shaped by personal vulnerability and years of housing insecurity. After nearly a decade without a permanent place to live, his home represents more than shelter, it is the foundation of his daily life. His home allows him to rest and recover from the long-term effects of a work injury that forced early retirement. The stability that having a home is not taken for granted.

"I was homeless for about 10 years, so I'm just grateful to have a home."

# **Rhythm of Life and Self-Sufficiency**

Each year, Hans Ole follows a self-sufficient seasonal cycle of fishing and hunting. He spends summers gathering provisions to last through winter, fishing, drying and smoking cod and salmon, and when hunting season comes, caribou. This work sustains him as a pensioner and keeps him physically and mentally grounded. His connection to nature is not just symbolic, it is functional, embodied, and necessary for Hans Ole.

"It's really important for being able to provide for myself."

Nature also offers a form of freedom that contrasts sharply with life in the city, which he finds restrictive and structured around externally imposed routines.

"In the cities, we're ruled by time... In nature, you decide for yourself, without being limited by anything."

### Mismatch Between Housing Design and Traditional Practices

While the apartment provides much-needed stability, it fails to support Hans Ole's way of living. His home is used for storing and processing large quantities of fish and meat, yet it lacks the spatial infrastructure to do so effectively. He uses four chest freezers, processes catch on the kitchen floor, which is limited. His home was clearly not designed for someone living off the land.

"It would be great to have something that gives more space for those kinds of tasks. A place to clean fish or meat, with easy access to water."

His situation highlights the structural mismatch between standardized housing and Indigenous traditions like fishing and hunting that remain central in many people's lives.

### **Changing Cultural and Social Structures**

Raised in a family that moved seasonally for fishing, Hans Ole recalls a time when households were more cohesive and childcare was handled within families. He marks the introduction of fish factories in the 1960s as a turning point when women began entering the workforce and kindergartens were introduced. He sees the loss of strong social ties as part of a broader shift in the society of Kalaallit Nunaat.

"There isn't the same strong sense of community today that there used to be."

Despite this, he values the way he was raised, especially the survival skills passed down to him, skills that proved crucial after his injury removed him from the workforce.

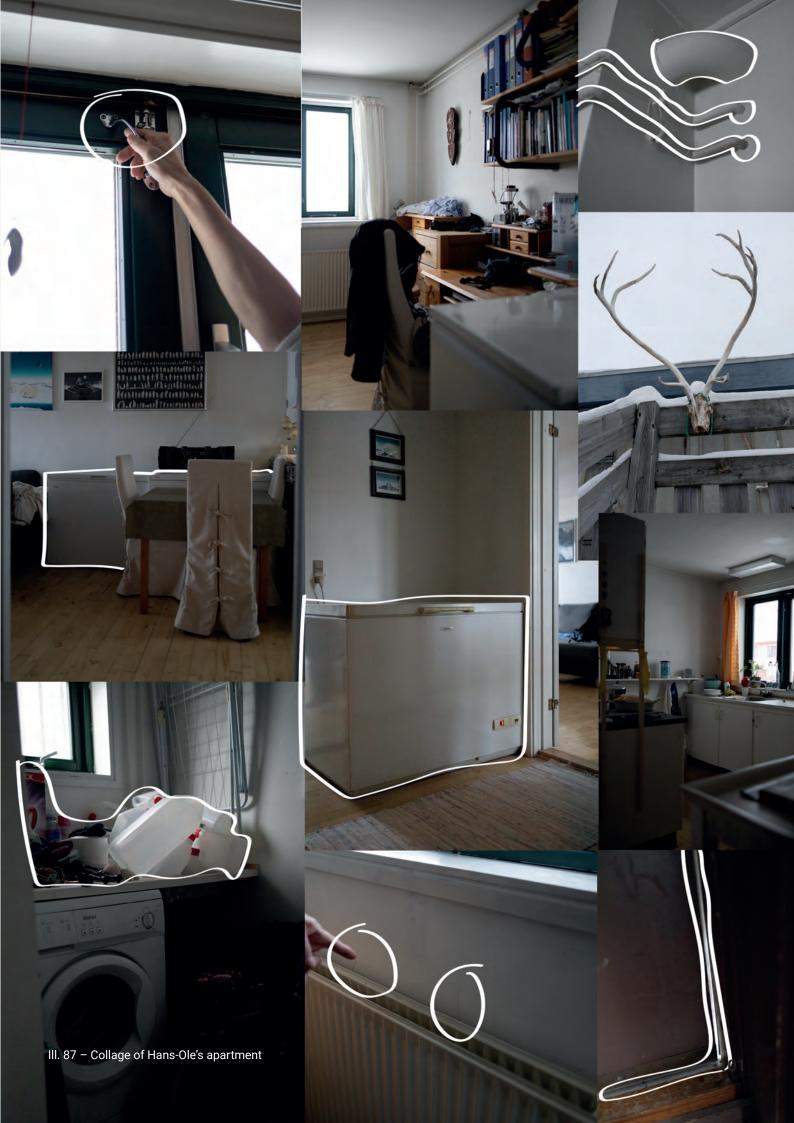
"If I didn't have those skills, it would've been much harder for me."

# **Aspirations for Future Housing**

Hans Ole's vision for better housing is simple but crucial, it must be functional, climate-adapted, and durable. He expresses frustration over how new buildings already suffer from mold and poor material quality. He wants housing that fits the local context and supports long-term living.

"A home you want to take care of – something that will last."







# **Meet Cecilie**

Cecilie is a retired healthcare worker who spent nearly 50 years working across Greenland before settling in Nuuk after retirement. Originally from South Greenland, her upbringing was shaped by frequent relocations due to her father's role as a catechist. Her story highlights the shifting social dynamics of aging, architecture, and belonging in contemporary Kalaallit Nunaat.



### **Home as Rest**

For Cecilie Eugenius, or Sissi as she is called by those who know her and wants to be called, home is fundamentally about peace and privacy. After nearly 50 years in Kalaallit Nunaat's healthcare system and having moved across much of the country, she now lives alone in a one-bedroom apartment in Nuussuaq. What matters most to her is that her home offers calm and space to relax, something she has always valued.

"My home is very important to me, and that there is peace."

Though she appreciates the quietness of the area, her current home does not fully meet her needs. The building is poorly insulated and visibly deteriorating. She describes cold seeping in through the windows, walls, and floors, and notes that complaints to the housing company are routinely ignored.

### **Poor Building Conditions**

Sissi expresses clear frustration with the physical state of her apartment and the lack of response from those responsible for maintaining it. Despite living in a cold climate, her apartment is fitted with what she describes as windows more suited to a *sommerhus* (summer house). The sense of being unheard, despite repeated complaints, adds to the feeling of neglect.

"The building is very old and poorly built... even if you complain, you feel like no one is listening."

This theme of being overlooked is not just architectural, it reflects a broader institutional disregard for the needs of the residents.

### **Connection to Nature**

Sissi was raised in the southern part of Kalaallit Nunaat in a family that frequently moved due to her father's work as a catechist. She grew up close to nature, where simply stepping outside meant being immersed in nature. There were no playgrounds or screens, children spent their time outdoors, helping with the hunt, and learning from the land.

"We were constantly out in nature. In a small settlement, the moment you stepped outside, you were in it."

Her upbringing shaped a lifelong appreciation for the land, which she still considers vital to health and happiness.

# A Shift Away from Community-Oriented Living

Sissi reflects fondly on how her childhood home was always full of guests, either for dinner or visiting casually. Today, this openness is harder to sustain. Modern apartments are often too small to host even traditional gatherings like a kaffemik. Urban design, in her view, does not reflect Greenlandic social practices.

"If you look at this apartment, it's much too small for something like a kaffemik."

She emphasizes that while people may still wish to gather, the physical limitations of housing offer challenges.

# **Expectations for Better Housing**

If Sissi were to design her own home, she would begin with warmth and quality. She criticizes current construction practices that use materials that are not suited for the Arctic climate and expresses frustration at the lack of space, even for someone living alone. Her vision includes a larger, better-insulated home, built to withstand the realities of Greenlandic weather.

"In a country with such harsh weather, it needs to be warm. These windows look like they belong in a summer house."







# Meet Naja

Naja is a nursery worker with over 40 years of experience, originally from Qaanaaq in North Greenland. After two decades in the north, she moved to Nuuk in 2019, where she now balances long work hours with quiet moments at home. Her reflections speak to a deep longing for the close-knit community and natural rhythms of her upbringing. Her story illustrates the tension between modern urban life and cultural memory, and raises important questions about how architecture can better support well-being, identity, and the community.



# Adapting to a New Home in a New City

After spending 20 years in Qaanaaq, a small northern settlement, Naja Hansen moved to Nuuk in 2019. The transition from a detached, self-built house to a compact apartment in a multi-story building was difficult. She describes the disorientation of suddenly living with neighbors above, below, and beside her, something entirely unfamiliar from her life in Qaanaaq.

"When I first moved here, it was strange... There are no building blocks in Qaanaaq, everyone lives in single-family houses."

Her current apartment is provided as employee housing, and though she has grown used to it, she still finds it small and lacking in privacy.

# The Home as a Place of Recovery

Naja works long shifts at a children's home, often including nights. As a result, her home serves primarily as a space of recovery. With limited energy outside of work, rest is central to how she experiences her apartment. Her living rhythm is work, rest, repeat, and means that even spending time with her grandchildren is rare and dependent on her energy levels.

"It is important after a night shift that I can relax and rest."

Her apartment allows for that rest, but the space feels tight, especially when she tries to maintain family traditions like hosting dinner.

### **Loss of Everyday Community and Connection**

Moving to Nuuk has also meant losing the everyday sense of community she once had. In Qaanaaq, everyone greeted each other, and connections were embedded in daily life. In contrast, Nuuk feels impersonal, driven by work schedules and a general busyness that leaves little space for spontaneous interaction.

"In the south [Qaanaaq is the most northern settlement], there are many more people, so no one even greets each other."

This shift not only affects her socially, it alters her sense of place and belonging in the city.

# **Housing That Fails the Climate and Resident**

Naja is critical of the apartment she lives in, not just for its size but for its physical failings. She mentioned poor ventilation, inadequate insulation, and water damage that made her home uninhabitable for a time. Cooking is difficult because there's no vent hood, and steam builds up in the apartment unless she opens the windows, which she also must do even during the winter.

"It is not healthy that every time I cook, I have to open windows to let the steam out."

She raises a broader concern about construction quality in Kalaallit Nunaat, noting that many new buildings quickly develop mold and material damage, and that the buildings simply are not made for the climate.

### **Visions for Better and Culturally Supporting Homes**

When imagining a better living environment, Naja emphasizes size, quality, and human-centered design. Her current apartment feels claustrophobic, with a balcony so small she can't even place a chair outside. For her, homes should be designed to prioritize comfort, social use, and resilience to harsh weather, not just cost-efficiency.

"There must be a focus on the human in the building."

She is supportive of using local materials and mentions a house she saw in Narsaq built from local clay, which she considers an example of how buildings can work with, rather than against, the conditions in Kalaallit Nunaat.





#### **Resident Interviews Conclusion**

The interviews reveal how housing in Kalaallit Nunaat often fails to support the lived realities, values, and cultural practices of its residents. Across different life stories, a consistent theme emerges; homes are deeply personal spaces tied not only to comfort and rest but also to comfort, identity, and memory. Yet, many of the dwellings described are too small, poorly insulated, or poorly maintained, reflecting systemic issues in how housing is built, managed, and designed.

Residents express a strong desire for homes that are adapted to local climate conditions, with better insulation, better materials, and greater spatial flexibility. The lack of space for essential everyday practices such as preparing and preserving traditional foods, gathering with family, or crafting, highlights a disconnect between architecture and culture. Poor construction and issues like mold, drafts, or insufficient ventilation reflect a deeper neglect of human needs in housing design.

Another shared concern is how societal changes have affected communal life. While participants remember stronger social cohesion in earlier stages of life, current urban conditions often create isolation, especially for elders and those living alone. The pace and structure of city life, combined with limited local services and public spaces, reduces opportunities for connection and shared everyday experiences.

Despite these challenges, the interviews clearly articulate visions for better housing futures. Residents imagine homes that are durable, climate-adapted, and spacious enough to support both individual and communal activities. Homes must be culturally responsive and allow for flexible use, accommodating subsistence practices, and integrating social infrastructure. It also means rethinking materials, construction methods, and spatial layouts in close dialogue with the needs and rhythms of those who live in them.

Qujanaq Hans-Ole, Cecilie, Naja, Kelsie, Regine, and Gerda for allowing us into your homes and help us with our thesis.

Full transcripts of the interviews can be found in Appendix 1.



# Workshop at Ilisimatusarfik

The workshop at the University of Kalaallit Nunaat in Nuuk, started first with an introduction at a lecture room. We introduced our project, talked about the purpose of us being there and the card game *CoFutures Poker*, developed by the group, CoFutures. They are an international group who work with Global Futures. The Cofutures Poker consists of a range of cards with a headline about possible futures. A headline could for example be 'Regenerative materials and products'. Conversation will then be had about the subject in the future. It enables to think beyond what exists today.

The students explored speculative futures for Kalaallit Nunaat through themes of climate change, technology, cultural continuity, and decolonization. Participants imagined how environmental shifts and technological developments such as rising temperatures, Al governance, and universal care income, could reshape everyday life, from housing and food systems to social structures and values. A recurring focus was on sustainability, self-sufficiency, and the revival of Indigenous knowledge systems, emphasizing local materials, community resilience, and ecological stewardship. Visions of the future were deeply rooted in cultural context and critique of colonial legacies, imagining a society that is both independent and interconnected, one where care for land, community, and culture is central to how life is organized.



#### **Shifting Climate and Adaptive Living**

The conversation opens with a reflection on the accelerating effects of climate change, imagining a Kalaallit Nunaat that no longer fits the traditional understanding of the Arctic. Rising sea levels, melting permafrost, and a warming atmosphere pose concrete questions about how people live, build, and adapt.

"Say it became warmer, like in Europe — then we'd suddenly have a lot of houses and things that no longer fit the climate."

This scenario prompts participants to think critically about the existing built environment. If homes, infrastructure, and daily routines are designed for cold, dry, or icy conditions, what happens when those conditions no longer exist? The conversation continues to that climate change could make current models of architecture obsolete.

Rather than suggesting a full-scale replacement of housing stock, participants advocate for creative adaptation, an approach grounded in resourcefulness and ecological awareness.

"The ideal would be to take the usable materials and reuse them, even materials that maybe didn't fit before."

This vision supports a circular understanding of materiality, where the past is not discarded but transformed. It aligns with Indigenous concepts of responsibility toward nature, resilience, and pragmatism, using what is available and recontextualizing it within a new environmental logic. It encourages flexible, modular, and retrofit-friendly designs that can evolve alongside the climate.

#### **Universal Care and Ecological Responsibility**

A deeply transformative idea emerges around universal care income, a system in which people are compensated not for extractive labor but for maintaining the wellbeing of nature and society.

"Everyone gets paid just to take care of nature and society."

This speculative model reframes the economy through an ecological and relational lens. Care becomes the central value, care for land, water, ecosystems, children, elders, and each other. The participant envisions a life less dictated by economic survival, and more by communal engagement and environmental responsibility.

"Maybe your job was to take care of nature — then maybe we'd find much greener ways to live."

This would mean designing spaces that prioritize communal use, ecological integration, and support for caregiving activities. It also implies a fundamental shift in architectural function, from spaces of production and consumption toward spaces of restoration, learning, and interdependence.

#### **Decolonized Architecture**

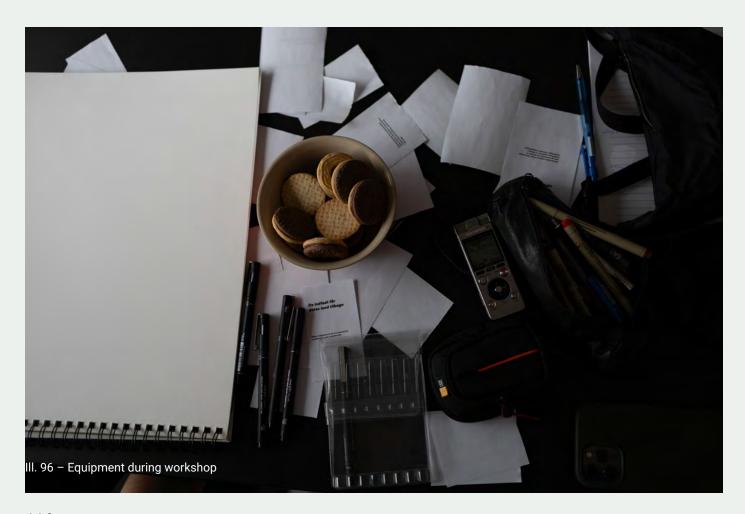
A central thread throughout the conversation is the idea that Greenlandic architecture should reflect place, people, and participation. Rather than replicating Scandinavian models, participants envision houses made from local stone, built in locations that suit daily life, weather, and social gatherings.

"There are lots of rocks and resources in Kalaallit Nunaat we could use to build. And the houses would suit daily life and culture."

This vision reconnects architecture with the people who use it, making construction processes accessible, understandable, and shared.

"If you build the Greenlandic way... everyone could take part, or repair things. That would strengthen your connection to your home."

It calls for a radical simplicity. Architecture can become a communal craft, an expression of culture, and a form of resilience. It also implies a decentralization of expertise, valuing hands-on knowledge and intergenerational skills just as much as formal design education.



#### Conclusion to the workshop

In the conversations, participants expressed a strong desire for a future shaped by Greenlandic values, knowledge, and ways of life. Their dreams were grounded in care — for nature, community, and culture — and reflected a deep longing for greater autonomy, sustainability, and local resilience.

Through the theme of Shifting Climate and Adaptive Living, participants imagined how life in Kalaallit Nunaat might respond to environmental changes not through disruption, but through creative adaptation. They envisioned a future where people live in harmony with the land and the seasons, where climate shifts lead to new forms of agriculture, local resource use, and self-sufficiency. Seaweed, local plants, and traditional harvesting were reimagined as part of a sustainable food future rooted in ecological awareness.

The theme of Universal Care and Ecological Responsibilities introduced ideas of systemic change — including care-based economies where people are supported not for extraction or productivity, but for their role in caring for each other and for nature. This rethinking of societal priorities included concepts like universal care income and expanded time for cultural engagement, suggesting a shift from labor to relational responsibility as a social value.

Under Decolonized Architecture, participants envisioned a built environment that is simpler, more participatory, and more culturally attuned. Homes built from local materials such as stone, glacial silt, and reused components were seen as key to fostering belonging and reducing reliance on imported systems. They called for a revival of collective building practices — where architecture supports daily life and tradition, and where everyone can participate in creating, maintaining, and adapting their surroundings.

Above all, there was a call for genuine self-determination. Participants spoke of reclaiming agency, restoring cultural respect, and reshaping systems on their own terms — not through nostalgia, but through a forward-looking approach grounded in care, dignity, and freedom.

While only three key themes were put in focus, other important topics were also discussed during the workshop, including AI and cultural sovereignty, rewilding, reparative futures, and global solidarity. These discussions are included in Appendix 1 for further reference and to preserve the richness of the broader speculative dialogue that took place.



# **Conversation with Inge**

The insights shared by residents and workshop participants reflect lived experiences of disconnection, adaptation, and resilience within the built environment of Kalaallit Nunaat. From the frustrations around standardized housing to the creative ways people modify their homes, a clear pattern emerges: architecture is not just something one inhabits, it is something one negotiates with. These everyday acts of adjustment speak to deeper structural issues of ownership, material dependency, and design mismatch.

To contextualize these dynamics, the following section draws on an interview with architect and building heritage specialist Inge Bisgaard. Her work bridges decades of practice in Kalaallit Nunaat and brings forward a critical perspective on how colonial housing policy, imported materials, and top-down planning have shaped architectural identity. Through her reflections, it becomes possible to reframe these everyday challenges as part of a broader system, and to explore how locally grounded, culturally embedded approaches might inform the future of architecture in Kalaallit Nunaat.



III. 98 – Nunatta Katersugaasivia facade



III. 99 - Kolonihavn in Nuuk

### Ownership, Local Materials, and the Future of Architecture in Kalaallit Nunaat

Architecture in Kalaallit Nunaat is not merely a question of form or function, it is intimately tied to issues of ownership, material dependency, and cultural continuity. As the country navigates a postcolonial present, the future of its built environment depends on more than technical solutions; it requires rethinking the cultural, material, and political frameworks through which architecture is conceived and maintained.

As discussed earlier in the Colonial Architecture section based on what Inge has said, one of the major challenges emerging from the colonial legacy is the fragmented sense of ownership among residents. They were not properly made aware of their responsibilites, and generations later, the effects of this policy linger in housing cultures where personal responsibility and collective maintenance remain unevenly distributed.

Addressing ownership is not only about legal structures, but also about psychological and material investment in the home. Inge Bisgaard observes that when people are involved in maintaining or modifying their homes, such as repainting, insulating, or adapting entrance areas, they begin to build a stronger emotional and practical connection to their surroundings. This kind of engagement fosters continuity, memory, and care, allowing homes to evolve with their inhabitants rather than remain fixed in externally imposed typologies.

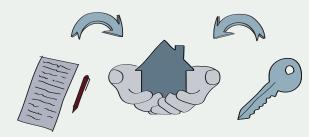
Closely linked to ownership is the question of materials. Currently, over 99% of all building materials in Kalaallit Nunaat are imported, according to Inge. It's a condition that not only limits architectural sovereignty but also increases vulnerability to global market fluctuations and supply chain disruptions. Yet before colonial settlement, the building culture in Kalaallit Nunaat was fully circular and localized. Communities used what was available in their environment: driftwood, stone, whalebone, animal skins, and turf. These materials were not only climate-responsive and adaptable but deeply symbolic, sustaining both bodies and shelters in a reciprocal system.

There is, according to Inge, a growing interest in revisiting and revaluing these materials, not to replicate the past, but to imagine a grounded architectural future that aligns with local conditions. In places like Narsaq and Igaliku, stone has long been used in foundations and facades. The potential of stone, however, is largely untapped today due to restrictive procurement laws that prioritize cost over locality. To circumvent this, Inge proposes phased design strategies: buildings could be constructed with the intention of being upgraded over time, allowing for local materials like stone cladding to be added when economic conditions permit.

Beyond stone, experimental work with natural resources such as glacial silt, whale oil-based paint, and traditional pigments, like the locally-sourced "Igaliku red", points toward new ecological design opportunities rooted in ancestral knowledge. These initiatives not only reduce reliance on imported products but reintroduce materials that hold cultural resonance and ecological logic.

Looking forward, the path toward a more situated architecture in Kalaallit Nunaat requires more than technical innovation. It requires a reweaving of material culture, environmental knowledge, and social agency. As Inge suggests, the future lies in moving slowly but deliberately, nurturing practices that allow architecture to be lived, modified, and understood from within. Ownership, in this sense, is not simply a contractual matter, but a relational one: it is about the right to shape, care for, and belong to the spaces one inhabits.

The full transcript of the interview with Inge can be found in Appendix 1.



III. 100 - Ownership illustration





### Situated Acts of Decolonization

With the knowledge we have gathered through Inuit cosmologies, interviews, literature, analyses and our own experiences, situated acts, which we consider to be absolutely central to the future of housing in Kalaallit Nunaat. These form the foundation for a design process that is based on the needs, with the ambition to strengthen the community and create more sustainable and humane frameworks for everyday life.

However that is easier said than done. We are aware that these situated acts do not constitute a definitive recipe for how to turn all challenges into something positive through new building practices. On the contrary, we see them as the beginning, a necessary step in a new and more locally rooted direction.

We consider these act of reclaimation to be flexible, changeable and living. They must be adaptable, expandable and rethought as the context changes. In some cases, certain might prove possible to implement – in others, completely new situated acts will be necessary.

# 01

# Recenter Indigenous Worldviews

Position Indigenous cosmology, spirituality, and relationality at the heart of design.

#### **Honor Inua and Tarneq**

Recognize that all things, including buildings, have a soul and must be treated with respect and care.

#### **Cyclical and Seasonal Rhythms**

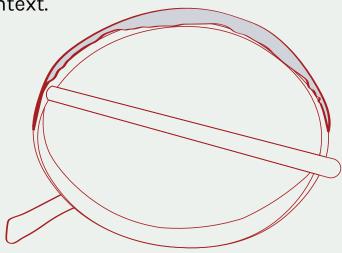
Design with the flow of seasons and natural cycles of nuna (land).

#### **Design for Plural Worlds**

One approach does not fit all, each place, even within the same city, needs rethinking.

#### **Context Over Universalism**

Avoid applying rigid design "strategies", situate each act within the local context.



III. 104 - Recenter Indigenous Worldviews

# Material Reciprocity and Ethics

Design ethically with and through materials, honoring life, memory, and sustainability.

#### **Use Local Materials Ethically**

Prioritize materials from land and sea, sourced with respect and awareness of limits.

#### **Architecture as a Living Being**

View buildings as alive. Care and maintenance are acts of reciprocity, not signs of failure of buildings.

#### **Design for Change**

Welcome wear, repair, and transformation over time.

#### **Materials as Memory**

Embed stories, identities, and cultural meaning into material choices and assemblies.

#### **Material Ingenuity**

Take inspiration from traditional multi-use of materials.



# 03

# Designing for Seasonal and Cultural Rhythms

Create architecture that lives with the land, weather, and cultural patterns of everyday life.

#### **Support Cultural Gatherings**

Provide spaces that support events like kaffemiks that reflect cultural rhythms and hospitality.

#### **Integrate Subsistence Practices**

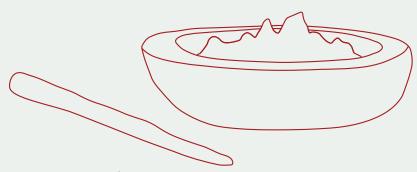
Include space for gear, butchering, drying, storing, and freezing.

#### **Climate-Adaptive Design**

Building envelope and systems must respond to Arctic conditions and climate shifts.

#### **Respectful Thresholds**

Entrances should respond to hospitality traditions and weather, enabling comfort and welcome.



III. 106 - Designing for Seasonal and Cultural Rhythms

# Honoring Everyday Spatial Practices

Uplift the domestic and routine as sites of cultural knowledge.

#### Storage as Justice

Design sufficient storage as a critical response to adaptation.

#### **Design for Communal Life**

Homes should flexibly accommodate visiting, family dinners, and multigenerational presence.

#### **Update Traditional Spatial Logic**

Learn from Indigenous layouts without forgetting to adapt to today's needs.

#### **Heritage as Future Tool**

Treat built heritage not as nostalgia but as knowledge for designing what comes next.



III. 107 - Honoring spatial practices

# 05

# Be Aware of Cultural Expression

Reject outsider aesthetics and nature-mimicking in favor of grounded cultural expression.

#### **Critique Nature Metaphors**

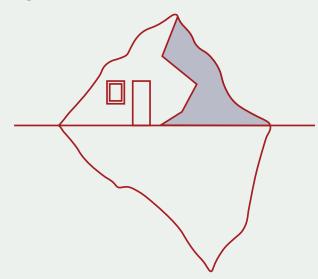
Be wary of abstract symbolism (icebergs) that disconnects from lived realities.

#### Focus on Impact, Not Appearance

Rather than focusing merely on how buildings blend in the landscape, focus on how they act on the land and people.

#### **Guard Against Appropriation**

Draw inspiration responsibly, always be aware of boundaries and meaning.



III. 108 - Be Aware of Cultural Expression

# Decolonizing the Design Process

Rethink how architecture is imagined, discussed, and made, starting with who's involved.

#### **Center Community Voices**

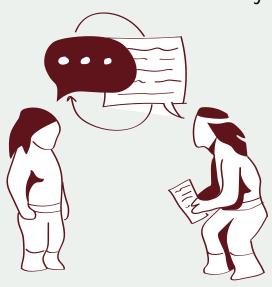
Let design narratives and decisions emerge from those who inhabit and know the place.

#### **Include People in Process**

Engage residents as co-designers through listening, dialogue, and shared authorship.

#### **Practice Relational Design Ethics**

Prioritize long-term relationships, trust, listening, and care over efficiency.



III. 109 - Decolonizing through dialogue

# Reclaiming Architectural Authority

Reassert local control over the systems, standards, and expertise that shape the built environment, moving from inherited ones.

#### **Local Building Regulations**

Develop codes that reflect climate, culture, materials, and spatial practices, moving beyond Danish-based standards.

#### **Empower Local Builders and Designers**

Educations, such as construction educations, must be rethought, so locals can become experts and the primary voices shaping the new Greenlandic construction practice and innovation.

#### **Reclaim Professional Autonomy**

Shift architectural authorship away from imported expertise toward local knowledge systems, including craftspeople, hunters, and elders, as co-experts in design.

#### **Rebuild with Political Intent**

Treat every new construction as a step toward sovereignty, where material, spatial, and institutional decisions reflect the values and agency of Kalaallit people.

III. 110 - Reclaiming authority

# Designing Toward Autonomy

Imagine and build futures shaped by Kalaallit values, relationships to land, and cultural autonomy.

#### **Design for Autonomy**

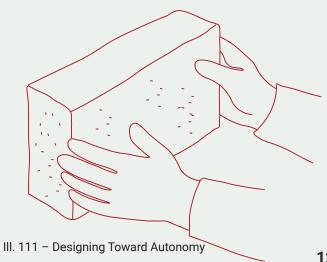
Prioritize spatial strategies that reduce dependence on imported systems, use local materials - like glacial silt, stone, seaweed, sod - reused elements, and community-based construction methods that foster collective resilience.

#### **Imagine Participatory Building Cultures**

Re-envision building as a communal process: accessible construction techniques, public building workshops, and collaborative material experimentation where everyone can be a contributor, not just a client.

#### **Confront Policy Legacies**

Challenge planning systems and standards that reproduce colonial spatial norms.





# **Using Knowledge to Form**

After presenting a set of situated acts based on everyday life, local materials, and Indigenous knowledge, the focus now turns to how architecture can help reconnect people and place in Kalaallit Nunaat. Nuussuaq has been shown to be shaped by worn buildings, broken planning systems, and a history of outside control.

In places with a complex past, design must be careful. Trust is not built through form alone, but through processes that listen, include, and respect local culture. The following design ideas are not final answers. They are open suggestions—meant to support reflection, conversation, and new ways of imagining the future. Not to replace, but to reconnect.

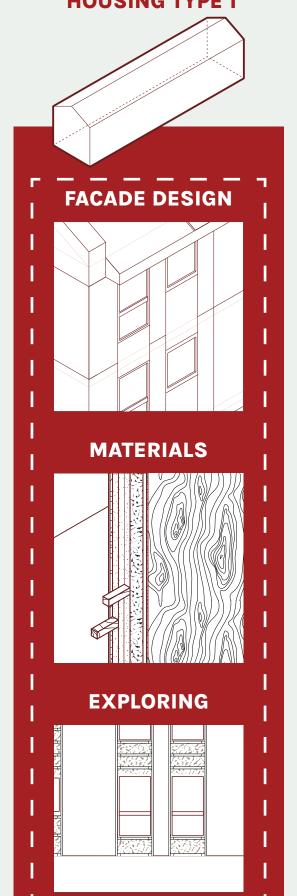


The project has several scales - the site, the building and the apartment. In the design phase, work has been done with different building typologies, each on their own level.

There have been two parallel approaches to the work: One has focused on the aesthetic expression of the building with a view to introducing more site-specific materials. The other approach has focused on adapting the apartment, where the work has concentrated in particular on the interior spaces, their design, use and adaptation, to create better frameworks for daily life in the context of Kalaallit Nunaat.

#### **SCALE: BUILDING**

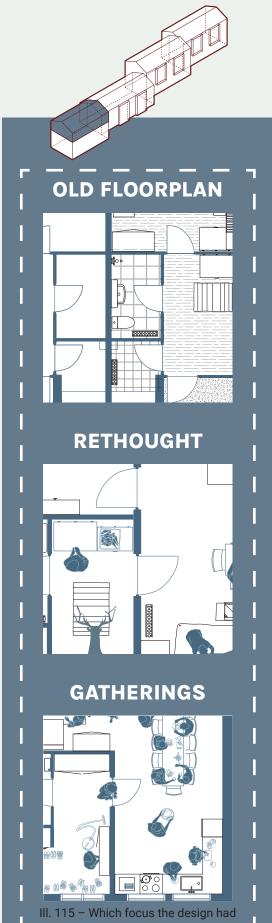
#### **HOUSING TYPE 1**



III. 114 - Which focus the design had

#### **SCALE: UNIT**

#### **HOUSING TYPE 2**





# The Building



**Original Construction** 

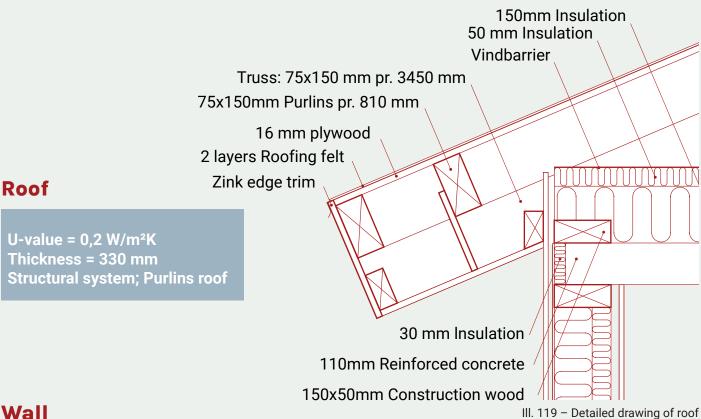
**Elements** 

On the following page, the original structural parts are presented, drawn based on archive material. The original drawings date back to the 1970s and were drawn by GTO (Greenland Technical Organisation). During our visit to Kalaallit Nunaat, these drawings could be accessed via the Greenlandic building archive, where it was possible to find detailed structural drawings of the ground deck, external walls and roof for the buildings in question.

Since the old drawings did not contain specific material specifications for the individual elements, it has been necessary to process the older drawings by translating them in the program Ubakus in order to be able to reconstruct elements and produce contemporary technical formats.

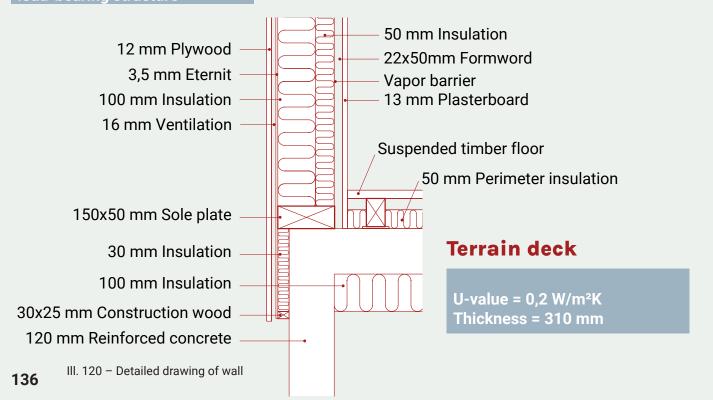
The purpose of this processing is that in a later stage of this section we will analyze the building's operational electricity consumption in relation to the requirements in BR18, where knowledge of the structural part's specification is necessary to achieve a more realistic and contextual assessment that better reflects the actual conditions.

# **Original Construction Details**



#### Wall

U-value = 0,278 W/m<sup>2</sup>K Thickness = 210 mm Structural system; Internal load-bearing structure

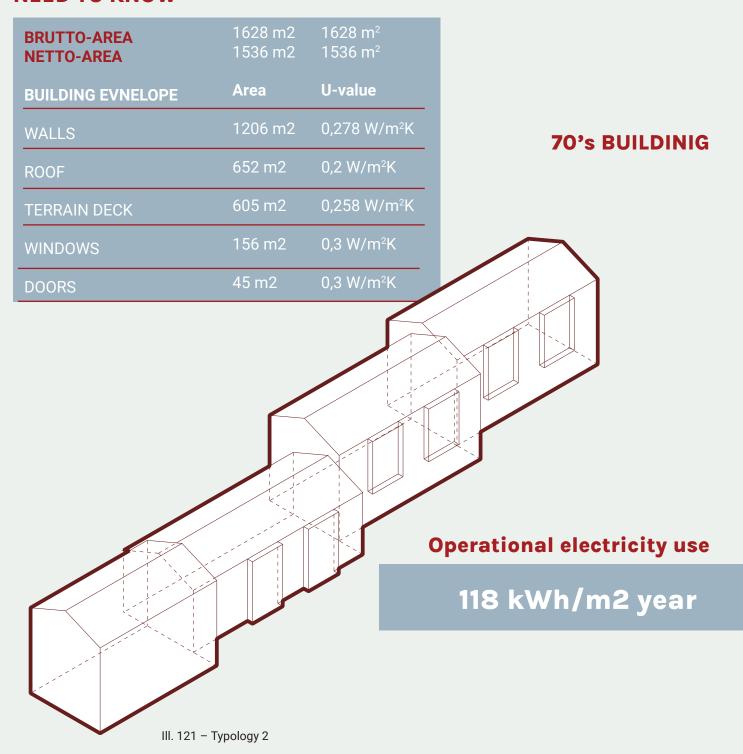


# **Building Performance**

In order to calculate the building's climate envelope, the first step in the energy framework calculation is to set up the most important parameters in the Be18 program. These include building components, areas, U-values, orientation and line losses.

The primary factors that form the basis for the calculation are listed below. Other details and more precise values for each category are provided in Appendix 4, where the individual elements are reviewed in more detail.

#### **NEED TO KNOW**



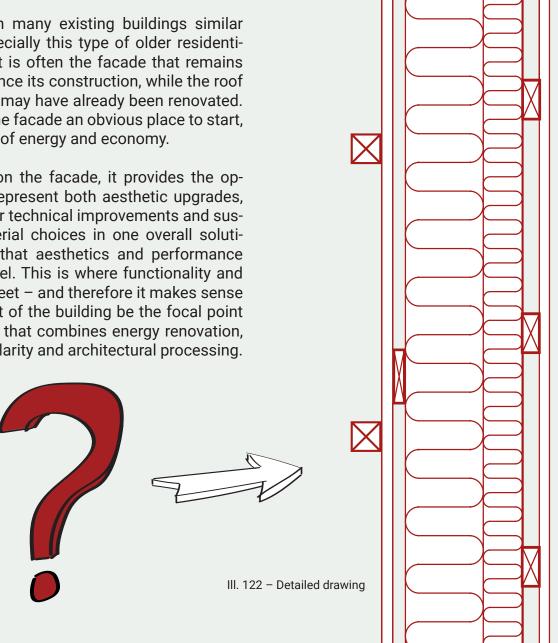
# Design Response Plan

Before the optimization work began, the building's various parts performance got analyzed, such as their size. It became pretty clear that the focus for this optimization should be on the facade as the primary building component in the optimization work. The facade constitutes the largest continuous surface on the building and therefore has a significant influence on the building's overall heat loss. Improving the insulation capacity of the facade can therefore have a significant effect on the building's energy needs, especially in an Arctic climate like Kalaallit Nunaat, where heat loss through the climate barrier is one of the primary challenges. It is also important to note that, as part of the facade renovation, windows and doors are affected as well, and therefore require replacement to ensure consistency in both performance and appearance.

In addition, in many existing buildings similar to ours - especially this type of older residential buildings, it is often the facade that remains unchanged since its construction, while the roof and windows may have already been renovated. This makes the facade an obvious place to start, both in terms of energy and economy.

By focusing on the facade, it provides the opportunity to represent both aesthetic upgrades, climate barrier technical improvements and sustainable material choices in one overall solution, provided that aesthetics and performance work in parallel. This is where functionality and expression meet - and therefore it makes sense to let this part of the building be the focal point for a strategy that combines energy renovation, material circularity and architectural processing.

138



**OUTSIDE** 

245 mm

**INSIDE** 

Three possible strategies for facade renovation were considered:

- Interior post-insulation, which was however not chosen, as it would reduce the living space and the effect of preserving existing construction.
- 2. Total replacement of the outer wall, which was assessed to be too resource-intensive and wasteful of materials.
- 3. Exterior post-insulation, which was chosen, as it enables improved insulation without interfering with the residents' internal framework and at the same time offers the opportunity to preserve and supplement the existing construction.

In line with a focus on material circularity and recycling, it was decided to post-insulate the building. A series of criteria were established to guide the selection of construction materials. Priority was given to the use of locally available or site-specific materials, with the aim of reducing reliance on imported resources and supporting the development of local production, material circularity, and regional value creation, particularly in the context of future construction industry. A material catalogue has been made exploring different possible materials.

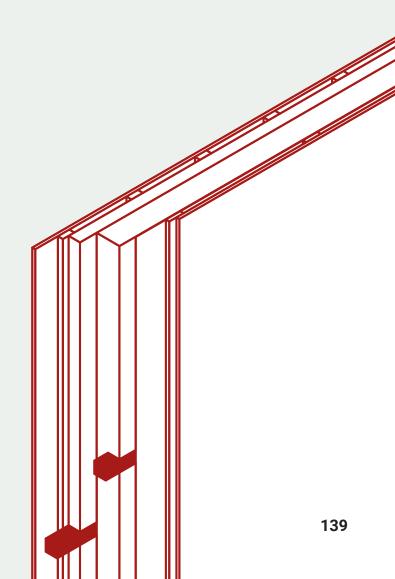
In this thesis, bio-based materials were prioritized for their renewable and biodegradable properties, as well as their generally lower Carbon footprint compared to conventional insulation products.

Together, the focus on local and bio-based materials lays the foundation for a future-proof and environmentally conscious material strategy, one that supports both energy efficiency improvements and broader societal sustainability goals.

As a first steps, a number of different insulation materials were tested. We wanted to see how bio-based products performed when integrated into the existing structure. The insulation performance of the materials and the necessary material thickness, as a minimum U-value of 0.15 W/m²-K was required, corresponding to the current requirements for new construction in the building regulations.

It was taken into account that too much material thickness could have a negative impact on both the aesthetics and functionality of the building.

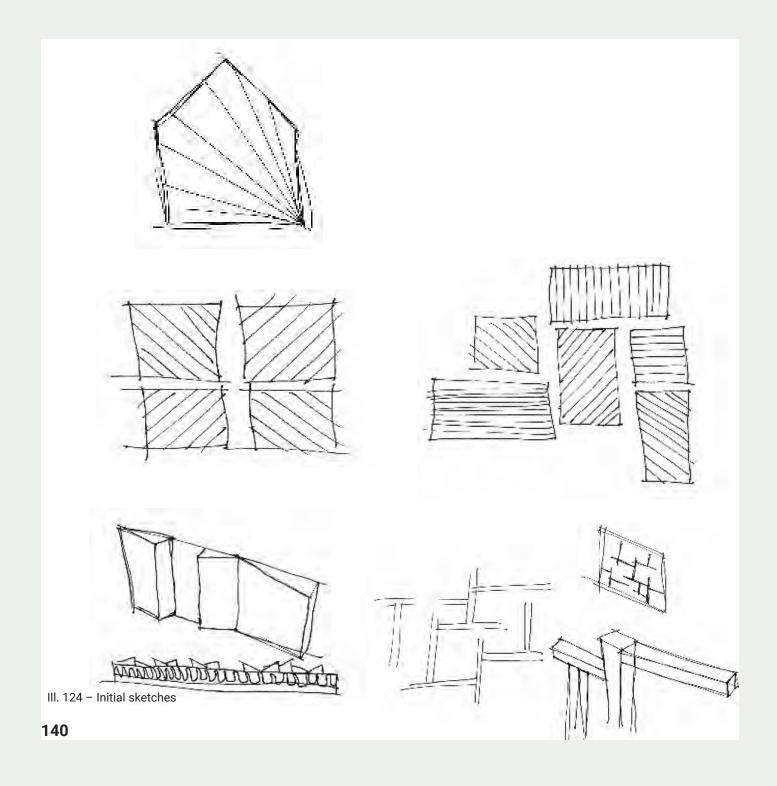
Based on testing and evaluation, seaweed was selected as the primary insulation material in the further work. A detailed overview of the assessed insulation types as well as their technical properties and possible applications can be found in Appendix 3.



### **Pattern Exploration**

The initial design phase for the aesthetic expression of the facade took the form of an open and experimental process, without set limitations. Here, a wide range of compositions, patterns and shapes were tested – from smaller elements to large sculptural elements such as the decoration of the building's gable. The aim was to investigate how different rhythms, patterns and composition of forms could affect the visual appearance and mood of the building.

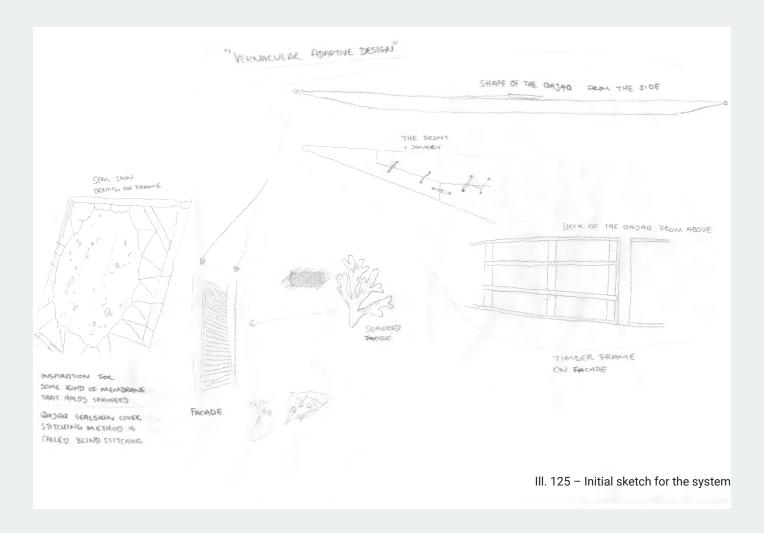
Through this broad and exploratory approach, a direction gradually began to emerge. Some expressions proved more interesting and relevant, especially those that balanced the tactile and the site-specific, and which created a dialogue with the surroundings. This initial phase served as an important basis for the further refinement of the facade expression and the choice of materials.



### **Material Learning**

In line with the development of the façade expression, work was carried out in parallel with the potential of the materials. Experimentation was carried out with the possibility of using site-specific materials that could anchor the building in its context - both climatically and culturally. As previously mentioned in the Design Response Plan section, it was a key requirement that the insulation should be based on local resources. This led to a deeper investigation of eelgrass as an insulation material - a natural, accessible and historically rooted choice. During the research phase, a particular fascination with traditional Greenlandic tools and techniques arose. This interest was further strengthened after a visit to the National Museum of Greenland, where the exhibition

of authentic tools gave a concrete and tangible picture of the understanding of materials and craftsmanship of earlier times. This formed the basis for an ambition to integrate elements from these techniques into a contemporary architectural idiom – a kind of revival and rethinking of tradition. Greenlandic woodwork and the design of the kayak in particular have had a great influence. The kayak, with its elegant and functional assembly of wood, leather and string, has been a consistent source of inspiration in the development of the aesthetic.

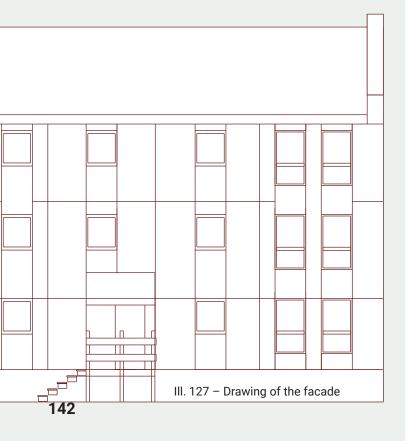


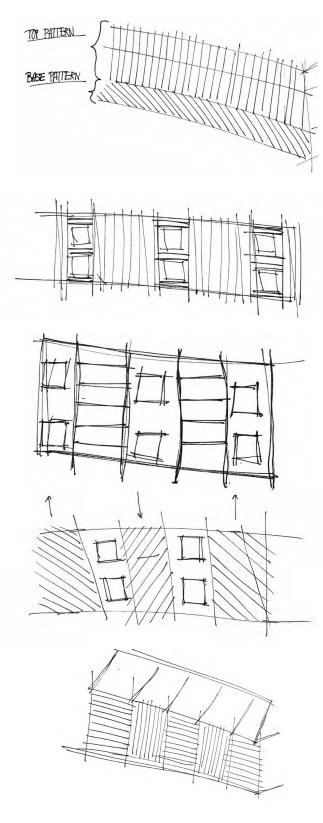
# Rhythm

The illustrated studies represent a phase in the development of the aesthetic rhythm of the facade. The process began with hand-drawn sketches, which built on the initial preliminary drawings. Here, a wide range of compositions were tested, alternating between repetition, variation, density, pattern and scale. The sketches allowed for an easy exploration of visual balance, contrast and proportion, as well as the relationship between materials.

The intention was not to arrive at a final solution, but rather to explore how rhythm could create contrasts, work with texture or the identity of the facade. The emphasis was on how small shifts in pattern or proportion could affect the perception of scale and movement across the building's surface.

After this analogue phase, selected sketches were transferred to a more graphic approach. This step allowed the rhythmic qualities to be analysed in a more precise and architectural language. The transition from hand to digital also made it easier to compare and evaluate variations.





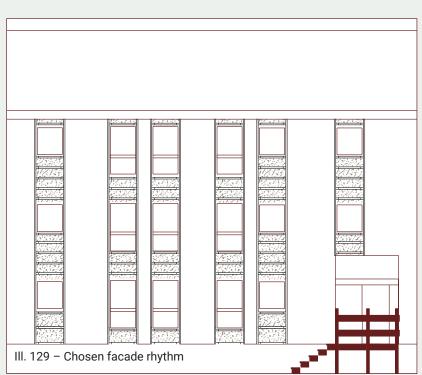
III. 126 - Different sketches on rhythm



#### **Chosen Rhythm**

The chosen facade composition is a fusion of several previous visualizations and ideas. Based on the original building, where the windows are placed in a tight, vertical alignment, the design has sought to continue this clarity in the rhythm of the facade.

Inspired by the deck of the qajaq, a vertical "ribbon" was developed and visually connects the windows. The combination of wood and seaweed functions both as an emphasis on the placement of the windows and as an element that adds visual variation to the facade. The contrast creates an organic and textured expression that gives the facade a living rhythm.

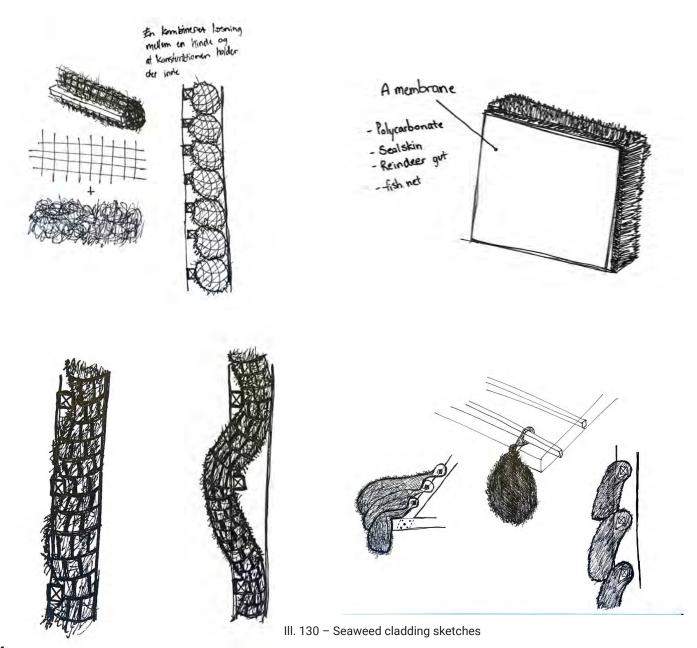


### The Materials

After selecting a material palette focused on the dialogue between wood and seaweed, the next phase of the design process explored how seaweed could be integrated into the outer facade. This involved a series of studies focused on both the placement and expression of the material.

Different configurations were tested to determine where and how the seaweed should be exposed, whether as cladding, as infill, or in more performative roles. Special attention was given to how its placement could introduce rhythm and variation in the facade while reinforcing a connection to local material traditions.

The position of the seaweed was deliberately explored in relation to the window openings, and vertical or horizontal structural lines.



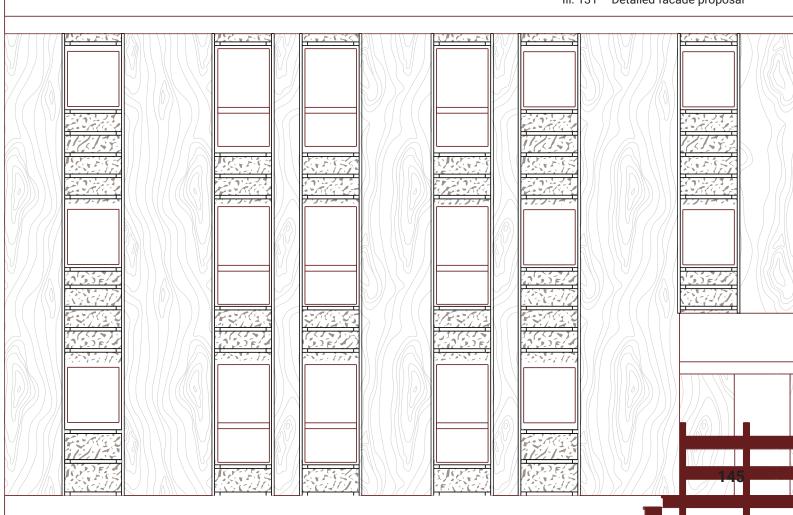
# The Facade Proposal

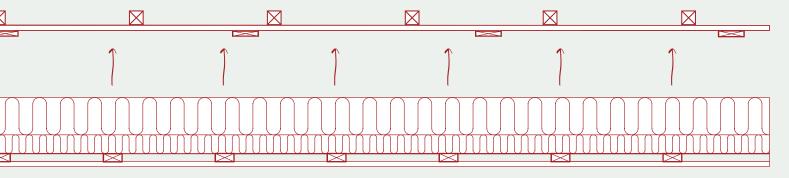
The chosen facade composition is a hybrid system that combines timber cladding with integrated bands of seaweed, placed along the window lines. This creates a rhythmic interplay between solid surfaces and textured natural material, resulting in a facade with both visual richness and organic variation.

The seaweed introduces not only aesthetic texture, but also a temporal dimension. As an organic material, the seagrass will naturally decompose over time. This means that after several years, sections will need to be replaced, a deliberate design choice that introduces a layer of maintenance and care into the life of the building.

Rather than viewing this as a limitation, the need for periodic replacement is seen as an opportunity to foster a sense of responsibility and ownership among the residents. By engaging with the upkeep of the facade, users are invited into a more active relationship with the building, one that acknowledges material cycles, weathering, and renewal as part of the architectural expression.

III. 131 - Detailed facade proposal

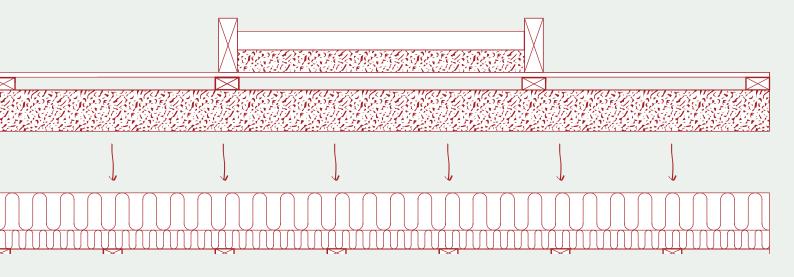




# Bridging past with present

The chosen solution tries at best to preserve and utilize the existing materials in the construction, despite certain signs of wear and aging, which could be clearly noticed during our site visit. Therefore, there are some parts that are removed from the then facade, outer panel, plywood and wind barrier.

The new facade construction has added several layers to the construction and made it possible for the building to have a facade with an U-value of 0,148 W/m<sup>2</sup>K



III. 132 - Detailed construction

In addition to giving the building a new architectural expression, the facade construction has been developed in two different variants. The difference between the two versions lies primarily in the thickness of the structure and the aesthetic expression.

Version 1 is typically where the original windows have been located. This version is slightly thicker, as extra insulation material has been added in order to achieve a special visual effect. As a positive side effect, this also results in a lower U-value than in version 2.

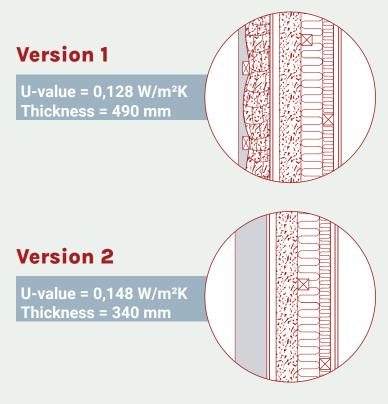
Version 2, is used in the space between each window, so depending on the window location it vary.

The reason for this expression on the facade comes from the fact that the majority of the windows are placed in the same line, which makes it possible to form these bands across the building facade. Down below is and illustration of how the expression looks on the facade

The difference in insulation thickness between the two versions has a smaller but measurable impact on the overall average U-value and thus on the building's operational energy needs. This has been included in the energy calculation carried out in BE18.

The varied facade construction also results in a smaller variation in material consumption, depending on which part of the building is being worked on.

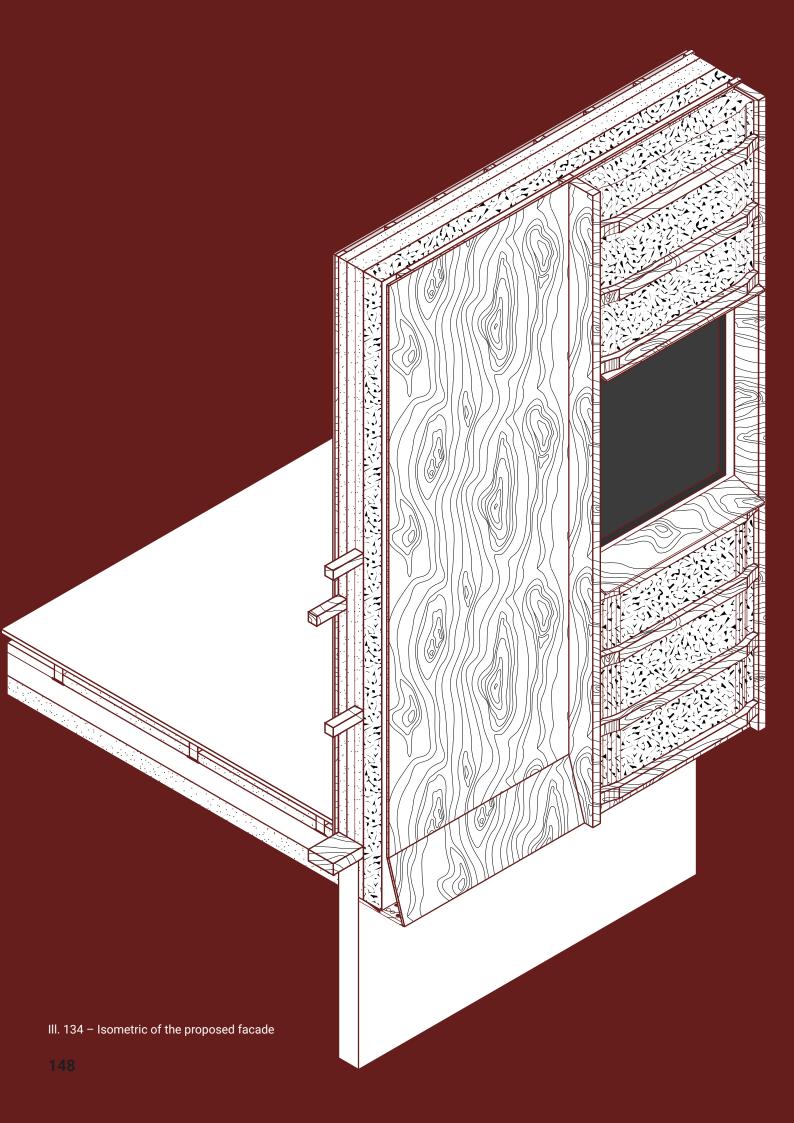
The result of the energy calculation shows that the operational electricity consumption is now 43.2 kWh/m²/year – which is a significant improvement compared to the starting point. This change shows that simply by optimizing the outer wall with better insulation, the annual electricity cost can be reduced by up to two thirds.



III. 133 - Construction iterations

### Operational electricity use

43 kWh/m2 year



# Life Cycle Assessment

In the following section, the focus is on a Life Cycle Assessment (LCA), where an assessment is made of the Global Warming Potential (GWP) of the different scenarios – i.e. their CO2 load measured in kg CO2e per square meter per year.

After calculating the annual energy requirement for the building, the results show a significant improvement in the renovated version. The energy requirement drops from a whopping 118 kWh/m²/year in the original building to 43 kWh/m²/year after the facade renovation, which totals 1206 m². This measure represents a significant reduction in the building, which helps to illustrate the effect the climate shield has on energy consumption.

The first two scenarios are relatively simple:

Scenario 1 shows the figure for the original building in its current state and its total CO2 load over one year.

Scenario 2 shows the figure for the same building with the updated facade. Here, a significant improvement is quickly seen, with the annual climate load reduced by almost two-thirds.

However, it is important to emphasize that these figures only show the operational phase of the building – i.e. energy consumption during use – without taking into account the environmental impact of the added materials. To get a more accurate picture of the building's overall climate footprint, the analysis is expanded in the next section to also include the production and life cycle of the materials.

Here, it will be examined how the new facade performs from an LCA perspective, where all materials, production and potential environmental impacts are taken into account.

Based on this, graphs and analyses will be presented that point out where improvements have been achieved and where there may be areas with increased environmental impact that require further attention

#### Scenario 1

Original building

Operational electivity use 118 kWh/m² year

GWP 6,1 kg CO2-eq/m²/year

#### Scenario 2

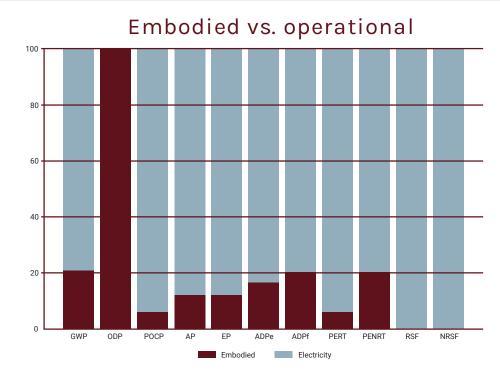
Updated external facade

Operational electivity use 43 kWh/m² year

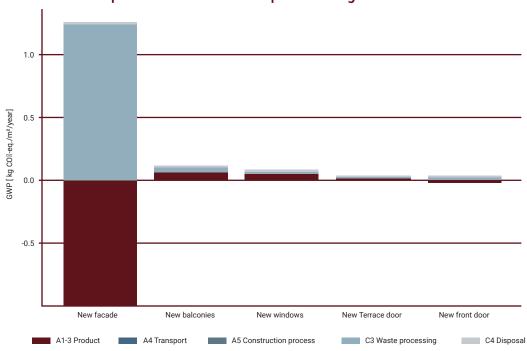
GWP 2,3 kg CO2-eq/m²/year

#### Scenario 3

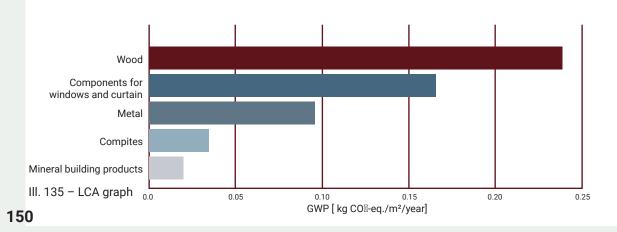




Hotspot elements, pr. m²/year (GWP)



Materiale primary categories pr. m²/year (GWP)



After entering data for the new added elements to the facade construction, an LCA analysis was prepared. The calculation is based on the amount of newly added materials, but without including minor assembly details and precise assembly solutions. A more detailed overview of product specifications and material quantities is attached, which can be found in Appendix 5.

#### Scenario 3

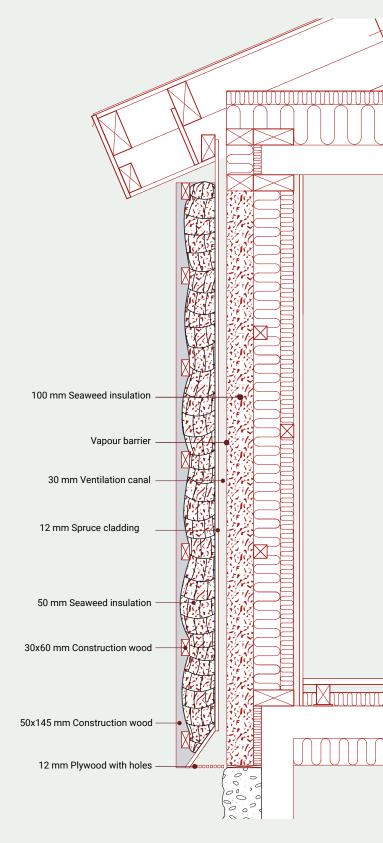
Updated external facade combined with LCA

Operational electivity use 43 kWh/m² year

GWP 2,65 kg CO2-eq/m²/year

The total Global Warming Potential (GWP) for the updated building ends up at 2.65 kg CO2e/m²/year, which represents a significant improvement compared to the original scenario. This reduction is primarily due to the efficient use of materials and the use of bio-based and natural materials, which have a low climate footprint. In addition to the renovated facade, the model also includes the replacement of windows, patio doors, main doors and new balconies of the same size as the previous ones.

These measures are included in the calculation, but are assessed to have a limited negative effect on GWP, as they contribute greatly to the building's energy efficiency.



III. 136 - Proposed facade section

# LCA Discussion

The analysis clearly shows how large a positive effect even relatively moderate changes can have on a building's overall environmental performance. However, it is important to point out that the model does not take into account all details – for example, certain installation solutions, joint systems or precise transport data.

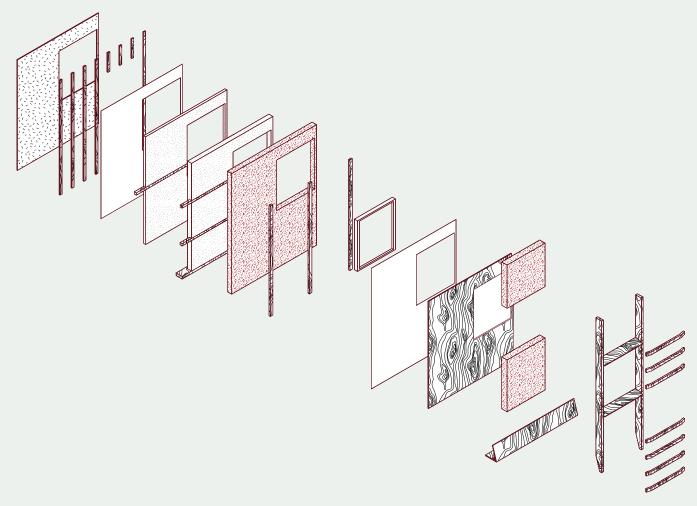
A significant factor that is not included in the current calculation is the climate conditions in Kalaallit Nunaat. Most LCA databases and calculation models – including the LCA platform used – are based on average figures from Europe. This means that special factors such as the lifespan of the structural components versus the weather conditions to which they are exposed to are not necessarily true for the result, but there are no factors that are completely specific to the Arctic climate.

In future further development, work should therefore be done towards developing regional emission factors and climate data that better match the conditions in Kalaallit Nunaat. This will create a basis for more precise analyses and decision-making in future construction projects in the Arctic.

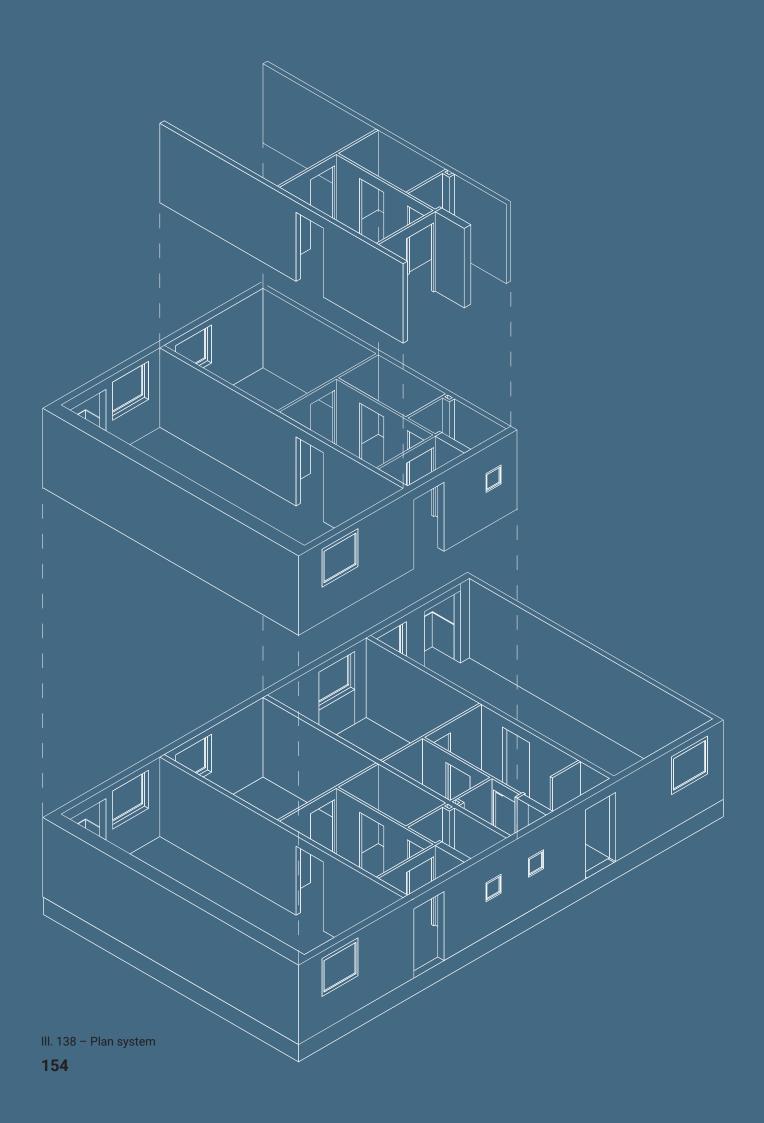
Another important aspect that is not addressed in this project is the climate footprint of transport. In the current model, it is assumed that all materials are already on the construction site, which of course does not correspond to reality. Especially in Kalaallit Nunaat, where transport might play a significant role, this can have a major impact on

the overall Carbon account. However, the overall vision of the project has been to reduce dependence on imports by increasingly using locally available, recyclable or processable materials.

As described in the previous sections, the primary focus of the project has been the facade, as it constitutes the largest continuous surface on the building and thus has the greatest influence on energy consumption and the building's overall climate shield. The analysis and subsequent calculations show that a targeted renovation of the facade has had a significantly positive effect on the building's environmental performance. However, it is important to emphasize that the potential for further improvements is far from exhausted. Other building parts - especially roof structures and terrain decks - still offer opportunities for energy and environmental optimization. These parts of the building envelope have not yet been addressed in the project, but represent obvious areas of focus in a possible second phase of the renovation. The current work on the facade should therefore be considered a first step in a broader strategy, where other building parts can be continuously included and improved to achieve an even lower overall environmental impact.



III. 137 – Exploded view of the construction



**SCALE: UNIT** 

# **Original Unit**

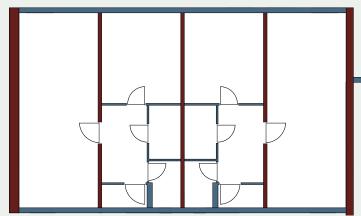
The illustration below shows a plan drawing based on the original floor plan of the apartment, drawn based on the original drawings. The left side shows an unfurnished version, while the right side reproduces the apartment exactly as one of our interviewees lived in it. The purpose is to give the reader a better understanding of how the existing home is furnished, as well as to create insight into the spatial conditions and everyday uses of the rooms.



### **Structural System**

In terms of the structural system, these are older buildings where stability is achieved through a combination of the external gable walls and the internal walls, as the external shell of the building is a lightweight construction. The building is a two to three-storey building, depending on the terrain. The floor decks consist of reinforced concrete and are an integral part of the structural system, where they contribute to the overall stability of the building and load transfer between the floors.

III. 140 - Structural system

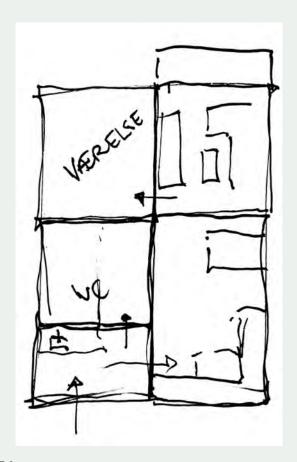


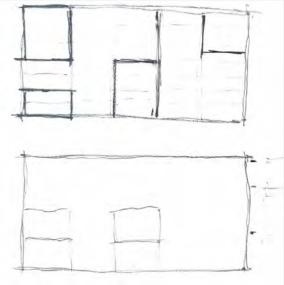
# Sketching

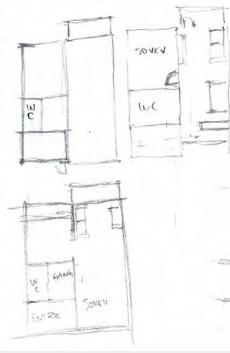
When work on the interior floor plans began, studies were carried out on several of the buildings on the site. It quickly became clear that the homes were built with prefabricated elements, which made it easy and quick to produce and erect the buildings. This has meant that many of the buildings are built using the same modular system with uniform dimensions. The result is limited variation in both the construction elements and the square footage distribution.

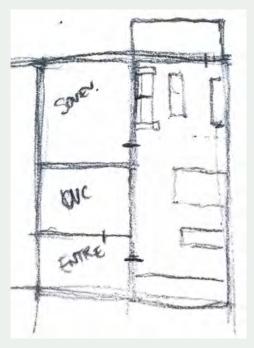
As knowledge about the Greenlandic people was gathered – in combination with the development of the floor plans – it became clear that the need was not major changes. Instead, it was about incorporating minor adjustments that were based solely on Greenlandic needs and that could open up new ways of improving the apartment.

Through simple measures, it proved possible to loosen up the existing structures and create better spatial conditions with relatively limited resources.









III. 141 - Sketching process

# **Floor Plan Iterations**

In the first presented floor plan, the bathroom is extended so that it connects directly to the main living space. This modification removes a significant portion of the original entrance area, reallocating more square meters to the bathroom. Additionally, the entrance from the hallway to the living room is repositioned closer to the kitchen, creating a quicker and more direct access route to the heart of the home. It was decided that the bathroom was too large, and the direct access to the common spaces might create some unsanitary spaces.

The second floor plan differs from the original by incorporating a utility room in connection with the entrance. At the same time, the access to the toilet has been moved so you now enter from the entrance area. The entrance area can be considered to be a colder zone, compared to other rooms. And being smaller compared to the original, this can lead to unpleasantries everytime you have to use the bathroom.

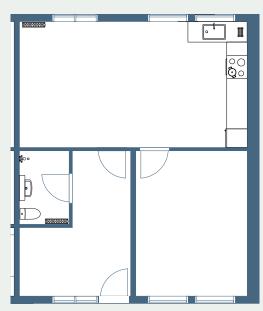
In addition, extra sink and cupboard space has been added, which is drawn in to visualize how much space a storage cabinet or sink would take up.

The third layout involves a larger intervention compared to the original floor plan. the kitchen area and the bedroom has been switched. It creates a new spatial layout, where functions you would typically stay in would be exposed more to natural lightning.

At the same time, the hallway area has been adjusted and opened up more, creating a larger and more coherent living area, without changing the overall structure of the hallway.



1:100



1:100

III. 142 - Iterations on plan solutions

# **Mapping Cultural Activities**

The final floor plan, besides iterations shown just before, is based on everyday life scenarios identified through resident interviews. These are grouped into three categories: everyday use, hunting, and gatherings, each reflecting different needs in the home. The design explores how small layout changes can increase flexibility and support both daily living and special situations.

### The everyday

The everyday scenario attempts to capture the practical tasks of a completely ordinary Greenlandic everyday life – such as drying clothes, vacuuming and cooking – as well as the more social and routine activities that over time help shape the use of the home.



### Gatherings

Based on Greenlandic culture, where social communities play a central role – often in the form of larger gatherings of family and friends – this scenario illustrates how an apartment can function as a setting for social events, such as coffee breaks or family visits.



#### Hunter

The floor plan is based on a resident whose everyday life is largely characterized by hunting and trapping – either as a hobby or out of necessity to secure food. Here we see various situations where captured prey is handled in the home: a reindeer in the entrance hall, fish being filleted in the utility room, or a seal being prepared on the kitchen floor.



III. 143 - Different scenarios applied

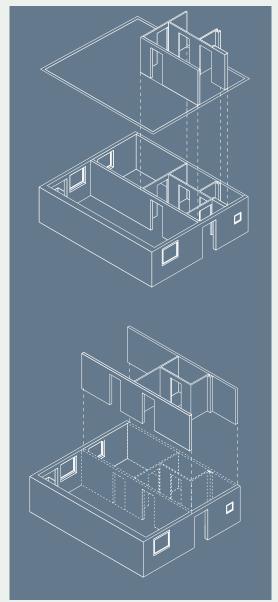
# The Chosen Solution

The current floor plan is based on the original layout and is designed with the intention of not adding any new structural elements to the building. In the few cases where modifications have been necessary, these have been minimal—such as shifting a door opening. Instead, certain non-load-bearing elements have been removed to create a more open and functional entrance area.

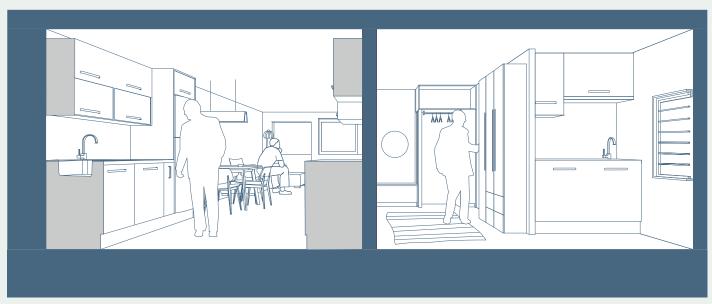
The floor plan has been developed with flexibility in mind, allowing the unit to be adapted for different purposes—whether as a traditional apartment or a shared common space.

The illustration to the right provides spatial insight into how changes in the apartment's function affect the structural system and result in a more open layout.

At the bottom of the page, a perspective drawing shows how the apartment might look when furnished. The purpose is to convey a sense of the spatial character and highlight the qualities of the new interior configuration.



III. 145 - Exploded view of the proposed



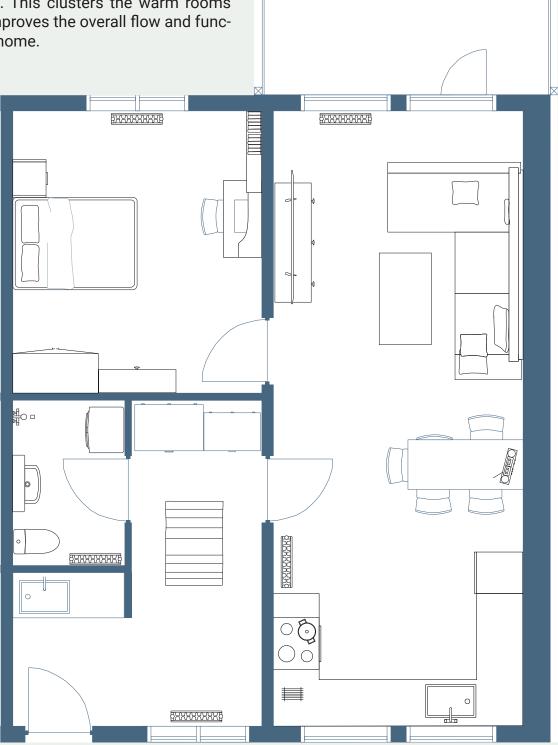
III. 144 - Section cut of the proposed solution

### Walkthrough

The apartment layout has been opened up by replacing the narrow corridor with a spacious hallway that allows for extra storage, such as a wardrobe or freezer. The toilet remains in its original position to avoid unnecessary structural changes.

The central room now spans the full width of the apartment, with a redesigned, more social kitchen and an added window for better daylight. To fit the new hallway storage, the bedroom door has been moved, allowing direct access from the living room. This clusters the warm rooms together and improves the overall flow and functionality of the home.

III. 146 - Detailed plan drawing of the proposed



1:50

# **Communal Spaces**

In addition to the presented floor plan, research conducted as part of the project has revealed a clear lack of larger indoor spaces that can function as social meeting points or venues for community events. Especially in Kalaallit Nunaat where the harsh weather conditions often limit opportunities for outdoor social interaction.

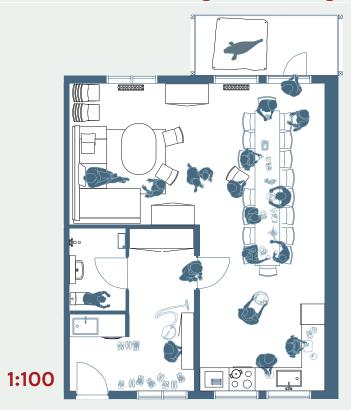
Based on the selected floor plan, a proposal is presented here for how the removal of a single apartment in the housing complex, and a wall could make room for a shared community space serving the surrounding residences. This space could provide a flexible framework for various resident-led activities ranging from cultural events and association meetings to informal gatherings or offering a safe and warm environment for social engagement and collective well-being.

The following pages present two scenarios:

The first scenario shows a setting housing up to 20 people and explores how the space could be used for larger gatherings, such as coffee meetings or communal celebrations. The room is imagined as a generous, open environment with the capacity to rearrange furniture depending on the event.

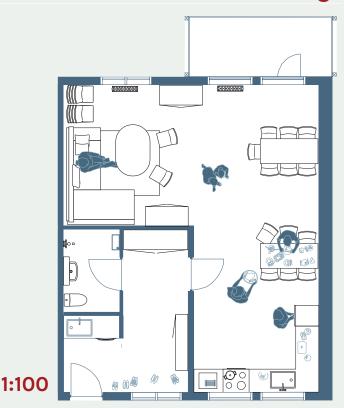
The second scenario takes a more everyday approach, imagining the space as an informal lounge where residents can drop by to watch TV, knit, read a book, or simply relax. It also considers the potential for integrating a small café or workshop function. Such a space could play an essential role in reducing social isolation and supporting mental well-being-particularly for those who may not feel comfortable hosting guests in their own apartments or who experience loneliness in daily life. By embedding this kind of shared social infrastructure within the existing residential fabric, the project emphasizes care, community, and adaptability as core values of future housing design.

### **Large Gatherings**

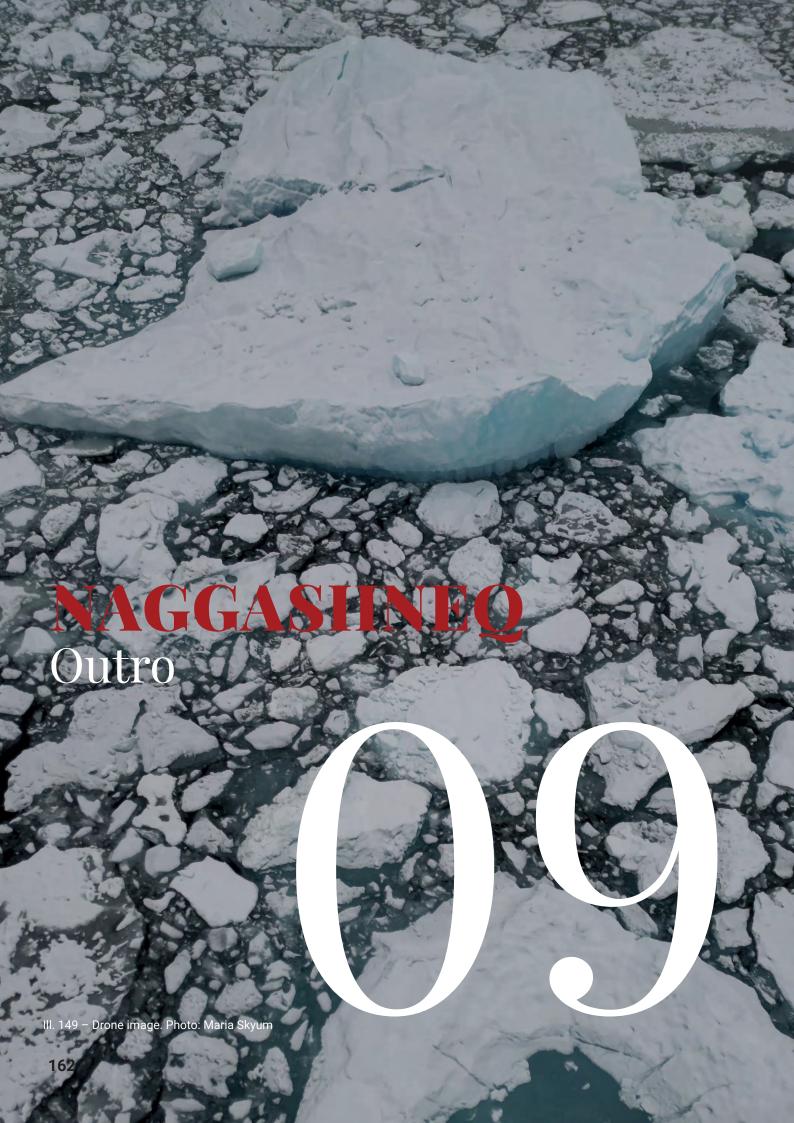


III. 147 - Communal space for large gatherings

### **Small Gatherings**



III. 148 - Communal space for small gatherings



# Conclusion

This thesis has unfolded as a layered journey through the cultural, spatial, and political terrain of Kalaallit Nunaat. At its heart lies a question that is both architectural and existential: how can the built environment support Indigenous autonomy, memory, and life? The project did not seek to find definitive answers, but to learn through immersion, through listening to residents, collaborating with students, and engaging with materials, sites, and histories.

We have explored how architecture in Kalaallit Nunaat can begin to free itself from colonial heritage by centering Indigenous knowledge, local materials, craftsmanship, cultural traditions, and lived experiences. Through situated research in Nuussuaq, including interviews, a workshop, and fieldwork, the project has engaged in forming a personal understanding of everyday realities of residents of Nuussuaq.

The spatial consequences of Denmark's former planning policies were flawed from the outset. One cannot impose a standardized system onto a culture with fundamentally different values and rhythms. While improved public health was one goal, the approach failed to consider cultural continuity. As Inge Bisgaard states: "We have had 300 years, actually, it is from when Greenland became a county, to adjust ourselves from a hunter-gatherer society to the modern life that we live today. Whereas Denmark, they have had 2,000 years." Rapid changes like those are to have serious consequences, not only culturally, but to the people as well. Heritage and cultural traditions cannot be changed overnight and expected to yield meaningful results.

By exploring 'Situated Acts of Decolonization', the project proposes a framework that goes beyond aesthetic or symbolic gestures. Instead, it advocates for a layered, grounded approach that takes seriously the textures of daily life: how people move, gather, rest, how life in Kalaallit Nunaat unfolds spatially. The speculative design strategies offered here are not fixed solutions, but open tools, proposals around minimal infrastructures, spatial gaps for growth, recycled ma-

terials with memory, and forms of care that arise from within. These gestures are not about replacing one system with another but about creating room for multiple temporalities and ways of being to coexist.

What we consider the first phase toward a Kalaallit Nunaat architecture, based on the knowledge gathered in this work, is merely the tip of the iceberg. This is understood as a progressive, unfolding process where future potentials will continue to emerge: new materials, new techniques, and deeper cultural insight. What matters most is allowing time and space for these cultural narratives to be explored and evolve on their own terms.

This work does not claim to define Indigenous architecture in Kalaallit Nunaat. Rather, it recognizes its place within an ongoing process, one that must remain open to critique, learning, and transformation. The materials explored, the conversations held, and the imaginaries drawn are all fragments in a larger, relational fabric of place-making.

If this project contributes anything, it is a call for slowness, attentiveness, and humility in the face of a complex landscape – geographical, cultural, and political. Decolonization in architecture is not an end state, but a continuous practice of listening, questioning, and reconfiguring. In Nuussuaq's everyday spaces, this transformation may not begin with grand designs, but with dialogues with its residents, a warmer entrance with room for your jacket, a shared social zone – small acts that begin to reconnect bodies, buildings, and land.



# Reflection

Working on this thesis has required more than research and design, it has demanded a deep personal and intellectual shift. From the beginning, it was clear that conventional architectural tools and academic methods would not be enough. What was needed instead was a practice of attentiveness: to histories that are still present, to stories that are often silenced, and to ways of knowing that do not fit within established frameworks.

The process of engaging with Kalaallit Nunaat's complex realities: colonial legacies, cultural resurgence, material constraints, and local knowledge, has challenged our thought process. It wasn't just about applying theories or replicating models. It was about listening, adapting, and learning to move at a different pace. At times, this meant letting go of plans. At others, it meant holding space for uncertainty.

This is where the speculative aspects of the project became especially meaningful. Tools like the CoFutures Poker game weren't just creative exercises; they opened up room for collective dreaming, for imagining alternatives not dictated by existing systems. That way of thinking offered glimpses of what architectural practice could become when rooted in relationships rather than prescriptions.

Not everything unfolded as expected. Some planned workshops had to be canceled, and the process often felt fragile. But in that fragility was a lesson: decolonial work resists control. It requires trust, humility, and the willingness to be reshaped by the encounter. The workshop at Ilisimatusarfik, though small in numbers, became one of the most powerful moments in the process, a reminder that depth of engagement cannot be measured by scale.

Out of this slow and iterative process emerged the idea of Situated Acts. These are not solutions, but gestures and orientations shaped by place, by memory, and by the desire to build otherwise. They are grounded in what we learned throughout the process, but not claiming universality. They are responses, not answers. One of the persistent tensions in the work has been between academic time and the time this kind of engagement truly requires. The thesis captures what was possible within these limits, but it is incomplete by design. Its value is not in finality but in contribution, in offering something that others can take further, reinterpret, or challenge.

This process has also raised deeper questions about what we call sustainability, and who defines it. Much of what is celebrated as 'green' architecture remains disconnected from Indigenous principles of care, reciprocity, and minimal intervention. We did not have the scope to fully explore this divergence, but it is a conversation that must continue, especially in places like Kalaallit Nunaat, where climate and culture are so tightly interwoven.

The more we learned, the more we saw how deeply architecture in Kalaallit Nunaat remains shaped by systems far removed from local needs. Materials, regulations, education, all largely imported. Yet the geography, culture, and aspirations here call for different forms of knowledge. They call for building practices that are adaptive, place-specific, and rooted in community.

Along the way, we became aware of the distance between our architectural education and the values we wanted to center. Much of what we were taught leaned toward abstraction, efficiency, and universality. This project, by contrast, asked for slowness, specificity, and care. In many ways, it has been a process of unlearning.

What this work has made clear is that architecture is never neutral. It carries the weight of history, the imprint of ideology, and the potential to either divide or connect. In Kalaallit Nunaat, where built environments have often felt imposed rather than inhabited, there is urgent need for alternatives grounded in local life. Architecture here must make room for kaffemik, for hunting tools, for storytelling, for culture, for pride.

The residents we met, spoke of homes filled with warmth and meaning. That spirit of care

will forever stay with us. If this thesis contributes anything, we hope it can be a reminder that meaningful architecture begins not with form, but with relation. Relation to those we design for and with. Relation to the land, its rhythms, its materials, and its histories. Relation to memory, both personal and collective, and to the stories that shape how people inhabit space.

# **Bibliography**

ArchDaily (2023) Joar Nango on "Girjegumpi", the Sámi Architecture Library at the Nordic Countries Pavilion. [Youtube video] 26 June. Available at https://www.youtube.com/watch?app=desktop&v=uiM-5SKq0V4 (Accessed 16.05.2025).

Bjerre, G.. (2015). Månemanden og andre fortællinger fra Grønland. Milik.

BrookMclloy. (2017). Indigenous Gathering Place at Mohawk College. Brook Mcllroy. Available at: https://www.brookmcilroy.com/projects/hoop-dance

Dunne, A. & Raby, F. (2013). Speculative Everything: Design, Fiction, and Social Dreaming. The MIT Press.

Engberg Pallesen, B. (2018, 6). Bæredygtige Tangisoleringsmåtter fra ålegræs (ISBN: 978-87-93710-35-1). Miljøstyrelsen. Available at: https://www2.mst.dk/Udgiv/publikationer/2018/06/978-87-93710-35-1.pdf

Engelbrechtsen, K. & Thomsen, J. (2013) Inuitisk religion og mytologi – Myter, ritualer og religiøse forestillinger i det traditionelle inuitsamfund. Nuuk: Ilinniusiorfik Undervisningsmiddelforlag.

Escobar, A.. (2018). Designs for the Pluriverse: radical interdependence, autonomy, and the making of worlds. Duke University press.

Gulløv, H.C., Andreasen, C., Grønnow, B., Jensen, J.F., Appelt, M., Arneborg, J. and Berglund, J. (2004) Grønlands Forhistorie. Copenhagen: Gyldendal and Nordisk Forlag A/S.

Hansen, A. (2024) Manifesti. Uilustories.

KHR Architecture. (2012). Nuuk Center. Available at: KHR. https://khr.dk/en/projects/nuuk-center/

Kommuneqarfik Sermersooq (2019) Nuuk Byatlas. [PDF] Available at: https://kp.sermersooq.gl/media/3804/byatlas-nuuk\_dk.pdf (Accessed 16.05.2025).

Lee, M. & Reinhardt, G. (2003). Eskimo Architecture: Dwelling and Structure in the Early Historic Period. University of Alaska Press.

Lund Jensen, E. (2015). Nuussuaq - Nuuk. Danmarks national leksikon. Available at: https://lex.dk/Nuussuaq\_-\_Nuuk. (Accessed: 12. 05.2025)

Naalakkersuisut (nd.) 'Sammen om sunde boliger' - Renoveringsindsats af Selvstyrets boligmasse. Available at: https://naalakkersuisut.gl/Departementer/Boliger\_Infrastruktur\_Yderdisktrikter/Sammen\_om\_sunde\_boliger?sc\_lang=da

Norman Engelbrechtsen, K. & Ring Jørgensen, M. (2016). Silamiut - Grønlands forhistorie. Departementet for Uddannelse, Gymnasie-afdelingen. Available at: https://silamiut.iatuagaq.iserasuaat.gl/?id=1

Olsen, T.R. (2016) I Skyggen af Kajakkerne – Grønlands politiske historie 1939-79. Tupaarnaq Publishing & Forlaget Atuagkat.

P. Steenfos, H. & Taagholt, J. (2012). Grønlands teknologi historie. Gyldendal.

Rasmussen, K. (1926). De første Mennesker og Havkvinden. I: K. R (Red.), Fra Grønland til Stillehavet (s. 159-160). Lindhardt og Ringhof

Rasmussen, K. (1925) Myter og sagn fra Grønland bind 3. Pages 46-49. København, 1925.

Radio-Canada (2025) Décoloniser l'architecture en territoire inuit. [Online] 13 March. Available at: https://ici.radio-canada.ca/recit-numerique/12187/decolonisation-architecture-nunavut-tradition-inuit (Accessed 16.05.2025)

Realdania . (2013). Seaweed Houses on Læsø - The Modern Seaweed House. Realdania. Available at: https://www.realdaniabyogbyg.org/projects/seaweed-houses-on-laeso-the-modern-seaweed-house

Rosendahl, Ph. . (1936). Forbedring af Byggeskikken for Huse med Græstørvsmur. Det Hoffensbergske Etabl..

Sermitsiaq (2012) Prestigebyggeri deler vandene. [Online] 23 August. Available at: https://www.sermitsiaq.ag/samfund/prestigebyggeri-deler-vandene/302175 (Accessed 17.05.2025)

Speculativeedu (2020). Speculative Design and Education in (and Beyond) Troubled Times (ONLINE DISCUSSION). Available at: https://speculativeedu.eu/speculative-design-and-education-in-and-beyond-troubled-times/

# **List of Illustrations**

- III. 1 Qaannat in Kolonihavn in Nuuk. Own image
- III. 2 Drone image of Kolonihavn. Photo: Maria Skyum
- III. 3 Ulloriaq. Own image
- III. 4 Jonas. Own image
- III. 5 Design Intention. Own illustration
- III. 6 Ice on the sea in Nuuk. Own image
- III. 7 Map of Kalaallit Nunaat. Illustration based on Figure; https://commons.wikimedia.org/wiki/File:Greenland-muni-names.svg
- III. 8 Statue of Hans Egede in Nuuk. Own image
- III. 9 Hans Hedtoft in Kalaallit Nunaat. Photo: unknown photographer, Arktisk Institut. Found at: https://www.arktiske-billeder.dk/pages/home.php search for foto ID: p80304
- III. 10 Blok P in Nuuk. Photo: unknown photographer, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: dp25503
- III. 11 Factory workers. Photo: unknown photographer, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: p16850
- III. 12 Colorful houses. Photo: Regitze Margrethe Søby, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: dp11316
- III. 13 Blok 1-10 in Nuuk. Photo: Jørgen Svensson, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: 91236
- III. 14 Nuuk Center. Photo: Kenny McFly, CC BY 4.0, via Wikimedia Commons. . Found at: https://commons.wikimedia.org/wiki/File:Nuuk\_Center\_(1)\_(Kenny\_McFly).jpg
- III. 15 Ivertut in Tasiilaq. Photo: Frederik Carl Peter Rüttel, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: 00056
- III. 16 Process of the thesis. Own illustration
- III. 17 Myggedalen in Nuuk. Own image
- III. 18 Drone image. Photo: Maria Skyum
- III. 19 Blok 2-10 in Nuuk. Own image
- III. 20 Kaffemik. Photo: Kalak Photography/Victor R. J.
- III. 21 Caribou hunt. Photo: Kalak Photography/Victor R. J.
- III. 22 Sassuma Arnaa. Artwork: Christian Fleischer Rex/Deluxusstudio in Nuuk. Found at: https://deluxusstudio.com/projekter/projekter-4/
- III. 23 Qaannat and umiaq at Nunatta Katersugaasivia. Own image
- III. 24 Excavated tools at Nunatta Katersugaasivia. Own image
- III. 25 Family in front of their illu in Nuuk. Photo: Unknown photographer, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php
- III. 26 Family in front of their tupeq in Tasiilaq. Photo: Gudrun Maja Kristensen, Arktisk Institut. Found at: https://www.arktiskebilleder.dk/pages/home.php search for foto ID: 00056
- III. 27 Section of illu, based on figure from Eskimo Architecture: Dwelling and Structure in the Early Historic Period, 2003, By Lee and Reinhardt, Page 11
- III. 30 Illu plan drawing, based on figure from Eskimo Architecture: Dwelling and Structure in the Early Historic Period, 2003, By Lee and Reinhardt, Page 11
- III. 29 Illu section, based on figure from Eskimo Architecture: Dwelling and Structure in the Early Historic Period, 2003, By Lee and Reinhardt, Page 11
- III. 28 IIIu in Sisimiut. Photo: Aage Nissen, Arktisk Institut, Can be found at; https://www.arktiskebilleder.dk/pages/home.php search for foto ID: p02283
- III. 31 Tupeq plan drawing, based on figure from Eskimo Architecture: Dwelling and Structure in the Early Historic Period, 2003, By Lee and Reinhardt, Page 23
- III. 32 Tupeq drawing, based on figure from Eskimo Architecture: Dwelling and Structure in the Early Historic Period, 2003, By Lee and Reinhardt, Page 23
- III. 33 Tupit in Tasiilaq. Photo: William Thalbitzer, Arktisk Institut, Can be found at; https://www.arktiskebilleder.dk/pages/home.php search for foto ID: 07832
- III. 34 Traditional clothing at Nunatta Katersugaasivia. Own image
- III. 35 Sealskin process. Photos: Clara Aviája Ravnkilde Heilmann
- III. 36 Traditional tools at Nunatta Katersugaasivia. Own image
- III. 37 Qaannat at Nunatta Katersugaasivia. Own image.
- III. 38 Transitional tent on sled
- III. 39 Arsarnerit (northern lights) in Nuuk. Own image
- III. 40 Northern lights in Nuuk. Own image

- III. 41 Gable artwork by Cheeky in Nuussuag. Own image
- III. 42 Nuussuaq map. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 44 Typology 2. Own illustration
- III. 43 Typology 3. Own illustration
- III. 45 Typology 1. Own illustration
- III. 46 Mapping of typologies. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 47 Nuussuaq housing collage. Own images
- III. 48 Nuussuaq housing in the winter. Own image
- III. 49 Collage of external materials. Own images
- III. 50 Supermarket illustration. Own illustration
- III. 51 Functions mapping, Own illustration, Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 50 Bus stop shed. Own illustration
- III. 53 Local supermarket. Own image
- III. 52 Elementary school in Nuussuaq. Own image
- III. 54 Children playing with a board. Own image
- III. 55 Bus stop shed. Own illustration
- III. 56 Playground. Own illustration
- III. 57 Mapping of social zones. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 58 Playground in Nuussuaq. Own image
- III. 59 Nuussuaq in the winter. Own images
- III. 60 Collage of drying racks. Own images
- III. 61 Practical functions. Own illustration
- III. 62 Mapping of practical functions. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 63 Collage of storage outside. Own images
- III. 64 Infrastructure illustration. Own illustration. Contains data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 65 Infrastructure map. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 66 Collage of winter and summer in Nuuussuaq. Own images
- III. 67 Stairs in Nuussuaq. Own image
- III. 68 Path in Nuussuaq. Own image
- III. 69 Terrain map of Nuussuaq. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 70 Site section cuts. Own illustrations
- III. 71 Nolli maps of Nuussuaq. Own illustration. Map data from Nuna GIS, https://nunagis.gl/da/kort/
- III. 72 Kaassassuk killing a woman. Artwork by: Jakob Danielsen. Public Domain
- III. 73 Facade close-up. Photo: Helene Høyer Mikkelsen
- III. 74 Modern Seaweed House. Photo: Helene Høyer Mikkelsen
- III. 75 Gable. Photo: Helene Høyer Mikkelsen
- III. 76 Roof. Photo: Helene Høyer Mikkelsen
- III. 77 The house. Photo: Helene Høyer Mikkelsen
- III. 78 The details. Photo: Helene Høyer Mikkelsen
- III. 79 HOOP Dance. Photo: Tom Arbon
- III. 80 Ceremony at HOOP. Photo: Tom Arbon
- III. 81 Detail. Photo: Tom Arbon
- III. 82 Aerial picture. Photo: Tom Arbon
- III. 83 Hoops. Photo: Tom Arbon
- III. 84 Picture from one of the apartments in Nuussuaq. Own image
- III. 85 Snow festival in Nuuk. Own image
- III. 86 Portrait of Hans-Ole. Own image
- III. 87 Collage of Hans-Ole's apartment. Own images
- III. 88 Nuussuaq residential housing. Own image
- III. 89 Portrait of Cecilie. Own image
- III. 90 Collage of Cecilie's apartment. Own image
- III. 91 Nuussuaq facade. Own image
- III. 92 Portrait of Naja. Own image
- III. 93 Collage of Naja's apartment. Own images
- III. 94 Workshop at the University. Own image
- III. 95 Presentation at Ilisimatusarfik. Own image
- III. 96 Equipment during workshop. Own image
- III. 97 Building block in the city center. Own image
- III. 99 Kolonihavn in Nuuk. Own image
- III. 98 Nunatta Katersugaasivia facade. Own image
- III. 100 Ownership illustration. Own illustration
- III. 101 Residential housing in Nuuk. Own image
- III. 102 Hostel in Igaliku with stone facade. Photo: Lisa Germany

- III. 103 Drone photo. Photo: Maria Skyum
- III. 104 Recenter Indigenous Worldviews. Own illustration
- III. 105 Material Reciprocity and Ethics. Own illustration
- III. 106 Designing for Seasonal and Cultural Rhythms. Own illustration
- III. 107 Honoring spatial practices. Own illustration
- III. 108 Be Aware of Cultural Expression. Own illustration
- III. 109 Decolonizing through dialogue. Own illustration
- III. 110 Reclaiming authority. Own illustration
- III. 111 Designing Toward Autonomy. Own illustration
- III. 112 Drone Image. Photo: Maria Skyum
- III. 113 Nuussuag chosen building's facade. Own illustration
- III. 114 Which focus the design had. Own illustration
- III. 115 Which focus the design had. Own illustration
- III. 116 Chosen building isometric model. Own illustration
- III. 117 Chosen building collage. Own images
- III. 118 Original construction section. Own illustration
- III. 120 Detailed drawing of wall. Own illustration
- III. 119 Detailed drawing of roof. Own illustration
- III. 121 Typology 2. Own illustration
- III. 122 Detailed drawing. Own illustration
- III. 123 Detailed isometric. Own illustration
- III. 124 Initial sketches. Own illustration
- III. 125 Initial sketch for the system. Own illustration
- III. 127 Drawing of the facade. Own illustration
- III. 126 Different sketches on rhythm. Own illustration
- III. 129 Chosen facade rhythm. Own illustration
- III. 128 Iterations on facade. Own illustration
- III. 130 Seaweed cladding sketches. Own illustration
- III. 131 Detailed facade proposal. Own illustration
- III. 132 Detailed construction. Own illustration
- III. 133 Construction iterations. Own illustration
- III. 134 Isometric of the proposed facade. Own illustration
- III. 135 LCA graph. Own illustration
- III. 136 Proposed facade section. Own illustration
- III. 137 Exploded view of the construction. Own illustration
- III. 138 Plan system. Own illustration
- III. 139 Original plan drawing. Own illustration
- III. 140 Structural system. Own illustration
- III. 141 Sketching process. Own illustration
- III. 142 Iterations on plan solutions. Own illustration
- III. 143 Different scenarios applied. Own illustration
- III. 144 Section cut of the proposed solution. Own illustration
- III. 145 Exploded view of the proposed. Own illustration
- III. 146 Detailed plan drawing of the proposed. Own illustration
- III. 147 Communal space for large gatherings. Own illustration
- III. 148 Communal space for small gatherings. Own illustration
- III. 149 Drone image. Photo: Maria Skyum
- III. 150 Sermitsiag at sunset. Own image





# THESIS TITLE PAGE

This form must be submitted for all theses written in programs under the Study Board of Architecture and Design, and it should be placed at the beginning of the appendix section of the assignment.

A printed copy of the form must be submitted along with the printed copy of the thesis.

The information given in this form must also be available in PURE.

(All fields must be	e filled out)						
Program:							
Architecture		Industrial Desig	n 🗆	Urba	an Design		
This thesis was written by (full name):							
Ulloriaq Kristia	n Lennert						
Jonas Rasmus	ssen						
Title of the the	esis:						
	Architecture of	Kalaallit Nunaat:	Toward	a Situated Pra	ctice Roote	d in Indigenous	
Knowledge							
Supervisor's		0.5 1311					
Joel Peter We	ber Letkeman	n & Endrit Hoxha					
Submission d	late/year:						
02.06.2025							
Is the project	confidential				_		
		Yes □		No			
External colla	boration*						
		Yes □		No			
External colla	boration par	tner (name of co	npany/o	organization):	;		
0111	( L II - L		20				
Contact at ex	ternai collabo	oration partner (ti	tie, nan	ne og email):			

<sup>\*</sup>What is an external collaboration? Read more here.

# Appendix 1

#### Interview overview

In connection with our fieldwork in Greenland, we conducted a total of 7 qualitative interviews. One interview was conducted with a expert within heritage architecture building culture, while the other interviews were conducted with residents of the Nuussuag area.

The purpose of the interviews was to collect different perspectives on everyday life, housing conditions, identity and the relationship to the built environment. The interviews were used as a central part of the project's data base and formed the basis for understanding local needs, values and wishes in relation to future architectural development.

The interviewed persons:

#### **Residents of Nuussauq**

Hans Ole Cecilie Eugenius Naja Hansen Regine Dorph Heilmann Gerda Knudsen Kelsie Matthæussen

**Museum curator** - Expert Inge Bisgaard

#### **Workshop at the University**

The following link will guide you to the full transprite of each interview person if one want to dive deeper into what has said. We have done it this way as the transcripts are long.

The following link or scan the qr-code below https://archive.org/details/master-thesis-intervew-and-workshop-transcript



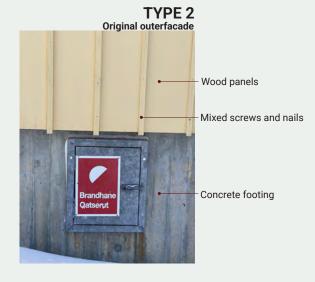
# **Appendix 2**

### **Material Mapping**

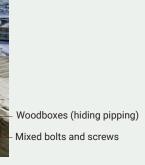
To gain a better overview of the material use on the site, photo documentation is used to analysis the materials and categorize what the constructions is made by. The purpose is to create a systematic insight into material selection, which can form the basis for a further assessment of both aesthetic, functional and maintenance aspects.



















Wood construction

Metal post anchor Metal bolts

Concrete point foundation

# Outer staircase Original structure



Steel tension rod

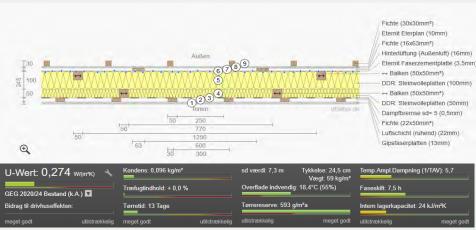
Bolts

Metal post anchor Concrete footing

# **Appendix 3**

#### **Insulation**

### ORIGINAL CONSTRUCTION

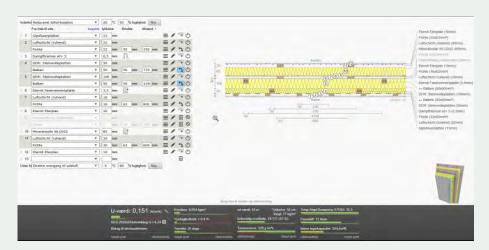


The structural requirements that are subject to, for reconstruction and other changes in the building, can be seen in the table. These values are the minimum requirements for the individual structural parts, during the reconstruction, but since this project deals with a future building practice/transformation plan/architecture strategy, it seems that "just" meeting the reconstruction requirements for a building is not very forwardlooking, because in 5 years or 10 years, the requirements will be revised again and the buildings will potentially already be "outdated" or underperforming. Therefore, the goal of this construction is to be able to meet the U-value requirements for new construction, and thus give the buildings an external facade that will perform on an equal footing with this new construction that is being converted today and make it possible with less resources and economy to save this building typologies future. So the first construction is a base-line construction which is based on this original facade where additional insulation is added. The starting point for this technical section is to create a facade which has a u-value of 0.15W/m2K.

Bygningsdel	U-værdi [W/m²K]		
Ydervægge og kældervægge mod jord		0,20	
Etageadskillelser og skillevægge mod rum, o er uopvarmede eller opvarmet til en temperat der er mere end 8 °C lavere end temperature det aktuelle rum	ur,	0,40	
Terrændæk, kældergulve mod jord og etagea skillelser over det fri eller ventileret kryberum	ıd-	0,15	
Loft- og tagkonstruktioner, herunder skur vægge, flade tage og skråvægge direkte mod t		0,15	
Yderdøre, porte, lemme, forsatsvinduer og ove lyskupler	n-	1,65	
Bygningsdel		Linjetab [W/mK]	
Fundamenter		0,12	
Samling mellem ydervæg, vinduer eller yd døre, porte og lemme	er-	0.03	
Samling mellem tagkonstruktion og ovenlysv duer eller ovenlyskupler	in-	0,10	

### **BASE CONSTRUCTION**

#### Added 85 mm mineral wool to the outerfacade



### HAMP INSULATION

#### Added 110 mm hamp to the outerfacade



LINK TO PRODUCENT https://www.thermo-hanf.de/

### **HØR INSULATION**

#### Added 100 mm hør to the outerfacade



### **SEAWEED INSULATION**

Added 100 mm eelgrass-insulation to the outerfacade



Data-sheet; https://www.seegrashandel.de/technische-daten/

# **Neptherm INSULATION**

Added 125 mm Neptum-them-insulation to the outerfacade



### **GRASS INSULATION**

Added 100 mm Grass-insulation to the outerfacade



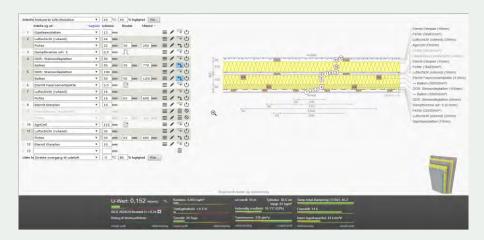
### **WOODFIBER INSULATION**

Added 100 mm Woodfiber-plate to the outerfacade



### **CELLOUSE INSULATION**

Added 110 mm Cellouse to the outerfacade



### **PEAT INSULATION**

Added 125 mm peat to the outerfacade



# **Appendix 4**

## **Building performance**

### The building as it stands today, untouched

Uden tillæg	Tillæg for særlig	e betingelser	Samlet energiramme	
71,4	0,0		71,4	
Samlet energibehov			117,8	
Renoveringsklasse 1				
Uden tillæg	Tillæg for særlig	e betingelser	Samlet energiramme	
53,6	0,0		53,6	
Samlet energibehov			117,8	
Energiramme BR 2018				
Uden tillæg	Tillæg for særlig	e betingelser	Samlet energiramme	
30,7	0,0		30,7	
Samlet energibehov			117,8	
Energiramme lavenergi				
Uden tillæg	Tillæg for særlige betingelser		Samlet energiramme	
27,0	0,0		27,0	
Samlet energibehov			117,8	
Bidrag til energibehovet		Netto behov		
Varme	117,4	Rumopvarmni	ng 117,4	
El til bygningsdrift	0,2	Varmt brugsva	and 0,2	
Overtemp. i rum	0,0	Køling	0,0	
Udvalgte elbehov		Varmetab fra in	stallationer	
Belysning	0,0	Rumopvarmni	ng 0,0	
Opvarmning af rum	0,0	Varmt brugsv	and 0,2	
Opvarmning af vbv	0,2			
Varmepumpe	0,0	Ydelse fra særli	ge kilder	
Ventilatorer	0,0	Solvarme	0,0	
Pumper	0,0	Varmepumpe	0,0	
Køling	0,0	Solceller	0,0	
Totalt elforbrug	30,9	Vindmøller	0,0	

# The building after facade renovation

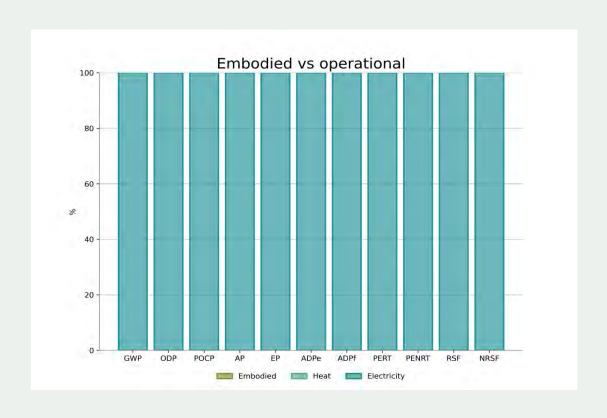
Renoveringsklasse 2 Uden tillæg 71,4 Samlet energibehov Renoveringsklasse 1 Uden tillæg	0,0	ige betingelser	Samlet energira 71	
71,4 Samlet energibehov Renoveringsklasse 1 Uden tillæg	0,0	ige betingelser	71	
Samlet energibehov Renoveringsklasse 1 Uden tillæg				A
Renoveringsklasse 1 Uden tillæg				
Uden tillæg	man out of the		43	,2
	Tillæg for særli	ige betingelser	Samlet energiramme	
53,6	0,0	0,0		,6
Samlet energibehov			43	,2
Energiramme BR 2018				
Uden tillæg	Tillæg for særlige betingelser		Samlet energiramme	
30,7	0,0		30	,7
Samlet energibehov			43	,2
Energiramme lavenergi				
Uden tillæg	Tillæg for særlige betingelser		Samlet energiramme	
27,0	0,0		27	,0
Samlet energibehov			43	,2
Bidrag til energibehovet		Netto behov		
Varme	42,8	Rumopvarm	ning 42	,8
El til bygningsdrift	0,2	Varmt brugsvand 0,		,2
Overtemp, i rum	0,0	Køling	0	,0
Udvalgte elbehov		Varmetab fra	installationer	
Belysning	117,3 Rumopvarmi		ning 0	,0
Opvarmning af rum	0,0			,2
Opvarmning af vbv	0,2			
Varmepumpe	0,0	Ydelse fra sæ	rlige kilder	
Ventilatorer	0,0	Solvarme	0	,0
Pumper	0,0	Varmepump	e 0	,0
Kølina	0.0	Solceller		.0

# Appendix 5

### Embodied vs. operational for the building, as it stands

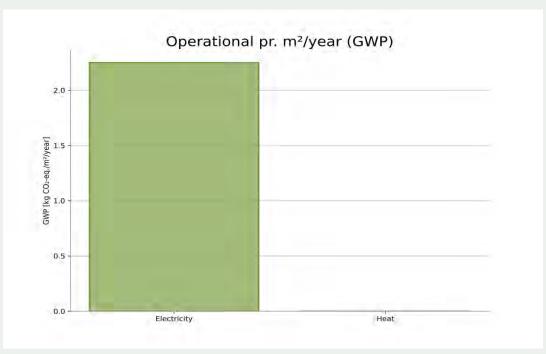
Name Value
Electricity 6.13E+00
Heat 0.00E+00

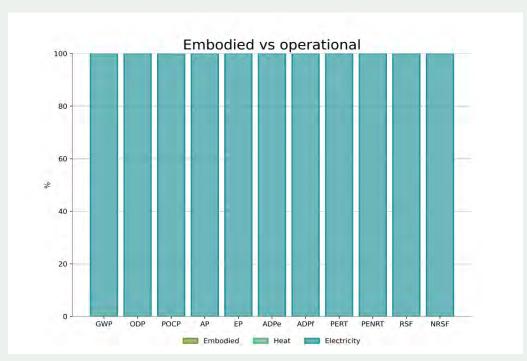




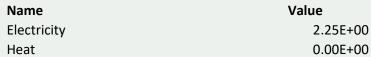
# Embodied vs. operational for the building with new facade

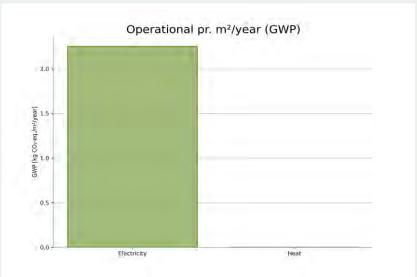
Name Value
Electricity 2.25E+00
Heat 0.00E+00



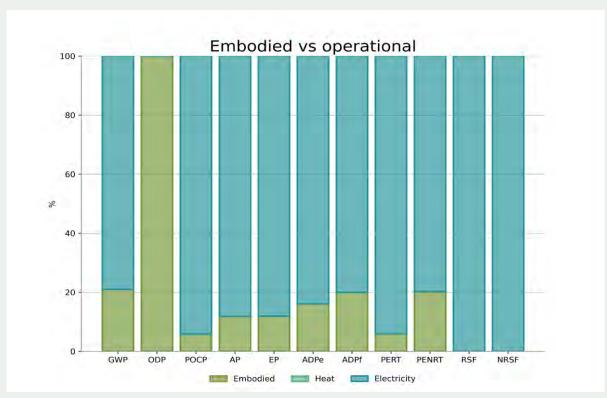


# Graphdata from the building with new facade and materials put into LCA

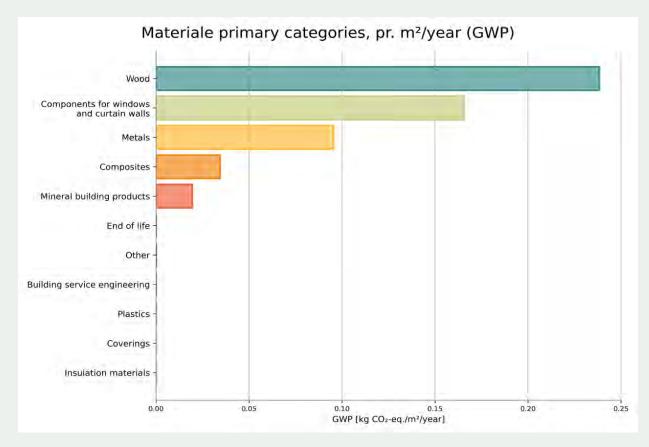




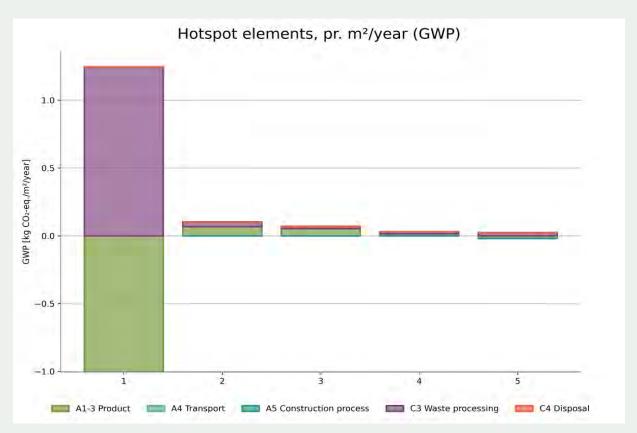
Indicator	Embodied Heat		Electricity
GWP	20.9496171	0	79.05038
ODP	99.9614782	0	0.038522
POCP	5.81762698	0	94.18237
AP	11.8693251	0	88.13067
EP	11.9126732	0	88.08733
ADPe	16.1539378	0	83.84606
ADPf	20.0209703	0	79.97903
PERT	6.01168738	0	93.98831
PENRT	20.2674137	0	79.73259
RSF	0	0	100
NRSF	0	0	100



Name	Value
Wood	2.38E-01
Components for windows and curtain walls	1.66E-01
Metals	9.54E-02
Composites	3.44E-02
Mineral building products	1.95E-02
End of life	6.29E-06
Other	0.00E+00
Building service engineering	0.00E+00
Plastics	0.00E+00
Coverings	0.00E+00
Insulation materials	0.00E+00



Name	A1-3	A4	A5	C3	C4
The New facade	-1.00E+00	0.00E+00	0.00E+00	1.25E+00	1.95E-04
New balconies	6.80E-02	0.00E+00	0.00E+00	3.58E-02	6.09E-06
New windows	5.40E-02	0.00E+00	0.00E+00	1.51E-02	1.90E-03
Terrace door	1.49E-02	0.00E+00	0.00E+00	1.52E-02	2.20E-04
New front doors	-1.91E-02	0.00E+00	0.00E+00	2.41E-02	1.90E-08

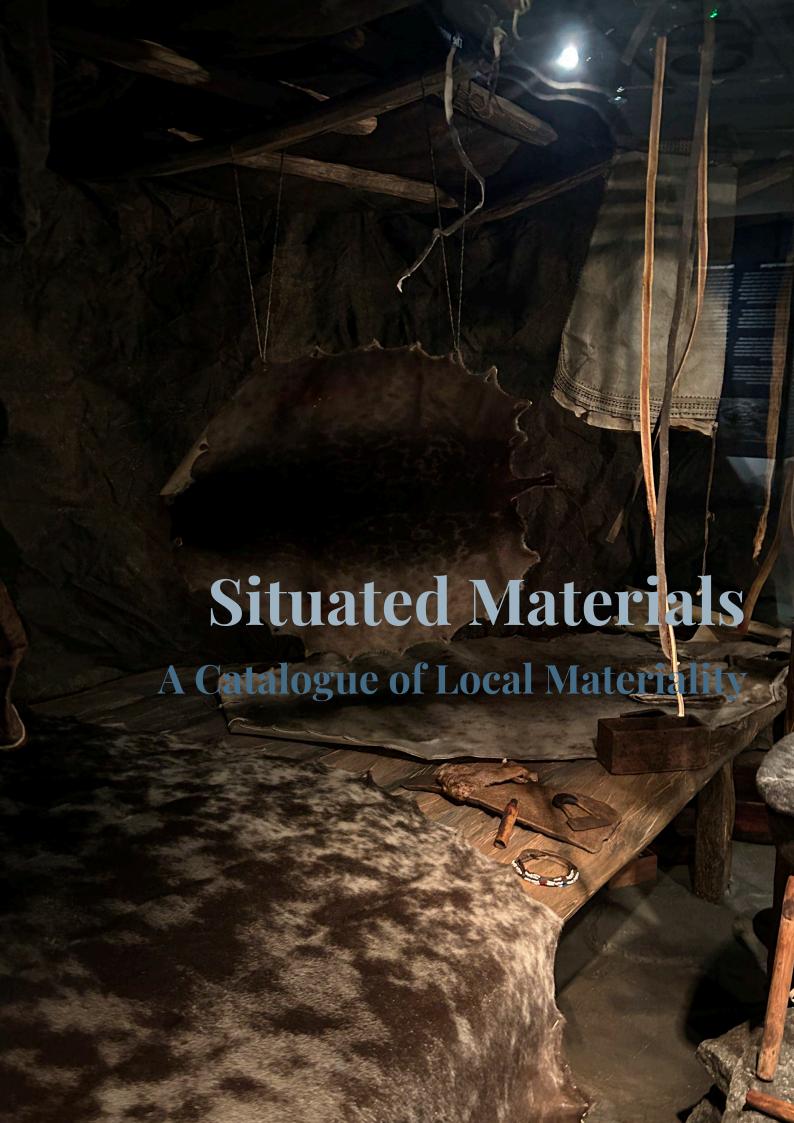


# Appendix 6

# **Material Sheet**

	Uncertainty factor	Replacements	Input quantity	Calculated quantity	Weight	Service life
uilding	-	+	-	( <del>-</del> -	7,085e+04 kg	
Elements	-	-	-	-	7,085e+04 kg	
■ Balconies	-	=	-	-	2,352e+03 kg	
# Platform	-	-	-	-	2,352e+03 kg	
New balconies	-	=	-	-	2,352e+03 kg	
Balcony platform, aluminum bottom with woode	-	-	20,80 m²	-	1,030e+03 kg	
✓ Aluminium section	1	0	35,00 kg/m²	728,00 kg	7,280e+02 kg	80 yea
▼ Timber larch (12% moisture / 10.7% H2O con	1	1	0,02 m³/m²	0,46 m³	3,024e+02 kg	30 yea
<b>™</b> Railing	-	-	40,00 m²	-	1,322e+03 kg	
■ Timber larch (12% moisture / 10.7% H2O con	1	7	0,05 m³/m²	2,00 m²	1,322e+03 kg	30 ye
■ Windows, doors, glazing systems	-	-	-	-	5,037e+03 kg	
■ Doors	-	-	-	-	2,823e+03 kg	
New front doors	-	7	-	-	1,098e+03 kg	
	-	-	45,36 m²	-	1,098e+03 kg	
✓ Grey cast iron part	1	0	0,05 kg/m²	2,27 kg	2,270e+00 kg	60 ye
	1	1	22,53 kg/m²	1,86 m³	1,022e+03 kg	40 ye
Timber pine (12% moisture / 10.7% H2O cont	1	1	1.63 kg/m²	0,13 m³	7,394e+01 kg	40 ye
Terrace door	-	-	-	-	1,724e+03 kg	
■ Window pane, 3-layer energy pane	-	=	36,50 m²	-	1,095e+03 kg	
✓ Insulated glazing, triple pane (thickness: 0.036	1	1	1,00 m²/m²	36,50 m²	1,095e+03 kg	25 ye
	-	-	26,00 m²	-	6,295e+02 kg	
✓ Grey cast iron part	1	0	0,05 kg/m²	1,30 kg	1,300e+00 kg	60 ye
Timber pine (12% moisture / 10.7% H2O cont	1	1	22,53 kg/m²	1,07 m³	5,858e+02 kg	40 ye
▼ Timber pine (12% moisture / 10.7% H2O cont	1	1	1.63 kg/m²	0,08 m³	4,238e+01 kg	40 ye
<b>₩</b> Windows	-	-	-	-	2,214e+03 kg	
New windows	-	-	-	-	2,214e+03 kg	
	-	-	.39,56 m²	=	6,299e+02 kg	
₩ EPDM sealing for aluminium section	1	0	5,78 m/m²	228,46 m	4,112e+01 kg	50 ye
W Window fitting for double sash window	1	0	0,52 kg/m²	20,29 stk.	2,057e+01 kg	50 ye
Aluminium frame section, thermally separated,	1	0	0,83 m/m²	32,76 m	4,684e+01kg	60 ye
₩ Window frame (spruce)	1	0	2,87 m/m²	113,54 m	2,396e+02 kg	50 ye
Aluminium casement frame section, thermally	1	0	0,86 m/m²	34,06 m	5,143e+01 kg	60 ye
W Window sash (spruce)	1	0	2,76 m/m²	109,19 m	2,304e+02 kg	50 ye
→ Window pane, 3-layer energy pane	-	-	52,80 m²	-	1,584e+03 kg	
✓ Insulated glazing, triple pane (thickness: 0.036	1	1	1,00 m²/m²	52,80 m²	1,584e+03 kg	25 ye
■ External walls	-	-	-	-	6,346e+04 kg	
# External walls	-	-	-	=	6,346e+04 kg	
The New facade	-	-	-	-	6,346e+04 kg	
- Grønland, new facade	-	9	843,57 m²	-	2,338e+04 kg	
■ Construction wood, pine and spruce, wet and	1	0	0,03 m³/m²	25,31 m³	1,154e+04 kg	100 ye
▼ Søuld Acoustic Mats, Søuld Acoustic Mats — Fl	1,3	0	1,00 kg/m²	843,57 kg	8,436e+02 kg	100 ye
√ Timber spruce (12% moisture / 10.7% H2O c	1	0	0,02 m³/m²	21,09 m³	1,016e+04 kg	60 ye
₩ vindspærre	1	1	1,00 stk./m²	58,21 m²	8,382e+02 kg	30 ye
- Grønland, new facade, Eelgrass strips	-	-	361,50 m²	-	4,008e+04 kg	
VI Construction wood, pine and spruce, wet and	1	0	0,03 kg/m²	0,02 m³	1,084e+01 kg	100 ye
VI Søuld Acoustic Mats, Søuld Acoustic Mats — Fl	1,3	0	1,00 kg/m²	361,50 kg	3,615e+02 kg	100 ye
VI Søuld Acoustic Mats, Søuld Acoustic Mats — Fl	1,3	3	1,00 kg/m²	361,50 kg	3,615e+02 kg	15 ye
√ Timber spruce (12% moisture / 10.7% H2O c	1	0	0,02 m³/m²	9,04 m³	4,352e+03 kg	60 ye
▼ Timber larch (12% moisture / 10.7% H2O con	1	0	0,14 m³/m²	52,42 m³	3,464e+04 kg	60 ye
₩ vindspærre	1	1	1,00 stk./m²	24,94 m²	3,592e+02 kg	30 ye





# **Title Page**

#### **Project Title**

Decolonizing Architecture of Kalaallit Nunaat -Toward a Situated Practice Rooted in Indigenous Knowledge

#### Semester

MSc04 Architecture 2025

#### Institution

**Aalborg University** 

#### **Department**

Architecture, Design and Media Technology.

#### Group

23

#### **Supervisor - Architecture**

Joel Peter Weber Letkemann

#### **Supervisor - Technical**

**Endrit Hoxha** 

#### **Project period**

03.02.2025 to 02.06.2025

#### Number of pages in the catalogue

30

#### **Authors**

Jonas Rasmussen & Ulloriaq Kristian Lennert

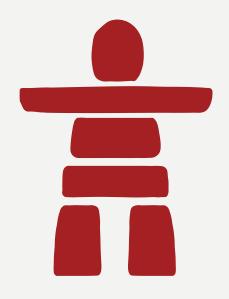
Jonas Rasmussen MSc04 Architecture 2025

Ulloriaq Kristian Lennert MSc04 Architecture 2025



# WAYFINDING

Introduction 5
The Structure of the Catalogue 6
Gneiss 8
Fishing Nets 10
Slate 12
Shells 14
Peat 16
Driftwood 18
Seaweed 20
Sealskin 22
Clay 24
Muskox Wool 26
Bibliography 28
List of Photographs 29





# Introduction

In line with the world's increased focus on sustainability and climate challenges over the past 10 years, the desire is to strengthen place-based architecture through materials. We already know that "some" resources will not be available sometime in the future, and that many materials and material combinations still exist and can be developed. Materials research is more important than ever before, as there are still a lot of potential resources and what is even more important, it will become increasingly crucial to understand, document and use local materials in construction processes from tomorrow onwards.

This book has been developed as a supplement to our main report and aims to inform about and highlight the materials that can be found in local environment or sourced locally. The use of local resources and its influence on the construction industry is an intelligent and responsible use of local material depots that not only reduces the climate footprint of construction, but also creates architecture that is better adapted to its environment both functionally, culturally and aesthetically.

The focus is on a detailed review of the materials' physical properties, applications, workability, durability, maintenance requirements and potential environmental impacts.

By collecting and systematizing knowledge about the specifications of the materials – such as strength, aging properties and resource consumption – the aim is to highlight potential and available resources in Kalaallit Nunaat.

To help develop the design and construction industry's work towards a goal of architecture that is integrated into its surroundings and sustainable throughout its entire life cycle. Utilizing local resources is a key strategy for reducing transport distances, promoting a circular economy, and fostering more resilient building practices.

The catalogue presents a number of selected materials from Kalaallit Nunaat, supplemented by cases of material use, with inspiration from the world.

# The Structure of the Catalogue

Each material presented in this catalogue follows a chronological format, providing the book with a clear structure while also allowing for easy comparison between building elements.

#### **Headlines**

#### Introduction to Material

A general description of the material's nature and overall characteristics.

#### **Structural Qualities**

How the material performs in buildings: what it contributes to insulation, strength, thermal mass, or flexibility.

#### **Cultural and Historical Matters**

The material's use in local or regional traditions, and its role in Indigenous or place-specific knowledge systems.

#### **Building Applications**

Practical use cases, past and present — walls, roofs, finishes, insulation, and more.

#### **Sensory Experience**

How the material affects space through **visual**, **atmospheric**, and **tactile** qualities.

#### Patina / Weather Handling

How the material changes with exposure to time, weather, and use.

#### **GWP (Global Warming Potential)**

A quick evaluation of the materials environmental carbon footprint and lifecycle capability.

#### Lifespan

Durability and performance over time.

#### **MATERIAL PHOTO**

The purpose of the technical databox is to give readers a quick overview of specially selected specifications about the material.

- Origin
- Density
- Specific heat capacity
- Insulation capacity
- Durability
- CO<sub>2</sub> footprint
- Recyclability

#### Maintenance

What does it require to maintain

#### Limitations

What to consider — from sensitivity to moisture to sourcing, fragility, or special care requirements.

# Toward a Greenlandic Material Culture

# **Gneiss**

The gneiss in Kalaallit Nunaat is a hard, naturally occurring material formed over millions of years under extreme geological conditions. Gneiss is known for its high strength, frost-resistant properties and with it is varied coloration.

# **Structural Qualities**

Gneiss is extremely compressive and highly resistant to weather and frost. The material has low porosity, which provides excellent resistance to water penetration and weathering.

#### **Cultural and Historical Matter**

Traditionally, Greenlandic gneiss has been used for graves, buildings and most often as a foundation material. Gneiss is a natural part of the Greenlandic landscape and has historically had symbolic significance as an expression of strength and durability.

# Building ApplicationsFoundation and plinths

- Facade stones or split stones for walls
- Pavings, stairs and urban space elements
- Natural stone cladding for facade



# **Technical Properties**

Origin: Basically all of Kalaallit Nunaat

Density: 2,500 - 2900 kg/m³ (Danish standard association, 2015)

Specific heat capacity: 700 - 800 J/(kg·K) (Hamdan, M. (s.d.))

**Insulation capacity:** 2,7 W/mK is considered high, meaning that it is a poor insulator.

**Durability:** Highly durable and is widely used in construction due to its strength

CO<sub>2</sub> footprint: Vary depending on if it is mined locally or outsourced in another country

Recyclability: Highly reuseable for multiapplicantions

#### **Visual**

The facade appears visually heavy and stable, with color shifts from cool gray tones to warm brownish shades, depending on the angle of the sun.

# **Atmospheric**

It provides a sense of heaviness and lasting stability in the space and reflects light in a way that enhances depth.

# **Tactility**

To the touch, the hand-crafted gneiss feels grainy and cool, with a natural robustness without appearing polished or refined.

#### **Patina**

Gneiss is extremely weather resistant and ages slowly with a beautiful, natural patina. It withstands frost, rain, UV radiation and salt exposure without losing strength. The surface changes over time, especially in rough finishes, but requires minimal maintenance, making gneiss ideal for arctic climates.

#### **GWP**

Moderate impact, highly depending on if, the material is locally sourced gneiss, reclaim or reuse, or lastly have been processed - polished

# Lifespan

As Gneiss is very durable, it has a lifespan of over 100 years

#### **Maintenance**

Requires minimal maintenance in use

- Heavy material logistical challenges when placed outside local areas
- Needs special tools for processing
- Low sound absorption, can lead to echo



# **Fishing Nets**

Discarded fishing nets, often classified as marine waste, are increasingly being repurposed as sustainable building materials. Through processes like shredding, melting, and reforming, these nylon-based nets can be transformed into a new product.

# **Structural Qualities**

Fishing nets possess high strength, low weight, and excellent flexibility. While not rigid or load-bearing, they can be used in tension-based systems and their mesh structure provides airflow or partial enclosure

# **Cultural and Historical Matter**

Fisheries are Kalaallit Nunaat's main income. While nets themselves are modern synthetic evolutions of older fishing tools, reusing fishing gear honors a cultural rhythm of repair, adaptation, and zero-waste practice. In contemporary Kalaallit Nunaat, nets are increasingly seen as a resource rather than waste, especially in craft, furniture, and small-scale design.

# **Building Applications**

- Sun-shading mesh on facades or windows
- · Flexible windbreaks or spatial dividers
- Acoustic or decorative ceiling treatments
- Green wall support (vegetation netting)
- Furniture components
   Handcrafted construction details (braiding, tension structures)



# **Technical Properties**

**Origin:** Greenlandic fishing industry collected from coastal settlements and harbors

**Density:** 1,100 kg/m³, lightweight and transportable (*Duracordix* (*n.d.*)).

**Specific heat capacity:** 1700 J/(kg·K)

**Insulation capacity:** None – but allows airflow and solar passes

**Durability:** High – resistant to water, salt, UV, and temperature swings

**CO<sub>2</sub> footprint:** Near zero when reused; high when newly produced

**Recyclability:** Medium, reusable is complex to recycle industrially, but excellent upcycling potential

#### **Visual**

Open, porous texture; rhythmic mesh patterns; ranges from bright synthetic colors to sun-faded neutrals.

### **Atmospheric**

Creates filtered light and airflow; soft boundaries between spaces. Invites interaction and motion.

# **Tactility**

Flexible, slightly coarse; elastic or firm depending on weave and tension.

#### **Patina**

Synthetic nets are highly durable outdoors and resist salt, water, and UV degradation for many years. Colors may fade over time while exposured to sun, and knots may loosen over time but the material retains its structural properties under normal use.

#### **GWP**

Very high when produced, cause of it being petroleum-based, but extremely low when reused. Repurposing fishing nets reduces marine pollution and extends the lifespan of petroleum-based products, turning waste into resources.

# Lifespan

10–30 years in outdoor use. Nets degrade slowly but may fray or lose tension over time. Indoor or sheltered use extends life significantly.

#### **Maintenance**

Requires cleaning if recovered from sea Surface dirt can attract mold, periodical cleaning is need

- · Must be tensioned or fixed to avoid sagging
- Can fray under sharp loads or high friction
- Should not be load-bearing without engineered anchoring
- Must be changed over time



# **Slate**

Slate is a fine-grained rock consisting primarily of clay and silt particles that have been compressed and hardened into thin layers over time. Its natural fragility allows the stone to be divided into flat, thin sheets.

# **Structural Qualities**

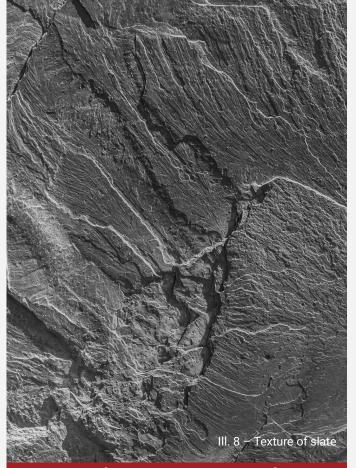
Slate is naturally dense and dimensionally stable, making it ideal for outdooruse in harsh climates. Its thermal mass helps regulate indoor temperatures, and its fire resistance adds safety. Slate's flat, cleavable form allows for modular use and simple, dry construction techniques.

# **Cultural and Historical Matter**

Slate has been used for centuries in Nordic and Arctic regions due to its availability and durability. Traditionally used for roofing in rural settlements. In Kalaallit Nunaat, it has also been used in path paving, wall bases, and practical surfaces due to its flat, grippy texture.

# **Building Applications**

- Roofina
- Facade cladding
- Flooring and wall tiles both interior and exterior
- Outdoor paving



# **Technical Properties**

**Origin:** Occurs naturally in mountainous regions of Kalaallit Nunaat

**Density:** 2,700–2,950 kg/m<sup>3</sup>

Specific heat capacity: 700 J/(kg·K)

(Hamdan, M. (s.d.))

**Insulation capability:** 3,5 W/mK (not an insulator, but effective as thermal mass)

**Durability:** Highly robust but can be the opposite of not handled correctly

**CO<sub>2</sub> Footprint:** Low – if locally sourced as minimal processing is required, if not emissions from transportation become a big factor.

**Recyclability:** High – can be reused directly for roofing, facades or paving with no need for energy-intensive reprocessing.

#### **Visual**

Slate has a deep, textured visual character, ranging from grey to black, with a naturally layered structure. Its soft light reflection adds visual depth and an aesthtic appeal

### **Atmospheric**

The material feels solid and lasting. It takes in and softens light and heat, helping to create a calm and steady indoor atmosphere.

# **Tactility**

Natural slate feels cool, slightly rough and heavy. Its uneven texture and makes one want to touch it and feel the unique patterns. When polished, slate feels smoother but still has a natural grip like stone.

#### **Patina**

Slate weathers slowly and evenly. Over time, surfaces may become slightly duller and darker, developing a refined patina. It is naturally resistant to frost, UV light, and biological growth like moss, making it ideal for exposed conditions in Arctic climates.

#### **GWP**

Slate has a low GWP among building materials especially if locally sourced and minimally processed.

# Lifespan

Slate will last atleast 100+ years contributing to sustainable construction through reduced need for replacement and repair.

### **Maintenance**

Minimal maintenace needed, check for loosened or damaged tiles and periodic cleaning

- Can be brittle under point loads or when installed too thin
- Heavy material structural reinforcement may be needed
- Edges may chip if improperly handled during installation



# **Shells**

Shells are natural biogenic materials, primarily composed of calcium carbonate and a natural byproducts from marine life. Used for centuries in design, valued for their durability, varibant colours, and tactile surface. It is collected as by-product from fishing and shellfish processing.

### **Structural Qualities**

Crushed shells provide lightweight filler with good drainage properties. Shells are not structural load-bearing in their raw form but can strengthen composite materials.

### **Cultural and Historical Matter**

Used across coastal and island communities worldwide, shells have served in flooring, lime production, and facade render. In Nordic and Arctic regions, shells were sometimes mixed with clay or turf for insulation or surface hardening, and they feature in cultural crafts and ornamentation.

# **Building Applications**

- Additive in lime- or earth-based plaster
- Aggregate in natural concrete or mortar
- Flooring and exterior surface finish (crushed)
- Lightweight sub-base for landscaping
- Bio-based insulation filler



# **Technical Properties**

**Origin:** Coastal and marine zones of Greenland

**Density:** 240–1,070 kg/m³ depending on it being crushed or loose

**Specific Heat Capacity:** 800 J/(kg·K)

**Insulation capability:** Low thermal insulation, but moisture-buffering when mixed in plaster

**Durability:** Moderate to high when bound and low when lose and exposed

**CO<sub>2</sub> Footprint:** Low, natural biogenic materials a by-product from marine life

**Recyclability:** High – can be reused, re-crushed, or composted in natural systems

#### **Visual**

A layered structure in different nuances of white, cream, and grey tones with a natural sparkle in light

# **Atmospheric**

Evokes the sea, brightness, dryness, and coastal calm.

# **Tactility**

Shells feel smooth yet ridged, cool to the touch, and gently textured, inviting close contact. Polished shells have a silky surface, while crushed shells feel more organic and earthy.

#### **Patina**

Shells weather gradually, developing a matte, chalky surface. In exposed applications, they lighten in color and may fragment to erosion. Bound shells in plaster or terrazzo-like surfaces age slower.

#### **GWP**

Very low when regionally sourced as by-product. Industrial processing is minimal (washing, drying, crushing)

# Lifespan

Has a lifespan between 50–100+ years when embedded in composite materials.

#### **Maintenance**

Low maintenance

- · Brittle: unsuitable for structural use
- Degrades in acidic environments
- Dusty if not sealed when crushed finely



# **Peat**

Peat is an organic material formed by the slow decomposition of plant matter, mainly mosses and grasses in waterlogged, oxygen-poor environments.

### **Structural Qualities**

Peat offers excellent insulation, moisture regulation, and thermal buffering as its fibrous, organic texture traps air, providing natural resistance to cold and damp. While it is not load-bearing, it has historically been used as a wall and roof filler, especially in peat construction.

# **Cultural and Historical Matter**

In Kalaallit Nunaat and other circumpolar cultures, peat was used for building sod houses, often combined with stone and driftwood. These structures were thermally efficient and deeply integrated into the landscape, reflecting indigenous knowledge of climate adaptation.

# **Building Applications**

- Insulation in earthen or sod walls
- Roof covering in turf-based systems
- Moisture buffering layer in traditional structures



# **Technical Properties**

**Origin:** Coastal lowlands and inland bogs in Kalaallit Nunaat, traditionally hand-cut in turf blocks.

**Density:** 200–300 kg/m³ (dryed or fresh)

Specific Heat Capacity: 1300 J/(kg·K)

**Insulation capability:** High – excellent natural insulation; low thermal conductivity (0.06–0.10 W/m·K)

**Durability:** Moderate – long-lasting when kept compact and protected from drying/erosion

**CO<sub>2</sub> Footprint:** Variable: Low if reused from existing deposits; high if harvested from intact peatlands

**Recyclability:** Moderate – biodegradable; reusable as soil material.

#### **Visual**

Dark brown to black; fibrous or fine-grained surface blending in visually with earth-toned landscapes.

# **Atmospheric**

Earthy, grounded, and insulating. Creates a dense, muffled, and thermally balanced interior climate.

# **Tactility**

Soft, fibrous, and spongy when damp; crumbly and light when dry. Feels natural, simular to soil.

#### **Patina**

When exposed, peat weathers to a dark brown or grey tone. It is water-absorbent but can dry out and shrink if unprotected. In traditional sod buildings, it's layered and protected by vegetation or thatch to reduce erosion.

#### **GWP**

Peat has a very high GWP due to its carbon-rich composition and the environmental impact of its extraction

# Lifespan

50–100 years when integrated into protective wall/roof systems. As a natural material, its longevity depends on moisture management and protection from erosion.

#### Maintenance

High maintenance, cause it biodegrades without proper treatment

- · Not structurally load-bearing
- Moisture-sensitive
- Can shrink and crack if dried out
- Needs dense packing and surface covering for durability



# **Driftwood**

Driftwood is timber carried by sea currents and ice, washed ashore along the coasts of Kalaallit Nunaat. In Kalaallit Nunaat and other treeless Arctic regions, driftwood has long been an essential material.

# **Structural Qualities**

In Greenlandic architecture, driftwood was used in lightweight structural frames, roof supports, and wall construction. It is dry, dimensionally stable, and well-suited for infill and non-precision structures.

#### **Cultural and Historical Matter**

For centuries, driftwood has played a vital role in Inuit settlements across Kalaallit Nunaat. It was used for building frameworks, tools, boats, and fuel. In traditional sod houses, driftwood formed the internal skeleton beneath layers of turf and stone.

# **Building Applications**

- Lightweight roof and wall framing
- Beams and posts in small structures
- External and interior cladding
- Landscape elements (steps, fences)
- Interior detailing and furniture



# **Technical Properties**

**Origin:** Shorelines of Kalaallit Nunaat; carried by ocean currents from Siberia and North America

**Density:** 350–600 kg/m³ (varies by species)

Specific Heat Capacity: 2300 J/(kg·K)

**Insulation capability:** Moderate, wood's natural thermal resistance 0,12–0,16 W/m·K

**Durability:** High when dry and ventilated, but moderate outdoors without protection

**CO<sub>2</sub> Footprint:** Very low – no harvesting or processing required

**Recyclability:** High – reusable in whole or for cladding, furniture, or as firewood

#### Visual

Silver-grey to golden brown; irregular shapes with visible grain and knots; tactile and raw

# **Atmospheric**

Adds calm, rooted energy to a space-evoking coastlines, time, and material memory.

# **Tactility**

Smooth, dry, raw textured, being naturally warm and pleasant to the touch.

#### **Patina**

Driftwood is naturally resistant to weather, sun, and salt. Over time, it develops a grey, silvery patina and blends seamlessly into the coastal landscape. It requires minimal surface treatment and weathers gracefull

#### **GWP**

Driftwood collected in Kalaallit Nunaat has an extremely low environmental footprint. It requires no logging, minimal processing, and often no transport beyond manual collection.

# Lifespan

Depending on exposure and species, but between 50-100 years. Indoors or in protected environments, driftwood can last for generations. Outdoors, it performs well with good ventilation and minimal contact with soil.

# **Maintenance**

Needs a clean before taken into use and to extend lifetime, wood tar can be used, which will require a coat after 5-10 years

- High variability in size, form, and quality
- May contain sand, salt, or decay
- Not graded for structural use



# Seaweed

Seaweed is a fibrous marine plant that grows abundantly along the coasts of Kalaallit Nunaat. Historically collected and harvested in shallow waters. It has been used in architecture across Scandinavia and the North Atlantic. In Kalaallit Nunaat, it is largely underutilized today but holds potential for sustainable building in remote areas.

# Structural qualities

Seaweed is light, breathable, and rot-resistant due to its high salt and mineral content. It works as an excellent insulator, regulating both temperature and moisture. Though not load-bearing, it can be packed densely into walls or roofs to provide thermal and acoustic buffering, and it does not require chemical treatment.

#### **Cultural and historical matter**

While not a widely documented traditional building material in Greenland, it has historically been used as a food.

# **Building Applications**

- Wall or roof insulation
- Natural acoustic damping in interior panels Thatched or layered seaweed roofing
- Biodegradable insulation for off-grid or mobile structures



# **Technical Properties**

Origin: Shorelines of Kalaallit Nunaat

Density: 100-200 kg/m³ (densities ranges)

**Specific Heat Capacity:** 2000 J/(kg·K)

Seaweed. (s.d.).

**Insulation capability:** High, as the thermal resistance is low 0,037/m·K (Engberg Pallesen, B., 2018)

**Durability:** High, cause it is naturally resistant to moisture, pests, and mold

**CO₂ Footprint:** Very low – no harvesting or processing required and can enclosure CO2 during growth

**Recyclability:** Moderate – Biodegrades and can be composted at the end of their life cycle

#### **Visual**

Matted, fibrous texture with dark olive to brown tones; layered, organic shaded

# **Atmospheric**

Creates a muted, soft interior climate with natural acoustics. Carries a presentens of the coastal wildlife.

# **Tactility**

Spongy, fibrous, and slightly crisp when dry; textured and earthy to the touch.

#### **Patina**

Seaweed dries to a dark greenish-brown and weathers slowly. When used in roofs or cladding, it compacts over time and resists rot and pests. Proper drainage is important to prevent microbial growth in wet climates.

#### **GWP**

Very low. Seaweed requires no fertilization, is harvested manually or minimally, and isolate carbon as it grows.

# Lifespan

In protected installations 50 years, but when exposed the materials has to be changed after 15 years

#### **Maintenance**

Low maintenance, but can lessen over time; needs structural support to maintain its shape and performance.

- Not suitable for exposed structural applications
- Requires ventilation and moisture protection in wall assemblies
- Materialstorage and drying can be labor-intensive if not used immediately



# Sealskin

Sealskin is a durable, flexible hide. Traditionally used by Inuit communities in Kalaallit Nunaat for clothing, qajaq, umiaq, dwellings, etc. Traditionally, the skins surface would regularly be maintained with animal fat.

# **Structural Qualities**

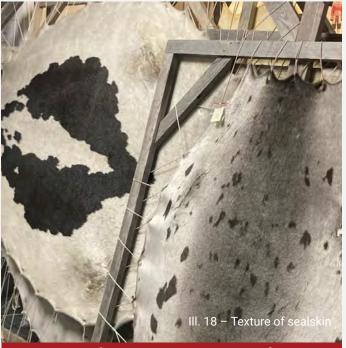
Sealskin is not load-bearing but offers exceptional tensile strength, water resistance, and flexibility. When dried and stretched, it becomes taut and semi-translucent, ideal for lightweight envelopes. It can resist wind, cold, and moisture

#### **Cultural and Historical Matter**

Greenlandic Inuit used seal skin in architecturemost, notably in tents and skin-covered structures. It served as roofing, outer walls, and window membrane. The material carries deep cultural meaning tied to subsistence, craft, and environmental adaptation.

# **Building Applications**

- Tent walls and roofing
- Window and thermal membranes
- Flexible joint coverings



# **Technical Properties**

**Origin:** Indigenous hunting communities in Kalaallit Nunaat; by-product of food systems

**Density:** 900-1,200 kg/m<sup>3</sup>

Specific Heat Capacity: 1,500 to 3,500 J/

(kg·K)

**Insulation capability:** Moderate – air-tight and wind-proof, but not thermally insulating

**Durability:** High when oiled and protected

**CO<sub>2</sub> Footprint:** Very low, zero waste, non-industrial, locally sourced

**Recyclability:** Biodegradable – can be composted, burned, or repurposed as textile or craft

#### **Visual**

Translucent to opaque, brownish-grey; smooth or lightly textured with variable shine depending on treatment.

#### **Atmosheric**

Softens light and sound; evokes warmth, intimacy, and deep cultural rooted memories.

# **Tactility**

Natural elasticity, slightly waxy or leathery when treated; thin and strong, a warmth membrane

#### **Patina**

Seal skin weathers slowly when oiled or smoked. It dries and tightens in cold climates. However, UV exposure or repeated wet-dry cycles can cause cracking unless treated.

#### **GWP**

Extremely low when sourced through traditional hunting practices. Seal skin is a by-product of local food systems and requires no synthetic processing.

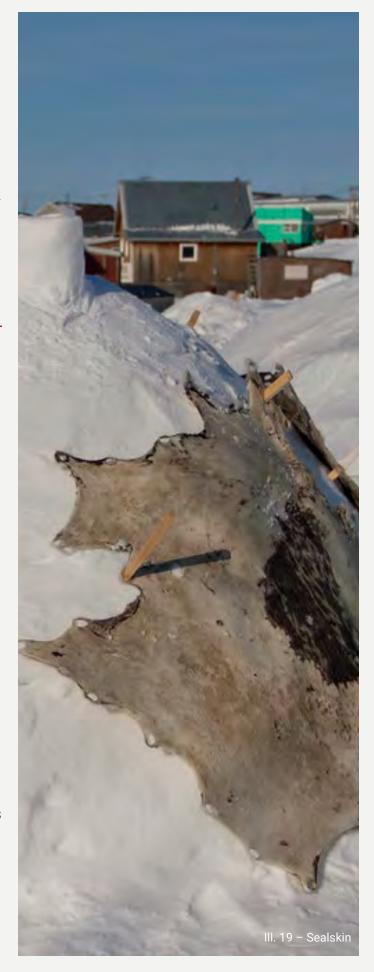
# Lifespan

1–5 years in exposed, mobile use, 10–20+ years indoors or protected, depending on care. With proper drying and fat treatment, seal skin can remain flexible and intact for decades.

#### **Maintenance**

Moderate maintenance, as if requires regular oiling to stay supple

- Sensitive to UV and temperature fluctuations
- Can affect the eco-system
- Limited scalability in contemporary construction



# Clay

Clay is a fine-grained earth material formed by the weathering of rocks, often found glacial deposits. In Kalaallit Nunaat, natural clay is present in pockets particularly near fjords and low-lying coastal areas.

# **Structural Qualities**

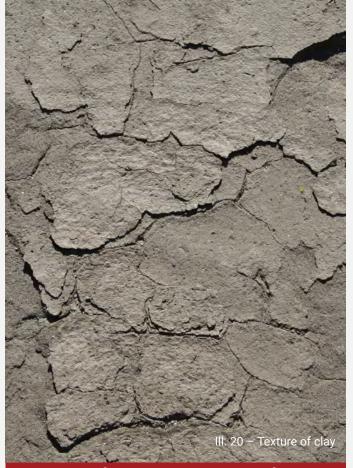
Clay is moldable when wet and hardens upon drying, offering compressive strength, moisture buffering, and thermal mass. It is not water-resistant unless stabilized but performs excellently in protected wall systems, plasters, and earthen floors.

#### **Cultural and Historical Matter**

In Kalaallit Nunaat, traditional use of clay has been limited, often confined to sealing or binding in turf and stone-based structures. In related Arctic regions clay has been used in combination with fibers and organic matter for floors, ovens, and insulation. Today, clay is gaining renewed interest in experimental and circular architecture across the North.

# **Building Applications**

- Earth/clay plaster on stone or wood walls
- Thermal mass elements
- Combined with turf or straw for lightweight earthen blocks
- Clay-based mortar for small-scale masonry



# **Technical Properties**

**Origin:** Found in fjord basins and glacial valleys in Kalaallit Nunaat

**Density:** 1,000-1,300 J/kg·K

**Specific Heat Capacity:** 1,500 to 3,500 J/ (kg·K)

**Insulation capability:** Low – but excellent thermal mass and humidity regulation

**Durability:** High when protected; easily repairable and maintainable

**CO<sub>2</sub> Footprint:** Very low – minimal processing

**Recyclability:** 100% – can be rehydrated and reused or returned to soil

#### **Visual**

Soft, warm tones from grey to ochre; matte surface with texture variations - earth-toned.

# **Atmospheric**

Providing a healthy indoor climate with humidity control and natural acoustic dampening.

# **Tactility**

Smooth, slippery, cool, and slightly powdery when dry, soft when moist. Deeply connected to the hand.

#### **Patina**

Clay surfaces dry to a matte, earthy tone and develop natural variation over time. While vulnerable to direct water exposure, they can be maintained and repaired easily. Unfired clay is vapor-open, allowing buildings to "breathe," which improves indoor air quality.

#### **GWP**

Very low when excavated and processed locally. Clay requires no firing if used raw, rammed earth

# Lifespan

It can last waypast 100+ years in protected use.

#### Maintenance

Clay structures are easy to repair, which extends service life dramatically if properly maintained low maintenance

- Sensitive to water without stabilization or surface protection
- Needs dry installation periods (seasondependent in Arctic climate)
- Surface may dust if not finished with natural oils, wax, or casein



# Muskox Wool

Muskox wool, known as qiviut, is the ultra-soft underwool of the Greenlandic muskox. Collected during seasonal molting or by hand-combing, qiviut is among the warmest and lightest natural fibers in the world.

# **Structural Qualities**

Qiviut is eight times warmer than sheep's wool, extremely lightweight, and does not shrink. As a non-load-bearing material, it functions best as a natural insulation layer, acoustic buffer, or interior surface treatment.

### **Cultural and Historical Matter**

Traditionally, muskox has been a source of food, hide, and textile material. Qiviut has traditionally been spun and knitted into garments for extreme cold. As a rare and valuable fiber, it holds cultural significance and is strongly tied to Greenland's subsistence economy and landscape.

# **Building Applications**

- · High-performance insulation in walls
- Acoustic insulation panels
- Thermal blankets in lightweight shelters or mobile structures



# **Technical Properties**

**Origin:** Greenlandic muskox; hand-collected from naturally molted underwool

**Density:** 1,300 kg/m³ when compacted; extremely lightweight in raw fiber form

**Specific Heat Capacity:** 1,700-1900 J/(kg·K)

**Insulation capability:** Very high thermal insulation

**Durability:** High - Dryed and protected; resists rot, mold, and insect damage

**CO<sub>2</sub> Footprint:** Very low – regenerative, low-energy processing

**Recyclability:** Fully recyclable or compostable – biodegradable

#### **Visual**

Soft, matte grey to brown fibers with natural luster; blends into earthy-toned elements

# **Atmospheric**

Creates an exceptionally warm, muted atmosphere, quiets the room and adds physical softness.

# **Tactility**

Featherlight, silky, and warm to the touch and one of the softest natural fibers in the world.

#### **Patina**

Qiviut does not felt or shrink in response to moisture and remains stable across humidity levels. It retains its structure even after repeated freezing and thawing, making it ideal for interior insulation in Arctic conditions. Not UV-resistant so should not be used in exposed outdoor elements.

#### **GWP**

Extremely low. Qiviut is a naturally shed, renewable by-product of muskoxen, collected by hand. Requires minimal processing

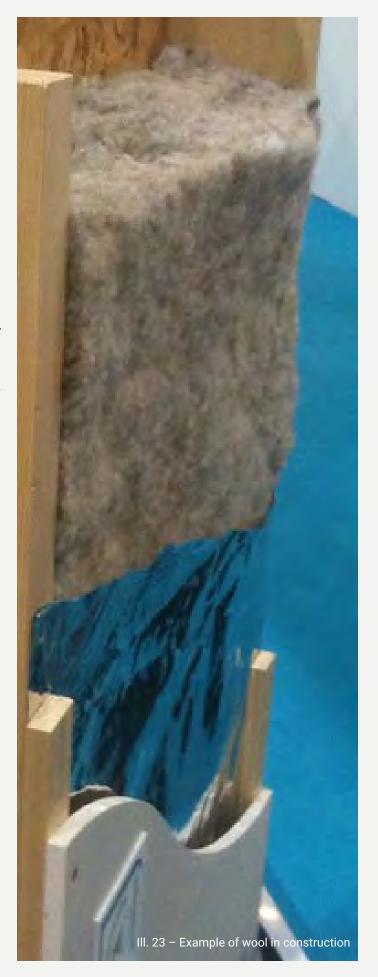
# Lifespan

50+ years in protected use. When used as insulation or textile element, qiviut maintains thermal performance and structural integrity for decades

#### **Maintenance**

Low maintenance, only sensitive and must be protected from sun light

- Rare and limited in supply not scalable for large-volume construction
- Requires containment or binding when used as insulation
- Can be costly compared to conventional fibers



# **Bibliography**

Duracordix (n.d.) Nylon rope [online]. Available at: https://duracordix.com/types-of-rope/nylon-rope/

Danish standard association . (2015, 20. 3). Natural Stone product - slabs for cladding requirement (DS/EN 1469:2015) [2. udgave]. Dansk Standard. https://sd.ds.dk/Viewer/Standard?ProjectN-r=M259085&Status=90.20&VariantID=46&Page=78

Hamdan, M. (s.d.). Properties of Gneiss. Matmake [online]. Available at: https://matmake.com/materials-data/gneiss-properties.html

Hamdan, M. (s.d.). Properties of slate. Matmak [online]. Available at: https://matmake.com/materials-data/slate-properties.html

Seaweed. (s.d.). Seegrashandel [online]. Available at: https://www.seegrashandel.de/technische-daten/

Engberg Pallesen, B. (2018, 6). Bæredygtige Tangisoleringsmåtter fra ålegræs (ISBN: 978-87-93710-35-1). Miljøstyrelsen. https://www2.mst.dk/Udgiv/publikationer/2018/06/978-87-93710-35-1.pdf

# List of Photographs

- III. 1 Reconstruction of an illu at Nunatta Katersugaasivia. Own photograph
- III. 2 Collage of traditional tools and house. Mix of own photos and leant;

Photo by Diamond Jenness, can be found: https://commons.wikimedia.org/wiki/File:Double\_tent\_of\_two\_Kanghiryuarmiut\_families\_at\_Lake\_Numichion\_%2836985\_LS%29.jpg

Photo by David Stanley, can be found: https://commons.wikimedia.org/wiki/File:Greenlandic\_Turf\_ House\_%2825924829833%29.jpg

- III. 3 Drone image. Photo by: Maria Skyum
- III. 4 Texture of gneiss. Photo by Sister Seamless, can be found: https://commons.wikimedia.org/wiki/File:Grey\_rough\_granite\_rock\_seamless\_stone\_surface\_texture.jpg
- III. 5 Igaliku hostel. Photo by Lisa Germany
- Ill. 6 Texture of fishing nets. Photo by Philippe Serrand, can be found: https://www.pexels.com/photo/bundle-of-fishing-nets-17891908/
- III. 7 Modern Seaweed House, nets holding seaweed. Photo by Helene Høyer Mikkelsen
- III. 8 Texture of slate. Unknown photographer, can be found: https://www.goodfon.com/textures/wallpaper-download-1920x1080-tekstura-kamen-skoly-seryi.html
- III. 9 Slate as exterior facade. Photo by Davind Underland, can be found: https://www.pexels.com/photo/low-angle-photo-of-building-3425862/
- III. 10 Texture of shells. Photo by Irina Obolonko, can be found: https://www.pexels.com/photo/shells-on-the-beach-16162416/
- III. 11 Shells mixed into the facade element. Photo by Local work studio, can be found on: https://localworksstudio.com/projects/shellcrete-transforming-sea-shells-into-low-carbon-materials/
- III. 12 Texture of peat. Unknown photographer. Can be found: https://pxhere.com/en/photo/991660
- III. 13 House with peat exterior facade. Photo by Ronile, can be found: https://pixabay.com/photos/peat-house-grass-roof-iceland-hut-268192/
- III. 14 Texture of driftwood. Photo by Ornumsi, can be found: https://pixabay.com/photos/driftwood-nature-texture-alien-2925079/
- Ill. 15 House fully built with driftwood. Photo by Stacy Farley, can be found: https://upload.wiki-media.org/wikipedia/commons/8/88/Arctic\_Brotherhood\_Hall\_%28Camp\_Skagway%29.jpg
- Ill. 16 Texture of seaweed. Photo by Helene Høyer Mikkelsen
- III. 17 Modern Seaweed House roof construction. Photo by Helene Høyer Mikkelsen
- III. 18 Texture of sealskin. Photo by Clara Aviája Ravnkilde Heilmann
- III. 19 Sealskin. Photo by Scoot Lough. The photo has been cropped, and the original can be found: https://www.flickr.com/photos/uselessnomore/8616779987
- III. 20 Texture of clay. Photo by Mr. Cody, can be found: https://www.flickr.com/photos/codyvan-dyke/4054212779
- III. 21 A wall of clayblocks. Photo by Vmenkov, can be found: https://upload.wikimedia.org/wikipedia/commons/5/51/Milyanfan-adobe-brick-house-8039.jpg
- III. 22 Texture of muskox wool. Photo by Mabel Amber, can be found: https://pixabay.com/photos/wool-sheeps-wool-hair-unprocessed-3261353/
- III. 23 Example of wool in construction. Photo by Craig Bloxsome. The image has been cropped, and the original can be found: https://www.flickr.com/photos/bloxsome/7008184857/in/photostream/

