

COMMUNITY WARMTH:

Returning a lost building type to the village and Nunakauyarmiut people of Toksook Bay, Ak

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Abstract

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Restoring continuity to the built environment of Toksook Bay, Ak, by identifying a vital building type that is no longer found and whose program has not been absorbed by the current lexicon of architectural types. Imagining the historic mens lodge, Qasgiq, in the present day village and it's new communal uses.

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FIG 1. Alluvial plain of the Yukon-Kuskokwim delta

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Preface

I have the fortune to be able to look back on four summers of fishing in Bristol Bay, Alaska. The land around Bristol Bay is a vast tundra that is littered with small melt ponds. The air is full of white sock (a nasty fly that tries to lay eggs under your skin) and mosquitoes. The initial awe that the grand views instill slowly dissipates like your sense of time as the sun never seems to reach high noon and then all of a sudden it's setting on the far bank of the river.

Despite my initial reactions to this new and alien environment I found myself missing it after that first summer. The incredible experience of commercial fishing and the chance at fortune also played their part. I returned for three more summers. During this time the crew of our boat, the *Cassie Marie*, became friends with many of the Native Alaskans, Yup'ik, who were also stationed in South Naknek. The relationship was spearheaded by my late crew mate, Tim Aylward, who had an incredible wit about him combined with a no nonsense attitude and found the Native people, whom he called, "the Nates," fascinating. Tim was a carpenter and in exchange for stories, seal meat, and company he put his skills to use on their boats, repairing ladders and general handyman work. The 'Nates' were kind enough to share their culture and food with us, dried caribou, hard boiled seagull eggs, dried seal dipped in seal oil with salt, dried herring. Our fascination with their lives was matched by theirs in ours, we exchanged stories and phone numbers.

One father and son that we became very close friends with were Francis and Christen (Napa) Sipary. In between summers Tim and I would call and text Francis and Napa to keep in touch. In my last summer I told Francis that I was going into Architecture he was interested to find out what I thought about his home. He showed me pictures and whatever naive ideas I had about Yup'ik homes and housing were defenestrated. The problem for Francis was the heating costs, while the problem for me was the entire house. I knew that something better could be done and I have held onto this idea for the entirety of my masters education at the University of Washington.



FIG 2. View from the cannery dock in South Naknek, AK, looking North Naknek on the far side of the Naknek River.



FIG 3. A hard boiled seagull egg that was found in the tundra behind the South Naknek cannery by Yup'ik Natives.

Yup'ik - real person

“For nearly a century, both anthropological and popular sources, including the Oxford English and Webster’s New World dictionaries, maintained that the name Eskimo derived from a proto-Anglonquian root translating as ‘eaters of raw flesh.’ In fact the name originated in a Montagnais form meaning ‘snowshoe netter.’”¹

Alaska is home to two different distinct Eskimo branches, the Yup'ik (western Eskimo) and the Inuit (eastern Eskimo). The Inuit Eskimos cover northern Alaska all the way east to Greenland and are the source of the stereotypical Western image of Eskimos. Yup'ik Eskimos inhabit western Alaska. The distinction between the two was driven primarily by language differences.² The Yup'ik people live in the subarctic where even in winter the days last five hours and the summers last three months and temperatures may reach as high as 80°. The alluvial plain of western Alaska is very rich in animal life; birds, fish, and both land and sea mammals support the diets of the Yup'ik people. This abundance of resources allowed the Yukon-Kuskokwim Delta to support the largest Eskimo population in the world, approximately 15,000.³

The Yup'ik people were first encountered by Westerners in the early 1800s. Prospective Russian fur trappers and Orthodox missionaries ventured into the Yukon-Kuskokwim area and profited from the ongoing War of the Eye, that had divided nearly the entirety of the Yup'ik people, by allying themselves with one side.⁴ With a foothold in the region the Russians introduced trade, which the Yup'ik used to procure metal tools, though what arguably had the largest effect on the course of the Yup'ik people was the Orthodox and Moravian missionaries. The Moravian missionaries were the most successful and around the 1900s had begun replacing Yup'ik traditions and celebrations with Christian celebrations. Success was based on their ability to medically treat villagers thus supplanting the village shaman who was their spiritual leader as well as healer. Though it is interesting to note that the Easter celebration had trouble gaining traction, since the month of April was a busy month for subsistence hunting.⁵ The Eskimos were open to Christian teaching and ways when it did not conflict with their core lifestyle. Nevertheless the Christian presence brought major changes to the villages and lifestyles.



FIG 4. The front of a home in Toksook Bay, Alaska.



FIG 5. The side of the same house in Toksook Bay. The entrance is on the left.

Along with the introduction of Christianity the Westerners also brought disease and alcohol. Without prior exposure to either the Native populations were affected heavily by both. Influenza spread in the early 1900s and decimated the Native population to half of what it once was.⁶ Alaskan resources, gold, salmon, and fur were becoming exploited and the result was a greater white presence in the region. This presence imposed its Western ideals of living upon the Natives, establishing post offices and stores.⁷ These establishments attracted other whites to move and thus more establishments were built, most by whites and thus whites and not Natives held the powerful positions. Whites and Eskimo women married and the men built schools for the children⁸, all of these changes began replacing the traditional village structure of the Yup'ik people.

Villages slowly changed, losing their traditional living and social structures and adopting Western ideals. After Alaska gained statehood in 1958 new housing programs dictated the construction of single family housing⁹, homes that resemble the log cabin and not traditional Yup'ik homes. Quickly the Alaskan Natives found themselves operating under economic engines that 200 years ago were completely foreign to them. Yet it must be known that despite the rapid change that has come the Natives still live their lives in a similar manner, practicing subsistence hunting and many traditional rites of passage are still practiced. Similarly there are still elders in the villages who lived through the transition and are passing along the oral history. The present day Yup'ik is balancing tradition with required knowledge and practices that Western ideals have imposed upon him. The culture is a blend of the old and the new.

“Southwestern Alaska is not a backwater where the unskilled can survive, but home to a unique way of life requiring special skills. The ability to walk between two cultural and linguistic worlds is one of them.”¹⁰



FIG 6. Yup'ik on snow machines towing traditional sleds.

The Balance

“...Inhabited space relates to a social structure and a way of thinking: when this space is threatened, the very culture of the group is also in danger of vanishing.”¹¹

Temperature that’s below freezing for half the year, with three of those six months averaging below 10° F, is not characteristic of an easy place to live. Combine this with winds that average 20 mph throughout these coldest months and it is truly remarkable that the Nunakauyarmiut tribe has lived here for centuries. For the Nunakauyarmiut, living in Toksook Bay, AK, enduring the winters had become ingrained in their culture so much so that their social structure and built environments reflected it.

Toksook Bay is located below the arctic circle on Nelson Island and the land is plentiful, providing the people with animals and vegetation. The Nunakauyarmiut inhabited the land like all Yup’ik people in the Yukon-Kuskokwim delta. The people were not exactly nomadic, but most likely lived in three places during a year; a tundra camp, a fish camp, and their winter village.¹² The tundra and fish camps were the sites where men would do their subsistence hunting and fishing, gathering enough to supply their families through winter, while women would prepare the animals, extracting meat and making clothes or tools from the rest. When winter arrived the winter camp would be inhabited and hunting would slow down, and during the especially cold months would stop altogether. These winter camps had a specific social structure and architecture that worked in harmony to survive the winter cold.

Western intervention brought about a reorganizing of the social structure. Western education, medicine, technology, and standards of hygiene were introduced¹³. The result was a higher standard of living and the price was the old ways of living. Influenced originally by missionaries and later constructed by government housing projects, single family homes replaced the past living structure. Diesel and wood stoves permitted single family homes to be heated in winters. Villages like Toksook Bay soon bore a resemblance to small towns throughout the lower 48.

In the past the Yup’ik people did not have to spend money to heat their homes, simply gathering firewood and inhabiting them was enough. The imposed Western ideology and technology demands that locals have a source of income to allow them to pay for fuel for their snow machines, four wheelers, or boat engines in order to subsistence hunt and provide for their family.¹⁴ The new model of living is a balancing act between traditional subsistence hunting and resource gathering while maintaining a source of income to fuel both home and vehicles (as well as paying for other Western inspired services). When fuel was cheap the cost of heating the home in winter was not large enough to upset the balance. The current unstable high price of fuel (combined with) the lack of performance of the home’s thermal envelope is enough to cause great concern for residents.

The disruption Western thought caused throughout Yup’ik communities also had many positives. Moravian missionaries, who started a mission in Bethel in 1885, provided descriptions of Yup’ik behavior and cleanliness:

“Some Eskimos were neat and reasonably clean by missionary standards, but others attracted the most attention, possibly because they represented the greatest challenge,” and continued to described the native dwellings as, “small and cramped beyond belief, as well as dirty, filthy, and filled with an indescribable stench.”¹⁵

Along with hygiene, new medicinal practices were introduced and as Westerners and Eskimo women married and had children, Western education was introduced. These adoptions have allowed the Yup’ik



FIG 7. A traditional Yup'ik harpoon (left) with seal bladder float contrasted with a modern harpoon (right) with an oil can float.



FIG 8. An elder, a child, and a man in the traditional men's lodge, or Qasgiq.

to enter the Western world, attending college, working in Anchorage, to retiring in Florida and playing golf everyday [the author met a man from Kotzebue who winters in Florida]. While understanding the importance of history and tradition of the Yup'ik people it would be naive to think that Western influence has been a negative influence on the daily lives of Yup'ik natives. The imperative is in identifying how to maintain the positive influence of Western ideology while preserving the way of life that has endured.

Elders

The role of the elder in Native American society is one of utmost importance and respect. The same holds true with the Yup'ik people. Perhaps their most crucial role was that of teacher. Men taught their younger counterparts how to hunt and women taught their daughters the required skills of preparing food and making clothes. Based on the societal living situations, where all the men (age five and up)

would live in a men's lodge, or Qasgiq, teaching the young boys was performed by all men of the village, while women, who lived in smaller sod houses with their immediate family, taught only their children.¹⁶

Elders passed down applicable knowledge down to each generation. This ensured the prosperity of their people. Elders also passed down culture, in the forms of stories of ancestors or stories of myth. Due to the late exposure to colonists there are current village elders who spent their childhood during the adolescent stages of Western influence. The Yup'ik people are close to losing their last elders and this threat on the oral history begs the question, can a modification in the current built environment revitalize community discourse and save the fading oral history? Could a new building type replace the storytelling role that the Qasgiq held in the old social structure.

A Changing Climate & Subsistence

Alaska's climate is warming at a rate twice as fast as the rest of the states, averaging a 3.4°F increase, and winter temperatures rose, on average, by a staggering 6.3°F.¹⁷ While this warming is alarming the climate of western Alaska remains cold and harsh. What the warming climate is affecting is the sea ice and snow cover which directly impact subsistence hunting of sea mammals (which make up an integral part of the diet):

“It makes it hard to hunt in fall time when the ice starts forming. It's kind of dangerous to be out. It's not really sturdy. And after it freezes there's always some open spots. Sometimes it doesn't freeze up until January,” and, “What that means for sea mammal hunting is that hunting patterns have had to accommodate that change. Hunting actually occurs much earlier than before, maybe in part due to advancing technology, and using bigger boats.”¹⁸

While climate warming has had a smaller affect on subsistence fishing it is affecting the other traditional hunts, those of sea mammals as wells as game. As snow cover and sea ice become less stable and consistent the natives of Western Alaska look to technology for answers. Purchasing larger boats for safer and longer hunts or being prepared to have to repair their snow machines With the already high cost of living in these distant villages subsistence hunting is a method for coping with inconsistent income, but with climate warming the economic strain on families to maintain subsistence hunting becomes greater. The importance of subsistence hunting is greater than simply providing for one's family, “subsistence activities provide the most basic spiritual and moral activities in their [Yup'ik] lives.”¹⁹

What seems to be a theme in evolution of the Yup'ik social structure is a consistency in their way of life. Activities, like subsistence hunting, have remained despite the changes in the built environment. It's in these constant activities where the heart of the Yup'ik culture persists.

Third Place in Toksook Bay

“Places that provide the spaces, reasons, and opportunities for people to come together, to share their passions, hopes, and troubles, will be healthier, stronger places and places where people trust and care about each other.”²⁰

This thesis began when Francis Sipary presented me with his problem, his home is costing him too much to heat in the winter. While this is a problem that merits architectural investigation, both in terms of feasibility and functionality, it has taken a back seat to another line of investigation. It has become apparent that an architectural intervention should have a positive impact on as many people of Toksook Bay as possible.

The people of western Alaska have to gain economic security in order to fund their subsistence hunting (their main source of food gathering). This requirement pulls them in two directions, Western ideology and their traditional ways of life. This thesis seeks to straddle these two realms. While it must be economical, a structure for the environment that does not tax the residents to operate, it should also be an asset to the people, culturally and socially. The way that this thesis attempts to do this is to create a third place for the people of Toksook Bay.

Western Alaska is a place where a person’s daily activities are always serving a purpose. The pattern is to work for a paycheck in order to support subsistence hunting activities which support the household. What is missing from this pattern is leisure. Ray Oldenburg, who coined the term ‘third place,’ discusses the importance of this public place during the era of suburban sprawl, the description seems as though it could be written about Toksook Bay:

“In a world increasingly rationalized and managed, there must be an effective vocabulary and set of rationales to promote anything that is to survive. I can but hope that this effort will contribute to what will have to become a popular understanding of the necessity of a vital informal public life.”²¹

The built environment of Toksook Bay is lacking this vocabulary of informal public life. Anne Fienup-Riordan gives an example of the people of Toksook Bay appropriating such a space:

*“While I stayed in the village, I slept in the pottery workshop... Every morning at about 7:30... several older village men would come into the building, turn up the stove, turn on the coffee pot, and take their places on the benches along the wall... One might begin to mend an *uluag*, while another continued an ivory carving. Later during the morning, and again after the midday meal, younger men would drift into the pottery workshop, stand around, and silently watch what the older men were doing... The old men gathered in the warmest communal space available (the community hall had no heat) was no surprise. In their youth most of them had lived together in the traditional *qasgiq*, or men’s house. What better use to make of this new building, which had quickly proved itself incapable of housing Western industry as a design school... Before I left the village, several snow machines were also moved in for repair, and there was talk by one village elder of using the building to cover the construction of a new boat.”²²*

The pottery workshop began as a space for creating artwork, but faltered and soon failed during the hunting season when the community was too busy with subsistence activities. What is interesting to note is that this informal open (and heated) space began as place where men could perform a morning ritual that was highly cultural. Soon this space turned into a garage, a place where men could work on their subsistence vehicles. The pottery workshop was essentially a warm open box and it was turned into a gathering place where culture was fostered and a community garage. The utility and cultural value of



FIG 9. Toksook Bay. Airport on left, village on right. Windmills beyond village

this place should not go unnoticed and will be integral parts of the new third place.

Two other areas that this project seeks to address is that of modernity in Toksook Bay and sport. The youth of Toksook are in a place where they have access to technology but not to modern technological spaces; an arcade, a concert venue, etc. These types of places are lacking in Toksook Bay and have the potential to bring the whole community together. When it comes to sport in Toksook Bay nothing comes close to basketball. Boys and girls play it alike and adult men are not shy to teach the kids a lesson. Along with basketball there are also traditional Eskimo games that men, women and children all can participate in.²³ The goal of this thesis is to provide Toksook Bay with a third place that fosters culture, provides utility and modernity, as well as sport.

The Qasgiq

“The qasgi was a place for the men and a place where they prepared their young people for the future, a place for teaching about how to live and how to work. It was a very valuable place.

The qasgi was like college, and our elders were like our professors.”

- Paul John, Toksook Bay²⁴

The Qasgiq is an extremely adaptable space. It was incredibly valuable to the Yup'ik people as the space that accommodated everything. Elders described it as a church, college, a hotel to welcome guests, a factory for constructing and repairing tools, a hospital, and a movie theatre “where people gathered to enjoy each others' company.”²⁵ Within the culture of the Yup'ik exists this notion of a space that can adapt to any and all of the communities needs. Given this background it is not surprising at all that the pottery workshop went from art production to coffee and carving space to finally a garage, one can only guess what the current program is in the workshop. It seems that whatever the final form of the architectural intervention is, it must be able to respond to the changing requirements that the residents require.

Ignoring the programmatic function and flexibility of the Qasgiq there is a lot to learn about the building and how it fits in its environment. The construction of a Qasgiq begins with the displacing of soil, the wooden structure is built underneath using log timber and planks. Then sod strips are take out of the earth and stacked on each other in a ring around the wooden structure, after-which the displaced soil is packed in on top of the structure inside the sod ring. “This thick combination—plank walls, soil, and sod—was durable and provided excellent insulation. Frank [and elder from Toksook Bay] summed it up: “That’s why the real houses never got cold.”²⁶ To enter the Qasgiq one had to descend into a tunnel which acted as an air trap before rising into the Qasgiq. The air trap was a good

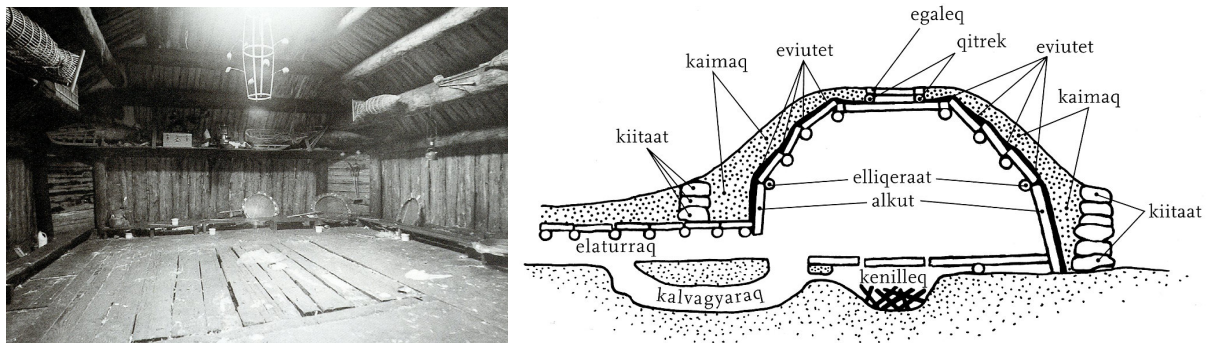


FIG 10. Interior and section of a Qasgiq

insulator since air is not dense and does not transfer heat very well, the long tunnel entry was also effective at reducing drafts in the Qasgiq.

What the Qasgiq did for the Yup'ik people of the past is what this project aims to do for their present. To provide a space that is adaptable to the communities needs and that performs well in the environment. This last criteria, a warm place, might be the most important requirement to a successful project, as seen in the pottery workshop re-adaption the reason it was being used was because the other community building was not heated.

Community Programming

Through research and interviews with Francis and Napa Sipary a program was selected to fill this third place. An underlying thought to the program is imagining how spaces can bleed into one another or be transformed to serve a new purpose. Taking this idea and the four areas of interest; utility, culture, modernity and sport, a program was developed that would satisfy all the areas and reflect this ideal of adaptive space.

To begin it must be understood how the modern Qasgiq would operate within Toksook Bay. Since the new social structure of single family homes has been put in place this third place would not be inhabited full time like the Qasgiq of the past. With the specialization of spaces there will need to be separation between certain program areas, though like the Qasgiq the idea will be to allow these spaces to bleed into one another as much as possible. Along with the four themes the building aims to house there is also the required support spaces. The intended program breaks down in this manner:

	<u>PROGRAM</u>	<u>SQUARE FOOTAGE</u>
Support	Entry Vestibules (2-3)	45
	Office / Front Desk	
	Desk	15
	Office	60
	Janitorial Space	100
	Storage Space	150
	Restrooms (2 for men, 2 for women)	40
	Parking Spaces (25, for ATV's and Snowmobiles)	1400
	Circulation	1100
Modernity	Cinema / Theater	
	Seating	300
	Stage	130
	Reel Room	25
	Back/Side Stage	75
Culture	Coffee Space / Kitchen	350
	Patio / Porch Space / Amphitheater	600
	Art / Community Space	
	Storage	25
	Transitional Space	600
Utility	Garage / Utility Space	900
Sport	Gym Space	5,500
	Bath	
	Lockers	200
	Showers	100
	Sauna	150
	<u>Total</u>	11865

FIG 11. Programmatic Breakdown with square footage estimates

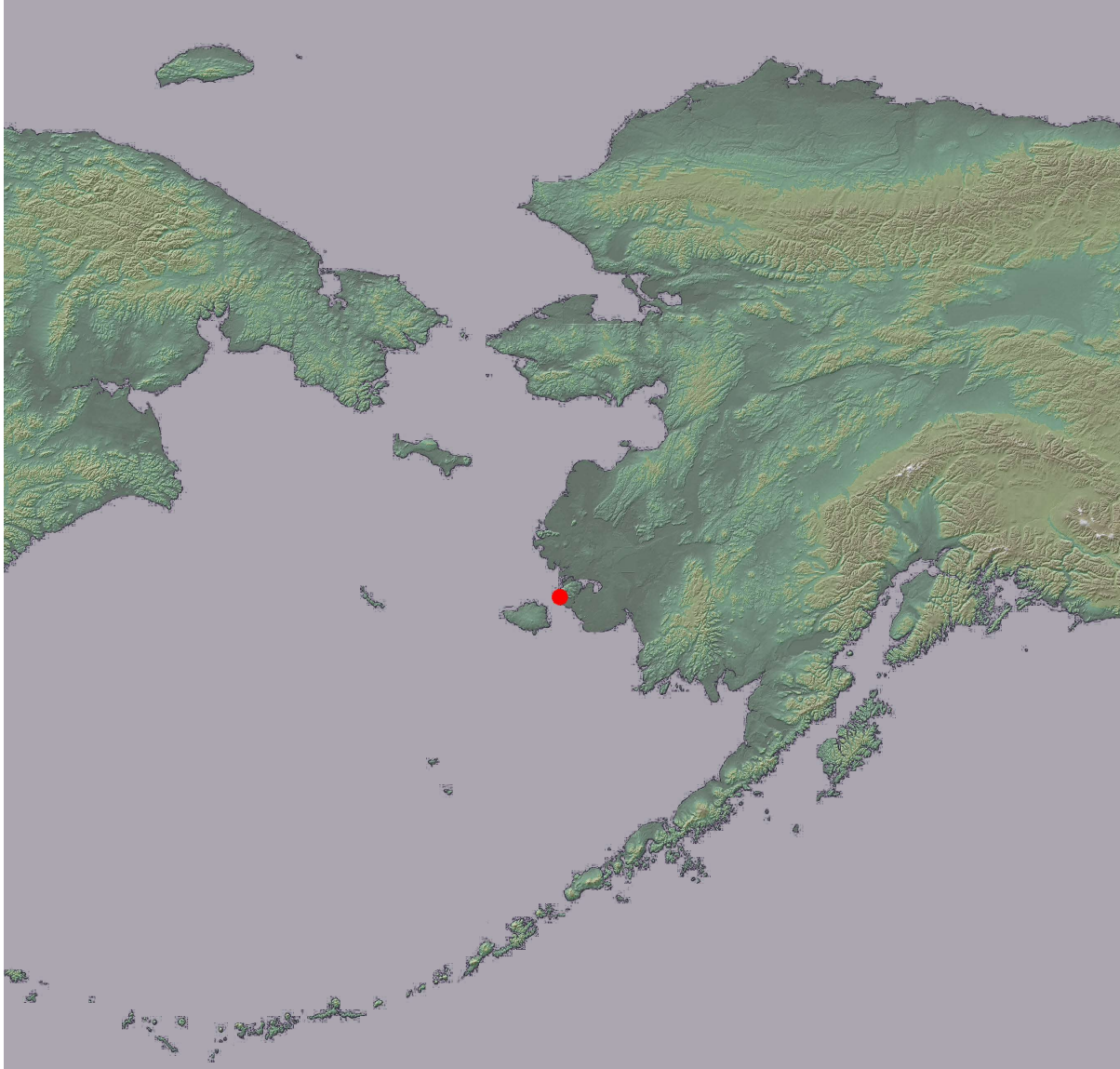


FIG 12. Map of Alaska with Toksook Bay identified

While the program is broken into specific areas it not hard to imagine how different spaces could be used to promote another agenda. For example, imagine a high school movie project documenting a young man's first seal hunt and how the community celebrated this event playing in the theater, this would be a modern presentation of the villages culture. Again imagining the gym space housing a traditional dance festival and the sauna full of men telling stories like they did in the Qasgiq during 'fire baths.' The intention is that the chosen program will be able to service the community in a myriad of ways as the Qasgiq had once done for the Nunakauyarmiut.



FIG 13. Site Map of Toksook Bay with proposed site and final floor plan (graphic scale)

Siting

Toksook Bay is located on Nelson Island in Alaska. The island is separated from the mainland by two rivers, the Ningaluk and Kolavinarak. There are two other villages on Nelson Island, Toksook Bay is the largest of the three and is considered a sub-regional hub (the city of Bethel, located 115 miles to the east, is the regional hub).

Through discussions with Francis and Napa a general feel for the community was gained. The village is composed of two primary forms. There is a band of non-residential buildings that run the southern edge of the village, the buildings to the north of it are for the most part all residential (the obvious exception is the high school which is the largest footprint on the northern edge of the village).

To the west is the old air strip, the non-residential portion of the village is growing westward and claiming the old airstrip as street. The site selected continues with the current non-residential trend, siting itself at the end of the old airstrip. The site selected is large enough for the entire program to be on the first level and still have space for outdoor spaces. Placing this new third place at the end of the old airstrip allows an opportunity to be the signature structure in Toksook Bay, the face that residents and visitors are greeted with when returning to Toksook Bay.

There site specific data has been difficult to obtain. Working with GIS mappers from Alaska has not yielded any sort of adequate data. What is known is that Toksook Bay does have a slope to it, in comparison to most of the tundra in west Alaska. Still, by investigating the few available images of Toksook Bay, the slope seems quite minimal over the entire site.

The climate of Toksook Bay is a harsh and cold one. The closest weather station data available comes from Bethel, which is further inland but also situated close to water, though a freshwater source. The annual mean temperature (*data was retrieved through Climate Consultant software*) hovers below 30° F, only the months May through September have mean temperatures above freezing. During these months the average Btu per square foot is just below 1500 a day. These months also happen to have the highest average cloud cover, ranging between 75% and 85% coverage, the winter months also have high cloud cover rates, only February dips below 50%, the rest sit around 65% coverage. Toksook Bay is cold and mostly cloudy, though it's temperatures are not otherworldly, what make the winters unbearably cold is the wind.

Toksook Bay is situated where sloping tundra, which has few to no trees on it, meets the ocean. This results in strong annual winds. The wind is most mild during the summer months of May through September, averaging roughly ten miles per hour. As winter sets in the winds gain strength peaking in during a four month stint, January through April, averaging 15 miles per hour. Though the average is

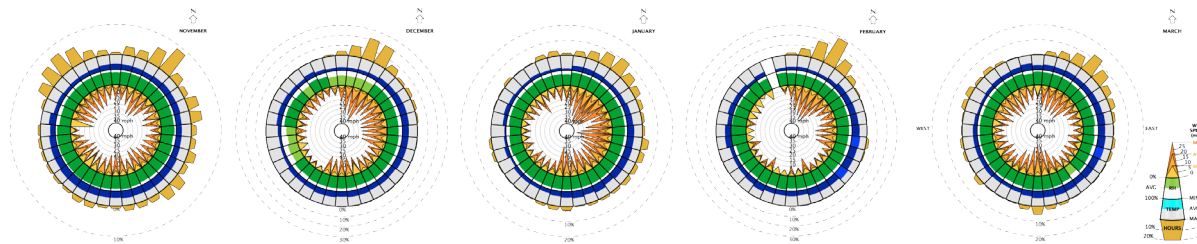


FIG 14. Wind roses for Toksook Bay, 's coldest months, November through March

not much higher than the summer winds what the winter winds bring is volatility. December and January have seen maximum winds reach 35 miles per hour and higher, combine this with a temperature of -10° F, a common cold day temperature, and the wind chill makes the perceived temperature -40° F. The rest of the winter months have also seen winds reach a maximum of 30 miles per hour, which means that winter temperatures can move from bearable to insufferable dependent on the winds.

Studying the effect of wind on the built environment of Toksook Bay during the five coldest winter months, November through March, returns very few solutions. While the most consistent winds come from the northwest there are also moments where strong winds swirl from all directions. Architecturally a strategy that would buffer the northwest facing portion of the building sounds promising, though given the data it seems that a wind buffer strategy may have to be implemented around the entire structure.



FIG 15. Toksook Bay, ocean freeze up can be seen in the distance

FIG 16. Toksook Bay village during winter, looking west to the hills



Building Types

The historical Qasgiq has already been investigated, and from this many architectural solutions can be gleaned for the new structure. There are two other buildings that deserve to be discussed with regards to this third place structure. The first is a building type that flourished throughout Alaska because of its affordability and adaptiveness, the Quonset Hut. The other building is the Stone Band School by Peter Cardew. This project relates to this thesis because it is of similar size, shares some program and the user are also the Natives to the land. The Stone Band School draws from the historical building types of the native people, which is similar to the Qasgiq.

The Quonset Hut

“I remember asking the kids to draw a picture of a house. And, you know, most kids draw these little stick drawings of a house with a little door in the front and some windows. But Melissa drew a Quonset hut. All of us lived in them... She drew a Quonset hut, as her house, because that was her idea of a house” - Gretchen Bersch recalling growing up in Alaska

The Quonset hut was developed in 1941 after the passing of the Land Lease Act which allowed the President to “sell, transfer title to, lend, lease or otherwise dispose of [articles of defense to] the government of any country whose defense the President deems vital to the defense of the United States.” Thus the United States gained territory in the United Kingdom to set up forward operating bases. Without available British construction the U.S. had to provide prefabricated buildings for their bases. The design of the Quonset Hut was a reinterpretation of the Nissen Bow Hut, a semicircular steel structure, developed by the British in 1916. The Quonset Hut was said to have moved beyond the Nissen Bow Hut in its structural simplicity (for erection) and most importantly in its interior. Similarly the Quonset Hut had insulative ‘packages’ for certain climates. As the production of the hut continued variations and refinements were made to the design and assembly strategies ultimately yielding nine different types of Quonset Hut.

During WWII the Quonset Hut became an American icon of ingenuity. The steel manufacturers for the Quonset materials sought after a postwar foothold in the housing market. Coincidentally postwar America was faced with a housing shortage. The Quonset Hut provided the answer, as a quick housing solution as well as postwar modernism, the new lifestyle that was desired. Los Angeles constructed and finished Rodger Young Village, for returning veterans and recently laid off steel workers comprising of 750 Quonset Huts, six days after funds were appropriated. Soon Quonsets fulfilled all sorts of programmatic requirements, grocery stores, barns, etc. This reappropriation of the requirements for the Quonset also brought modification and experimentation of its pure semicircular shape.

While the Quonset Hut was popular in the lower 48 the greatest demand for the huts came from Alaska. Military bases in Alaska had already adopted the hut and the postwar housing shortage continued the demand for the hut. The design principles of the hut, affordability, transportability and adaptability to many environments during wartime were just as applicable to Alaska. The huts could be purchased by low income individuals, transported to the hard to reach areas of the state, and deployed quickly. The huts were lived in, post offices, and at one time the best restaurant in Anchorage. The

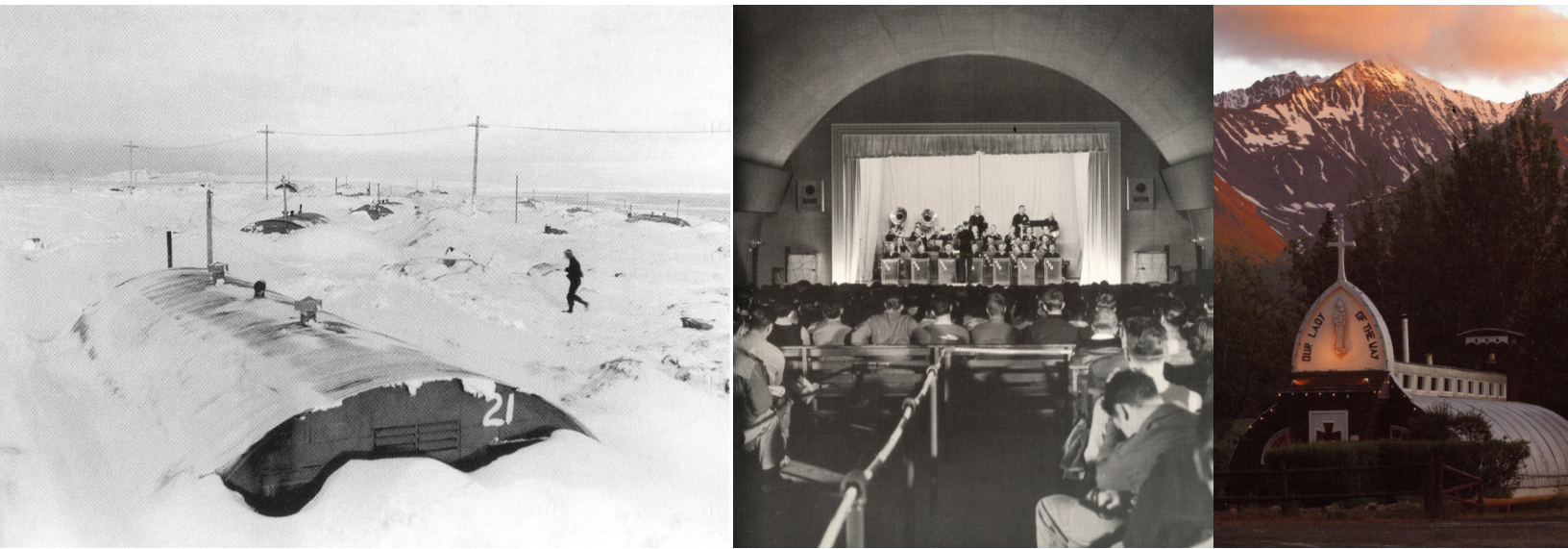


FIG 17. A Quonset hut in Alaska, a hut turned theater, and a hut modified into a church.

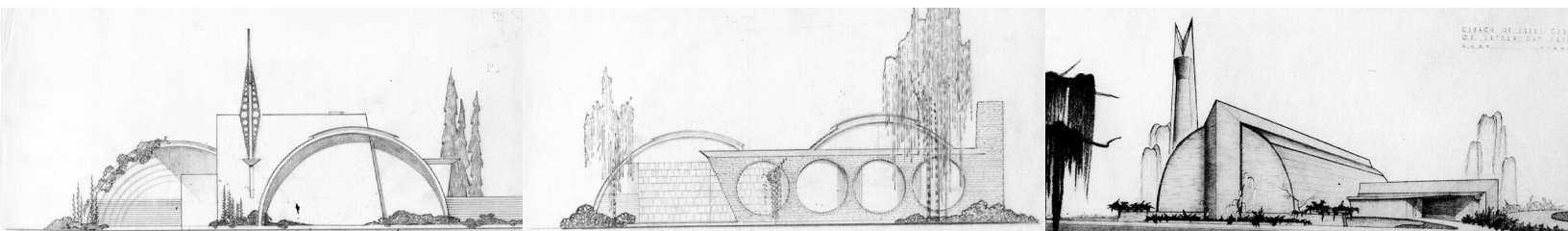


FIG 18. Architectural designs of a church based on three large Quonset huts.

hut was replaced by a more traditional pre-fabricated home but not after it had spread throughout the state. While the huts may not be as prevalent in Alaska they embodied what a building requires to be successful in Alaska. This thesis will have to learn from the Quonset Hut, it must be adaptable, affordable, and transportable to be successful.²⁷

Stone Band School

This building has a lot of similarities to the thesis proposal of a third place in Toksook Bay, from the type of role in the community to the building size and the client. The description from the architect, Peter Cardew, illustrates this:

“Stone Band is a small native community located in the remote Chilcotin region of central British Columbia... The school, intended to serve this native community, includes classrooms for kindergarten and grade school levels, a library resource centre and administrative offices. Also included in the program and original design was a gymnasium which is to be completed in a second phase of building. The rugged landscape... combined with a harsh winter climate, produced among the Chilcotin people a tradition of building structures depressed into the earth... These earthbound forms were roofed by a structure of tree poles covered with branches and turf and lit from a single hole in the roof above. It was in these communal dwellings, during the long winters, that the children were educated through stories told by tribal elders. The form of the school, developed as a sloped earth bank, responds to the primeval quality of the surrounding land forms and reinterprets the traditional building form of the kikwilli. Classrooms and offices are grouped around a similar collective gathering place, filled with natural light from a glazed lantern constructed of peeled fir poles. This is the place where the community gathers and the elders participate in the education of the children in the Chilcotin language and culture... Concrete block walls and the corrugated metal roof planned for the gymnasium are expressive of the utilitarian approach to materials and construction common in rural communities and are sympathetic to the rugged natural surroundings.”²⁸

The Stone Band School is a quality example of including native typology and landscape with program. This thesis will look to the Qasgiq as the Stone Band School looked to the Kikwilli. Another area of interest that the Stone Band School sheds light on is the materials. The utilitarian materials used were selected to fit in with the rural community and the site itself, expressing a sympathy towards the residents and passerby's who will have to accept this building as a part of their community. There are many things that Peter Cardew has accomplished in this project but perhaps his attitude and sensitivity towards the history, site and culture are the most important lessons that can be learned from this project.

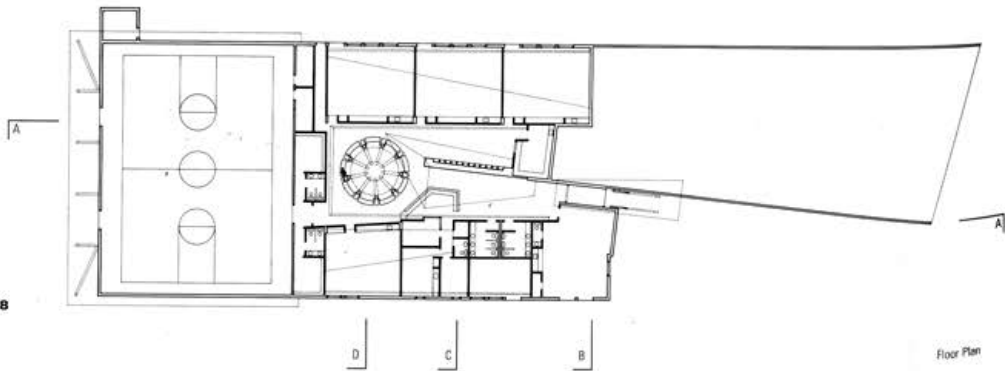
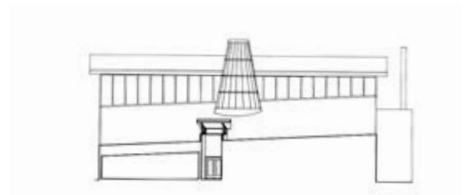
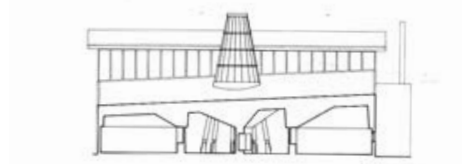
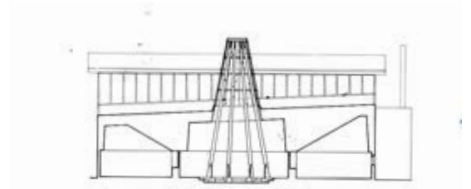
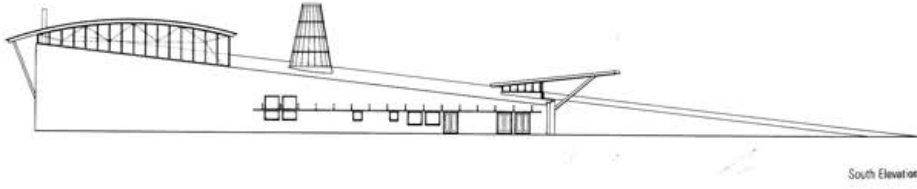


FIG 19. Elevation, plans and sections of the Stone Band School

Adapting to Continuity

“the orphan (which I resembled) was admonished to be attentive, even to “steal knowledge” when it presented itself, and “tie it to your ankles” so that you not trip on it in the future.”²⁹

“The extreme conditions create personal and social tension. The clustering of dwellings, together with the provision of a high standard of social and cultural equipment is essential. Personal relationships are especially important and often difficult. The community must offer possibilities for valid contacts and the protection of personal integrity is equally essential but can be difficult in the introspective life of small and isolated communities.”³¹

Research had taken me this far, but as project development began it was not without a continuity of research. Schemes were developed and what they yielded challenged what the research had once promised as a successful solution. Through early development shifts in the program were made, though slight, to bring about a stronger continuity of what the historic Qasgiq provided the community. Figure 20 identifies the primary uses of the old Qasgiq and projects what the current day interpretation of these uses in Toksook Bay would be.

The primary differences from the earlier programmatic layout is the loss of the basketball court and the art/community space. These have been replaced with the outdoor sporting space, for traditional Eskimo games and the unprogrammed Qasgiq space (here let me clarify what is meant by the word ‘unprogrammed,’: it is a space which has architectural detail and intention though there is no specific desired activity that this architectural detail recommends, for example: in the theater space it is expected that the user will be either watching or performing, while in the unprogrammed Qasgiq space multiple things could occur, ranging from traditional ceremonies around the fire, storytelling, a book club meeting, etc.). Also two other portions have been added to the original program, the butcher/kitchen prep space as well as a botanical landscaped space which would feature many common and uncommon flora from the region which the Yup’ik people have traditional uses. The botanical and butcher/kitchen prep elements are very interesting because they bring the expertise and knowledge of Yup’ik culture that is held by the women of the community.

“Our most knowledgeable sources of information were women over the age of 40 years. Women collect and prepare most plant products for their families’ use, so it is not surprising that they know most about the subject. Younger women were usually familiar with commonly used plant products, such as the grass used for baskets, and edible plants such as “sourducks,” but they were less familiar than were the older women with plants used for traditional herbal remedies and some of the less common edible plants.”³⁰

This is crucial since the new re visioned Qasgiq is seen as a ‘social and cultural infrastructure’ which would not be complete if it was simply a re imagination of the role of the men in Toksook Bay, rather than a holistic approach that portrayed the importance of continued knowledge from both male and female elders.

With this new equipment in place the program was set and the project development began. Through some early square footage exercises it was clear that the footprint of one building that would hold all of the program would be far too large for the context. Program was then split into smaller elements, as seen in figure 21. These programmatic breakouts would be their own buildings, though exploration would bring about an importance for the buildings to be connected in certain specific ways.

THE QASGIQ: COMMUNITY CENTER

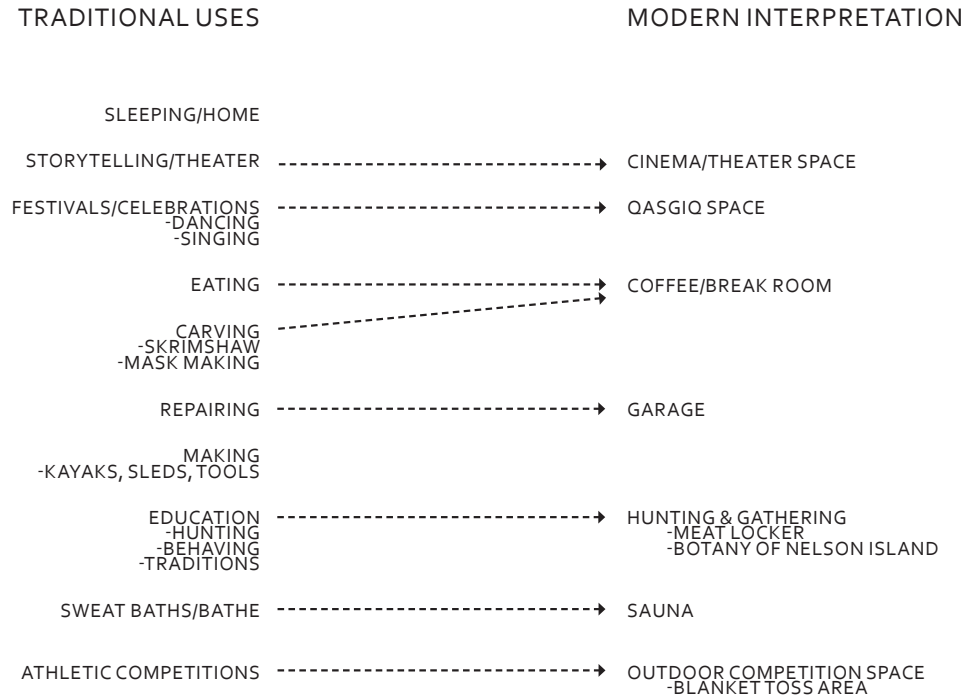


FIG 20. Identifying historic uses of the Qasgiq and forecasting their potential modern embodiment.

PROGRAMMATIC GROUPING

MODERN INTERPRETATION

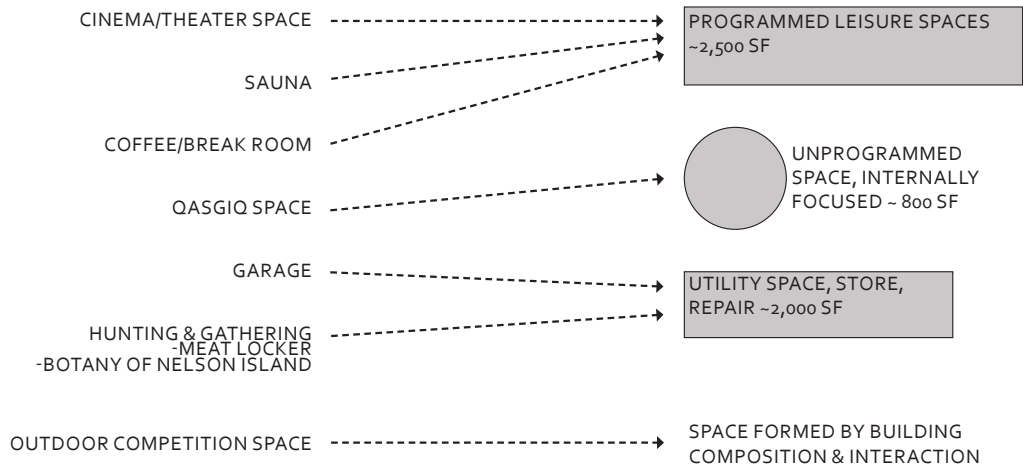


FIG 21. Grouping these modern interpretations into programmatic blocks.

This early exploration in the arrangement of programmatic elements was done with plasticine models. A few initial design criteria were used. First was to place the utility portion of the program facing the street, the face of the whole project should be one that benefits the people of Toksook Bay. Second was that the arrangement of these programmatic groupings should hold a public space that would be the outdoor unprogrammed spaces as described in figure 20 and 21. Lastly was designing with the idea that there should be a chance for elevation gain within this unprogrammed landscape, perhaps with occupiable roofs. This last design concept was driven from the historical Qasgiq which was covered with earth and often the skylight was imagined as a hole in the floor, from the second story (on top of the Qasgiq) to the ground floor (which was the interior floor of the Qasgiq).

These plasticine models were very helpful to understand scale and develop site responses. The internally held landscape eventually drew a southern exposure to gain the most solar gain during the winter months when the sun shines for only four hours a day. In a similar vein the internally focused and more dense program was shifted towards the north end of the site. This placed the back of the building against the strongest winds when the temperatures are the lowest. The remaining spaces were allowed more views and direct access to the outdoors. The final plasticine model became the diagram for the project to build upon. It must be noted that the elements seen in the final plasticine model does not describe the final layout or scale of the final solution.

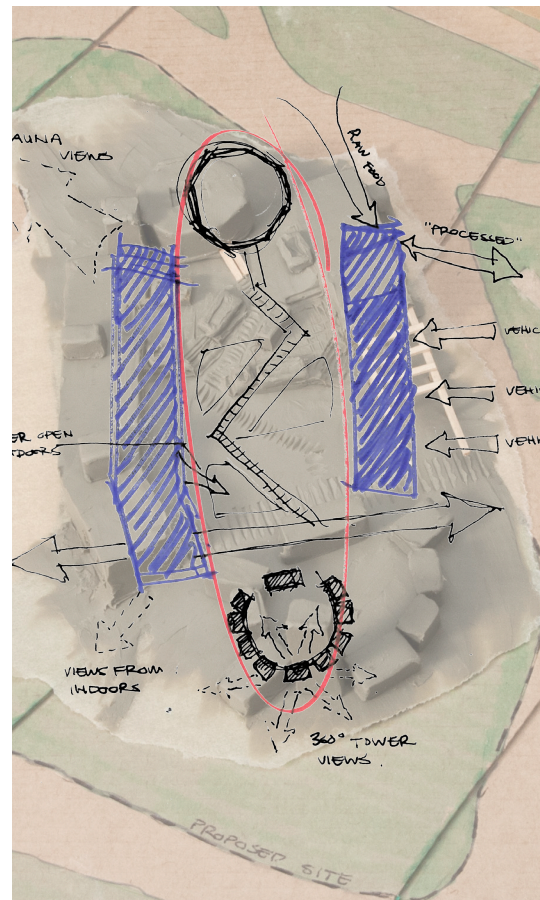


FIG 22. The plasticine model with trace paper overlay of the 'final diagram.'

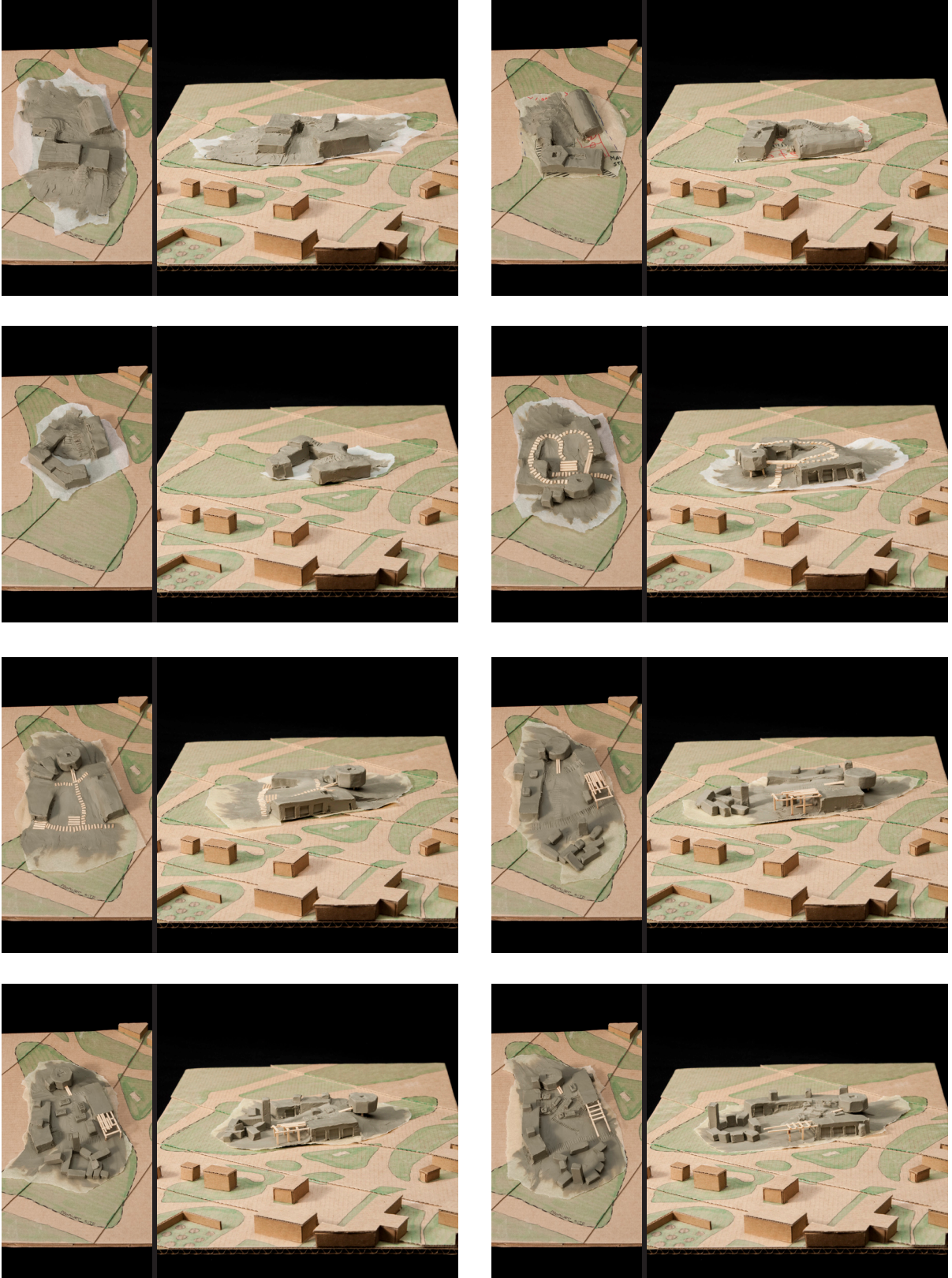


FIG 23. Plasticine models in chronological order from top left to bottom right

The diagram set up a lot of design parameters. The scheme comprises of two programmed bars that held unprogrammed space between them. The placement of the program can be seen in figure 24. It should be noted that the diagram does not carry with it the three dimensional information from the plasticine model exercise. Most notably the Qasgiq space will not obey the model rule that it is to be held up above the landscaping element. This diagram is a simplification of the eventual plan and thus proportions are suited to the program held within.

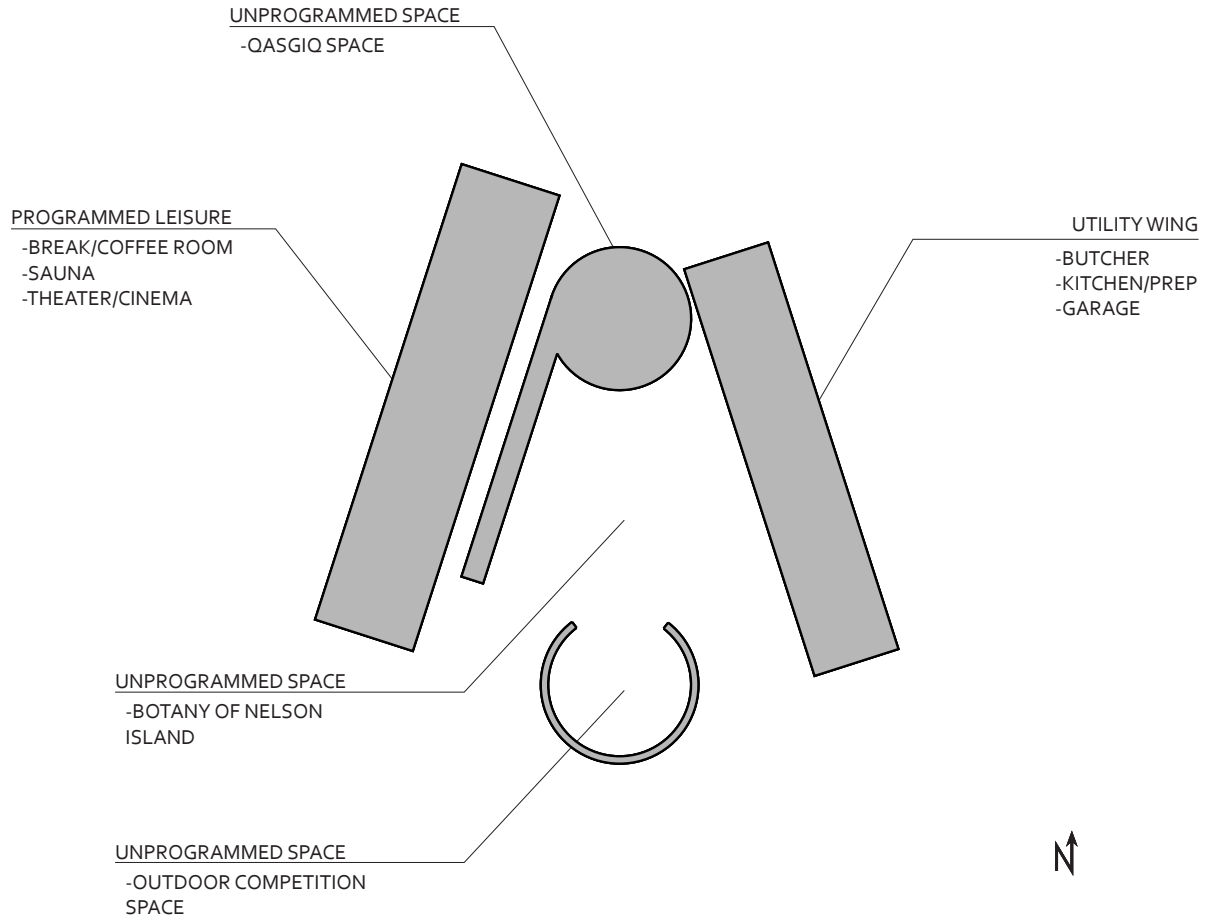


FIG 24. Refined diagram with the locations of programmatic elements identified.

Plan and Section

From this diagram the plan was born. In this section only line drawings will be presented, in the next sections there will be studies of light and material which were done in tandem with the work presented here. Though it will be a sequence of understanding the spaces in their volumetric and relations to one another before experiential ideas are presented.

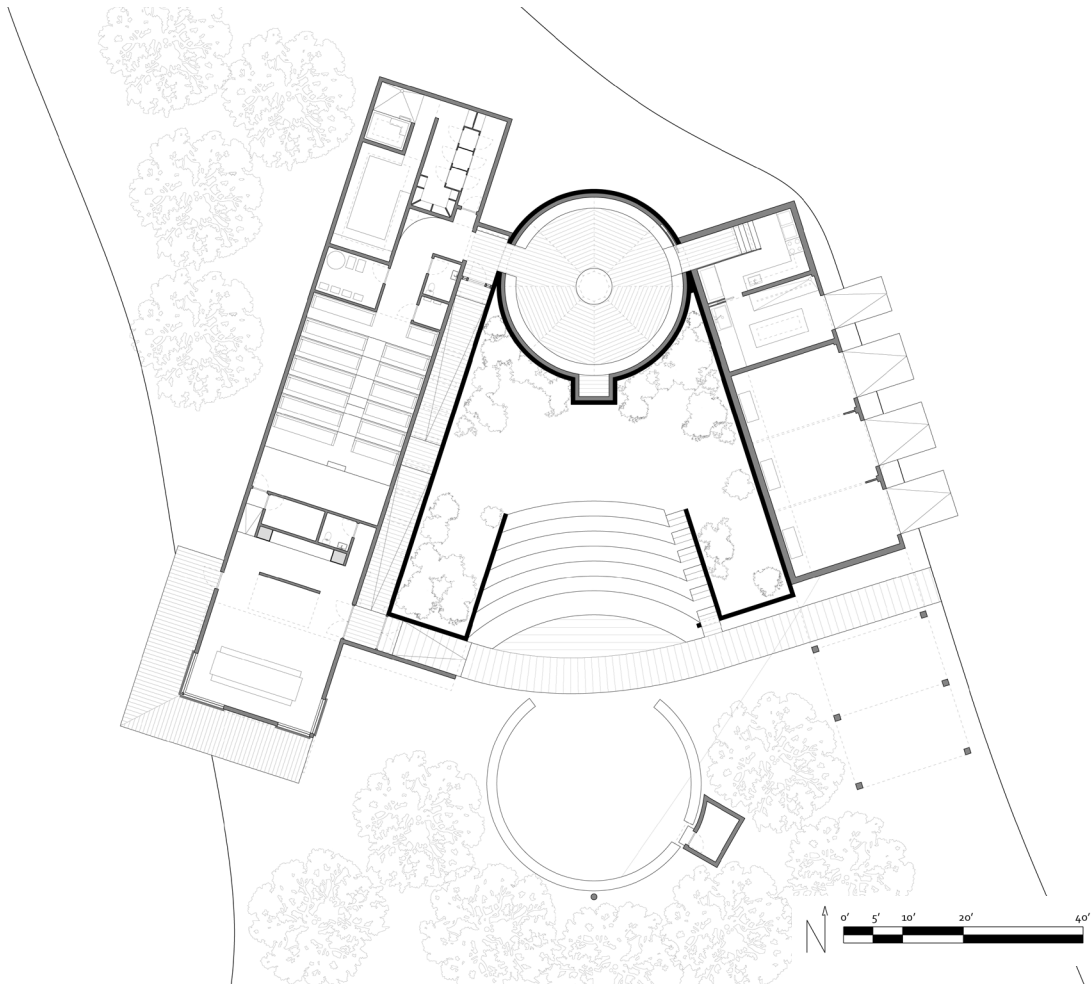


FIG 25. Plan

The plan is two bars that pivot on a circle. The circle is the re interpretation of the old Qasgiq, all the historical program has been stripped out of the space except for the primary element that the historical building had, the fire. This allows this new space to take on many roles for the community, it can be used in a myriad of ways. From a place to eat traditional meals with storytelling or a space for a book club to meet around a fire. The Qasgiq space is accessed by a long vestibule that runs alongside the west building.

The vestibule manages the slight elevation gain determined by the floor rise of the theater seating. It also arises from a construction detail requirement. In this area of the arctic buildings must be thermally decoupled from the ground because the geology of the area is unstable permafrost. If a building were to rest on the earth it will warm the earth and melt the permafrost layer, which is providing the stability for the foundations. Thus a building built on the ground will be structurally unsafe after about two years. To solve this issue buildings are built on piles and elevated about two feet above the ground to thermally decouple. This brought along two things. The obvious result was the use of these piles as an opportunity for geo thermal heating. As will be seen later in the materials section that radiant concrete slabs are used. The less obvious result of this mandatory elevation of the building relates to an elevated building with a rising landscape running alongside it. Figure 26 shows that a retaining wall can allow the thermal decoupling while also sustaining the rising landscape. In figure 27 the sketches show that pulling this retaining wall away from the building allows a space where a path could be, the vestibule.

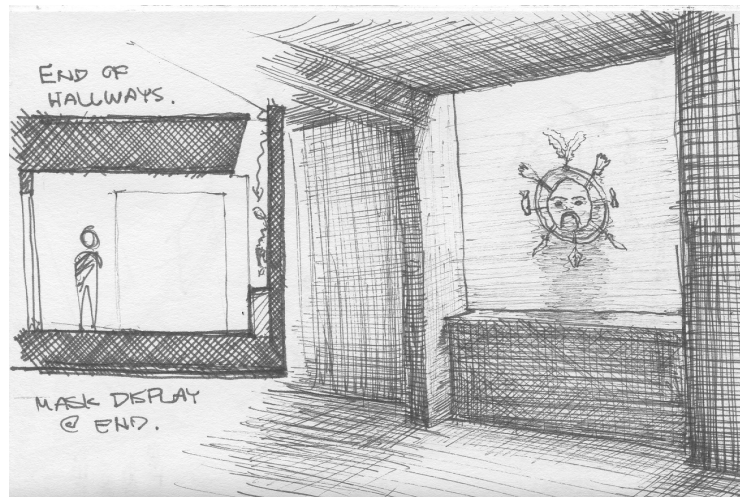


FIG 26. Section and Perspective sketch of the end of vestibule space.

This long pathway is part of the main entry. A user moves across the boardwalk and amphitheater stage are from the east side of the site to the programmed leisure wing. The user enters the first doors of the vestibule, directly ahead is an entry to the break room space, to the right is the long path that runs along the building. This pathway mimics the old Qasgiq tunnel entrance, restricting the amount of light allows the eye to adjust to the darkness. At the end of the path there is a solid wood door inset in a glass frame, continuing a play of obscuring light. Beyond this door there is a washed wall where native masks can be displayed. To the right is the Qasgiq, moving into the Qasgiq the space is centered on the fire, a large hood is hung above the fire at a height just above the typical users eye when seated along the benches which circle the space. To the left is a short hallway that gives access to a restroom, the mechanical spaces, the sauna and cinema/theater.

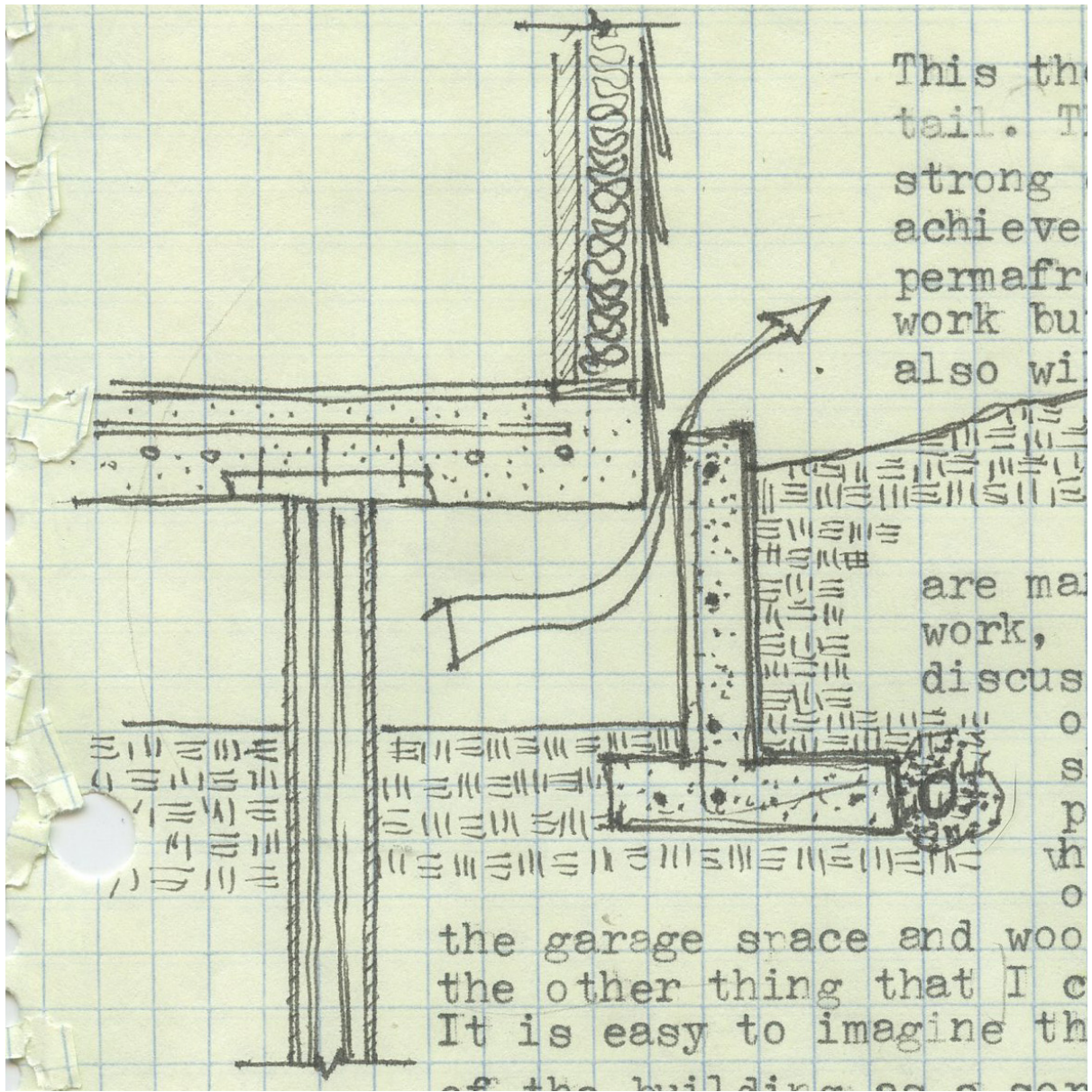


FIG 27. Notebook sketch of retaining wall and building on piles.

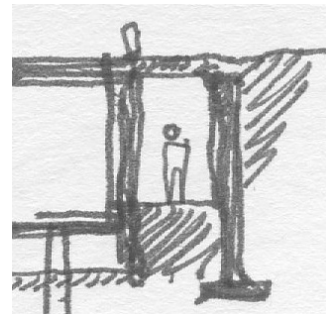
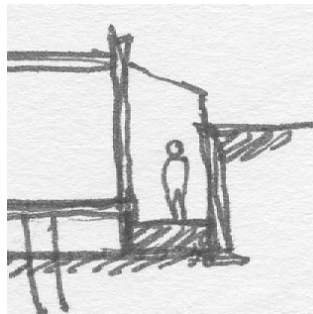
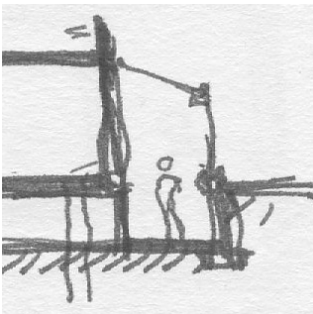


FIG 28. Sketches of vestibule space rising along building while landscaping overcomes it.

The separation of programmatic elements was important for a many reasons. The size of a single structure to house the program would create a structure that would be too large for the towns context. Breaking the building into smaller spaces allowed more specialization of spaces, and removed the requirement of a space that could transform from sauna to break room to garage. The advantage of this is it provides specialized spaces in structures that can be constructed simply, which is very important in Toksook Bay. While separation had many benefits there was also a major climatic downfall. Imagining the use of this space during winter months it would be a great benefit to access all parts of the building without having to move outdoors.

Connecting the program through the crux point of the Qasgiq furthered the spiritual and symbolic importance of this space. Moving through the Qasgiq out the east door one enters the kitchen prep space, which is connected to the butcher room. This connection is made with the intention that ceremonial meals, or simply traditional festivals could be held in the Qasgiq and supported by the kitchen and food prep space. The program seems to follow a generalization (though not designed with this intention) that the more dense and internally focused program is to the north; sauna, Qasgiq, and kitchen/butcher spaces. Moving south the program becomes more outwardly focused, from the garage and cinema/theater spaces town to the break room (with large windows for views of the land beyond, the windows have exterior operable panels that can close for cold weather spells), outdoor competition space, and covered parking/work space.

The outdoor space moves from an open space on the south end up through an amphitheater seating to a circular deck on top of the Qasgiq. At ground level, to the south of the structures there would be dwarf birch trees and willows traditionally found around the area. This is punctured by a concrete ring at bench height with a small shed attached. This ring mirrors the Qasgiq on the other end of the site, while it's shape is justified by the activity that occurs within, the blanket toss. The blanket toss is a village activity where a walrus hide (sewn together to make a circle) 'blanket' is held at the edges by the community and one person stands on the hide and is tossed into the air by the community. The north end of the ring is trimmed by the boardwalk and stage area of the amphitheater. To enter the amphitheater seating one passes through an empty doorway cut in the retaining wall (the retaining walls are building height and run the building length until turning inward and then again back northward to frame the amphitheater seating). This doorway is meant to be a gesture to the user that they are entering a new and different space, even though it is still outdoors. Once the stairs to the top of the amphitheater have been climbed there is a flat space whose corners are filled with the botany of Nelson Island, particularly those historically used by the Yup'ik people of Toksook Bay. Finally a smaller stair leads to the roof of the Qasgiq which has a bench that runs the outer edge and is focused on a glass block tower which holds the flue for the fire below.

These experiences can be described in the sections of figure 29. Ceiling heights are tailored to the specific uses below which results in two simple rectangular buildings and one circular building.

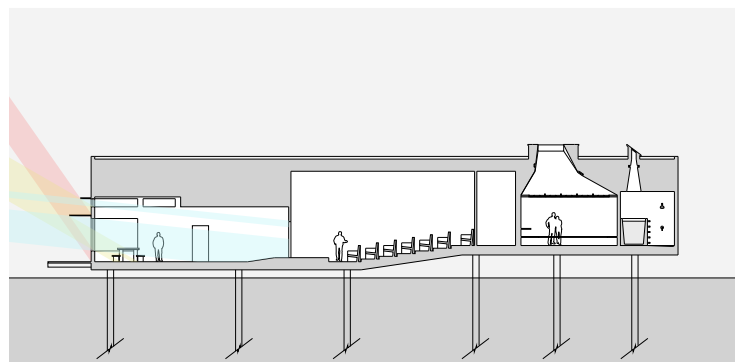
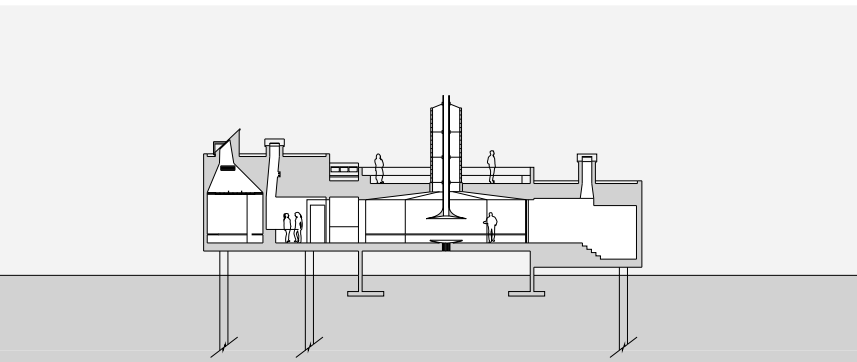
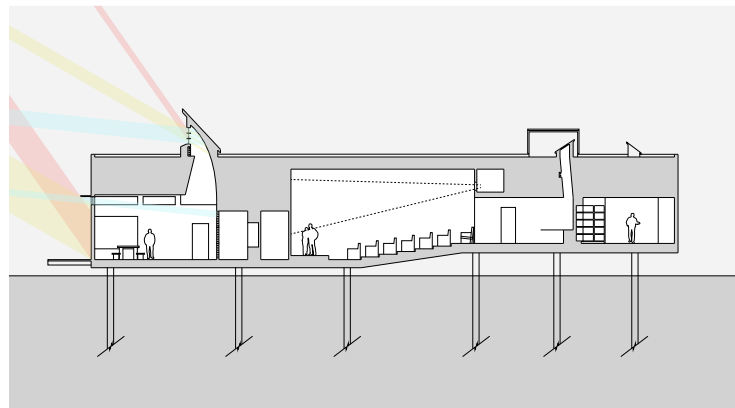
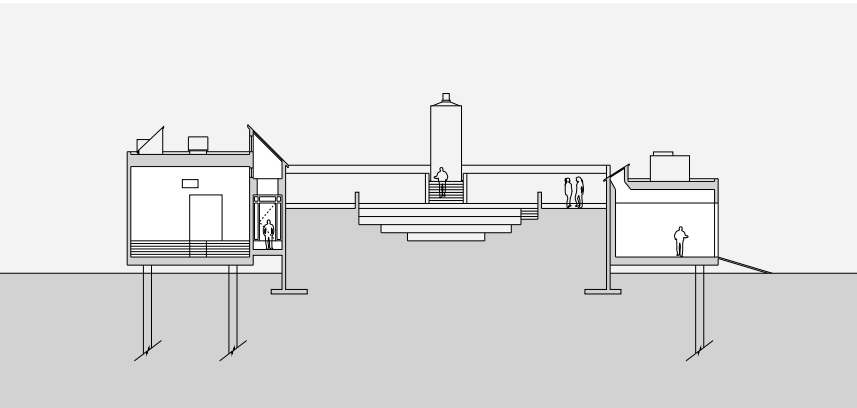
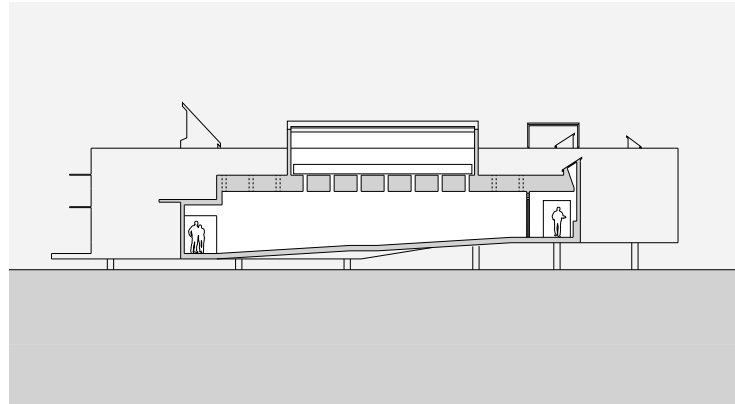
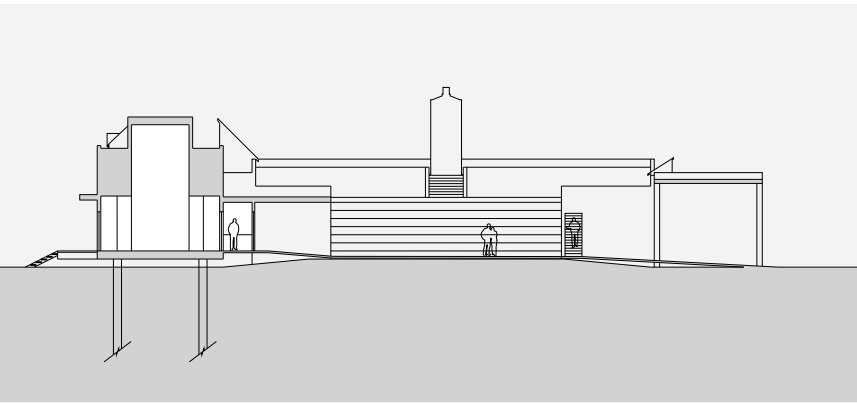
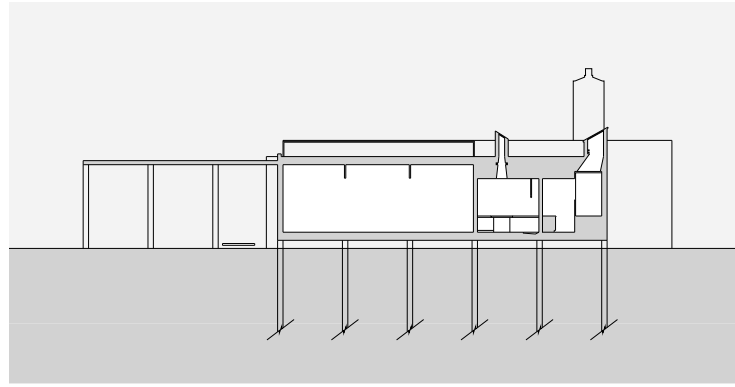
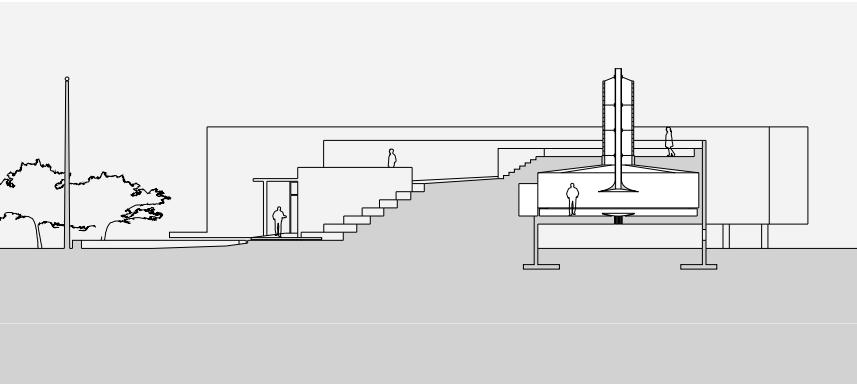


FIG 29. Sections. Top Left to Bottom Right: through Qasgiq looking west, through garage looking west, through boardwalk looking north, through vestibule looking west, through garage and theater looking north, through leisure wing looking west, through Qasgiq looking north, through leisure wing looking west.

Light & Dark

“Here houses and towns should open like flowers to the sun of spring and summer but, also like flowers, turn their backs on the shadows and the cold northern winds.”³²

The latitude of Toksook Bay demands that architecture take a stance to handling daylight. What must also be considered is how this building behaves in the dark, since the inverse to the long hours of daylight is the long hours without. The project took a stance that activity should be expressed at night with just as much intention as gathering daylight for the interior.

The most important area of exploration with regards to daylighting and activity expression was within the Qasgiq space. This was both for technical reasons as well as symbolic. The technical issue was gathering and expressing light while also allowing a flue to pull smoke out of the space and symbolically this space is the center of the project, it was very important to make the expression representative of the Yup’ik culture while also maintaining dark but even light levels much like the historic Qasgiq.

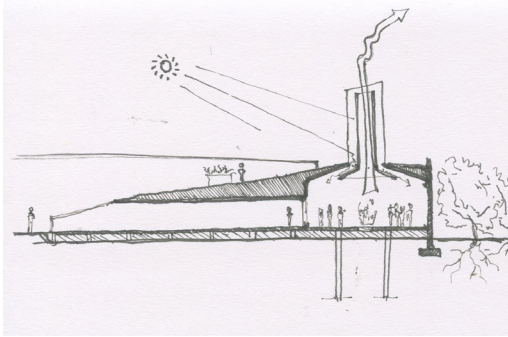


FIG 30. Section sketch of flue inside glass tower above oculi for daylighting

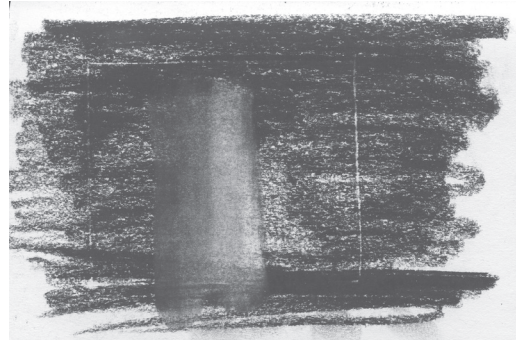


FIG 31. Charcoal sketch of glass tower illuminated at night.

The strategy to achieve the desired result within the Qasgiq was of a glass tower with a metal frame that would hold a flue for the fire inside. The hood above the fire was to splay outwards to bounce light that comes through the oculi upwards on the ceiling. The flue itself would be a reflective metal to maximize light reflectivity. With this architectural element in place there is plenty of opportunity for light from a fire to escape outwards through the tower to be a signal to the village of activity. The glass tower is also an opportunity to express Yup’ik culture, which will be explored in the next section.

While the importance of daylighting has been taken to a fruitful level with regards to this Qasgiq space it must take a more modest stance within the rest of the program. This was done by designing daylighting registers within a simple shed design (which can be seen in the sections of figure 29). By creating a daylighting standard for the rest of the project allows a hierarchy of spaces to be recognized from the outside. While inside the two programmed rectangles the way light is pulled in and expressed within the space

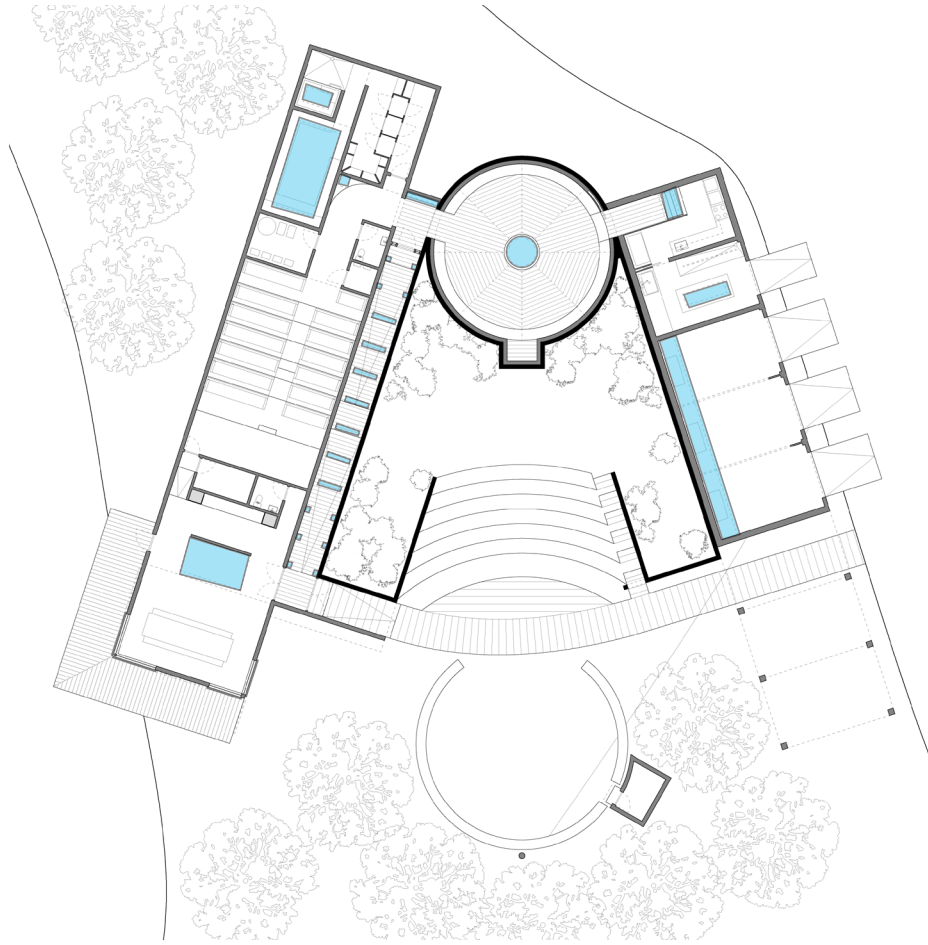


FIG 32. Plan view showing where natural daylighting strategies occur.

can vary in importance. Primarily in the leisure wing, the break room and sauna are two areas where daylighting is expressed in a heightened way. The idea is to incorporate a glass strategy similar to that of the Qasgiq tower within the spaces, where light can play off of. In the break room the glass would become a divider between the coffee counter and the main break space, which would allow direct winter light from an upper window to play up and down it throughout the season. In the sauna the glass would be laid horizontally above the sitting space to dapple colored light onto the bathers.

While there are many special moments of natural daylighting within the spaces for the most part the strategy was to provide natural daylight as much as possible. The building is a place that should re enforce the Yup'ik connection to their culture and relationship with the land, which has as much to do with light as anything. Strategies of wall washing or lighting above certain activity spaces are the more mundane moments. Only the cinema/theater space doesn't have direct daylighting, though it does have indirect lighting, which will be seen later.

Grass Basket

An interesting Yup'ik art that this thesis found worth investigating is traditional basket weaving. Of particular interest was the colors and patterning styles. The colors used are derived from dyes made by boiling flower petals from the area. It became apparent that this color palette is common in the built environment of coastal Alaska. This became a starting point for the expressive element of the glass tower above the Qasgiq.

There was an idea of community involvement with this element. The plan is to send up a furnace and two formworks, one for casting glass into and another for creating a masonry unit with this cast glass block. The tower would be constructed of glass block taken from the town dump, and made by the village, possibly creating a sort of new trade for the region. The cast glass masonry units would then be fastened into a metal framework which would also be the structure holding the fireplace flue.

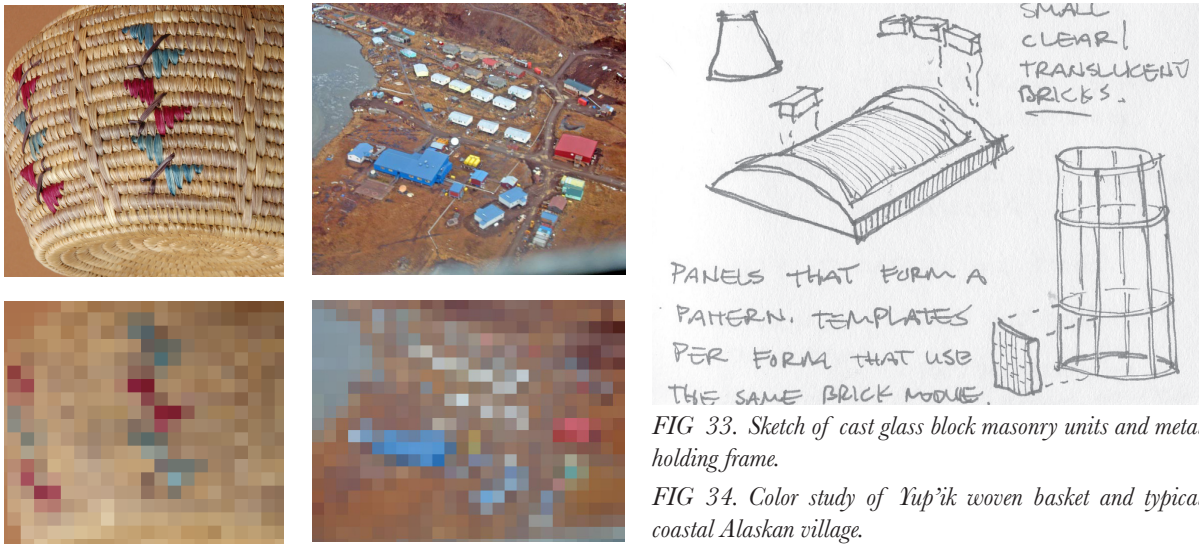


FIG 33. Sketch of cast glass block masonry units and metal holding frame.

FIG 34. Color study of Yup'ik woven basket and typical coastal Alaskan village.

Next came an exercise of pattern making. It was imperative the the design be simple, allow light through, express Yup'ik basket weaving, and produce a glow at night. Through preliminary studies it was decided that the majority of the pattern be made with clear and opaque blocks, this would allow the pattern to be read in the day and when light is shining through it at night as well. Only red was chosen as a color for the tower (while the opaque blocks do read blue it is not added, merely a result of sand blasting glass). Red was also selected because it would cast a warm light at night rather than a teal which would cast a cold light.

The studies, shown in figure 35, began by unrolling the tower framework and placing a cast glass block within each module. It was imperative that there be even number of modules in the X axis to allow a pattern that could repeat itself when presented as a cylinder. The studies revealed that the glass block and tower itself were scaled too large. A smaller module was chosen and a finer more human scale block was chosen. These studies are all examples of how glass block could be used in the project.

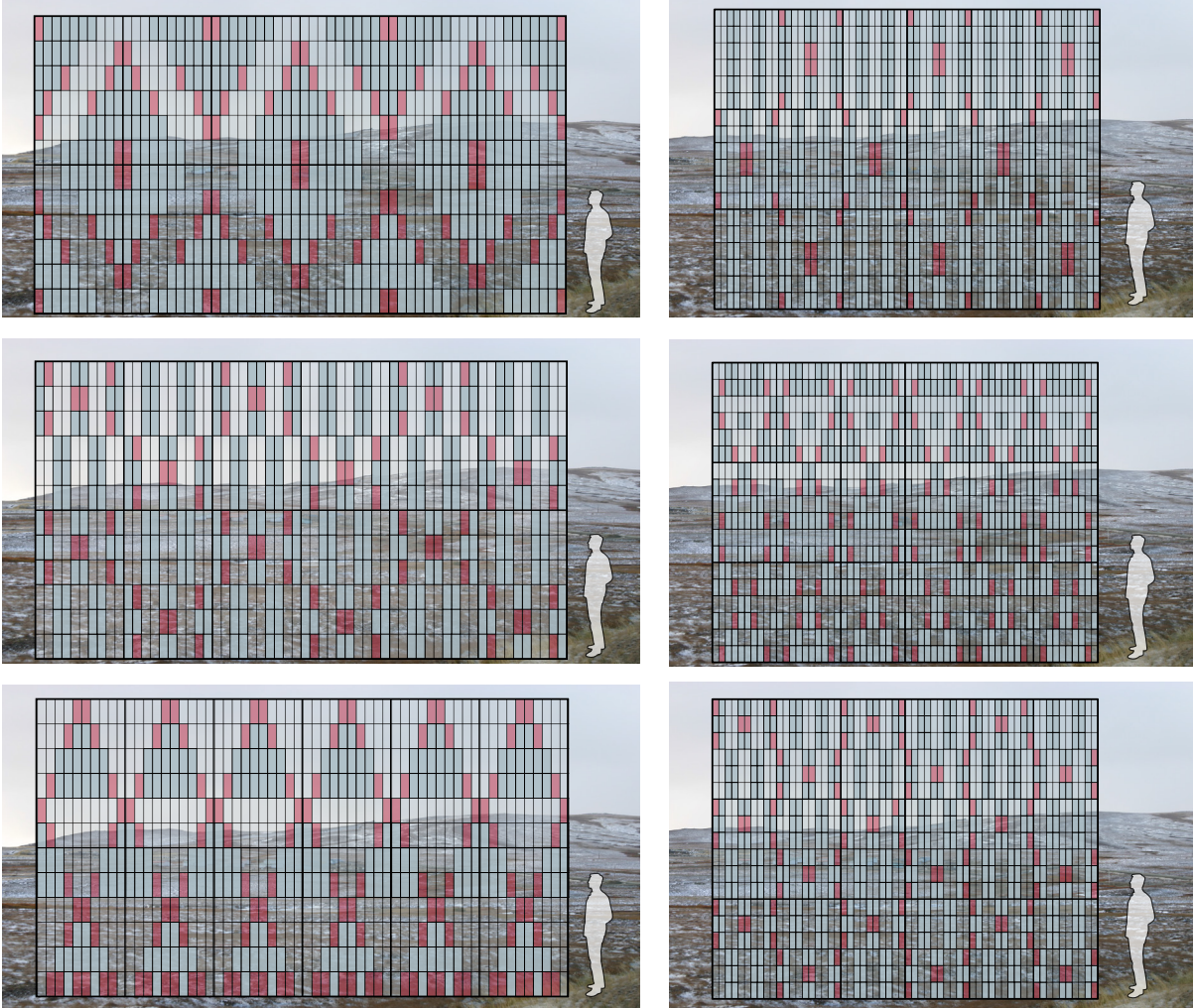


FIG 35. Studies of glass tower (unrolled) playing with traditional basket weaving patterns. Play of clear, opaque and red accent block.

The eventual pattern chosen is not indicative of the final result. The hope is that the community would take ownership of the pattern and design it themselves, with the general guidelines that this study inherently describes.

The glass block patterning would also occur within the programmed spaces as well. Specifically the break room, theater/cinema, and sauna spaces. Again the pattern would be driven by the community. For the interior glass patterning there would be more colors added, though staying within the bounds of colors found traditionally in basket weaving.

Materials

Modesty and celebration of light was the reasoning used when choosing a material palette. For the region it is common, historically as well as currently, to see wood clad structures. It was easy to decide that the structures should be wood clad. The retaining walls that are so integral to the project would be vertical boardform cast concrete to mirror the wood cladding of the structures.

The exterior of the project is meant to read very earth bound. The regions colors in the summer are a brown heather color and the winter the sky and earth are a variation of white and gray. The verticality of the boardform concrete would be mirrored in the cladding of the structures. This similarity in pattern would allow portions of the building to blend together. The color and tone of the wood cladding would age and weather to a silver gray which would match that of the concrete. Thus as the building ages it would turn to this backdrop of gray vertical texture on the backdrop of either a gray winter day or the warm heather of summer.

The tower is an expressive element and takes a circular shape the light monitors of the rectangular structures all fit within a shed shape. The tower is glass and shimmers or glows because it is the center and symbolic heart of the project, though the importance of light within the programmed wings is also important and requires expression. The exterior of wood and concrete may be subdued but without an accent would be quite mundane. The idea of the shed monitors being copper clad took hold. A metal like copper would signify the importance of the monitors as well as aging into a deep teal color that harkens back to the traditional woven basket colors. Resulting in the subdued wood and concrete tones punctuated by the red glass block and oxidized copper teal.

The interior of the building is also about the play of light, much like the exterior is about pulling and pushing light out. The material texture for the interior would begin with the radiant concrete slab, which was driven from the geothermal opportunity of a building built on piles. The programmed wings would have white plaster walls (which would have a finished texture done by the community) that would bounce light much better than a warm wood finish. Where casements or furniture occurs it would be finished in a birch plywood, offering accents of warmth while remaining a backdrop to the play of light through glass block. There would be more glass block colors added, shown in figure 38, that would reflect warmth and exciting colors (which would liven up the spaces during long gray winter months).

The artificial lighting of the spaces would be primarily hidden in the daylighting strategies. Thus the play of light on glass block would be constant throughout the annual use of the building. This can best be seen in figure 40 and has its origins in the admiration of Steven Holl's Seattle University Chapel.

The interior and exterior of this project consist of materials that are more subdued and background, except when daylighting is involved. The exception is along the path to the Qasgiq, where the whole experience is wood clad (though the vestibule has a concrete wall) much like the historic Qasgiq space (see figure 42 & 43).



FIG 36. Material palette of colored glass, boardform concrete, wood paneling, and copper against summer and winter backdrop.



FIG 37. Aged material palette against summer and winter backdrop.

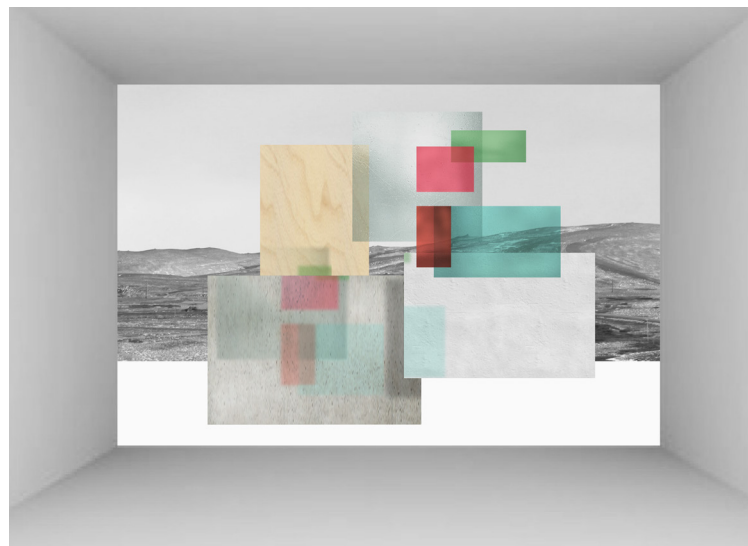


FIG 38. Interior material palette; radiant concrete slab, plaster walls, birch plywood accents and colored block. Light dappling shown.



FIG 39. Section through Qasgiq, amphitheater, and outdoor activity space looking West.

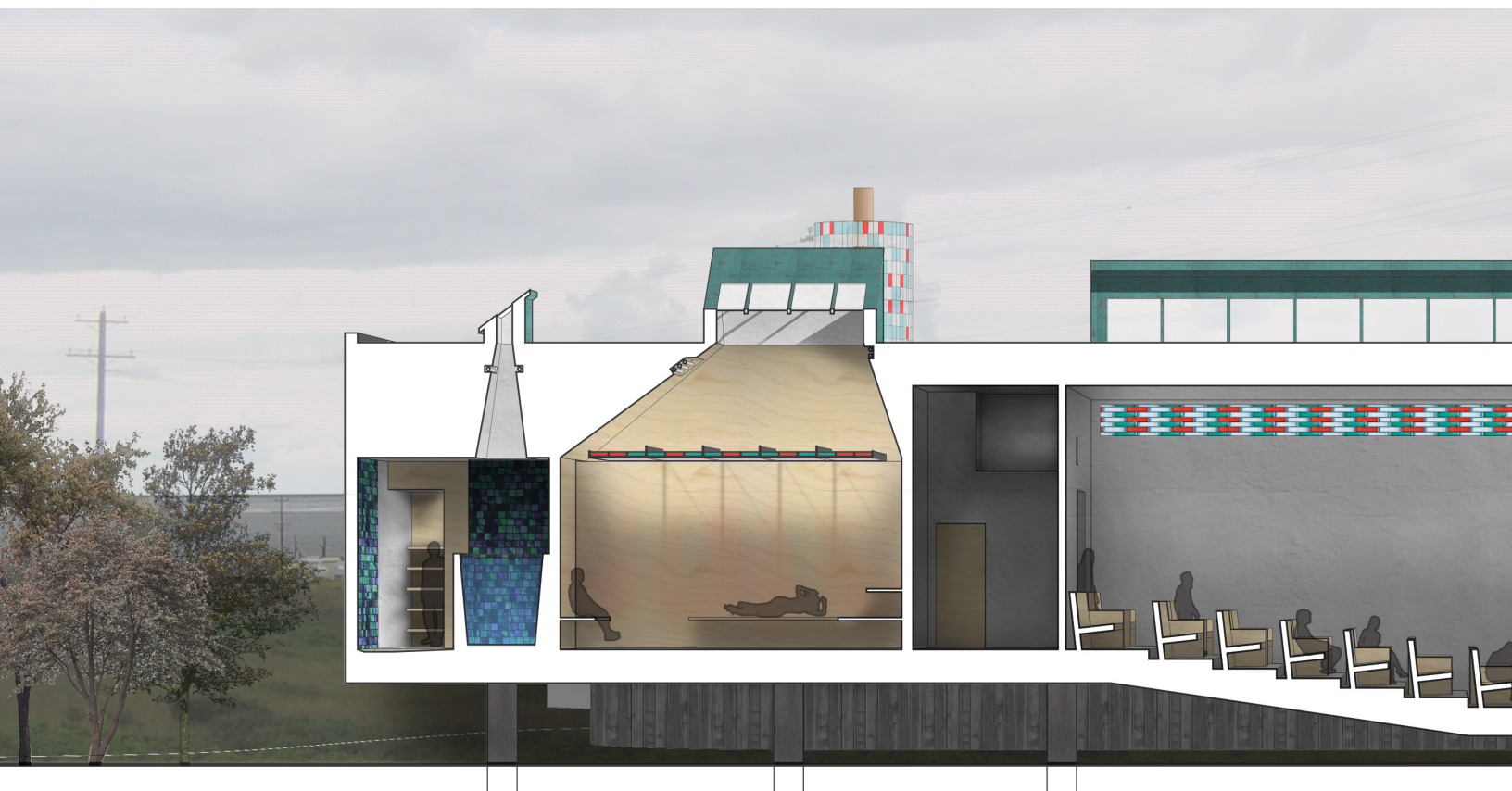


FIG 40. Section through the West Bar looking East. From left to right the major spaces are; sauna, theater/cinema, and break room.

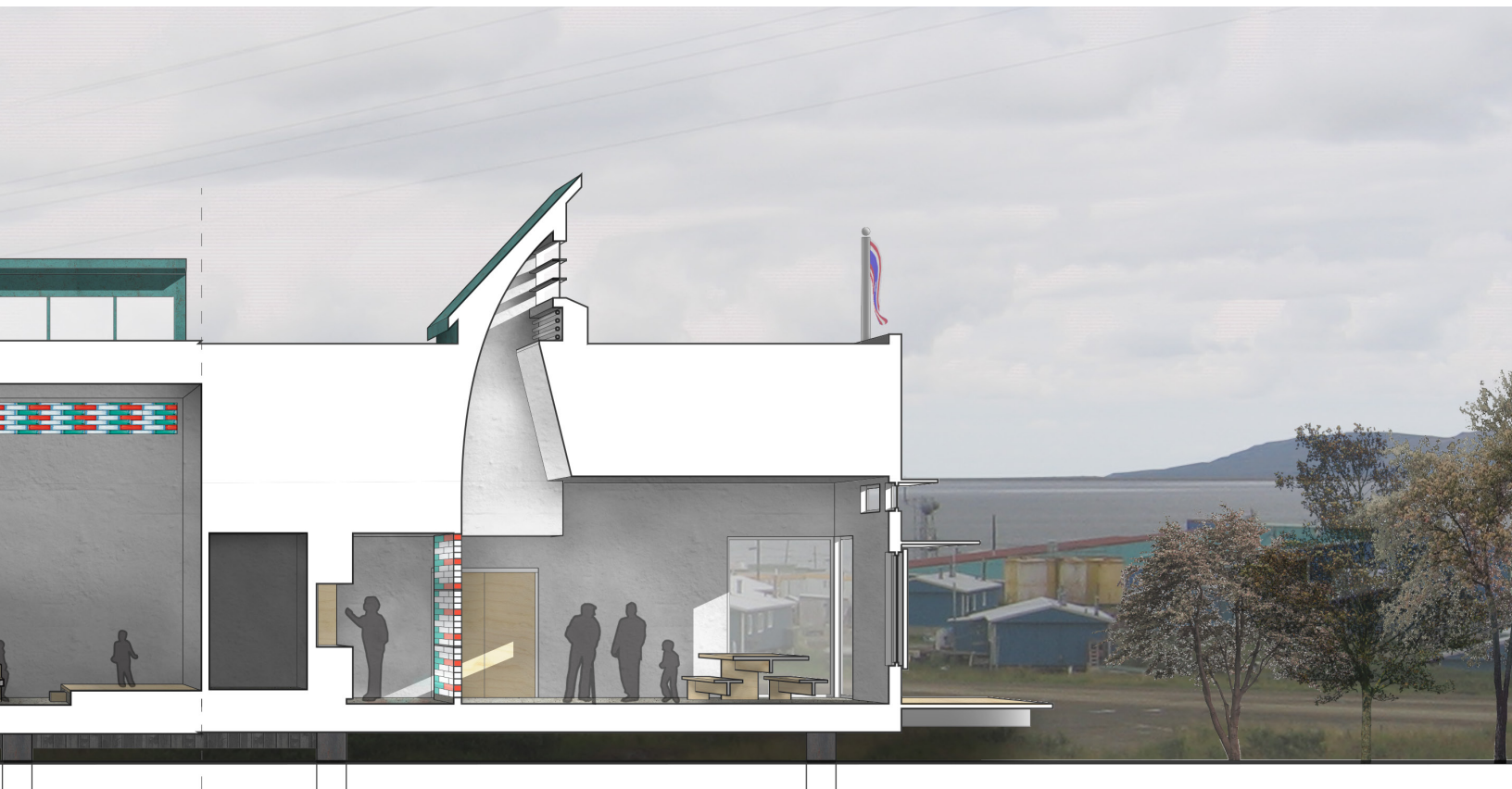
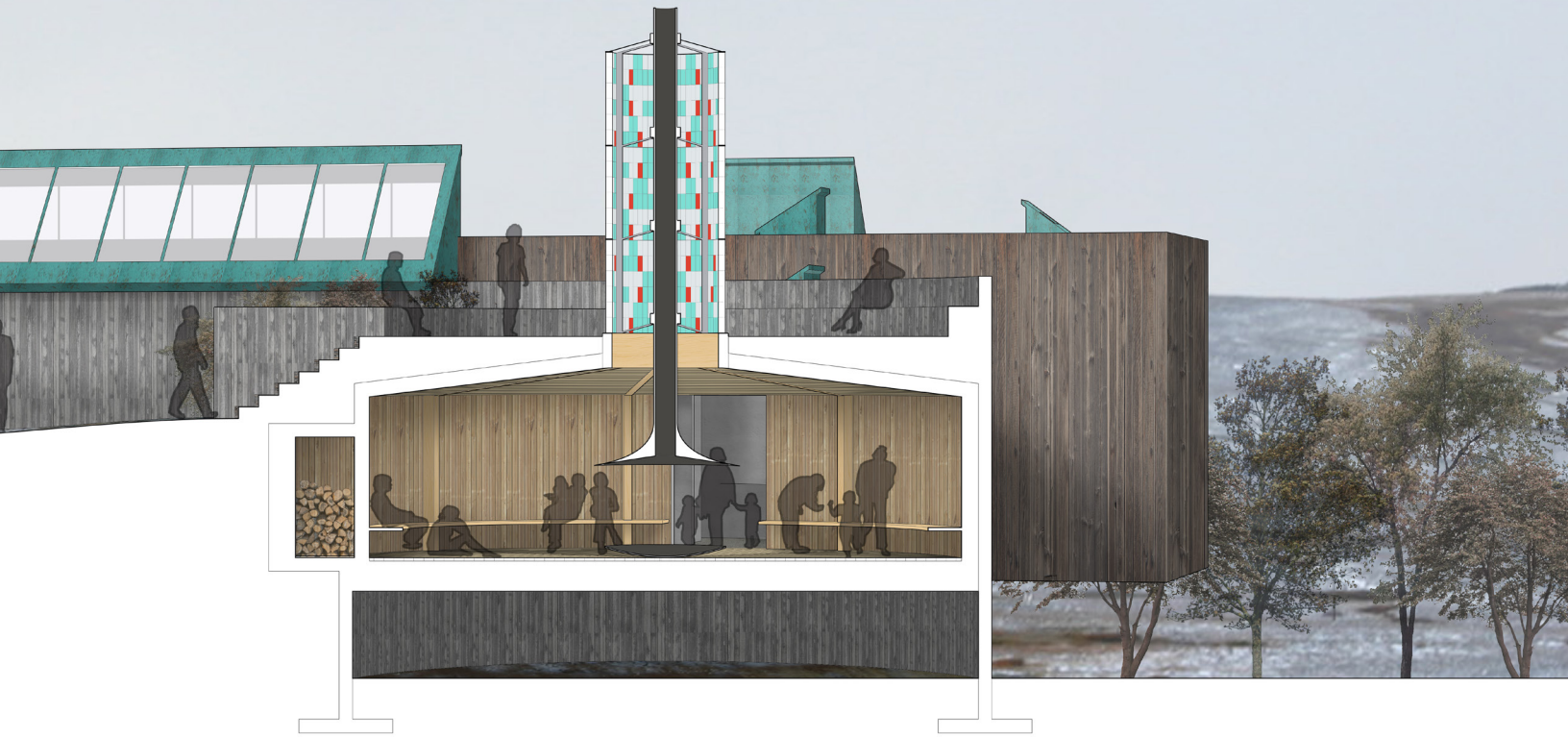




FIG 41. Perspective view entering the site from the east.

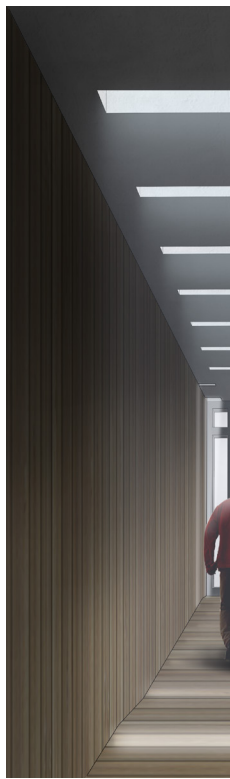


FIG 42. Perspective view



aw in vestibule.



FIG 43. Perspective view in Qasgiq space.

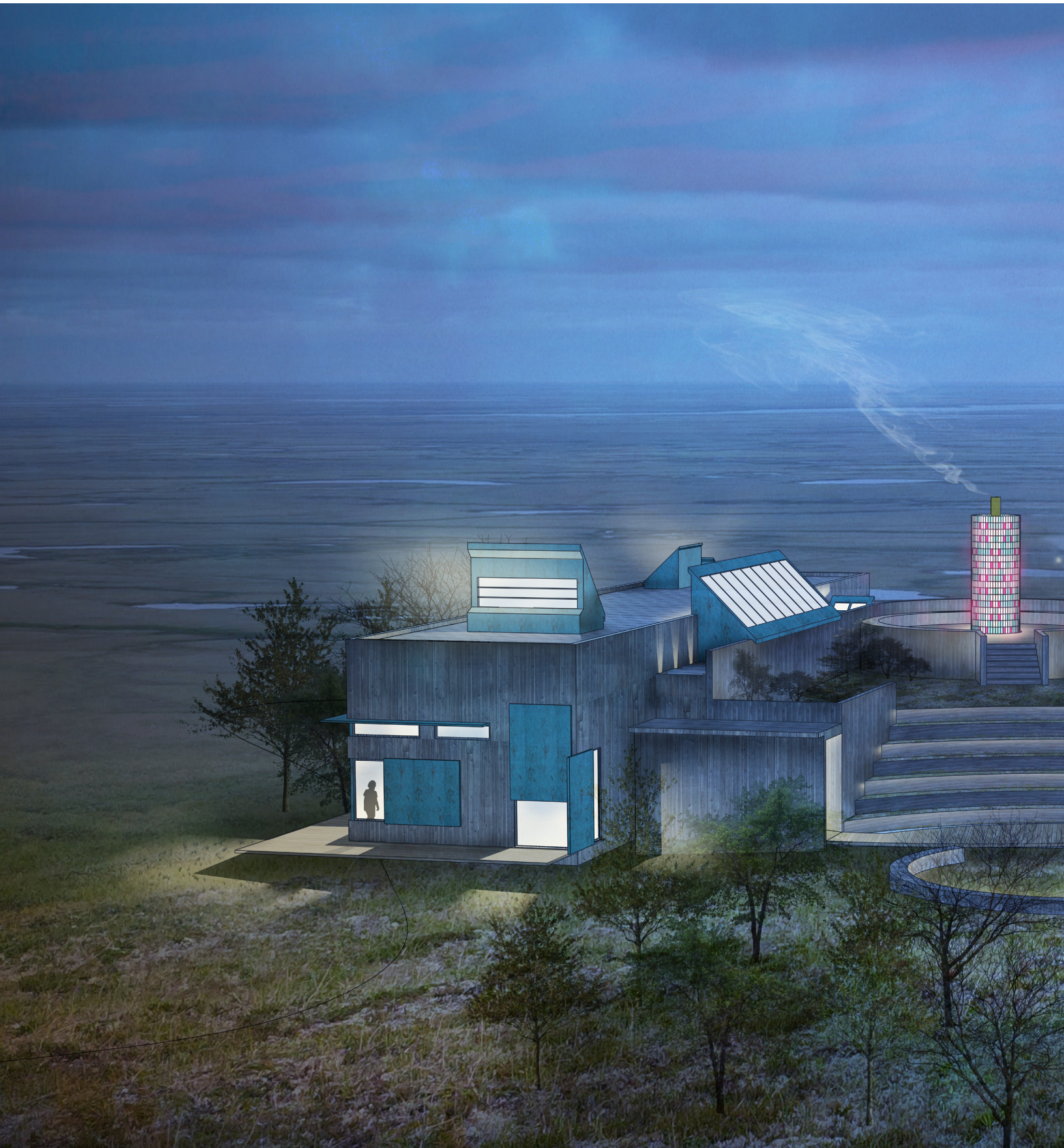


FIG 44. Night perspective looking north



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