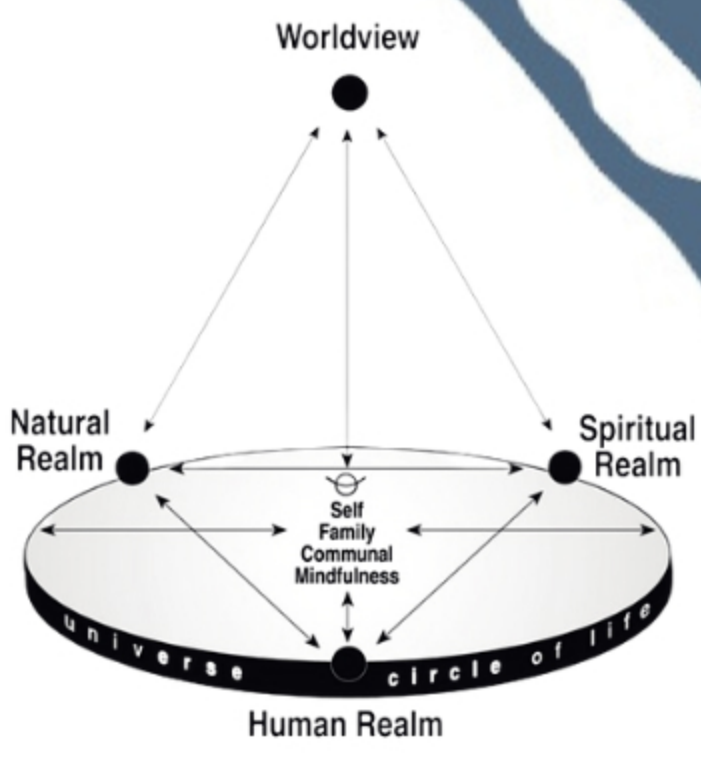




Iglood, Alaska

Shishmaref, Alaska



Kawagley's Tetrahedral Model

Narrative

The Chukchi Sea is home to Shishmaref, which is situated on Sarichef Island. It is a native village with a hunting and gathering lifestyle. Due to the frozen, sandy soil that formed the island, when the subsequent permafrost thaws, **erosion is inevitable**. Although past efforts were made to stop erosion, they proved to be short-lived. (Becker & Sampson, 2003)

Every year, climate change raises water temperatures throughout the world. This is particularly problematic in northern Alaska where ice and snow are essential. The Native Village of Shishmaref depends on the land to provide clothing, food, oil, and other necessities. In the spring of 2015, Kalik, the father of Tulugak* and wife of Amka, **fell through the thawing ice** and passed away. Shishmaref people supported the family, raised Tulugak, and taught him the cultural values, roles and traditions of men in their society.

Winter ice is usually thick enough to stand on in the spring; however, due warmer temperatures, more hunters have been caught by the freezing water. As Shishmaref began **slowly submerging**, an evacuation plan was also needed (Becker & Sampson, 2003). When the village of Shishmaref **voted to move in 2021**, many people were understandably reluctant to begin the journey of creating a new home away from the land they have been so connected to. **Change is necessary despite climate change being unnatural**. By honoring their way of life, traditions, and values, a new home will be planted in Iglood, Alaska (Becker & Sampson, 2003).

A new home will now be built to accommodate Amka, Tulugak and his grandmother Yura. The family **requires a stable home** that can withstand the brutal winters in Northwestern Alaska, the grandmother's visual impairment, and that **continues to pay homage to their traditions while also embracing the conveniences of modernity**. The house should reflect the sense of community present in Shishmaref and honor Kalik's legacy.

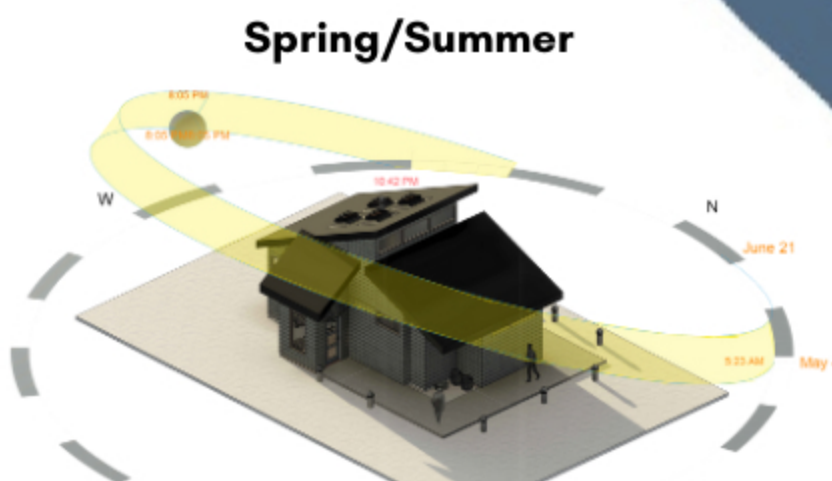
*Inspired by the true story of Esau Weyiouanna

Concept

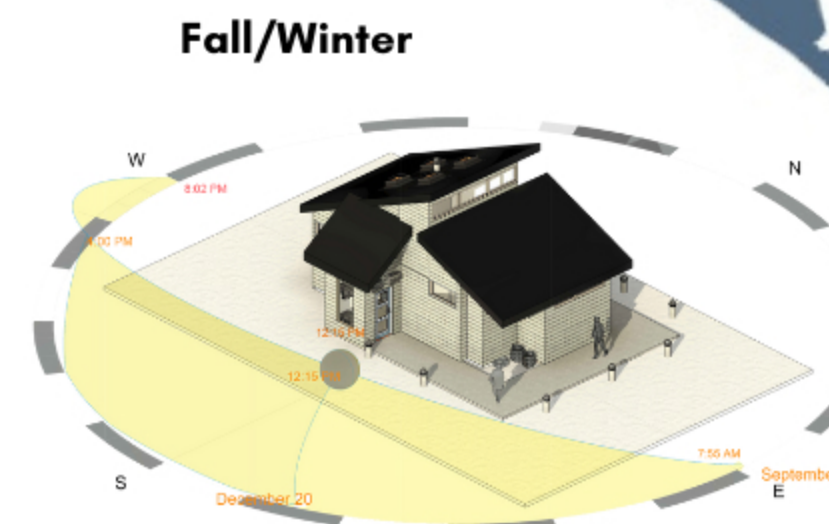
Essence or inua, encapsulates every tradition, life, death and honors all living creatures while also representing the Native Village of Shishmaref. Like the raven **sowing its seeds to create earth** in the Shishmaref creation story, we aim to **sow a seed of stability** in the next chapter of Shishmaref culture (Passantino, 2020). This home aims to create a **sacred affinity and a symbol of rebirth in a new environment**. As a result, the project incorporates **sustainable practices, materials, embodying the tetrahedral model that represents the natural, spiritual, and human realms** (Kawagley, 1993) of Shishmaref culture.

References

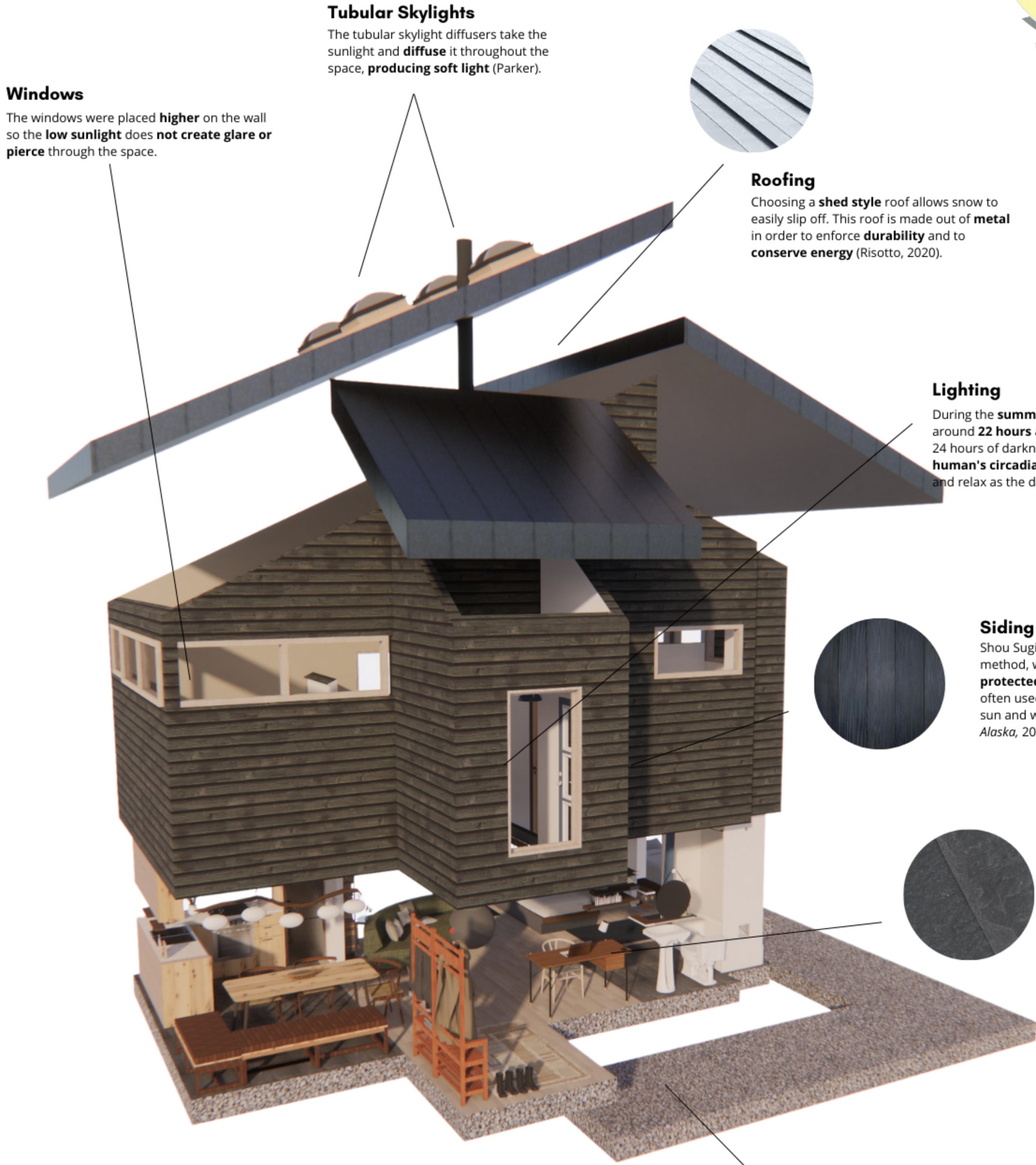
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf
- Becker, S., Sampson, R. (2003). *Shishmaref: A Case Analysis for Permafrost Erosion and Permanent Relocation*. Retrieved August 30, 2022, from https://www.fisheries.gov/Assets/DocumentLibrary/Permafrost/Permafrost%20Erosion%20and%20Relocation%20Study.pdf



Spring/Summer



Fall/Winter



Tubular Skylights

The tubular skylight diffusers take the sunlight and **diffuse** it throughout the space, **producing soft light** (Parker).

Windows

The windows were placed **higher** on the wall so the **low sunlight** does not create glare or pierce through the space.

Roofing

Choosing a **shed style** roof allows snow to easily slip off. This roof is made out of **metal** in order to enforce **durability** and to **conserve energy** (Risotto, 2020).

Solar Study

Because of Alaska's proximity to the north pole, there are unique solar patterns. In addition, the sun's location in the atmosphere in the arctic region is extremely low on the horizon and can often pierce through windows and make it difficult to see screens and maintain productivity.

Lighting

During the **summer** months, Alaska's sun is out around **22 hours a day**. In the **winter**, they have 24 hours of darkness. The lighting chosen **mimics human's circadian rhythms** in order to energize and relax as the day progresses (Ciri, 2022).

Siding

Shou Sugi Ban is a Japanese **curing** method, where wood is **charred and protected** from the elements. This is often used in Alaska where snow, rain, sun and wind are intense (Shou Sugi Ban Alaska, 2020).

Flooring

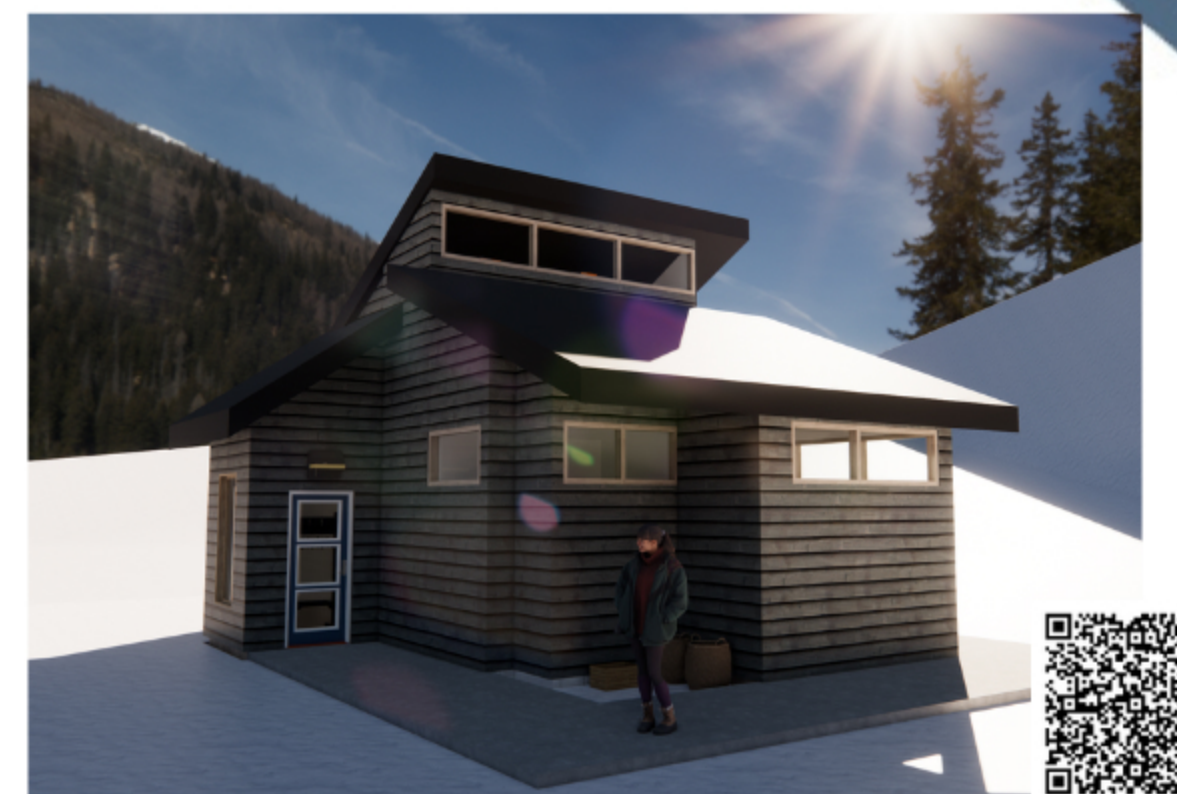
The slate flooring chosen is **incredibly durable**. The flooring changes throughout the space to allow for easier **wayfinding**.

Foundation

The foundation is an **on grade frost protected shallow foundation** which ultimately helps to **protect** the building from any damage that could be caused by the **frigid temperatures** (On-grade foundations).

Parti

Shishmaref's worldview can be compared to a **tetrahedron**. Self, family, community, and mindfulness are at the core of their worldview, which is based on the **natural, spiritual, and human realms**. Our design incorporates a **fireplace as a symbol of togetherness** based on Shishmaref's views of community and family. To convey this belief, the tetrahedral shape was incorporated into the **floorplan, roof plan, and architectural zoning** throughout the entire design.



Exterior

Panoramic View



Living Room/Kitchen

Panoramic View



Entryway

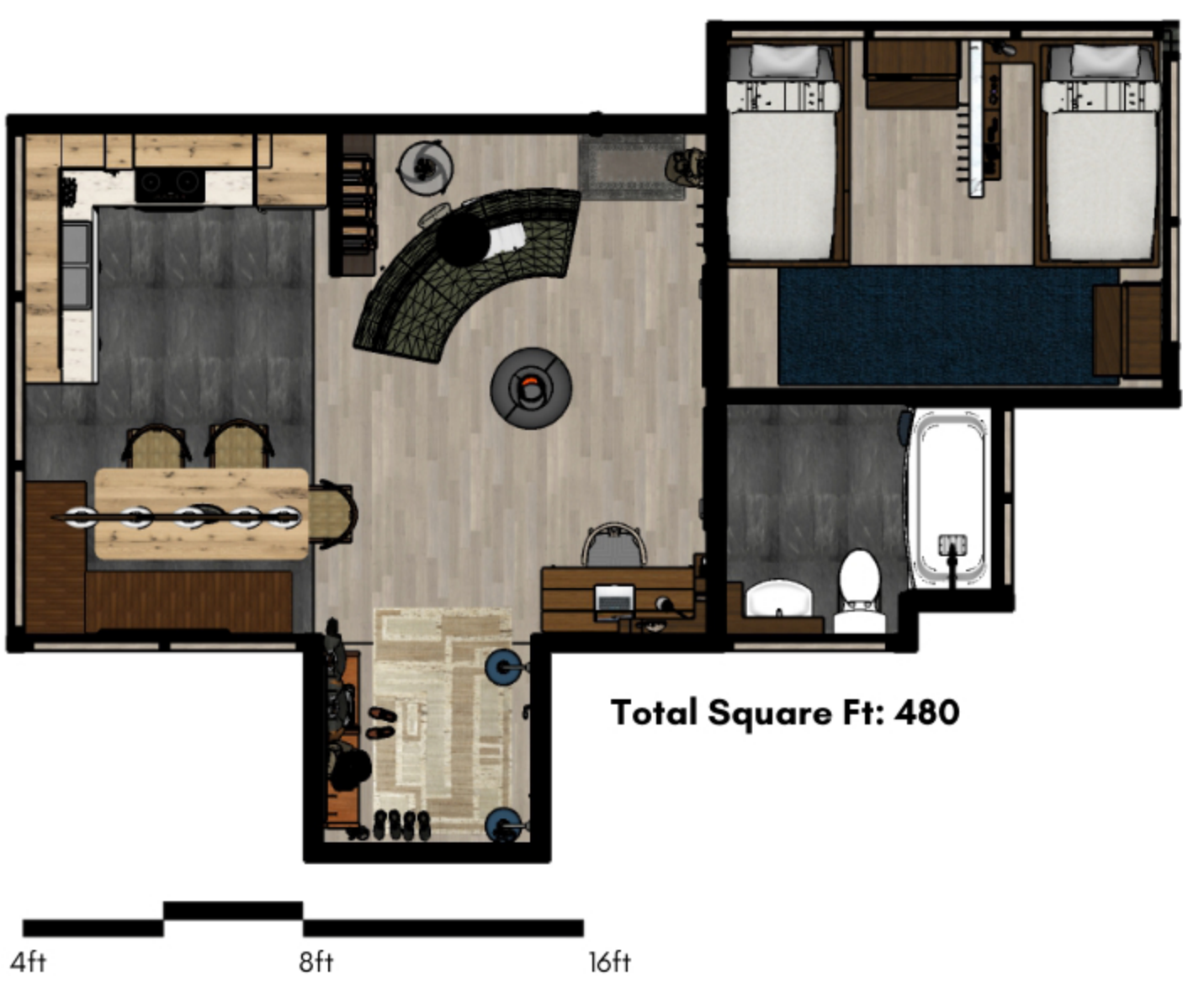


Bedroom



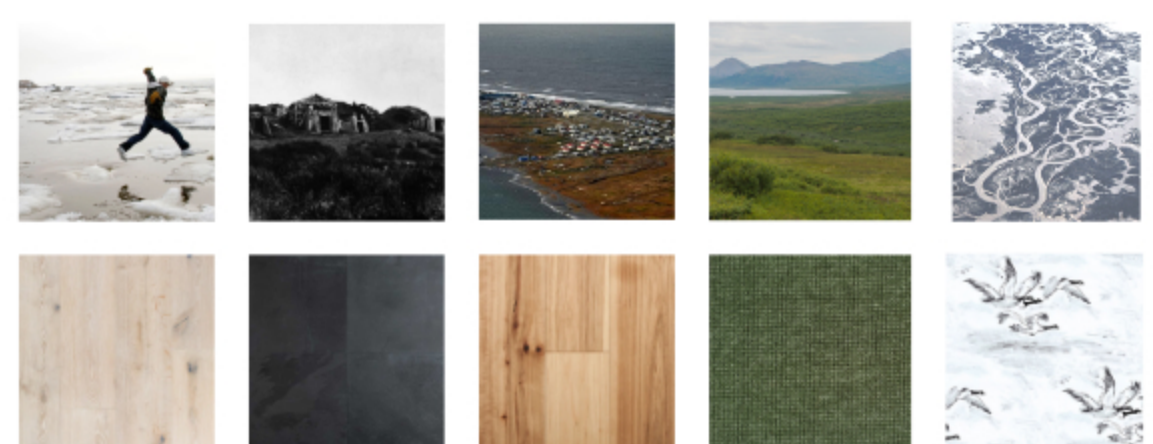
Hydroelectric

Due to the convenience of Iglood being near streams and rivers, the Native Village of Shishmaref will be able to utilize **hydroelectric power** to power their homes and businesses. Through the use of a **magnetized turbine** housed in a small shed near the riverbank, electricity will be produced in a **sustainable** and relatively inexpensive manner (Bolling, 2020).



Total Square Ft: 480

4ft 8ft 16ft



Material Context

essence

inua: spirit or soul that exists in all people, animals, lakes, mountains & plants; their life essence