

# ARCHITECTURAL LESSONS ON FOUNDATION BUILDING IN VAN TAT GWICH'IN TERRITORY

*an overview of foundation typologies constructed within this continuous permafrost region and their reciprocal relationships with people, buildings, and the land*

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*An Index of Bearings and Groundworks:  
Architectural lessons on foundation building  
in Van Tat Gwich'in territory*

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## ABSTRACT//

The foundation is an architectural component that mediates the relationship between a building and the land. It is a connection that is particularly challenging to ground in dynamic soils underlain by permafrost.

Bridging the Arctic Circle in the Northern Yukon, Van Tat Gwich'in territory is situated between overlapping cultural and geopolitical realities of the North and the South. The lives and knowledge of the Peoples who have inhabited this place for millennia are entangled with a shifting land, one that experiences both changing seasons and increasing warming trends. The Van Tat Gwich'in, like many northern Indigenous Peoples, are positioned as the 'ground truthers' of environmental change in their territory. Distanced professional 'experts' also engage this critical issue through research and design. These perspectives overlap in the practices of foundation design, building, and maintenance. Foundations are located within a web of reciprocity that intertwines multiple ways of knowing the land.

Conceptually, this work positions foundations as connections to the land. Two main foundation typologies exist for building on permafrost: deep and shallow foundations. Deep foundations – such as piles that require imported materials, equipment, and skilled labour – attempt to isolate a building above the upper surface of the ground from the shifting, active layer by connecting to a more solid material below. Shallow foundations – such as vernacular Gwich'in timber designs used in contemporary life out on the land – float on top of or within the earth's surface. The latter types of systems are often used in residential construction, where the ground's transformations can manifest themselves in the physical experiences of living in these buildings, and often result in a need to maintain and constantly re-level these structures. As the land shifts with climate change, many foundations must adapt and either dig deeper or tolerate more movement.

Methodologically, this work is compiled as an academic overview of the multi-scalar relationships between people, buildings, and the land that architecture might build on.

This work takes the form of an open-ended and non-technical illustrated index of existing foundation typologies for building in this continuous permafrost region, and details how these systems function. At a larger scale, an additional series of deep section drawings annotates the interrelationships between buildings and the ground, and looks beyond the architect's typical 'ground-up' purview.

This work presents an understanding of foundations informed by a constellation of work that includes architectural research, literature reviews, conversations, and time spent over the course of two summer seasons in Old Crow, Yukon, and the author's experience out on the land with local citizens who live close to it. Written from the position of a 'not-knower' – a visiting student of architecture and the land – this work offers a series of questions, attachments, and prompts for the consideration of the visiting designer that emerge through the examination of foundations and their reciprocal relationships with people, buildings, and the land.

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