Drift House

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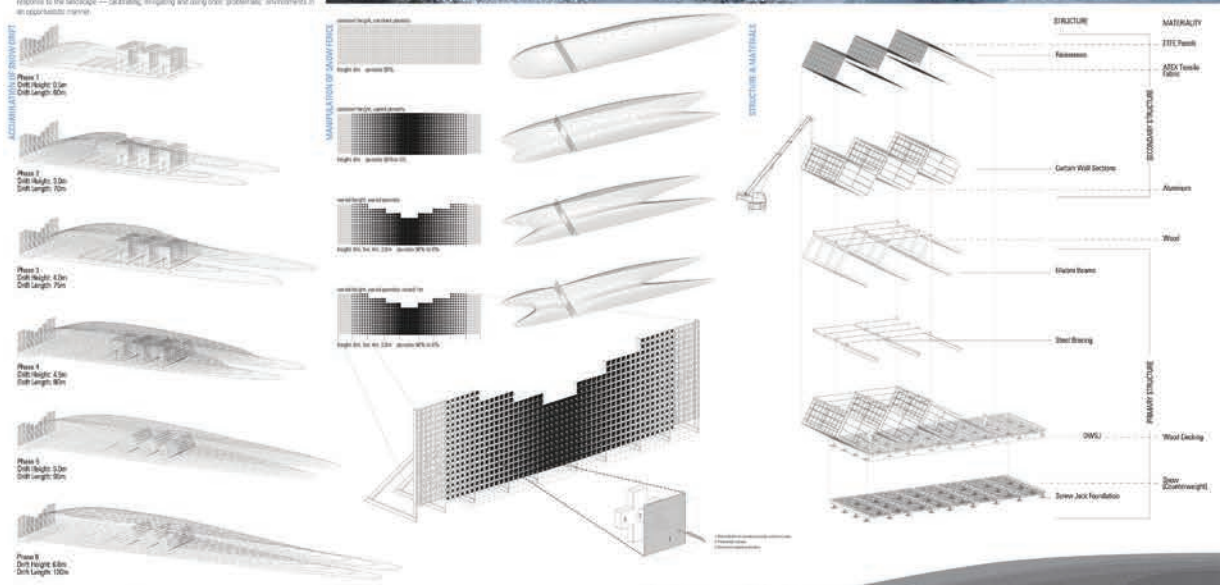
With insufficient core populations to support public structures, indigenous dwelling typologies have attained the highest level of refinement within the Canadian Arctic's unique climate. Pre-WWII indigenous Inuit housing types had embedded connections to the local landscape, its orientation, materials and fabrication, while embracing the nomadic Inuit lifestyle. With zero ecological footprint, these temporal dwellings employed opportunities from the landscape and atmosphere to form a complex shelter that negotiated thermal performance, local materials, soft construction techniques, program and cultural values.

Permanent architecture –in the form of prefabricated Government housing– was employed in an effort to assert a first wave of Arctic Sovereignty during the Cold War era by the Canadian Government. Despite instilling new notions of comfort and durability, this new housing neglected the cultural and sustainable intelligence of traditional dwellings. Importing a 'southern' model of dwelling, these hermetic containers were highly contingent on imported materials, energy consumption, labor, and transport costs, while forcing a transformation to the Inuit lifestyle that severed a connection to the dynamic landscape. These typologies have formed the template for Arctic shelter and settlements in Canada that still persists today. Northern Canada is currently undergoing a housing crisis due to decadent shipping, construction, and energy costs, and the corresponding ramifications on overcrowding and deprivation. The Drift House aims to hybridize the intelligence of tradition and technology of both housing systems to offer direction on future constructions in the Arctic.

The Drift House is in fact parasitic to the construction of new snow fences in the Canadian North. An increasing number of extraction outposts have prompted the investigation of new road infrastructures in the North, which are protected from snowdrifts by snow fences. The Drift House manipulates the porosity and height of these snow fences in select areas to calibrate a specific pattern of snow accumulation. By understanding a malleable system, such as snowdrift, architecture can be formed in response to the landscape — calibrating, mitigating and using once 'problematic' environments in an opportunistic manner.

The house is comprised of 3 surfaces formed of ETFE panels that create three separated zones and courtyards in the summer months. ETFE panels were employed because of their highly insulative properties (primarily using an airspace) as well as their ability to pack 'flat' and be shipped to the Arctic in a cost effective manner. As snow accumulates behind the fence, it effectively tips the house into a second state to create a singular enclosure made up of three nested thermal environments to protect the house during the winter months. The accumulated snow passively 'builds' part of the dwelling, while also serving as a counterweight to the light cantilevered structure. The nested thermal environments produce a series of thermal zones related to the interior program and traditional lifestyles. By using snow as a material, structural counterweight, and enclosure, the Drift House is able to passively accumulate a responsive shelter through the manipulation of a generic technology (the snow fence) to form new a typology of dwelling.


Drift House, 72m²
SFD stick house, 225m²
SIP house, 390m²
NHC two-plex, 750m²
DRIFT HOUSE


ACCUMULATION OF SNOW (DRIFT)
MANIPULATION OF SNOW FENCE
STRUCTURE & MATERIALS
STRUCTURE
MATERIALITY
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6


Summer + Section + Winter