



Kluane Lake Research Station

Cabin Design & Building Competition 2021

Design Specification

Criteria	Specification
<i>Context</i>	The Kluane Lake Research Station (KLRS) is University of Calgary research station operated year-round in SW Yukon. KLRS has an accommodation capacity of 40 person amongst 10 cabins. KLRS cabins range from 5-40 years old.
<i>Innovation</i>	KLRS is proposing to build a new cabin to replace an old two-person cabin. Each year KLRS plans to rebuild a new cabin to update the existing accommodation stock. It is envisioned that each new cabin will incorporate an innovative building design, method, or material not common to or used in the Yukon. This will create a large-scale demonstration project of new methods and designs for small scale buildings in remote and northern environments.
<i>Location</i>	Kluane Lake Research Station, Mile 1054 Alaska Highway, Silver City, Yukon
<i>Size</i>	Replacing an existing 12-foot x 20-foot footprint
<i>Capacity</i>	2-person
<i>Use</i>	Space(s) for sleeping, changing, and unpacking, working/studying
<i>Season</i>	4-season, year-round use in Yukon, including insulated to withstand to -40°C
<i>Foundations</i>	Temporary, but able to withstand substantial soils settlement, including options for adaptive and floating foundations
<i>Exterior</i>	Ability to withstand intense dust storms with abrasive debris
<i>Security</i>	Building must be lockable from the inside (personal privacy) and the outside (security when not in use)
<i>Power</i>	Off-grid, but provision for phone and small device charging include radios is recommended
<i>Lifetime</i>	Expected to last 15 years with minimal maintenance
<i>Build Cost</i>	\$10,000, all materials must be purchased in Yukon

Design Considerations

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<i>Building Performance</i>	<p>Snow and rain shedding</p> <p>De-constructible and reusable structural components for rebuilding or moving cabin</p> <p>De-mountable, reusable, or replicable exterior cladding for increasing expected lifetime and reducing material needed when cabin's lifespan is over</p>
<i>Building Design</i>	<p>Flexible workspace furniture</p> <p>Equipment storage (skis, packs, gear, clothing, etc.)</p> <p>Beds and privacy for occupants</p> <p>Ample daylight</p> <p>Innovative use of materials and construction methods specific to northern climate and programmatic needs</p> <p>Potential for prefabrication and modular construction</p> <p>Components and ease of transportation to minimize on-site construction waste</p>
<i>Building Sustainability</i>	<p>Zero carbon construction</p> <p>Alternative materials, including novel insulation e.g. hemp or straw, and FSC or sustainably harvested timber</p> <p>Off grid power (e.g. solar) for LED lights, phone, and laptop charging. Note: materials for renewable power generation will be provided separate to the build cost</p>

