

UTC Project Information	
Title	Sustainable Construction in Remote Cold Regions: Methods and Knowledge Transfer Strategies
University	University of Alaska Fairbanks
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Funding Source(s) and Amounts Provided (by each agency or organization)	UTC for Environmentally Sustainable Transportation in Cold Climates (CESTiCC) \$59,130 UAF \$29,558
Total Project Cost	\$88,688
Agency ID or Contract Number	101414
Start and End Dates	July 1, 2014 to December 31, 2015
Brief Description of Research Project	<p>Sustainable Construction in Remote Cold Regions: Methods and Knowledge Transfer Strategies</p> <p>Remoteness and cold climate make construction in rural Alaska challenging and expensive. Sustainable construction practices serve to reduce the negative environmental consequences of construction projects and often reduce their life-cycle cost. While such practices are commonly considered in warm climate construction, especially for horizontal construction, little knowledge has been accumulated about</p> <ul style="list-style-type: none"> <li>• Translate common sustainable construction methods in use for vertical construction into similar approaches for horizontal construction for use as a checklist of topics for horizontal construction in remote and cold regions.</li> </ul> <p>Identify appropriate sustainable horizontal construction methods for use in remote regions and in severe climates</p> <p>Develop guidelines and means for the formal transfer of such methodologies to those who conduct construction operations in such environments. Examine practicality of such techniques for use in remote and harsh environments by rural residents.</p>
Describe Implementation of Research Outcomes (or why not implemented)	<p>Without effective knowledge transfer, this project will not be considered a success. Thus, a major objective is the incorporation of findings into construction practice. As outlined in the work plan, we will do this in the following ways:</p> <ul style="list-style-type: none"> <li>• A meeting with industry leaders to report interim findings</li> <li>• Publishing a peer-reviewed paper and publishing findings in the grey literature, such as AGC newsletter, APDC News, and so on.</li> <li>• A short course or similar learning experience to teach our guidelines to those conducting construction work in rural Alaska, and inviting</li> </ul>
Place Any Photos Here	

	<p>attendees from rural Alaska.</p> <ul style="list-style-type: none"> <li>• Incorporating findings into construction course(s) at UAF</li> <li>• Working to include guidelines into DOT&amp;PF and other standard specifications for construction.</li> </ul>
<p>Impacts/Benefit of Implementation (actual, not anticipated)</p>	<p>In practical practice today, many sustainability issues are addressed or “fixed” later by environmental compliance or maintenance practices. Here we approach this more proactively by examining modifications to construction practices in the north. Alaska is a great location for such a study because of our extreme seasonality, very low population density connected by roads, hundreds of rural airports, and other features. We plan to test our ideas by seminar and interview with people and make sure our recommendations are feasible in rural regions. Potential for implementation and peer-reviewed publications (“addressing current gaps in research”): Because our work with sustainable construction is not heavily reported and our work in very cold climates and remote work is novel, we expect it to be publishable in peer-reviewed journals. And contribution to education and workforce development. The deliverables include courses, both suitable for working engineers and technical professionals and literature and graphic and video materials suitable for worker training. By holding a seminar for people active in the field and familiar with the situation</p>
<p>Website links</p>	<p><a href="http://cem.uaf.edu/cesticc/research/projects/sustainable-construction-in-remote-cold-regions-methods-and-knowledge-transfer-strategies.aspx">http://cem.uaf.edu/cesticc/research/projects/sustainable-construction-in-remote-cold-regions-methods-and-knowledge-transfer-strategies.aspx</a></p>