

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY  
NEPA DETERMINATION**

**RECIPIENT:** Cold Climate Housing Research Center**STATE:** AK

**PROJECT TITLE:** New Iglu: A High-Performance Vacuum Insulated Panel Modular Building

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002099	DE-EE0009071	GFO-0009071-001	G09071

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

**A9 Information gathering, analysis, and dissemination** Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

**B3.6 Small-scale research and development, laboratory operations, and pilot projects** Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Cold Climate Housing Research Center (CCHRC) to develop a novel modular building system incorporating vacuum insulated panel (VIP) technology. The system would be designed to increase the energy efficiency of residential buildings in extremely cold climates. As part of the project, prototype paneling components and associated equipment would be used to erect a partial mock housing assembly, which would in turn be used for performance testing of paneling components.

The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. BP1 would focus on system design and erection of the housing assembly. Proposed project activities would include component development, material analysis, housing assembly erection, computer modeling, and stakeholder engagement (e.g. conferences, workshops, etc.). BP2 would focus on performance testing and analysis. The housing assembly would be subjected to varying temperatures in an environmental chamber and its components would be assessed for performance (e.g. air tightness, thermal performance). Techno-economic and energy analyses would also be performance.

The housing assembly to be used for performance testing would consist of a framing structure and floor, roof, and wall paneling. It would be fashioned so as to resemble the corner of a full-scale home. The assembly would measure approximately 10 ft. x 8 ft. x 4 ft. During testing, the entire assembly would be contained within an existing environmental testing chamber. The assembly would be outfitted with monitoring equipment, to measure variables including temperature, humidity, and moisture content, among others. Performance testing would occur indoors, in laboratory settings.

All project activities would be coordinated by CCHRC and performed at its existing, research and testing facility in Fairbanks, AK. CCHRC constructs and tests housing prototypes at this facility as part of its regular course of business. Project activities performed as part of this project would not require any physical modifications to existing facilities, ground disturbing activities, outdoor installations/deployments, or changes to the use, mission, or operation of existing facilities. No additional permits or authorizations would be required to complete project activities.

Project activities would involve the use and handling of construction materials and electrically powered equipment. These materials are regularly used at CCHRC. In order to mitigate against potential hazards associated with the performance of project work, CCHRC would adhere to established institutional health and safety policies and

procedures. Protocols would include employee training, the use of personal protective equipment, engineering controls, monitoring, and internal assessments.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

**NEPA PROVISION**

DOE has made a final NEPA determination.

Notes:

Building Technologies Office  
This NEPA determination does not require a tailored NEPA provision.  
Review completed by Jonathan Hartman on 06/29/2020

**FOR CATEGORICAL EXCLUSION DETERMINATIONS**


The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:  Casey Strickland Date: 6/29/2020  
NEPA Compliance Officer

**FIELD OFFICE MANAGER DETERMINATION**

- Field Office Manager review not required
- Field Office Manager review required

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager