

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Syracuse University**STATE:** NY

PROJECT TITLE: Integrated Whole-Building Energy Efficiency Retrofit Solution for Residences in Cold/Very Cold Climates

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002099	DE-EE0009060	GFO-0009060-001	G09060

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 Syracuse University (SU) to develop a whole-building retrofit solution for single-family attached residences. The solution would incorporate a variety of energy efficiency technologies and processes. These would include a novel building envelope retrofit system, an envelope-integrated heating, ventilation, and air conditioning (HVAC) system, and a retrofit protocol and design decision-making platform. Various laboratory-scale components (e.g. envelope paneling, HVAC components, sensors, etc.) would be fabricated, assembled and subjected to performance testing. A full-scale envelope prototype would also be developed and used for field testing.

The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. BP2 activities will only be structured if and when SU receives a Go Decision and is approved to move into a second BP. Because no information is currently available regarding potential task work for BP2, all BP2 tasks and subtasks are restricted. This NEPA Determination will be applicable to BP1 tasks and subtasks. BP2 activities will be reviewed at a later date if SU is approved to proceed into BP2 and once all relevant information has been submitted to DOE.

All project work would be coordinated by SU and performed at purpose-built laboratory, manufacturing and outdoor testing facilities. Work activities would be performed primarily at SU's campus in Syracuse, NY. Project partners Cocoon Construct and tkFabricate would assist with design, development, component assembly/installation and testing. Due to current restrictions in place associated with the COVID-19 pandemic, some component assembly work may be performed at a residential location in Manlius, NY if proper zoning permits are obtained. Permits would need to be obtained in order to make minor modifications to the residence. Assembly at the Manlius, NY location would not be performed by tkFabricate until all applicable permits are secured. Cocoon Construct would coordinate fabrication and assembly of envelope prototype components with qualified, third-party companies.

Proposed project activities would include design development, stakeholder engagement, computer modeling, component fabrication/assembly (i.e. envelope prototypes and HVAC system components), development of a retrofit protocol, and development of a digital decision-making platform. Three mid-scale 4'x4' envelope prototypes would be developed and assembled. These would then be used for laboratory-based performance testing. The results of testing would be used to develop a larger-scale envelope prototype intended to simulate actual building envelopes. Envelope prototypes, HVAC system components, and associated equipment would be fabricated by qualified, third-party companies.

The larger-scale prototype would be installed onto SU's Building Envelope Systems Testbed (BEST) for testing. BEST is a dedicated test facility owned and operated by SU that serves as a mock residence to test energy efficiency measures and technologies. Various modifications would be made to the BEST facility when installing the envelope prototype, including the removal of existing cladding and windows on the test area, as well as construction of an interior guarded chamber for full-scale testing. Components of the HVAC system would be installed outdoors, in a pre-disturbed area adjacent to the BEST facility. A pre-cast concrete slab would be used as the foundation for the HVAC equipment. Shallow trenching may also be needed around the exterior of the BEST facility in order to install paneling.

U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) database indicates that there is the potential for occurrence of two Endangered Species Act (ESA) bat species and one plant species in the project area. However, because all installation work/building modifications would occur in a previously disturbed area designated and regularly used for outdoor testing, DOE has determined that the project would have no effect on ESA-listed species or critical habitats.

Component assembly, installation, and testing would involve the use of electrical equipment and power tools. Risks associated with the performance of project activities would be mitigated through adherence to established university health and safety policies and procedures. SU and its project partners would observe all applicable Federal, state, and local health, safety and environmental regulations.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

[All Budget Period 1 Tasks and Sub-tasks](#)

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

[All Budget Period 2 Tasks and Sub-tasks](#)

Notes:

[Building Technologies Office](#)
This NEPA determination requires a tailored NEPA provision.
Review completed by Jonathan Hartman on 06/26/2020

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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Casey Strickland

NEPA Compliance Officer

Date: 6/26/2020

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: _____

Field Office Manager

Date: _____