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| See HRP-001 for definitions of applicable key terms and acronyms. | | | |

Title of research study:

Exploring how a building retrofit solution can reduce how much energy the building uses, provide healthy indoor air, and improve the building's appearance

Investigator:

Principal Investigator: Elizabeth A. ("Bess") Krietemeyer

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Email: eakriete@syr.edu

You are being invited to participate in a research study.

Why is this research being done?

Buildings in the United States are responsible for 75% of total U.S. electricity use, 40% of energy use, and 35% of carbon dioxide (CO₂) emissions (www.eia.gov/outlooks/aeo/tables_ref.php). Efforts to make buildings more efficient in these areas can be slow, disruptive, and costly.

The goal of this project is to test a retrofit solution that will reduce energy usage in your apartment unit for space heating, cooling, and ventilation, as well as water heating, by improving the building's insulation and air sealing. It will also test how well the retrofit solution provides healthy indoor air and improves the building's appearance. The retrofit solution includes a prefabricated exterior wall system for improving air-sealing and insulation, and a high-efficiency mechanical pod system for heating, cooling, ventilation, and hot water heating. This study will measure how much energy can be saved by the retrofit solution, and it will ask you about your opinions on the air quality of your indoor spaces and on the building's appearance.

What should I know about a research study?

- Your participation is completely voluntary.
- You can always choose not to take part.
- You can ask and get answers to any questions you have before you decide whether to participate.
- If you agree to participate, you can change your mind later without giving any reason.
- Your decision will not be held against you. There will be no penalty or loss of benefits.

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- You do not waive any of your legal rights by signing this form.
- You will get a signed copy of this form to keep.

Is there any way being in this study could be bad for me?

There are no predicted risks that could harm you. In some cases, you may find research equipment to be unattractive. Installed research equipment may also require a minimal amount of electrical power to operate.

Is there any way being in this study could help me?

You will better understand your building’s energy use and indoor air quality based on the data collected in this study.

For society in general, this research is testing Advanced Building Construction (ABC) retrofit technologies for existing buildings. These are designed to drastically reduce energy use in existing buildings. Real-world tests of these technologies are an important step in bringing them to market.

What happens if I say, “Yes, I want to be in this research?”

If you agree to participate, the Syracuse University Office of Student Living (OSL) will let you know when a research team will visit your apartment to install energy monitoring equipment. This may take between 1-3 hours to install energy monitoring equipment. You may be present at the time of installation to ask questions. A building staff member will always be with the researchers whenever entering your apartment unit.

Sensors will be installed to measure:

- Indoor Temperature
- Indoor Humidity
- Indoor Air Quality
- Whole-Home Energy Usage
- Heating Energy Usage
- Water Heating Energy Usage

Data measured by installed equipment will be transferred through a cellular modem. Researchers will not use your WiFi network. All personally identifiable information (your name, phone number, and email) will be stored on a password-protected computer that is only shared

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with the project team. All measured data will be identified through a unique ID that is not your name, phone number, or email.

Before the building is retrofitted, you may be asked to provide your opinion about the building through an online survey. After the building owner installs the ABC building retrofit technologies onto the building, you may be asked to provide your opinion about the building after the retrofit through an online survey. All personally identifiable information collected during surveys will be stored on a password-protected computer and only shared with the project team. Any information linking you to your responses will be removed before sharing or publishing the data.

Who can I talk to if I have questions?

If you have questions, concerns, or complaints, talk to the research team Principal Investigator, Bess Krietemeyer, at ekriete@syr.edu, or contact Joseph Personte at the Office of Student Living (OSL) at jpersont@syr.edu.

This research has been approved by the Central Department of Energy Institutional Review Board (CDOEIRB). This group protects the rights and welfare of subjects participating in U.S. Department of Energy research activities.

- If you have questions, concerns, or complaints about the research study, contact the CDOEIRB at (865) 574-4359 or CDOEIRB@orau.org.
- You can ask questions about your rights as a research participant, request information, or offer input.
- If you want to know more about the program, visit <https://science.osti.gov/ber/human-subjects>.

Are there alternative procedures if I do not want to be in this research?

Participation in this research is completely voluntary. You can decide to participate or not participate. Your decision will not be held against you, and there will be no penalty or loss of benefits.

What happens to the information and data collected for the research?

Every effort will be made to protect the data and limit the use and disclosure of your personal information to anyone but the research team.

- Data regarding indoor environmental conditions and energy usage will be collected as a part of this research.

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- All personal information connected to measured data or your survey responses will be removed before sharing the results. Only the project team will have the ability to link data and your survey responses.
- All data will be coded with a unique ID that removes your identity from your data. A database that links your information to data will be encrypted within a password-protected computer and kept private.
- Personally identifiable information will be protected in a way that is appropriate for the type of data. Printed copies of this information will be stored within a locked file cabinet. Digital copies of this information will be stored within an encrypted file. Any of this information that is sent electronically will be transmitted via encrypted email.
- Personally identifiable information will be stored by the project team for three years after the study is complete. After three years, this information will be destroyed.
- When results are reported or published, data will be combined, and direct identifiers removed to protect your identity.

Information you provide in the study will be treated as confidential. Every effort will be made to protect and limit the use and disclosure of your personal information. However, there may be circumstances when this information must be shared as required by law. Other organizations that may have access to information from this study include the CDOEIRB, representatives of the Department of Energy Human Subjects Protection Program and its accrediting organization, other federal regulatory agencies, and the sponsor of the study.

Will my information be used for future research?

All personally identifiable information will be removed from the data and samples collected in this project. The data and samples with your information removed may be used for future research or shared with other researchers without your additional consent.

What are my responsibilities if I take part in this research?

As a participant, you will be responsible to allow research and building staff access to your apartment unit to install or repair research equipment. You are expected to leave installed equipment in place and use your apartment unit as you normally would. You should not disturb or alter the research equipment. You will also be invited to complete online surveys.

What happens if I say yes now but I change my mind later?

Participation in this study is voluntary. You can change your mind and leave the research at any time. It will not be held against you if you stop taking part in the study and there will be no penalty. All research equipment will be removed from your apartment unit within five days of your withdrawal request. If you withdraw before the online surveys are administered, you will not be invited to complete them.

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Can I be removed from the research study without my consent?

The principal investigator or research sponsor can remove you from the study without your approval. Reasons for removal may include no longer meeting the eligibility criteria, not following study procedures, or tampering with research equipment. You will be told if you are removed from the study.

Online Survey

You will be invited to take part in an online survey to get your opinion on the building before and after the retrofit. If you do participate in the survey, the survey responses will be collected for analysis. You may still participate in this study if you are not willing to complete the online survey.

Please sign below if you are willing to participate in this study. By signing, you grant the right for the project team and/or the US Department of Energy to use the survey results with your personal information removed for future research, reports, or presentations. You will get no financial compensation from these uses.

I do not want to participate in the research study.

I confirm that all of my questions have been answered, I am 18 years of age or older. By signing below, I agree to participate in this research study.

Signed: _____

Date: _____

What else do I need to know?

This research is being funded by *the US Department of Energy*.

Signature of person obtaining consent

Date

Printed name of person obtaining consent

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