



A-7: An Ecosystem for Energy Retrofit Technologies and Tools

Tool Development

Evaluation

Deep Retrofits

Energy Modelling

Summary

This project will assess the landscape of retrofit technologies and evaluation tools in Canada, including all components developed in ReBuild and existing algorithms, predictive models and dashboard tools in the National Research Centre. This gap analysis will evaluate the breadth and coverage of both the technological solutions available and the tools which assess their applicability in different contexts.

Partners

The National Research Council of Canada is the largest federal research body in Canada and spearheads a number of influential projects on the built environment and sustainability.

Researchers

Under Development

METHODS AND DATA USED

The researchers will undertake a comprehensive review of software and technical tools developed to support retrofits. The scope will be within the NRC, around Canada, and globally.

Final Outcomes

The research will culminate in a comprehensive overview of the current state-of-the-art in relation to tools and datasets for deep energy retrofit design and evaluation. These tools, which predict and monitor energy savings and organizational productivity, will be applied to a wider variety of building types, building ages and energy sources through ReBuild. Finally, recommendations on future research steps will support the next generation of tool development.



A-8: Community-scale Integration of Smart Retrofits

Smart Buildings

Grid Interaction

Stock-Level

Evaluation

Summary

This will investigate the integration of smart buildings at the community scale, to enable the quantification of energy-related improvements and other benefits. Intelligent controls and smart grid integrations are potentially easy wins as they require few physical building upgrades, however they require careful modelling and coordinations.

Partners

The National Research Council of Canada is the largest federal research body in Canada and spearheads a number of influential projects on the built environment and sustainability.

Researchers

METHODS AND DATA USED

Under development.

Final Outcomes

This will build on interactive platforms developed by NRC for connecting building energy systems and smart grids, including data analysis and reasoning functionalities required for optimal building every management and retrofit decision support tools that predict payback times. This will be tested on collections of existing buildings where building data and models are able to demonstrate the benefits of coordinated community-scale retrofit actions.