

Building Technologies Research and Integration Center Technical Collaborations

The Department of Energy’s Building Technologies Research and Integration Center (BTRIC) at Oak Ridge National Laboratory offers technical collaboration opportunities for industry to leverage facilities, capabilities, and expertise to overcome technical challenges. BTRIC’s technical collaboration program provides a unique opportunity for U.S. building technology industries to gain access to ORNL’s expertise through a publicly announced call for proposals.

Current active or completed collaborations:



Partner: Air Barrier Association of America

Researchers: [Som Shrestha](#), [Andres Desjarlais](#), [Niraj Kunwar](#)

Project: Extending the air and moisture leakage calculator to add residential buildings and additional commercial buildings

Result: Developed a [simplified tool](#) for building owners and manufacturers to use to communicate the benefits of installing an air barrier system.

Final Report: [Download](#)



Partner: Bloc Power

Researchers: [Joshua New](#), [Frank Li](#), [Shovan Chowdhury](#), [Avery Stubbings](#)

Project: AutoBEM for BlocPower

Result: Building energy modeling was used to calculate potential heat pump savings for every building in 21 US cities, compare to building-specific attributes and utility bill data, and develop bias-correction techniques to improve AutoBEM’s models of every [US building](#).

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Partner: Cardinal Glass

Researchers: [Brett Bass](#), [Joshua New](#), [Andy Berres](#), [Piljae Im](#)

Project: Multi-variable parametric analysis of prototype building energy performance using current and future weather scenarios for data-driven market transformation support

Result: Answered questions regarding building envelope and whole building energy performance, establishing a new precedent for collaborative research in the building industry to expand and improve building performance understanding.

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Partner: Cool Roof Rating Council
 Researchers: [Niraj Kunwar, Andre Omer Desjarlais, Som Shrestha](#)
 Project: Retrofitting buildings with solar-reflective roofs and walls and its impact on peak power demand
 Result: Whole building energy simulations were undertaken to quantify the impact that cool roofs and cool exterior walls have on the peak energy demand of residential and commercial buildings.
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Partner: Glen Raven
 Researchers: [Mahabir Bhandari, Niraj Kunwar, Anthony Gehl](#)
 Project: Awning performance measurements for rating development and validation
 Result: Performed measurement and validation of awning products in a real house.
 Final Report: [Download](#)



Partner: Highland Park Technologies
 Researchers: [Emishaw Iffa, Mikael Salonvaara, Andre Desjarlais, Diana Hun](#)
 Project: Energy, durability, carbon emission reduction assessment of tech retrofit panel
 Result: Evaluated the thermal, and moisture behavior of the composite insulated panels with material characterization, moisture durability assessment, and overall building performance/carbon emissions reduction.
 Final Report: Available later this year



Partner: Hunter Douglas
 Researchers: [Mahabir Bhandari, Niraj Kunwar, Anthony Gehl](#)
 Project: Cellular shades energy savings in a commercial setting
 Result: Evaluated energy and daylight performance of interior cellular shades in commercial setting.
 Final Report: [Download](#)



Partner: International Mass Timber Alliance
 Researchers: [Mikael Salonvaara, Andre Desjarlais, Jerry Atchley, Emishaw Iffa](#)
 Project: Impact of mass wood walls on building energy use, peak, demand, and thermal comfort
 Result: Reduced peak demand, overall heating and cooling demand; by utilizing the capability of the mass wood structure's thermal mass.
 Final Report: [Download](#)

SMITHGROUP

- Partner: **SmithGroup**
- Researchers: [Joshua New](#), [Brett Bass](#), [Andy Berres](#), [Mark Adams](#), [Piljae Im](#)
- Project: Design space data: Informing common design decisions with pre-simulated data
- Result: Enabled simulation-informed energy impacts to the early building design phase; simulated more than one million buildings in an hour.
- Final Report: [Download](#)



- Partner: **WinBuild, Inc.**
- Researchers: [Mahabir Bhandari](#), [Anthony Gehl](#), [Niraj Kunwar](#)
- Project: AI energy optimizer for residential building for optimizing energy savings and automated fault detection and diagnostics
- Result: Developed algorithms to enhance an Artificial Intelligence (AI) Energy Optimizer that is connected at the incoming main control panel that monitors, controls, optimizes and filters the incoming power.
- Final Report: [Download](#)