A-3: Automated Energy Model Calibration

Energy Modelling   **Calibration**   **Machine Learning**   **Deep Retrofit**

Summary

Automated calibration (the process of turning a physics-based energy simulation model like EnergyPlus to match measured energy demands) is the key to bridge physics-based simulation models and real-world data. This will pioneer the use of Bayesian calibration together with neural-network based surrogate models as a rapid process for delivering calibrated building energy models.

Partners

Morrison Hershfield is a multi-disciplinary engineering consulting firm with a proven history leading the areas of building performance and sustainability

Researchers

Under Development

METHODS AND DATA USED

Morrison Hershfield will provide the base models and measured data for a range of projects, and apply the approaches developed on test projects. Researchers will develop methods based on state-of-the-art neural network and Bayesian inference approaches.

Final Outcomes

A method will be developed to automate the tedious manual process of model calibration. Replacing extensive manual effort from expert engineers with computational approaches will reduce the cost associated with model calibration and allow more frequent use of models for comparison of retrofit options.