The power of **energy modelling**

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Collaborative consulting firm EQ Building Performance Inc. helps project teams find opportunities to improve energy efficiency by performing energy modelling as part of the **Savings by Design** program. Energy Specialist **Adam Barker** reveals five key benefits of energy modelling.

1 It helps you make decisions based on objectives

We always start by asking participants: what is your overarching goal with this project? Based on the building type and size and the goals of the project, we analyze the architectural, electrical and mechanical plans and boil it all down to, "Here's where you're doing well and here's what could be improved."

2 It helps you save energy and money

What energy modelling does extremely accurately is comparative analysis, such as comparing three or four different wall assembly options and seeing how they impact energy use—which is really difficult to do well without an energy model. That kind of comparison allows you to run a financial analysis to see which wall option is going to make the most sense for you.

3 It's a risk-free way to explore new technologies

We're seeing more and more interest in top-of-the-line, highly efficient heating and cooling systems, such as geothermal and VRF (variable refrigerant flow) systems. Most project teams don't have a whole lot of experience with those types of systems, but in terms of energy savings and utility cost savings, there can be a really big impact. Through an energy model, we can demonstrate that impact to project teams and explore how they can incorporate these systems into their base design going forward.

4 It can help uncover low-cost solutions

Energy modelling is great at showing that the devil's in the details. If you've been using the same wall assembly for years, for example, you're likely also using the same details: where a wall meets a floor, there's a thermal bridge, and when you have 30 floors, it really adds up. There's potentially a very low-cost solution to make that more efficient.

5 It helps create more resilient buildings for a changing climate

In order to perform an energy model, you have to run the building against weather patterns to see how much energy it's going to use. Today, we can use predictive weather files, based on estimates of what the weather is going to be like in 2050. In Ontario, mechanical systems are focused on heating, but now with this approach we're also seeing a need to focus on more—and more efficient—cooling, too.

One of the newer measures we can perform is called "passive survivability." This involves simulating a power outage—turn off the power and see what happens to the building's indoor temperatures over the course of a few days or a week. If you've got a building envelope that's better at keeping out heat, the model will show that the indoor temperature will stay more livable in a heat wave during a power outage.

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Start designing sustainable buildings with **expert help**

Savings by Design gives your project team free access to industry experts, technical tools and financial incentives to help you build high-performance, resilient and sustainable buildings.

Free expertise and incentives
value up to
$60,000*

Key steps to efficient, resilient design

Step 1 1 – 2 hours | No cost

Visioning session

We'll meet with your project lead, sustainability manager and a design team member to:

- Help define and prioritize project requirements and sustainability priorities.
- Determine which team members and external experts should attend the workshop.

Step 2 1 day | No cost

Integrated design process workshop

Your team will strategize with energy modellers and sustainable design experts to maximize your building's energy and environmental performance.

- An energy model will be developed as well as a final report summarizing the options discussed and recommendations.
- Facilitated by Sustainable Buildings Canada.
- A $30,000 value.**

Rewards for building above code

After completing the workshop, you're eligible for additional incentives based on the performance of your building.

Energy simulation modelling incentive

$15,000 Earn incentives when you complete a pre-construction certified energy model that shows your building will be 15 percent above current code.

Commissioning incentive

$15,000 Earn additional incentives by confirming your building is 15 percent above code with a post-construction certified energy model, performed by a professional modeller.

To get the most out of your next project, contact
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*Projected savings based on energy modelling simulations from the Savings by Design Integrated Design Process workshop. **This has no cash value. HST is not applicable and will not be added to incentive payments. Visit savingsbydesign.ca for details. To qualify for the program, your project must be located in the Enbridge Gas Inc. service area. If a participant doesn't complete construction of a new commercial property in the Enbridge Gas service area that exceeds 15 percent of the OBC's energy performance requirement within five years of completing the integrated design process workshop, they're ineligible for performance incentives. During that time, builders are expected to design and construct at least one new construction building based on resulting recommendations. In order to receive incentive payments, you must agree to all program terms and conditions, fully participate in all stages of the program and meet all program requirements.

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