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How an Energy Audit can Identify Potential Challenges for Condo Boards

Regular attendees of condo board meetings will know about climate change. Mounting energy bills and maintenance repairs are often bandied about, offering a glimpse of life on the environmental rollercoaster that's barreling forward.

Not everyone will race to adjust to a changing world. But it's practical and shrewd to accept that Ontario's weather is trending warmer; the real heat is now starting in May, not June, and lasting until October. Extreme weather – either sweltering or freezing – can wreak havoc on a building, making it difficult to maintain indoor comfort. Long story short: more (expensive) degree-days are coming. How can the negative impacts on aging infrastructure be fended off?

A deep dive into the building's performance is an excellent place to start. A board will already have methods for gathering information, whether it's using meter reads, sophisticated equipment software or billing archives. Is it enough? Maybe it's time to consider taking the plunge on a comprehensive Energy Audit. Opening the doors to a neutral, licensed third-party can provide the kind of due diligence and credibility necessary to firmly identify the climate change challenges ahead.

A professional Energy Audit has three levels: it's part billing analysis, part equipment inventory and rounds off with building staff interviews to establish the operating history, troublesome areas and so on. Armed with the right data in an actionable report, board members can start mapping out a Master Energy Plan, which may involve tough choices. The auditor will also point out any valuable government incentive programs that can lower project costs for recommended energy management projects. The potential is there to become more productive, more efficient and to uncover new ways to save money.

Consider the advantages of solving these challenges now:

1. HVAC is not big enough

AC loads are soaring to new heights, pushing HVACs harder than ever

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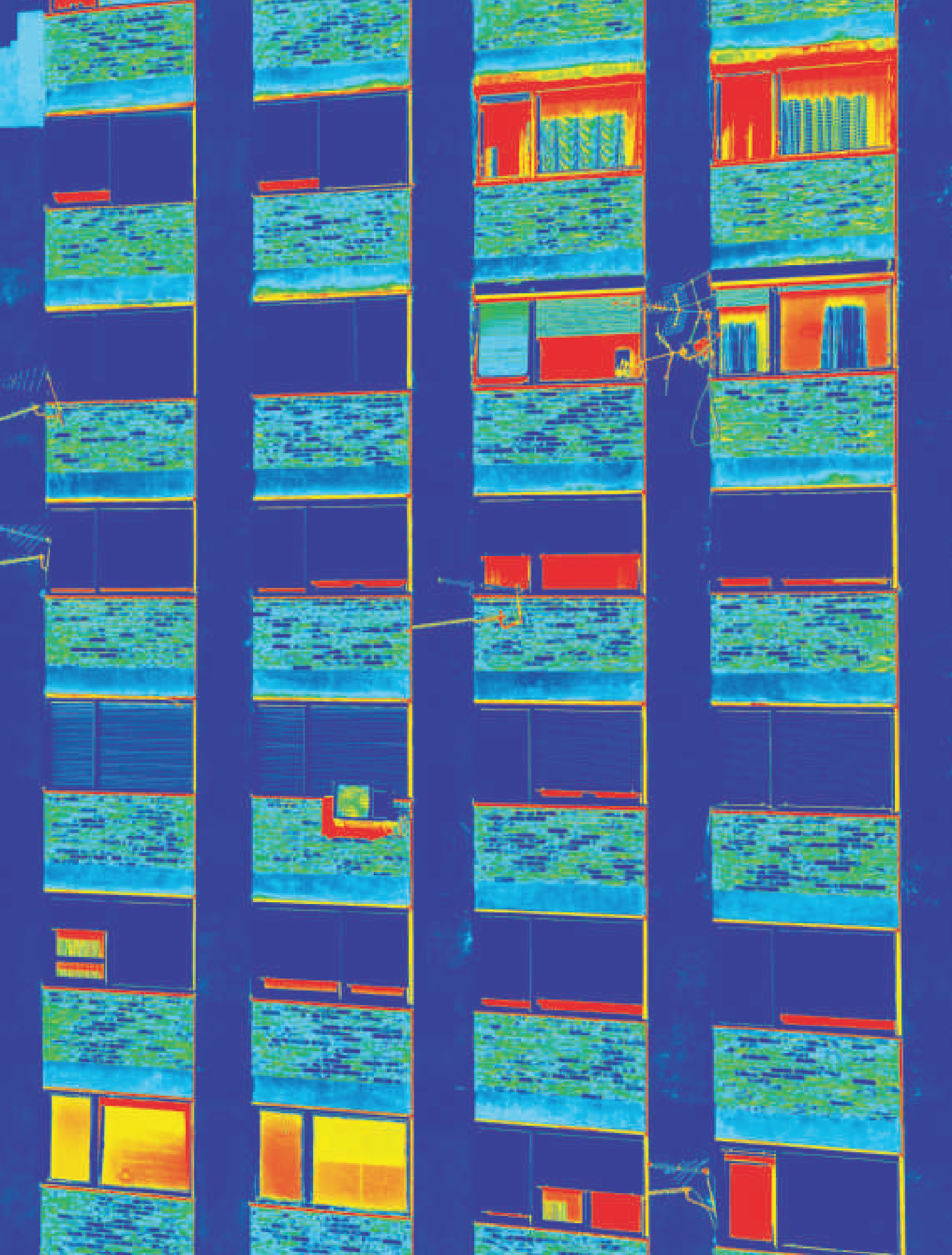

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before. There are many options to breathe new life into the system and extend it for as long as possible. Implementing something like fewer air changes won't suffice for health (and aroma) reasons, but the real opportunity lies with the major mechanical equipment. Compressors and pumps are notoriously inefficient, so installing high-efficiency, properly sized motors can transform an HVAC system into a more powerful unit, capable of providing a lot more cooling without breaking the bank. Having correctly sized ducts is also crucial, and optimal sizing would come out of an Energy Audit. Aside from specific retrofits, given that equipment is running longer, developing a preventative maintenance routine could catch issues before they snowball.

2. Wasteful energy use in unoccupied spaces

Smart controls are rooted in logic, but perform like magic: they detect occupancy, which means they can gradually lower energy use to preset levels when no one's around. It allows a board total control; they can finally deliver the precise energy consumption suited to their building, bringing down the operating budget in the process. In units with residents who work 9–5, the daytime AC could be programmed to decrease and increase on schedule, without sacrificing comfort. Smart controls are deployable across a building's HVAC and lighting equipment, with a variety of powering options: remote controls, sensors, photocells or voice technology like Amazon's Echo. Taking a closer look at LED lighting, adding smart controls (and photocell technology) reduces the annual lighting budget by 90 per cent. There's no flicking on or off – human presence activates preset levels. An LED lighting retrofit is a low hanging fruit that can generate substantial energy savings, making a case to place it high on the project list.

3. Window glass is upending indoor temperatures

Overall HVAC energy consumption can spike because of unwanted heat gain in the summer. Product innovations like 'Intelligent' glass are solutions that can lessen energy and lighting use by up to 20 per cent, but the cost remains prohibitive for most boards. Naturally, the market has developed reflective glass coverings that can provide significant benefits for a fraction of the cost without looking unsightly. It's important to work with an expert because preserving the windows' passive heat gain is essential to reducing heating loads in the winter.

4. Budget forecasting is falling short

Utility budgeting using cost data can be helpful, but using both consumption and cost data will provide a more accurate utility budget. Consumption data can help to explain cost variations caused by seasonal fluctuations, new weather anomalies, broken meters and billing corrections. Don't have a board member who can manage those calculations? Consider working with a provider who offers utility expense management services. They can bring useful online tools to the table, such as weatherized reports, allowing for more accurate forecasting of degree-day loading on the HVAC system.

Keeping the building's lights on was once a pretty straightforward job. Climate change has introduced some long-term complexities that boards will have to tackle. Getting in the game now by doing the Energy Audit and developing an Energy Master Plan are the surest ways to reap the benefits of a smaller carbon footprint, and avoid being left with little choice. Perhaps the board can use the newfound energy savings to go towards the electric vehicle charging station everyone has been buzzing about. ■

Bob McKellar, P.Eng. is the president of MultiLogic Energy Solutions Inc. offering lighting design, implementation services and energy-related engineering services through their Nexstar subsidiary. Bob worked at Ontario Hydro for 25 years, where he led the design and implementation of the Demand Management Program, earning him the President's Award for Customer Excellence. He has performed hundreds of energy audits in various buildings across Ontario.
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