CONSIDERING ENERGY EFFICIENCY AS PART OF THE RESERVE FUND STUDY (RFS) PROCESS

INTRODUCING WHY ENERGY EFFICIENCY IS RELEVANT WHEN PRIORITIZING RENOVATIONS.

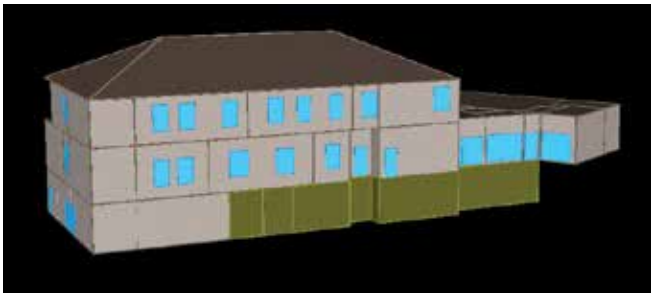
All of us can make daily choices in our immediate areas of influence. My family chooses to have only one car, we recycle, support local stores and I tell my son repeatedly to turn off the lights after he has left a room! When it comes to spending more on building upgrades however, who wants to spend money on items that you can't see and for benefits that aren't always clear?

In the last few years, there has been a lot of discussion on global warming and the negative impacts of greenhouse gas (GHG) emissions. One result of this is the formation of the Paris Agreement which was adopted by nearly every nation in 2015. One of the key elements is to keep global temperatures "well below" 2.0C above pre-industrial times and "endeavour" to limit them to 1.5C

As part of the challenge of keeping to the agreement, we need to change how we think about existing building projects. Many of your condominiums will still be in use 50 years from now, so retrofitting them is key to decarbonizing the built environment. A prior article in CCI Manitoba's *Condominium News and Views* introduced the Deep Retrofit process1, which looks at the entire building as a system to identify opportunities for improvement and looks to bundle the retrofit projects to maximize the benefits. Taking the Deep Retrofit approach lowers the Total Cost of Building Ownership (TCBO) for the unit owners. Deep Retrofits include selecting more sustainable materials, performing energy audits, upgrading building envelopes, insulation and windows and reductions in GHG emissions. Evolving government priorities and regulations are starting to encourage reductions in GHG emissions and improvements in energy efficiency and eventually will require these improvements. Taking a Deep Retrofit approach will make yesterday's buildings high performance buildings of the future, providing many benefits to condominium owners including…

- **Reduced Utility Bills:** A very attractive prospect is reducing monthly expenses in the form of lowering energy costs. A substantial part of a building's operating costs goes to gas, electricity and water bills, making utilities the largest controllable expense for condo owners and a condo corporation. Whether small or large, energy efficiency retrofits savings can add up. Older condos can cut these costs by as much as 30% with upgrades, and even newer buildings can realize savings of 15% or more.
- **Protection from Rising Utility Rates:** This year's Manitoba Hydro rate increases for electricity have averaged 2.5% and 2.7% for residential customers. While this is not the annual 7.9% hikes the Crown corporation previously said it would need until 2023-24 to address debt, it is clear Manitoba Hydro intends to keep raising their rates as much as it is allowed to. It can be easy to think that if utility prices go up, savings will disappear, but in fact, the more utility prices rise the more you will save. For example, if your utility bill is $200 a month and through a retrofit you save 20%, your utility bill will now be $160. If utility costs then rise 5%, instead of paying $210, you will now pay $168. This means that instead of paying an additional $10 per month you would only pay an extra $8. If utility prices rise year upon year, this could add up to a significant amount of additional savings.
- **Better Returns on Investment:** Individual retrofit projects will have higher costs and longer payback periods than if you bundle projects together. For example, projects having longer-term payback periods (e.g. re-insulation) could be integrated with those with shorter payback periods (e.g. lighting and boilers) to offer the predictable returns.
- **Increased Property Value:** A high performance building is more cost-effective to operate and more comfortable to live in, which protects your investment and is more appealing to buyers.
- **Increased Resiliency:** The definition of resilient design is the capacity of a system or community to be able to absorb and adapt to change. Climate change in particular is resulting in increased intensity and frequency of powerful storms and heat waves, sometimes leading to power outages. An example of retrofit to improve resiliency to climate change is increasing the levels of insulation in walls and roofs, such that in the event of power loss during the winter, will slow down the rate of heat loss, keeping you warm and comfortable until the power comes back on.

Deep Retrofits can result in a renewed asset that produces less GHG emissions, uses less energy, improves occupant health and well-being, and costs less to own and operate. How much can we do on a generous budget? What about a slim budget? What are realistic targets for retrofitting?



EXAMPLE CONDO

- To illustrate the utility cost savings that can be made from implementing retrofits, an energy model has been created of a typical eight-unit residential building that is located in Manitoba. Using the energy model, the simple payback of potential retrofits has been calculated. In this case the retrofits include installation of a smart thermostat, upgrading to LED lighting and improved window performance.
- The smart thermostat will automatically adjust the indoor temperature according to your individual daily schedule. For example, during the winter months, if your unit is unoccupied, the smart thermostat will sense this and turn down the heat to save you money.
- The lighting replacement consists of changing all incandescent and fluorescent lighting with LED lighting.
- The window replacement is based on three medium sized windows per unit (approximately 2 m^2 each) and one large window/patio door (4 m^2) for each unit, plus four medium sized windows (2 m^2 each) in the common areas, for a total of approximately 83 m^2. For the savings calculation to follow, it is assumed that the current windows have a U-value of 2.0 and the new windows will have a U-value of 1.36, where the U-value is a standardized measurement of the window's heat loss. Currently Efficiency Manitoba offers a rebate of $150/$m^2$/$\Delta$U, where ΔU is the improvement (reduction) in U-value of the new window in comparison to a standard U-value of 1.6. For the example at hand, although the window U-value is being reduced from 2.0 to 1.35, Efficiency Manitoba will only provide the rebate based on ΔU=1.6-1.36=0.24, which therefore translates to a rebate of $36/$m^2$ for a total of $3,000.

CONSIDERING ENERGY EFFICIENCY AS PART OF THE RESERVE FUND STUDY (RFS) PROCESS

ANNUAL ENERGY COST SAVINGS – FULL EIGHT UNIT COMPLEX				
Energy saving Recommendation	**Annual Cost Saving**	**Implementation Cost (material + labour)**	**Net Cost With Efficiency Manitoba Rebate**	**Simple Payback (Years)**
Smart Thermostat[1]	$585.00	$2,800.00	$2,660.00	5
LED Lighting[2]	$1,212.00	$800.00	$640.00	1
Window Replacement[3] *	$1,506.00	$10,000.00	$7,000.00	5
Bundled Together	$3,303.00	$13,600.00	$10,300.00	3

** The benefits of bundling upgrade projects together are shown in the examples in the table. Treated separately, a CC might only pursue the LED Lighting upgrade. However, bundling all three projects together, a 3 year payback period should be sufficient to do all three upgrades at the same time.*

The benefits of bundling upgrade projects together are shown in the examples in the table. Treated separately, a CC might only pursue the LED Lighting upgrade. However, bundling all three projects together, a 3 year payback period should be sufficient to do all three upgrades at the same time. One thing to bear in mind with window retrofits and is the case with any envelope type retrofit, is that along with pure energy savings, thermal comfort will be greatly improved.

FINANCIAL INCENTIVES

Efficiency Manitoba (https://efficiencymb.ca) has many programs available for Condo Corporations. For example, they offer building envelope incentives on insulation, windows and doors. In addition, they also offer incentives on heating, ventilation and air conditioning (HVAC), controls and lighting. As can be seen with the energy modelling analysis above, Efficiency Manitoba incentives have been considered and as the corporation is new, they are currently developing new programs and revising old ones. It is worth checking in with them regularly to review the current programs.

In addition, the Spring 2020 edition of the CCI Manitoba Chapter Condominium News and Views has an article which explores Condominium Loan Financing5. Loan financing can be a viable option for condominiums to consider when repairing and replacing common elements if their reserve funds are not sufficient to cover all of the costs.

CONCLUSION

Energy efficiency is an important part of retrofit considerations in conjunction with your RFS. While a larger investment than originally planned for in the RFS would be required to replace building elements that look and perform better, doing so with the idea of bundling the projects together will provide the unit owners with lower TCBO, improved living comfort and improved resiliency against climate change. And not to be underestimated, it will provide better value for future owners and yield higher resale prices.

MELANIE CHATFIELD, P. ENG
Stantec

[1] *https://efficiencymb.ca/articles/get-smart-with-your-smart-thermostat/*

[2] *https://efficiencymb.ca/business/business-lighting/*

[3] *https://efficiencymb.ca/articles/high-performance-windows-2/*

TOTAL COST OF BUILDING OWNERSHIP (TCBO) APPROACH TO RFS

This is the third article[1] in a series advocating the benefits of taking a TCBO approach in conjunction with the RFS process. The TCBO includes all costs incurred by the unit owners, whether directly for the upkeep and operation of their unit or indirectly through their condo fees for the common element expenses and reserve fund contributions. The example shown in the accompanying article shows the implementation costs for a deep retrofit project and the potential savings. However, given that these costs and savings are shared amongst all unit owners and the condominium corporation (CC) it isn't obvious as to how the expenditures would be funded. For example, it is worth noting that the RFS would likely have included only "Like for Like" replacements for the windows and would not have had lighting nor smart thermostats included, since the MB Condo Act[2] states the reserve fund is to be used to maintain, repair and replace. Where would the extra funds come from if not from the reserve? As well, for the CC in the example, the common elements would include only a portion of the thermostats, lights and windows, so how would the Board justify spending CC reserve funds for improvements in the individual units? Clearly, the project is of benefit to all owners but it isn't clear as to how the Board would proceed depending on the CC's Declaration and their interpretation of the MB Condo Act. Perhaps one possible solution could be to convene a meeting of all owners and pass a motion to approve the project. While the TCBO approach is the best way to go, some careful planning and forethought is required.

ALAN FORBES
Chair, CCI MB Newsletter Committee
Treasurer, WCC #619

[1] Prior articles can be found in the Winter 2020 and Summer 2019 editions of CCI Manitoba *Condominium News and Views https://cci-manitoba.ca/login*

[2] *https://web2.gov.mb.ca/laws/statutes/2011/c03011e.php#A143*