



# Retrofits Handbook

A part of the Buildings Handbook

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# Introduction

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Improving the energy performance of existing buildings is critical to achieving GHG reduction targets set by all levels of government. This opportunity also provides an avenue to advance local economic development and job creation while also addressing energy poverty, air pollution and building comfort and health.

Check out some examples of retrofit initiatives below!

## Resources to get started:

- [GMF Energy Roadmap](#) - outlines strategies and solutions based on carbon grids
- [Getting the most out of your retrofits - a resource for municipalities](#)
- [Regulating Energy and Emissions in Existing Buildings: A Primer for Canadian Municipalities](#)
- [The Canada Green Building Council's Roadmap for Retrofits in Canada](#) - to identify which building asset classes are recommended to be reduced in your province/territory and thus in your municipality.
- [Change Homes for Climate Guide](#) - in-depth information about various retrofit measures.
- [Pembina Institute's Barriers to deep retrofits: Regulatory solutions from across Canada](#)

## Communications Resource

[Click this link](#) to access potential pushbacks against retrofit initiatives and how to respond.

## Embedding Equity

- [Embedding equity in energy efficiency financing programs](#) - Webinar



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- [View our planetary health evaluations for retrofits here](#), where we identify the social equity and wellbeing impacts, environmental concerns, and environmental and societal benefits.
- [Check out the Climate Justice - Climate Caucus Handbook](#)

## Councillor Story

“The City of Toronto implemented the Home Energy Loan Program (HELP), which provides low interest loans to homeowners interested in undertaking energy efficiency, water conservation, and renewable energy works. Through the program, homeowners can borrow up to 10% of the value assessment of their home, to a total of \$75,000. HELP loans are unique in that they are attached to the property instead of the homeowner, they are repaid through property taxes, and they can be passed to the new owner with the sale of the home.

HELP clients have noticed improvements to their homes, including improved comfort and quality, reduced energy bills, and substantial GHG reductions. On average, these programs have seen GHG reductions of 395 tCO<sub>2</sub>e/ year. “

- Mike Layton, Councillor, Toronto

# Retrofit Initiatives

Climate Caucus has ranked the following initiatives from beginner to expert, based on Complexity to implement, Staff time & expertise, and Political capital. Please note, these rankings are our own best judgements.

-  Green Square = Beginner
-  Blue Square = Intermediate
-  Black Diamond = Advanced
-  Double Black Diamond = Expert

The initiatives presented below are a list of actions and policies for local electeds to implement effective and sustainable retrofit programs.

There is a high degree of synergy and interdependencies across Building actions.

Check out our Webinar on [Retrofitting Existing Stock](#)

| INITIATIVES                                                                                                                        | THE BASICS                                                                                                                                                                                               | EXAMPLES                                                                                                                                                                                                                                                                                                             |
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| <b>DEVELOP A RETROFIT CONCIERGE PROGRAM</b><br> | Develop a program for homeowners to promote retrofits, answer questions, give local, expert advice and guidance to navigate the complex world of home energy retrofits and available grants and rebates. | <ul style="list-style-type: none"><li>• <a href="#">City of Nelson EcoSave Program</a></li><li>• <a href="#">Home Energy Navigator</a>: The Home Energy Navigator Program, created by local BC governments</li><li>• <a href="#">Durham Greener Homes</a>, ON</li><li>• <a href="#">Cozy Colchester</a> NS</li></ul> |

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|                                                  |                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• <a href="#">Energy Save New West</a></li> <li>• <a href="#">Retrofit Assist</a> - 3 smaller BC communities; see <a href="#">our webinar on this program</a> and the <a href="#">slide deck</a></li> <li>• <a href="#">Home Smart program</a> rural BC</li> </ul>                                                                                                                                                                                                                                                                                                                                        |
| <b>DEVELOP A BUILDING RETROFIT PROGRAM</b><br>◆◆ | Develop a Comprehensive Building Retrofit Program that identifies suitable measures (and ideally considers embodied carbon, and demolition waste) and includes Financing, Client and Industry Supports, Marketing and Communications and ongoing Evaluation and Program Improvements. | <ul style="list-style-type: none"> <li>• <a href="#">City of Toronto Home Energy Loan Program</a>, ON (HELP): <a href="#">Council Report</a></li> <li>• <a href="#">City of Edmonton Building Energy Retrofit Accelerator</a>, AB</li> <li>• <a href="#">City of Halifax Solar City</a> and <a href="#">City of Halifax Solar City Progress Report</a>, NS</li> <li>• <a href="#">Clean Nova Scotia Energy Efficiency and Renewables Financing</a>, NS</li> <li>• <a href="#">City of Vancouver - Building Retrofits for Deep Carbon Reductions</a>, BC</li> <li>• <a href="#">Collaboration for Home Energy Efficiency Retrofits</a></li> </ul> |

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|                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                             | <a href="#">in Ontario LIC/PACE Programs and Leading Practices</a> , ON                                                                                                                                                                                                                                                          |
| <b>DEVELOP A BUILDING RETROFIT PROGRAM BUSINESS PLAN AND PROGRAM DESIGN</b><br> | <p>Develop a Comprehensive Building Retrofit Program Business Plan and Program Design that identifies the role financing, client supports, and ongoing evaluation will play in the program.</p>                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>• <a href="#">Town of Newmarket Energy Retrofit Business Plan</a>, ON</li> <li>• <a href="#">City of Vaughan Energy Retrofit Business Plan</a>, ON</li> <li>• <a href="#">FCM, Community Efficiency Financing</a></li> <li>• <a href="#">Clean Energy, Clean Net Zero</a> (NS)</li> </ul> |
| <b>DEVELOP A STAKEHOLDER GROUP</b><br>                                        | <p>Develop a stakeholder group to advance municipal support to develop a Business Case and Program Design for a retrofit program that supports property owners and contractors to undertake EE and carbon emission reduction retrofits.</p> <ul style="list-style-type: none"> <li>• This can be enabled at a more regional scale by a group of municipalities working together.</li> </ul> | <ul style="list-style-type: none"> <li>• <a href="#">City of Yellowknife, Stakeholder Terms of Reference</a>, NWT</li> <li>• <a href="#">City of Guelph, Stakeholder Terms of Reference</a>, ON</li> </ul>                                                                                                                       |

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| <p><b>EDUCATION AND OUTREACH EFFORTS: ENERGY EFFICIENCY AND CARBON EMISSIONS REDUCTION</b></p>  | <p>Develop and advance a program that supports those undertaking renovations to embed energy efficiency into their renovation/upgrade and advances energy literacy.</p> <ul style="list-style-type: none"> <li>• This effort could include a resource person to help citizens to navigate retrofit options.</li> <li>• This effort can also include a one-stop-shop website to help residents with energy efficiency knowledge/guidance even if the community does not have a financing energy retrofit program in the market.</li> </ul> <p>(These outreach education tools work best when there is a program in the market)</p>                                       | <ul style="list-style-type: none"> <li>• In Toronto: <a href="#">BetterHomesTO</a></li> <li>• In BC: <a href="#">BetterHomesBC</a></li> <li>• <a href="#">Progress Updates on LIC/PACE programs in Canada and United States</a></li> </ul> |
| <p><b>PROPOSE A RETROFIT CODE</b></p>                                                         | <p>Ask staff to propose a retrofit code that would place requirements on existing buildings undertaking major renovations and requiring development permits and ensure that this code focuses on emissions considerations, not just energy efficiency.</p> <ul style="list-style-type: none"> <li>• This will drive uptake to energy efficiency retrofits.</li> </ul> <p>The federal government is developing a model retrofit code, as is the B.C. provincial government. These model codes can serve as a starting point for municipalities to require energy upgrades based on a certain level of renovation, triggering energy efficiency upgrade requirements.</p> | <ul style="list-style-type: none"> <li>• <a href="#">Vancouver has a retrofit code in place</a>, BC.</li> <li>• <a href="#">Energy Step Code Case Studies</a>, BC</li> </ul>                                                               |

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|                                                                                                                                                                | Hopefully, those codes will include emission requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                  |
| <b>PROVIDE INCENTIVES TO DRIVE UPTAKE TO ENERGY PROGRAMS AND MEASURES</b><br> | <p>Ask staff to incorporate incentives into energy efficiency programs to drive deeper retrofit, including:</p> <ul style="list-style-type: none"> <li>• financing</li> <li>• client supports</li> <li>• a program of incentives for energy efficiency measures by home and building owners.</li> <li>• Education, energy assessment, labelling.</li> </ul> <p>As opposed to stand-alone incentives, a comprehensive approach helps to ensure that the building owner takes a building system approach (which often achieves more significant energy reductions) rather than a measure-by-measure approach. Incentives can take many forms (tax rebates, interest rate by-downs, cash for measurers, cash for performance, customer supports, etc.).</p> | <ul style="list-style-type: none"> <li>• <a href="#">City of Nelson EcoSave Program</a>, BC</li> <li>• <a href="#">Better Homes BC</a></li> <li>• <a href="#">Better Home TO</a></li> <li>• <a href="#">Manitoba Hydro Rebates</a>, MB</li> <li>• Nova Scotia <a href="#">HomeWarming Program</a>, NS</li> </ul> |
| <b>ENFORCE ENERGY AUDITS/ ENERGY PERFORMANCE</b><br>                        | <p>Local governments can boost public awareness and demand for home energy-efficiency measures by requiring mandatory energy-efficiency audits.</p> <p><a href="#">MORE DETAILS AND RESOURCES HERE</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• <a href="#">City of Kingston Energy Retrofit Feasibility Study (ON)</a></li> <li>• <a href="#">Eco-Save Energy Retrofit Program (BC)</a></li> </ul>                                                                                                                     |

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| <p><b>LEAD BY<br/>EXAMPLE:<br/>RETROFIT<br/>MUNICIPAL<br/>BUILDINGS</b><br/>◆◆</p>                                                   | <p>Municipalities can lead by example by demonstrating the actions they are trying to encourage. Actions can include adopting building energy performance standards, policies and practices in buildings they own or lease, benchmarking municipal buildings' energy performance, and showcasing innovative clean energy and energy-efficiency projects (GMF, 2020).<br/><a href="#">MORE DETAILS AND RESOURCES HERE</a></p>                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>● <a href="#">Morden Community Centre Energy Retrofit Project (MB)</a></li> <li>● <a href="#">Kelowna's Energy Management Program (BC)</a></li> </ul>                                                                                   |
| <p><b>REVIEW<br/>PLANNING<br/>PRACTICES AND<br/>POLICIES THAT<br/>DISINCENTIVE<br/>LOW CARBON<br/>BUILDING<br/>EFFORTS</b><br/>■</p> | <p>Ask staff to review and address bylaws that create unintended barriers to retrofits and builds, including low carbon measures such as geo-exchange, heat pumps, and solar panels. Many municipalities have planning processes and policies in place that disincentivize low carbon building innovation.</p> <ul style="list-style-type: none"> <li>● For example, many municipalities require developers who aim to undertake low carbon measures to provide more background reports than those developers just building to Code requirements.</li> <li>● Municipalities need to identify planning policies and practices that are not aligned with their low carbon goals and targets.</li> </ul> | <ul style="list-style-type: none"> <li>● <a href="#">BC cities noise bylaw was a problem for heat pumps</a></li> <li>● Many municipalities are now looking at streamlined permitting processes to remove unintentional barriers to installing solar energy systems.</li> </ul> |

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| <p><b>INVEST IN SOCIAL HOUSING</b></p>  | <p>Introduce a motion to require that for any social housing investments using municipal funds, there are requirements that:</p> <ul style="list-style-type: none"> <li>• The building takes a life cycle costing approach to any new builds as well as existing building improvements.</li> <li>• The building meets specified energy efficiency/embodied carbon standards, e.g. reduce greenhouse gas emissions by 30 percent and utility costs by 20 percent.</li> </ul> <p>Many social housing buildings meet poor energy efficiency standards. There are significant energy cost savings available to social housing providers by undertaking energy efficiency retrofits.</p> <p><a href="#">MORE HERE</a></p> | <ul style="list-style-type: none"> <li>• <a href="#">Hamilton Community Housing Passive House Standard</a>, ON</li> <li>• <a href="#">Toronto Community Housing TowerWise Retrofit Project</a>, ON</li> <li>• <a href="#">FCM Sustainable Affordable Housing - \$300 million fund to support energy efficiency retrofits in social housing</a></li> </ul> |
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