

# Tackling Climate Change Series

## Lowering Emissions With Energy Efficient Buildings

BIG MOVES

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Decarbonize Existing Buildings

5

Construct Better Buildings

### Building efficiency and the climate

Residential and commercial buildings are the second largest source of emissions in Squamish. They account for **29% of community emissions**, largely because the primary fuel source is natural gas. This includes buildings owned and operated by the District of Squamish.

In 2030, 75% of all the buildings in BC will be the ones currently standing today. Decarbonizing existing buildings and constructing more energy efficient buildings are critical steps to reducing our emissions. Since climate change is already happening, we must also think about how to adapt our buildings to an uncertain climate future. We need to prepare for impacts such as: decreased air quality from wildfires, flooding related to rising sea levels, power outages from storms, and heat waves.



***Make your home more efficient, resilient and comfortable.***

### Start with energy retrofits

Energy efficiency and carbon emission reductions go hand in hand. Energy efficiency measures can be broken down into 3 groups, based on cost and complexity. **Discover a full range of rebates and incentives available through [CleanBC](#).**

**1.Minor retrofits:** These are low-cost modifications that save you money and can have a big impact. Examples include upgrading to efficient lighting systems, installing low-flow faucets, setting up a programmable thermostat, and positioning weather stripping around doors to eliminate air leakage. **Log into your [BC Hydro](#) and [FortisBC](#) accounts to get energy saving tips, many of which are at no cost to you.**

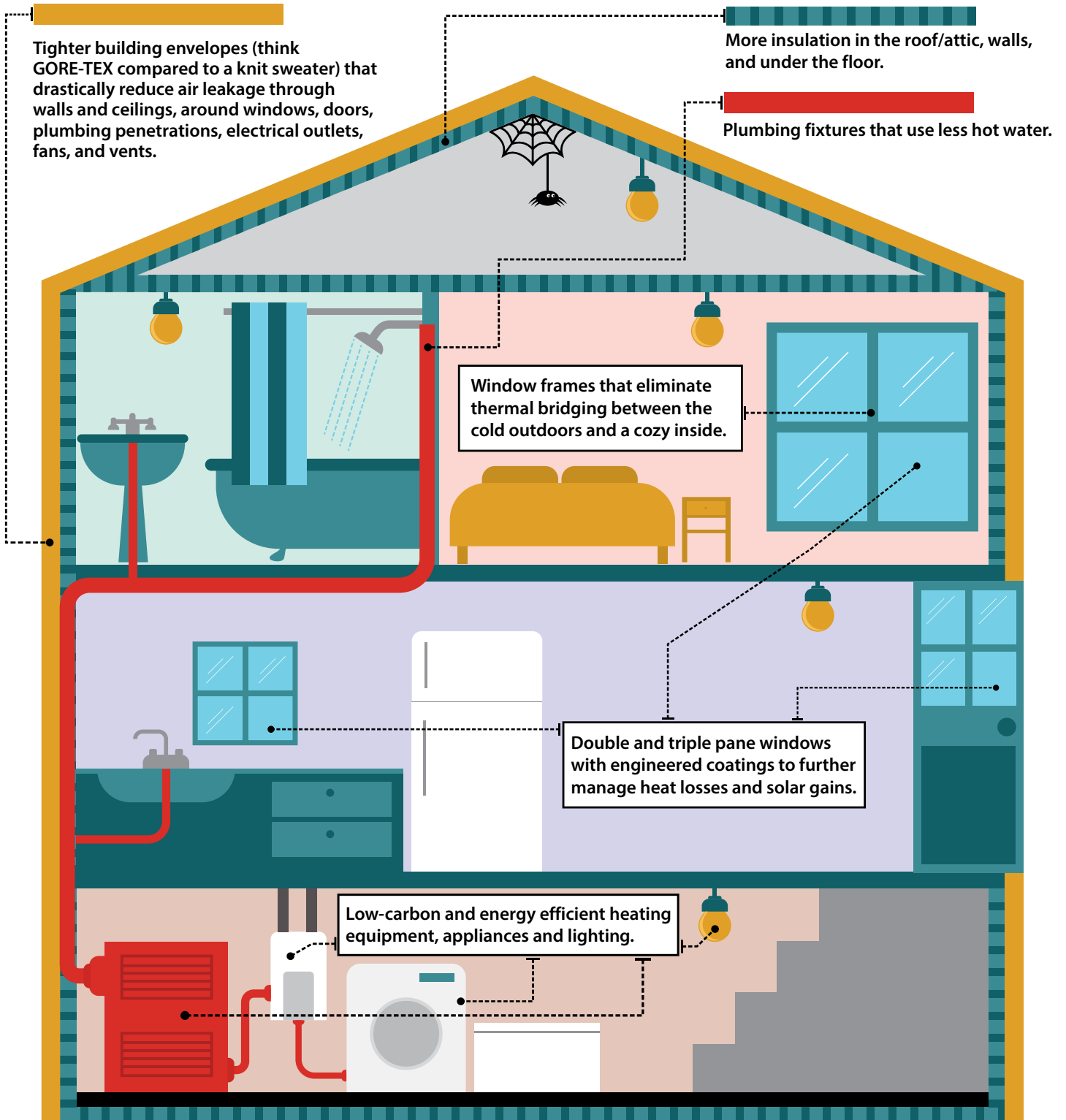
**2.Major retrofits:** This level of retrofit requires an integrated approach with several components and will require more investment and resources than a minor project. Examples include installing ENERGY STAR rated appliances, replacing windows, and updating inefficient space and water heating systems.

**3.Deep Energy Retrofits (DER):** As an extensive overhaul of your home, this more robust upgrade looks at the entire home and may require a complete overhaul of the building systems (like heating, ventilation, and building envelope). Deep retrofits can be disruptive, so the best time to undergo one is when a home is purchased, before moving in. While a DER is more costly up front, it can lead to savings of up to 60% of energy costs in the long-term once completed; not to mention all of the non-energy benefits that go along with a deep retrofit.

**The Canadian Mortgage and Housing Corporation (CMHC) offers a [Green Home program](#) to borrowers who buy, build, or renovate for energy efficiency.**

## How can you make the biggest impact?

There are over 8,000 private dwellings in Squamish. Most were built before energy efficiency was first introduced into the BC Building Code in 2008. What do new energy efficient homes have that older homes don't?



## Beyond energy efficiency: The added benefits of retrofitting your home

Aside from limiting climate change, there are many non-energy benefits to retrofitting your home.



**Save money:** Residents can enjoy both rebates and long-term savings by making retrofits. Owners of 20-year-old gas-heated homes can lower their energy bills by as much as 30% through retrofits (while reducing about 4.5 tonnes of carbon dioxide per year). The most effective way to reduce energy needed to heat our indoor spaces and warm our water is to use heat pumps and high efficiency appliances. There are various rebates and incentives available.



**Block outside noise:** Tired of hearing street noise or construction while you're working from home or trying to sleep? Reclaim your peace and quiet. Double and triple pane windows help block outside noise, contributing to a more comfortable indoor environment.



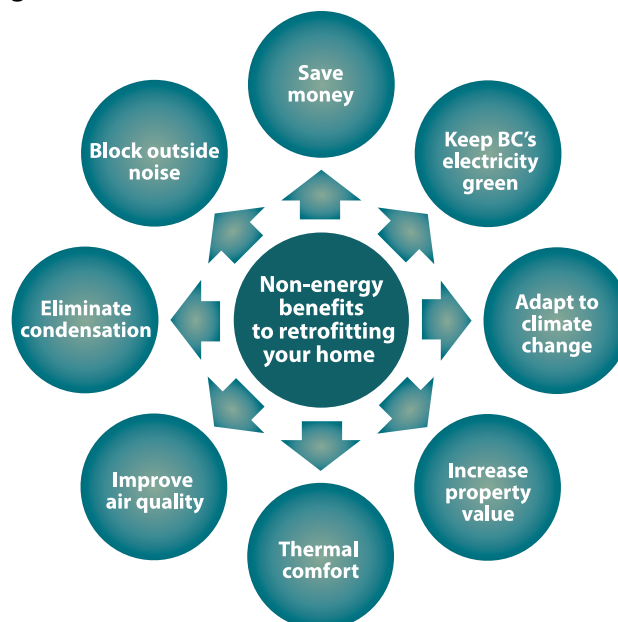
**Eliminate condensation:** With all that condensation on the windows, does it sometimes feel like it's been raining indoors? Welcome to the Wet Coast. Taking an integrated approach to upgrading windows and insulation with energy recovery ventilation can help address moisture issues. Do your research and work with a building envelope consultant or specialist to avoid creating more moisture problems than when you started.



**Improve air quality:** Having an airtight roof and walls, coupled with an energy recovery ventilator and air filters, is better for our health and homes. When a building envelope is not sealed properly, harmful particulates and moisture accumulation inside the home can lead to poor air quality and health problems.



**Increase property value:** Making energy efficiency upgrades to your home increases resale value. With all new buildings now adhering to strict energy efficiency codes, retrofitting your home gives you a leg up in a competitive housing market.





**Adapt to climate change:** Deep Energy Retrofits make your home more resilient and better adapted to an uncertain climate future. Enjoy a home that stays comfortable during an extended power outage and keeps wildfire smoke out. Innovations in building envelope and ventilation system design and construction mean that your home can be a safe haven during those challenging times.

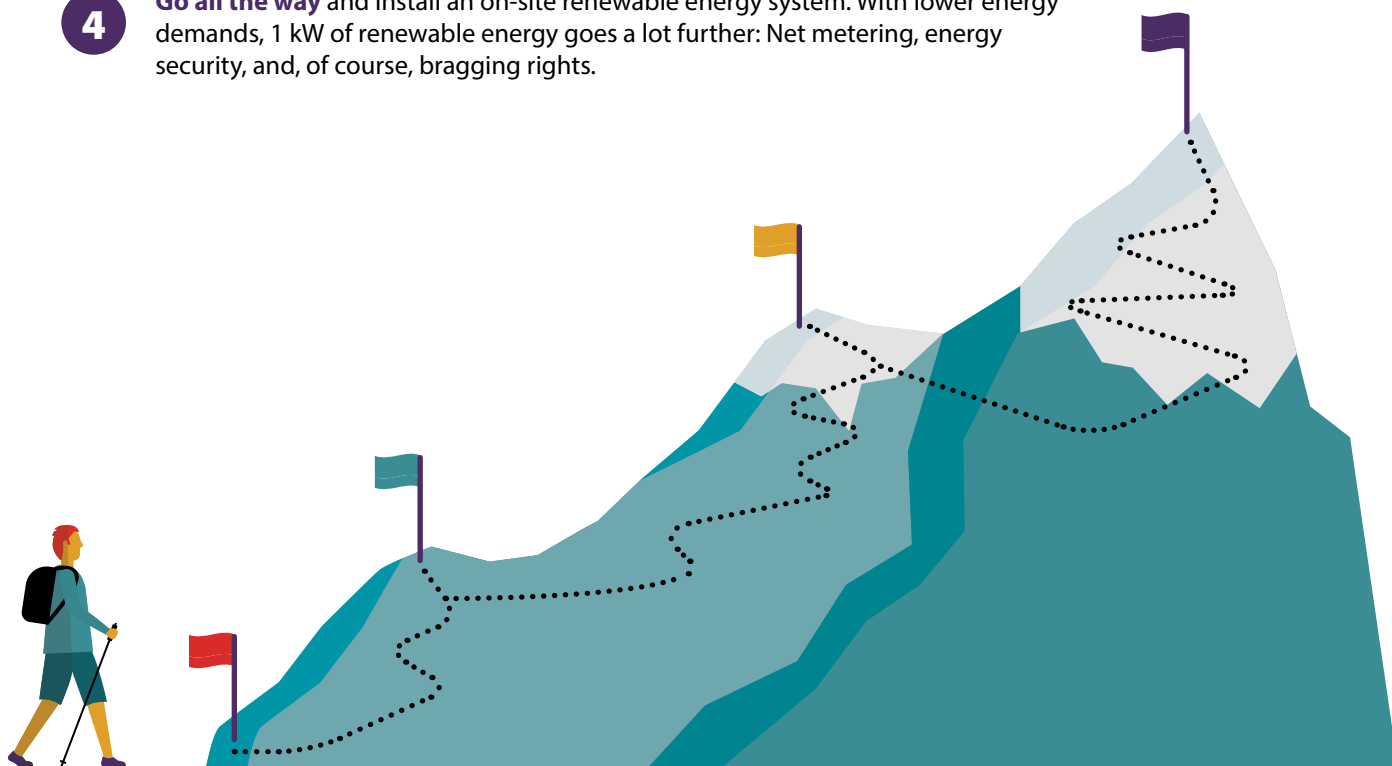


**Keep BC's electricity green:** As we move towards electrification of vehicles and building systems, our community will see increased demand on its power grid. We can offset the demand by implementing electricity saving measures in each home, reducing overall electricity consumption in Squamish.

## How to approach energy retrofits

The task of retrofitting your home might seem like a tall order, but if you break it down into manageable steps, it's easier than you think.

- 1 **Reduce** energy demand by eliminating wasted energy. This can range from making small behavioural changes at no cost, to undertaking a full building envelope retrofit (insulation, windows, air tightness, energy recovery ventilation system).
- 2 **Upgrade** to more efficient systems that use less energy to provide the desired level of comfort or function. Depending on how much you've reduced energy demands, you may be able to purchase a smaller system, which typically costs less.
- 3 **Switch** to a low- or zero-carbon heating system, like a heat pump, right-sized to your lower heating demands.
- 4 **Go all the way** and install an on-site renewable energy system. With lower energy demands, 1 kW of renewable energy goes a lot further: Net metering, energy security, and, of course, bragging rights.



## Designing energy efficient buildings

In British Columbia, all newly constructed buildings must be Net-Zero Energy Ready by 2032. In other words, we must produce ultra-efficient buildings that can be powered by renewable energy created on the site

The Energy Step Code within the BC Building Code, is a performance-based compliance path that focuses on the energy efficiency of new buildings. The District of Squamish, alongside many other BC municipalities, has adopted the Energy Step Code in its building bylaw to require a level of energy efficiency in new construction that goes above and beyond the requirements of the BC Building Code. As of January 2021, we are at Step 4 of the step code for homes, which means that a home must be 40% more efficient than a conventional home. [Learn more](#) about how the Energy Step Code is being implemented at the District of Squamish.

It's important to note that there are significant emissions associated with the creation of building materials. In some cases, these emissions can be larger than the energy they use throughout their entire lifespan. Using wood as a building material is one way to reduce embodied emissions, as wood stores CO<sub>2</sub>.

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## Rebates, incentives and opportunities

There are three types of support you can consider to help pay for energy upgrades to the home you own: loans, rebates, and tax or Insurance breaks. Have a look at the various options currently available for homeowners.

Learn more on our [climate action website](#).

