



# 2021 PSO Climate Change Accountability Report



BRITISH  
COLUMBIA



BC HOUSING



*Emerald Lake, Yoho National Park, BC*

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# Declaration Statement

This Public Sector Organization (PSO) Climate Change Accountability Report for the period January 1, 2021 to December 31, 2021 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2021 to reduce our GHG emissions, and our plans to continue reducing emissions in 2022 and beyond.

By June 30, 2022 BC Housing's final 2021 Climate Change Accountability Report will be posted to our website at [www.bchousing.org](http://www.bchousing.org)



## Executive Summary



*Shayne Ramsay, Chief Executive Officer, BC Housing*

British Columbians faced multiple challenges in 2021, including a continuing global pandemic, an ongoing overdose crisis, a housing affordability crisis, and extreme weather events. In June 2021, over 600 people lost their lives to extreme heat, while extensive flooding in November 2021 put a strain on the province’s communities and transportation corridors. The impacts of climate change are visible and being felt by communities across the province.

BC Housing’s work and mission is to: *“Make a positive difference in people’s lives and communities through safe, affordable and quality housing”*. Increasingly, this means developing and managing social housing, while also being mindful of the intersecting challenges of climate change, rising homelessness, systemic inequities, and discrimination, as well as health crises.

BC Housing, in collaboration with private and non-profit sectors, provincial health authorities and ministries, other levels of government and community groups is well positioned to play a role in addressing these challenges. Housing is at the heart of communities and access to adequate, safe, and suitable housing can help address homelessness and inequities, and if constructed correctly, can reduce greenhouse gas emissions, be resilient to the affects of climate change, and shelter individuals from global pandemics.



*Álewem in Vancouver, built to Step 4 of the BC Energy Step Code in 2021.*

In 2021, BC Housing released our new Sustainability and Resilience Framework, which is intended to guide our actions in these areas and provide a holistic approach to our efforts. The Framework articulates how BC Housing’s sustainability and resilience work supports and advances the organization’s Mission, Vision and Values. It also deepens our understanding of sustainability, especially with regards to social sustainability. We are broadening our efforts to include Reconciliation with Indigenous People, as well as the pursuit of Equity, Diversity, Inclusion and Belonging in our programs and operations, and this is reflected in our sustainability work. Resilience is a key theme in the Framework, as we find ways to adapt social housing to the impacts of climate change.

BC Housing works in partnership with the private and non-profit sectors, provincial health authorities and ministries, other levels of government and community groups to develop, manage and administer a wide range of subsidized housing options across the province. We also license residential builders, administer owner builder authorizations and carry out research and education that benefits the residential construction industry and consumers. We work with over 820 housing providers and help more than 112,900 households in 309 communities across British Columbia.

BC Housing acknowledges that we conduct these activities on the homelands of thousands of Indigenous peoples and many Nations across British Columbia, each with their own unique traditions, culture, world views, languages and history. As an organization, BC Housing is committed to eliminating racist and discriminatory policies, processes and approaches. We are also committed to helping our employees on their personal efforts to reconciliation. We recognize that reconciliation is an ongoing process, and that we are on a learning journey.

While we do not know what the next year will bring, we do know that BC Housing and our partners will work together to meet the challenges head on and move our organization and province in a more sustainable direction.

**Shayne Ramsay**

CEO

BC Housing

# 2021 Greenhouse Gas Emissions and Offsets Overview

## Emissions and Offset Summary Table:

| BC HOUSING 2021 GHG EMISSIONS AND OFFSETS                                      |           |
|--|-----------|
| GHG Emissions created in Calendar Year 2021                                    |           |
| Total Emissions (tCO <sub>2</sub> e)   | 29,362    |
| Total BioCO <sub>2</sub>   | 14        |
| Total Offsets (tCO <sub>2</sub> e)   | 29,348    |
| Adjustments to Offset Required GHG Emissions Reported in Prior Years           |           |
| Total Offsets Adjustment (tCO <sub>2</sub> e)                                  | 422       |
| Grand Total Offsets for the 2021 Reporting Year                                |           |
| Grand Total Offsets (tCO <sub>2</sub> e) to be Retired for 2020 Reporting Year | 29,770    |
| Offset Investment (\$25 per tCO <sub>2</sub> e)                                | \$744,250 |

## Total Emissions for Offsets for the 2021 Reporting Year

BC Housing purchased carbon offsets from the Government of B.C. for the equivalent of 29,770 tonnes of CO<sub>2</sub>e to obtain carbon neutral status for 2021.

Fourteen tonnes of CO<sub>2</sub>e emissions from the combustion of biomass and biomass-based fuels were reported as part of our greenhouse gas emissions profile in 2021. However, while CO<sub>2</sub>e emissions from these sources must be reported, they do not require offsets.

## Retirement of Offsets:

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, BC Housing (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2021 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (the Ministry) ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

### Abbas Barodawalla

Chief Financial Officer

BC Housing

May 30, 2022



*Buttertubs in Nanaimo, built to Step 3 of the BC Energy Step Code in 2021.*

# Emission Reductions: Actions & Plans

## Stationary Sources

BC Housing reports on energy use and related greenhouse gas emissions from all the buildings that we own or lease as required by the Carbon Neutral Government Regulation. With the exception of our offices, our building inventory is made up of various types of affordable housing and includes the following building types:

- ▶ Residential towers (high-rise buildings)
- ▶ Low- and mid-rise buildings
- ▶ Single-room-occupancy hotels (SROs)
- ▶ Townhouses
- ▶ Group homes

Some of these buildings are managed directly by BC Housing, while others are operated by non-profit housing providers.

In 2021, this portfolio included 775 social housing sites, totaling over a million and a half square metres of floor area. During the year, we added 52 new sites to our greenhouse gas reporting inventory through new construction or purchase of existing buildings.

# Greenhouse Gas Results for Buildings

In 2021, our greenhouse gas emissions related to energy used to provide heat, water and electricity for our buildings totaled 29,087 tonnes of CO<sub>2</sub> equivalent<sup>1</sup>. Since 2010, we have seen a 17 per cent decrease in emissions from our buildings, and a nine per cent decrease in emissions from 2020.<sup>2</sup>

## 2021 Buildings GHG Emissions *Compared with 2010 baseline and 2019 results*

| EMISSION SOURCE                              | 2021 GHG EMISSIONS<br>(Tonnes of CO <sub>2</sub> e) | 2021 RESULTS COMPARED WITH<br>THE 2010 BASELINE | 2021 RESULTS COMPARED<br>WITH 2020 |
|--|---|---|------------------------------------|
| <b>Buildings<br/>(Stationary combustion)</b> | <b>29,087</b>                                       | <b>17% decrease</b>                             | <b>9% decrease</b>                 |

Greenhouse gas emission reductions are lower when compared with our baseline due to energy conservation efforts since 2010. These efforts include multi-year building upgrades, fuel switching, and energy programs. Further efforts have been made to increase energy efficiency standards for new construction and improve energy management in our portfolio. These initiatives are further described in the following section of this report.

Although our emissions have decreased compared to our baseline year, 2021 saw less of a decrease than previous years. We also saw a small decrease in emissions compared to 2020. Factors related to the COVID-19 pandemic (such as changes in tenant behaviours) have increased our emissions compared to previous years. Cooler weather in 2021 also had a slight impact, as buildings required more fuel and electricity for heating compared to our baseline year. An unusually

hot summer also had an impact, as mechanical ventilation and air conditioners were used in some social housing buildings. However, organic growth in our portfolio, the purchase of existing properties that are not energy efficient, and new construction and renovations that do not meet our energy targets or did not pursue fuel switching were also factors.

For the 2021 reporting year, FortisBC natural gas consumption data (accounting for approximately 22 per cent of our total emissions) was estimated for private accounts for all or varying portion of individual buildings. We are estimating consumption of these accounts based on similar building types to ensure consistency year-to-year. This is a significant issue which has limited our ability to conduct accurate data analysis and checks that would result in a high level of confidence in this data.

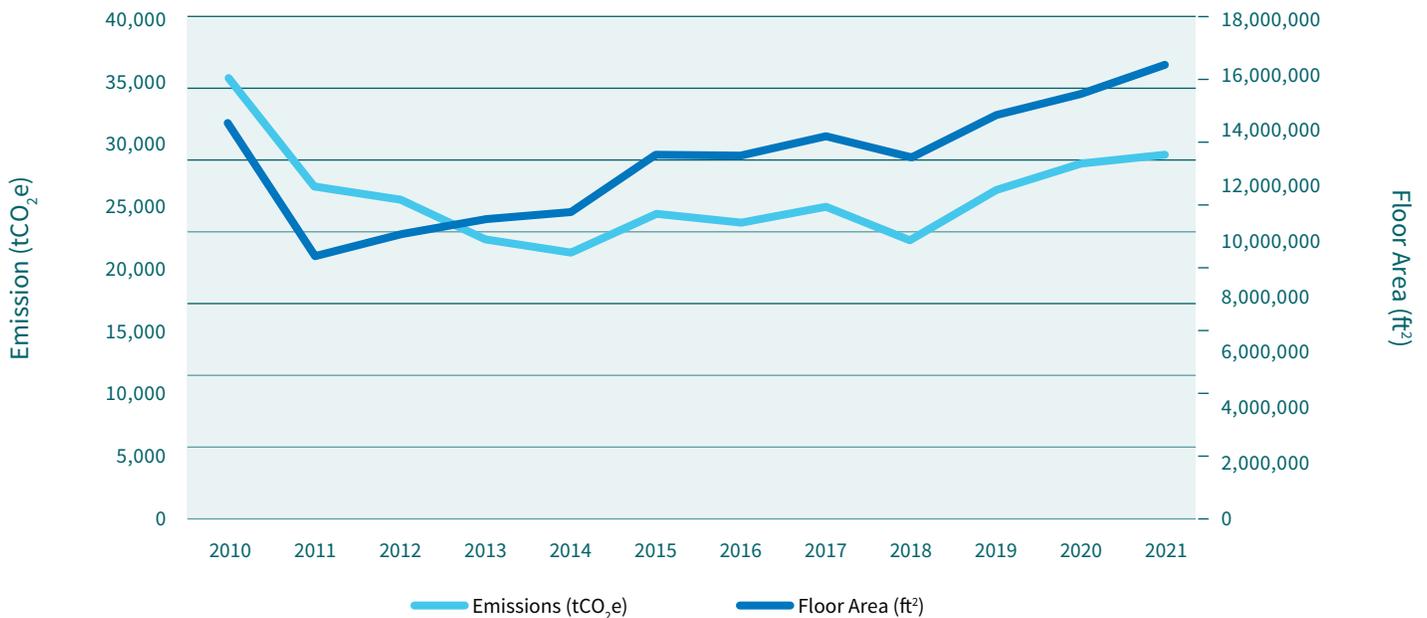


1 Stationary fugitive emissions from air conditioning at BC Housing offices do not comprise more than 0.01 per cent of total emissions and have been deemed out of scope and are not included in the total greenhouse gas profile  
 2 As of the 2019 reporting year, BC Housing has changed from a 2005 baseline to a 2010 baseline to align with CleanBC's emission reduction targets. For the comparison of last year results and 2010, the baseline was recalculated as per the greenhouse gas protocols.

## Floor Area Comparison

Our emissions have decreased relative to our floor area since 2010. However, our portfolio has increased by over 130 buildings since 2018. This has resulted in increasing greenhouse gas emissions over the past three years.

## Floor Area and GHG Emissions Change (2010 - 2021)



## Actions Taken in 2021

In 2021, BC Housing worked with our partners, staff, and tenants to ensure lasting energy performance in our existing building stock, as well as in our new housing developments. As a licensing body for the residential building sector, we helped guide this industry towards higher energy efficiency. Through the year, despite the ongoing challenges of the COVID-19 pandemic, we worked towards enabling innovation and housing excellence.

We undertook initiatives related to buildings in the following areas:

- ▶ Energy conservation initiatives for existing affordable housing buildings
- ▶ Energy conservation training and education in the social housing sector
- ▶ Energy efficiency in new affordable housing construction
- ▶ Technical research and education in the residential construction sector
- ▶ Mobilizing Building Adaptation and Resilience (MBAR)
- ▶ Asset management capacity building for Indigenous communities

## ENERGY CONSERVATION INITIATIVES FOR EXISTING AFFORDABLE HOUSING BUILDINGS

- ▶ BC Housing administers or supports a range of energy efficiency programs for social housing providers, in collaboration with our partners. In 2021, these programs included:
  - The **CleanBC: Social Housing Incentive Program (SHIP)** in partnership with the BC Non-Profit Housing Association (BCNPHA). This provincial program launched in 2018 and is intended to help affordable housing owners and operators reduce GHG emissions. It supports natural gas and fuel switching measures (and other electrification opportunities) that result in significant reduction in current fossil fuel use. In 2021, 11 projects were completed with an estimated annual GHG reduction of 367 tCO<sub>2</sub>e.
  - The **Energy Efficiency Retrofit Program (EERP)** along with our partners the BC Non-Profit Housing Association (BCNPHA), BC Hydro, and FortisBC. This program enabled approximately nine electric and three gas-focused energy retrofit projects, for a total estimated savings of 231,601 kWh and 1,057 GJ respectively in 2021. The program offers non-profit housing providers additional funding to complete small-scale, energy saving retrofits of items such as light fixtures and boilers. These EERP projects will achieve savings of approximately 55 tCO<sub>2</sub>e annually.
- ▶ In 2021, BC Housing worked with consultants to conduct 25 energy audits on high-, mid- and low-rise housing buildings to determine details of current energy consumption patterns and opportunities for energy and GHG emission savings. This will allow for energy conservation measures in future fiscal years. Funding for audits and repairs will come from the Capital Renewal Fund.
- ▶ Several significant energy retrofits were completed at BC Housing and non-profit partner sites in 2021. These retrofits are expected to result in considerable energy and GHG savings and include Seven Maples and Woodcroft with 56 tCO<sub>2</sub>e per year and 56 tCO<sub>2</sub>e per year in GHG savings respectively, and Semlin Gardens with 67 tCO<sub>2</sub>e in GHG savings per year.

## ENERGY CONSERVATION TRAINING AND EDUCATION IN THE SOCIAL HOUSING SECTOR

- ▶ In 2021, BC Housing's Energy and Sustainability team continued to work with BC Housing staff across all departments to raise the level of energy literacy within the organization and to enhance a culture of energy conservation at BC Housing. Their expertise was essential in guiding the development of new housing to highly energy efficient standards such as Passive House and high levels of the [BC Energy Step Code](#).



- ▶ In 2019, BC Housing hired a new Commissioning Manager who assists BC Housing staff and societies to incorporate commissioning and recommissioning into their projects. In 2021, the Commissioning Manager continued developing new policies and incorporating commissioning as a requirement in our Design Guidelines and Construction Standards. It is estimated that proper commissioning can save 13 per cent for new construction buildings, and 16 per cent for existing buildings.
- ▶ In 2021, BC Housing continued to support the BCNPHA in the delivery of their Operations and Maintenance program which aims to build energy management capacity in the housing sector, enhance energy and greenhouse gas savings, and get tenant buy-in and engagement.
  - Courses offered through the Operations and Maintenance program include:
    - Asset Management Foundations
    - Building Systems
    - New Construction and Redevelopment
    - Green Asset Management
    - And others



*Wale Road in Colwood, built to Step 3 of the BC Energy Step Code in 2021.*



*A BC Housing development in Fort St. John built to Passive House standard (Photo: Silentsama, architectural photography)*

## ENERGY EFFICIENCY IN NEW AFFORDABLE HOUSING CONSTRUCTION

- ▶ BC Housing encourages our project partners to achieve energy efficient standards in the development of new social housing:
  - In 2021, we completed 33 projects that have achieved Step 3 or higher of the BC Energy Step Code. The BC Housing Design and Construction Guidelines have been revised to align with the BC Energy Step Code. Since 2018, our projects have targeted high steps of this code, a performance-based approach that will result in energy savings over base building code in new buildings constructed through our programs.
  - To date, BC Housing and our non-profit housing partners have more than 60 buildings registered with the Canadian Green Building Council. Fifty buildings have received Leadership in Energy and Environmental Design (LEED) certification (mostly LEED Gold with a few LEED Silver and LEED Certified).

- We have also been working with our partners to construct buildings that achieve the Passive House standard. In 2021, two Passive House projects were in the Design Development Stage, with seven others in various stages of design.
- In 2020, we introduced an amendment to our BC Housing Design Guidelines and Construction Standards to include a Greenhouse Gas Intensity target for all new construction projects.

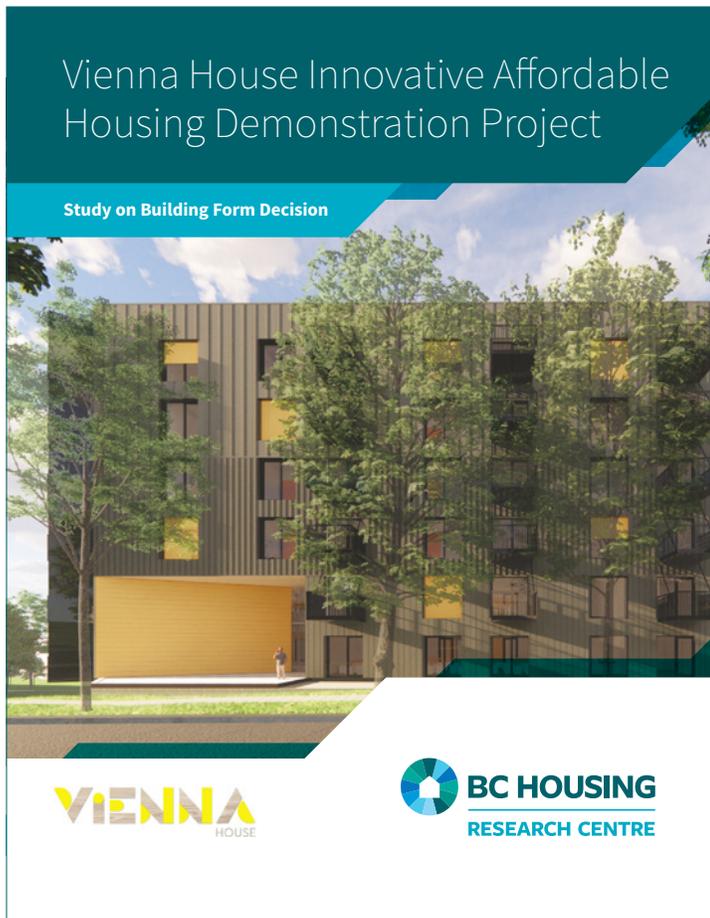
## ASSET MANAGEMENT CAPACITY BUILDING FOR INDIGENOUS COMMUNITIES

- ▶ In 2021, BC Housing’s Indigenous Asset Management team worked with Indigenous communities across the province, including:
  - Implementing four Asset Management MOUs with 19 First Nations across B.C.
  - Holding monthly Lunch and Learns with Indigenous partners which included sessions on energy management, safety, and the efficiency of woodstoves
  - Assisting in Building Condition Assessments of homes with First Nations
  - Working with communities that were impacted by the devastating wildfires and flooding in 2021, and working on solutions to avoid widespread destruction related to future climate events

## TECHNICAL RESEARCH AND EDUCATION IN THE RESIDENTIAL CONSTRUCTION SECTOR

Under the Homeowner Protection Act, BC Housing is mandated to improve the quality of residential construction in B.C. through industry research and education. In 2021, we undertook the following initiatives which contributed to improved quality of residential construction and better building energy efficiency:

- ▶ BC Housing is helping the residential construction sector learn a new approach to early design planning: the Integrated Design Process (IDP). IDP engages builders, project owners, and their teams of designers, mechanical contractors, and energy advisors at the conceptual design stage. By bringing everyone in early to collaborate, the team can identify key goals and ensure all expectations are met easily and efficiently, including higher energy performance targets. BC Housing and our partners are promoting IDP across the industry by developing educational videos as part of the “Building High Performance Homes Through Local Energy Efficiency Partnerships (LEEP)” series. These videos demonstrate how IDP can be used to meet multiple goals in high performance housing projects. BC Housing and our partners also supported the development of IDP facilitator training pilot for Energy Advisors through the Canadian Association of Consulting Energy Advisors (CACEA).
- ▶ BC Housing is also a partner in the LEEP for Renovations program, a new phase of LEEP focusing on home renovations rather than new construction. In 2021, BC Housing and NRCan held planning workshops for LEEP for Renovations. Field trials are expected to occur in 2023.
- ▶ BC Housing conducts technical research and provides education to help improve the quality of residential construction and increase building energy efficiency. In 2021, we published several reports, including:
  - [Vienna House Innovative Affordable Housing Demonstration Project: Building Form Decision](#) – This report summarizes the considerations and decisions that resulted in the configuration of the Vienna House Project. The findings are distilled from interviews with key members of the Project Steering Committee during the schematic design stage.
  - [Vienna House Innovative Housing Demonstration Project: Design for Disassembly](#) – Design for Disassembly (DfD) focuses on the design and construction of buildings with end of life in mind. This includes the products installed in the building and their replacement, ongoing maintenance and repairs, and decommissioning.



- [Design Versus Actual Energy Performance in Social Housing Buildings](#) – The Design vs Actual Energy Performance in Social Housing Buildings report examines the differences between how buildings performed in energy models compared to actual performance. By collecting LEED energy models and more than two years of energy utility data, the research investigated ten LEED Gold certified social housing buildings in Victoria and Vancouver, British Columbia.

These reports are available online from [BC Housing's Research Centre](#).

- ▶ In collaboration with industry partners, BC Housing's Building Smart seminar series provides up-to-date building code information and best practices for the construction and design of homes in B.C. These practical and informative sessions give licensed residential builders, contractors, building officials, architects, engineers, trades, and others involved in the home building industry access to the latest research and technology. In 2021, the Building Smart series focused on skills and knowledge necessary for the B.C. residential construction industry to reach the lower steps of the BC Energy Step Code, including air tightness testing, mitigating thermal bridging, evaluating thermal comfort, and key considerations for high performance walls and roofs. The Building Smart seminars are available on demand as e-learning modules on the [BC Housing website](#).
- ▶ Now in its eighth year, BC Housing's [Building Excellence Research & Education Grants program](#) encourages research and education to improve the quality of residential construction, as well as strengthening consumer protection for buyers of new homes in B.C. Projects funded in 2021 included:
  - Developing a course on Retrofitting Buildings for Energy Efficiency in line with the CleanBC initiative.
  - Identifying the technical, economic and environmental challenges of simultaneous energy and seismic upgrade of existing buildings. Developing standard protocols to address these through case studies.
  - Delivering workshops aimed at equipping B.C. contractors of South Asian origin with information on how to save energy and manage energy costs of homes.

For a complete list of projects funded in 2021 or for more information about the grant, please visit:

<https://www.bchousing.org/research-centre/research-education-grants>

- ▶ BC Housing and our project partners won several industry awards in 2021. The Building Envelope Thermal Bridging Database was recognized with an Award of Excellence as part of the 2021 Canadian Consulting Engineering Awards, and we were awarded the Clean 50 award, which annually offers recognition to Canada's leaders in sustainability for their contributions.

## MOBILIZING BUILDING ADAPTATION AND RESILIENCE (MBAR)

Mobilizing Building Adaptation and Resilience (MBAR) is a multi-year, multi-stakeholder knowledge and capacity building project led by BC Housing, with participation and contribution from over 30 organizations, including national, provincial, and local agencies, and industry partners. In 2021 and 2022, among other activities, BC Housing worked with MBAR staff on several BC Housing MBAR Roundtables, including:

- ▶ Looking Forward, Looking Back
- ▶ Nature-Based Solutions
- ▶ Financial Solutions for Low Carbon Resilient Buildings



## **MOBILIZING BUILDING ADAPTATION AND RESILIENCE**

## INTEGRATED BUILDING ADAPTATION AND MITIGATION ASSESSMENT (IBAMA)

In 2021 and 2022, BC Housing piloted the IBAMA Framework on three projects at BC Housing, and this process yielded significant successes, some challenges as well as critical learnings.

The 2021-2022 IBAMA pilots are:

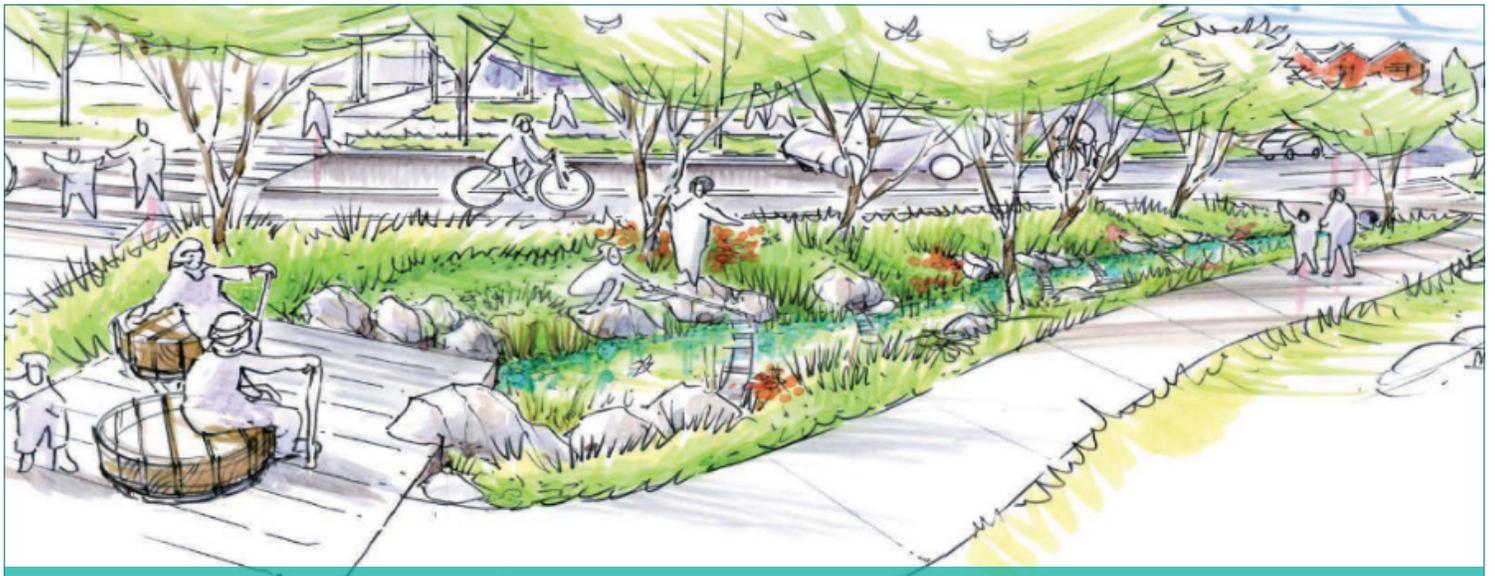
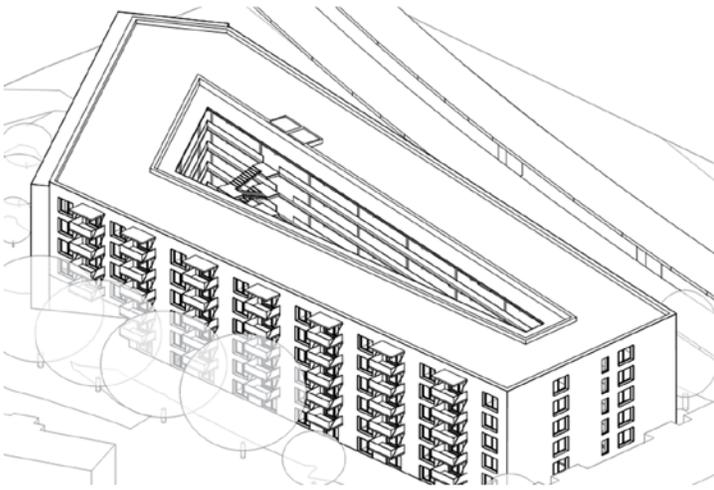
- ▶ Vienna House Project in East Vancouver (Images on this page)
- ▶ səliłwatał (Tsleil-Waututh) Nation Housing Project in North Vancouver
- ▶ Rosewood Redevelopment in Richmond

The IBAMA framework incorporates both climate adaptation and mitigation, which BC Housing has broadened to consider overall resilience and sustainability, into the design of new buildings at the pre-concept stage. The goals of these pilots include to:

- ▶ Raise awareness of resilience, incorporate factors, when developing the project's design
- ▶ Pilot IBAMA framework and adjust based on feedback

Preliminary lessons learned from initial pilots indicate that the IBAMA process can facilitate:

- ▶ Use of future climate weather data
- ▶ Combining resiliency to future climate and seismic hazards with existing building systems



Vienna House Project in East Vancouver (Images above, Credit: PUBLIC: Architecture + Communication)

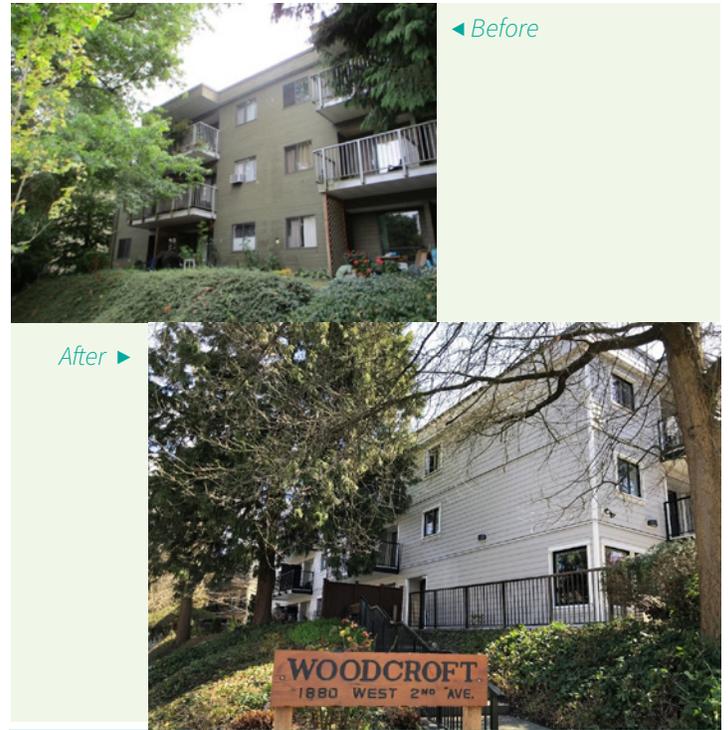
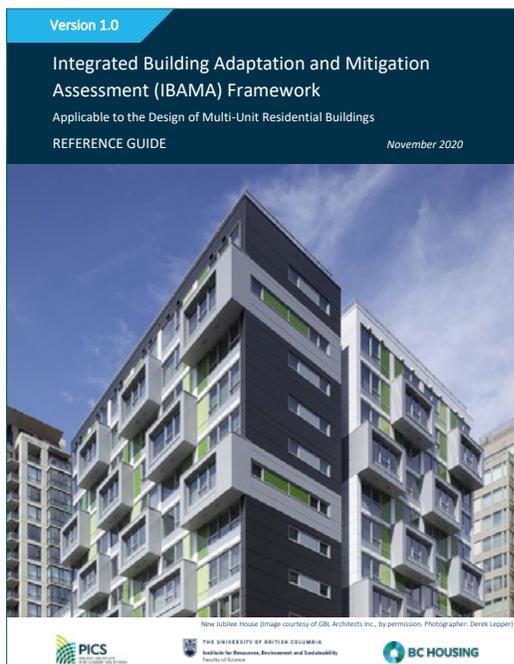
- ▶ A holistic understanding of systems that may have multiple sustainability and resilience benefits, such as the green storm water infrastructure (e.g. rain garden) seen above (Credit: PUBLIC: Architecture + Communication)
- ▶ Greater attention to social resiliency and how the designs can provide support amongst tenants during any potential future emergency

The development of IBAMA was supported by a partnership between BC Housing, the Pacific Institute for Climate Solutions (PICS), the University of Victoria, the University of British Columbia and Simon Fraser University. Each of the above three pilots goes through three or, in one case, four IBAMA workshops, and attendees include the project consultant team, key BC Housing staff, and others, including Municipality, experts, etc. These workshops support the design and ownership teams in navigating the below process:

For more information, this page has links to all information on IBAMA: [Adaptive Mitigation: A Framework for Assessing Climate Change Solutions in Urban Multifamily Buildings | PICS \(uvic.ca\)](#)

To support teams using IBAMA, BC Housing has developed a series of [IBAMA videos](#), and these build on the following core resources:

- ▶ [IBAMA Primer](#)
- ▶ [Excel Sheet](#)
- ▶ [Reference Guide](#)



*Woodcroft, before and after renovations completed in 2021.*

### SUCCESS STORIES

Woodcroft is a 31-unit seniors’ housing development, located in Vancouver. Constructed in the 1970’s, this building underwent extensive renovations in 2021, funded by the Capital Renewal Funding. The energy-related scope of work included building envelope upgrades, boiler replacements, and domestic water heater heat pumps installation, with around 1109 GJ per year in energy savings, and 56tCO<sub>2</sub>e in GHG savings.

Semlin Gardens is a 28-unit family housing development, located in Vancouver. An electrification project in 2021, resulted in significant energy savings of 1330 GJ per year, and 67 tCO<sub>2</sub>e in GHG savings. The scope of work at Semlin Gardens included a Heat Pump and Heat Pump Plant. GHG emissions were reduced by 95 per cent.

Both buildings now benefit from a reliable source of hot water and heating with upgraded efficient systems. Residents of the building experience increased thermal comfort as the air-source heat pumps are able to overheat in the basement.

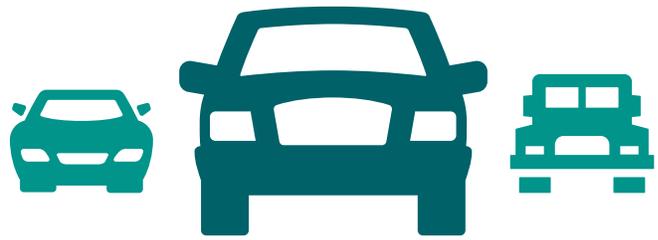
## Fleet

In 2021, our vehicle fleet consisted of 65 fleet vehicles, primarily trucks and vans used by grounds and building maintenance staff. Office pool vehicles included Smart Cars and hybrid vehicles. Nine percent of our fleet vehicles in 2021 were fuel-efficient.

We also have a corporate account with Modo, a car-sharing cooperative, for staff use in the Vancouver Coastal and Fraser regions. Our Modo account gives our staff access to a wider range of vehicles and provides flexibility on where to get them. Starting in 2016, emissions from staff trips in Modo vehicles were calculated and reported alongside BC Housing’s own fleet. Almost fifty per cent of kilometres driven in Modo cars in 2021 were taken in hybrid vehicles, resulting in greenhouse gas savings.

## Greenhouse Gas Results for Fleet

In 2021, our greenhouse gas emissions from mobile sources (fleet vehicles, Modo vehicles, and grounds equipment) totaled 248 tonnes. Greenhouse gas emissions increased by 23 per cent compared to our 2010 baseline, and decreased by 16 per cent compared to 2020..



## 2021 Fleet and Equipment GHG Emissions

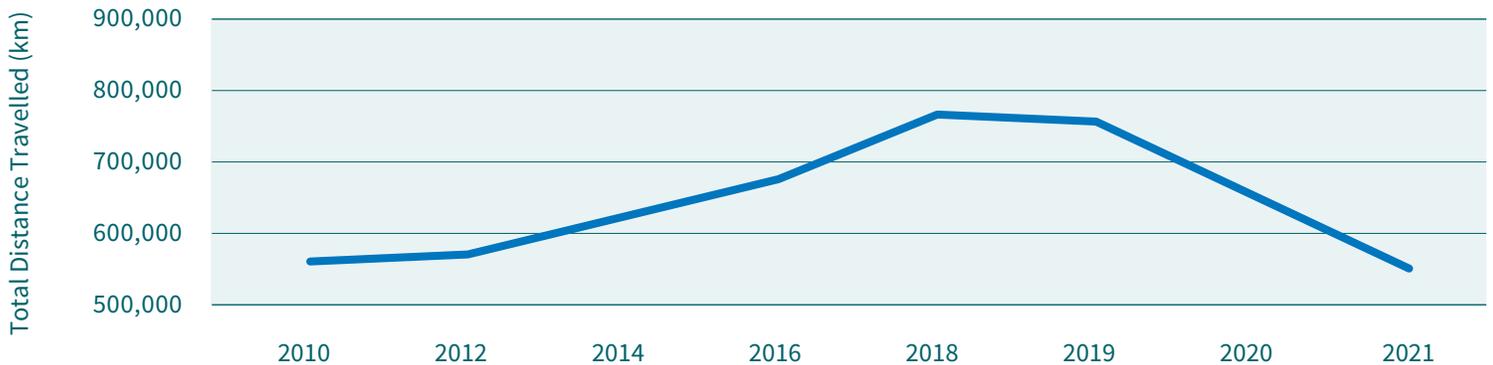
| EMISSION SOURCE                      | 2021 GHG EMISSIONS<br>(Tonnes of CO <sub>2</sub> e) | 2021 RESULTS COMPARED WITH<br>THE 2010 BASELINE | 2021 RESULTS COMPARED<br>WITH 2019 |
|--------------------------------------|---|---|------------------------------------|
| <b>Fleet<br/>(Mobile combustion)</b> | <b>248</b>  | <b>23% increase</b>                             | <b>16% decrease</b>                |

There was a sixteen per cent decrease in kilometres travelled in 2021 compared to 2020, as many of our staff continued to work remotely during the COVID-19 pandemic and did not use the office pool vehicles as frequently. However, our building maintenance and ground crews continued to use vehicles for their work. Due to the reduction in kilometres travelled, we also consumed fewer litres of gasoline and diesel in 2021 compared to 2020. Our greenhouse gas intensity (greenhouse gas emissions per kilometre travelled) remained the same between 2020 and 2021.

When compared to our 2010 baseline, we have seen an increase in emissions from our fleet, as our organization has grown. Our fleet itself has grown, from 43 vehicles in 2010, to 65 vehicles in 2021 (a 51 per cent increase). As our building portfolio and responsibilities have expanded since 2010, so too have the kilometres travelled in the BC Housing fleet.

Greenhouse gas emissions for the 2021 reporting year were calculated using reported fuel consumption data, as well as estimation when fuel consumption data was not available. Ninety-eight percent of fleet fuel consumption was recorded in our accounting system, resulting in a high level of confidence in this data.

## Kilometres Driven by BC Housing Fleet, 2010-2021



## Actions Taken in 2021

- ▶ Due to the COVID-19 pandemic, many in-person meetings were replaced with virtual meetings, reducing our work-related travel significantly.
- ▶ We performed regular maintenance on all fleet vehicles to ensure that they are operating as efficiently as possible. When required, we replace older vehicles with newer, more efficient models.
- ▶ The Lower Mainland grounds and maintenance fleet continued to use a GPS fleet tracking system to reduce fleet mileage. This allowed fleet managers to reduce kilometres driven by allocating resources more efficiently and monitoring idling behaviours.
- ▶ Due to a shift to teleworking during the pandemic, average carbon emissions due to commuter trips per employee dropped almost 68 per cent in 2021 compared to our baseline year.
- ▶ The annual employee sustainability survey showed that the trend of BC Housing employees choosing hybrid and fully electric vehicles continued in 2021. While the automobiles used by employees to commute to and from work in 2021 still run primarily on gasoline, 2021 saw the highest ever share of hybrid and fully electric vehicles at almost 10 per cent.



## Paper

In 2021, our greenhouse gas emissions for office paper totaled 12.5 tonnes of CO<sub>2</sub>e.

Since 2010, we have seen a 58 per cent decrease in our annual greenhouse gas emissions resulting from paper consumption. In the past, this was mainly due to efforts to promote a paperless organizational culture, an increase in paper with 100 per cent recycled content, and changes to our procurement practices. In 2021, due to a shift to teleworking, our purchasing continued to decline. In 2021, the organization purchased significantly less paper (thirty-one per cent) than in 2020. We saw a corresponding decrease in greenhouse gas emissions due to paper use between 2021 and 2020.

Our greenhouse gas emissions per employee due to paper use decreased 73 per cent compared to our baseline year.



## 2021 Paper GHG Emissions

| PAPER | 2021 GHG EMISSIONS<br>(TONNES OF CO <sub>2</sub> e) | 2021 RESULTS COMPARED<br>WITH THE 2010 BASELINE | 2021 RESULTS COMPARED<br>WITH 2020 | 2021 RESULTS COMPARED<br>WITH THE 2010 BASELINE,<br>PER EMPLOYEE |
|-------|---|---|------------------------------------|--|
|       | 12.5  | 58% decrease                                    | 31% decrease                       | 73% decrease   |

In 2021, 75 per cent of all the paper purchased was 100 per cent recycled paper, a five per cent decrease compared to 2020.

## Actions Taken in 2021

- ▶ We encouraged staff to reduce printed materials by promoting paperless meetings and giving our printers a default setting of double-sided. As many of our employees continued to work remotely during 2021, they used electronic documents instead of printing as frequently.
- ▶ Our office services staff made every effort to buy 100 percent recycled paper and only purchased paper with a lower recycled content if 100 per cent recycled content was not available for the required paper type.
- ▶ BC Housing's Records and Information Centre championed paper reduction in 2021. The COVID-19 pandemic sped up some work with departments to move various file series completely electronic, particularly as large sections of staff began working at home exclusively and still required access to materials.
- ▶ The Human Resources Information Systems team has been digitizing HR Processes and moving all systems away from paper-based processes to automated, digitized, and in some cases App-based processes. To date, this has included:
  - COVID-19 Employee Health Check
  - Teleworking Agreement
  - Employee Change Form
  - Payroll Change Form
  - And many others.
- ▶ The IT Department is also undertaking an IT Modernization project, strengthening systems and putting tools in place to support great flexibility in remote and teleworking, enabling secure digital signatures and secure data collection, and supporting digitized systems throughout the organization.

# Plans to Continue Reducing Greenhouse Gas Emissions in 2022

## Energy Conservation Initiatives and New Construction in the Social Housing Sector

- ▶ The Government of British Columbia has invested \$1.1 billion over ten years to make B.C.'s social housing stock more energy efficient, less polluting and safer, while significantly reducing heating and cooling costs for residents. Of this Capital Renewal Fund, \$10 Million annually has been dedicated to the incremental cost of energy savings measures on our own and our non-profit partner's projects. Other retrofits include fuel switching, building envelope upgrades, and other energy efficiency measures.
- ▶ In 2022, the Energy Efficiency Retrofit Program (EERP) will continue to address the energy efficiency of social housing.
- ▶ In 2022, BC Housing will ensure most of our renovation projects perform comprehensive energy audits and include Energy Conservation Measures (ECMs) in the design phase that lead to at least 50 per cent greenhouse gas reductions.
- ▶ Sustainability, energy conservation, and decarbonization will continue to be integrated in our community development programs. Due to social distancing measures required during the COVID-19 pandemic, we will find innovative ways to continue this programming.

## The Residential Construction Sector

- ▶ BC Housing will continue to provide residential construction industry education by developing and delivering at least 10 Building Smart workshops, seminars, and webinars across B.C. Topics will include information on intermediate steps of the BC Energy Step Code, and innovative and best construction practices to comply with these requirements.
- ▶ We will continue to take action to facilitate the implementation of the BC Energy Step Code, including:
  - Performance monitoring of high-performance social housing buildings meeting high levels of the BC Energy Step Code.
  - Engaging with the design teams early on to establish sustainability target and conduct peer review process to ensure efficient building design
  - Developing other educational materials including a series of customized seminars and webinars, videos, animation, online interactive guidance tools, and tool kits for hands-on training that are useful and accessible to builders and designers in both urban and remote regions of B.C.
  - Administering a local government survey to gauge the barriers and successes in adoption of the BC Energy Step Code.



- ▶ BC Housing will continue to partner on the Local Energy Efficiency Partnerships (LEEP) project, including the LEEP for Renovations program.
- ▶ In partnership with our research partners, BC Housing will publish additional reports designed to assist the residential construction sector meet market demand and transition to sustainable and resilient design.

## Fleet

- ▶ In 2022, BC Housing will examine the lessons learned from the COVID-19 pandemic around the impact of virtual meetings and telecommuting on our greenhouse gas emissions and evaluate how this might change our policies moving forward.
- ▶ We will also explore the trends in BC Housing commuting data and will look at possible incentives and other policy adjustments to allow for more telecommuting and to uncover possible options for reducing Single Occupancy Vehicle driving.
- ▶ Although a large percentage of our fleet is trucks and vans that do not yet have electric equivalents available in the North American market, we have started research on electric vehicles to ensure we are ready to act when the appropriate technology is available.
- ▶ We will renew staff training on 'green driving' which can result in significant GHG reductions.

## Paper

- ▶ In 2022, BC Housing will aim at sourcing a higher percentage of our paper with 100 per cent recycled content. We will reach out to regional staff who make paper purchases to ensure that paper with lower recycled content is not purchased by mistake.
- ▶ The *livegreen* Council will promote the idea of paperless meetings through information bulletins in the BC Housing weekly e-newsletter and signage in meeting rooms. The *livegreen* Council will continue to encourage employees to make more sustainable decisions at work, home, and in our communities.
- ▶ We will continue to explore the digitization of our processes so we can transition away from printed documents and use of paper.





*Flooding in Abbotsford, B.C.*

# Climate Risk Management

Over the span of 10 years, most of BC Housing’s sustainability work focused on climate mitigation and reducing our greenhouse gas emissions. This has changed in the last few years as extreme weather events – very poor air quality due to wildfire smoke, extremely hot, record-breaking temperatures, and flooding events, demonstrated that climate change is a social issue. Climate change impacts are already affecting our tenants, buildings, and organization.

BC Housing is taking action to deal with climate change in the following ways:

- ▶ Integrated resiliency as well as Truth and Reconciliation and Equity objectives into our new Sustainability and Resilience Strategy Framework, and 2022/23 Implementation Plan. This has been done in a way that is more integrated with our corporate planning process, thus ensuring higher level of accountability across the organization.
- ▶ Conducted a high-level climate risk assessment a few years ago. This identified our top risks: hotter and drier summers, warmer and wetter winters, and increased risk of flooding. These could potentially impact the health and safety of tenants, increase operating building costs, and put new demands on our resources. This year we’ll be creating a roadmap for a more detailed, building level assessment of our portfolio.
- ▶ Updated and expanded our Extreme Heat and Wildfire Smoke Response Plans in collaboration with health, Emergency Management BC (EMBC), municipalities and other partners. Key actions areas included:
  - Increasing Capacity within the Non-profit Housing Providers Sector
  - Building Organizational Capacity within BC Housing
  - Reducing risks to residents associated with extreme heat and poor air quality due to wildfire smoke in new construction and existing buildings
  - Undertake research and engagement, in collaboration with the sector, to better understand the technical and non-technical remedies to alleviate extreme heat and wildfire smoke impacts on residents who live in social housing
  - Collaboration with partners, stakeholders and people living in social housing



- ▶ Scaling up the collaborative, multi-year knowledge and capacity building research project: Mobilizing Building Adaptation and Resilience (MBAR). This project aims to help people protect their homes and buildings from climatic changes and seismic shocks. Pilot projects get access to resources and renovation, design expertise to help buildings stay comfortable, safe and resilient, even with heavier rainfall, hotter summers, wildfires, flooding, and windstorms. Based on the pilots projects, a new body of knowledge has been generated and shared with the industry through publications, training and roundtables.
- ▶ Researched and published low-carbon, resilient building guides and bulletins for the residential construction industry, and incorporated this new body of knowledge in training and education for the industry.
- ▶ In 2017, we published a Climate Adaptation Framework. The Framework was our first step in recognizing that many of the impacts of climate change are locked-in for the foreseeable future, and that BC Housing must take action on the climate change impacts already affecting our work and communities across B.C. The adaptation framework helps us prepare and respond to those changes in weather patterns and to unprecedented extreme weather events.

Our new Sustainability and Resilience Framework closely aligns our work on mitigation and adaptation. This ensures our efforts go towards reducing our contribution to climate change and other sustainability and social crises, while also ensuring the resilience of our housing and communities.

#### PLANS TO CONTINUE THIS WORK IN 2022

- ▶ In 2022, BC Housing will continue to engage with tenants and residents affected by extreme weather and work with the non-profit housing sector on managing extreme heat and poor air quality due to wildfire smoke in affordable housing. We will do this with our partners the BC Non-profit Housing Association (BCNPHA), health authorities, EMBC, local government and communities, and others.
- ▶ In 2022, BC Housing will continue to implement the Extreme Heat and Wildfire Smoke Response Plan. This will ensure individuals living in social housing, accessing shelters and transition homes, and those who are unsheltered, are protected against the health impacts of heat and wildfire smoke. It will also include recommendations for changes in how buildings are being built and renovated so that they take into account the current and future climate – which is already very different than our past climate. We'll continue to update our Building Standards and Construction Guidelines and commission relevant research, to reflect and address the increasing risks of extreme weather driven by climate change.
- ▶ Mobilizing Building Adaptation and Resilience (MBAR) project will add to the growing body of knowledge and offer learning opportunities related to barriers and benefits of implementing specific resiliency measures. BC Housing will continue working with the existing and new MBAR pilot projects, academic, industry and other partners, in order to share the best practices.

# Other Sustainability Initiatives

## Strategic Planning

In 2021, BC Housing released our new Sustainability and Resilience Framework. The Framework articulates how BC Housing's sustainability and resilience work supports and advances the organization's Mission, Vision and Values. It also deepens our understanding of sustainability, especially social sustainability. We are broadening our efforts to include Reconciliation with Indigenous People, as well as the pursuit of Equity, Diversity, Inclusion and Belonging in our programs and operations, and this is reflected in our sustainability work. Resilience is a key theme in the Framework, as we find ways to adapt social housing to the impacts of climate change.

### PLANS TO CONTINUE THIS WORK IN 2022

- ▶ BC Housing will build on the 2021 launch of our new Sustainability and Resilience Strategy Framework. We will work to implement the Strategy Framework with actions from departments across the organization, advancing our sustainability and resilience work.
- ▶ BC Housing will continue to enhance our engagement with our partners on sustainability and resilience initiatives.



*Hall Street Place in Nelson, built to Step 3 of the BC Energy Step Code in 2021.*

## Employee Engagement

Employee engagement continued to be important in 2021, as many employees were working from home and outside of their regular routines. Our employee green team, the *livegreen* Council, plays a key role to encourage sustainable employee behaviour both in the workplace and at home, helping to establish sustainable lifestyles for employees, families and communities. This committed and corporately-sponsored council represents every branch of BC Housing. Council members work to a strategic plan that is informed by the findings of our annual sustainability survey.

In 2021, our *livegreen* council gave employees a chance to engage on sustainability initiatives. With so many employees working from home, the events provided employees with an opportunity to connect socially with their colleagues, improving moods and fostering connections. The importance of nature was also highlighted for many around the province, as we found ways to explore safely outdoors and connect with nature.

In 2021, our *livegreen* events included:

▶ **“Gorgeous” Growing Contest**

Staff were invited to participate in a gorgeous growing gardening contest to show off their green thumbs. Staff were encouraged to use heritage plants, think of pollinators, and re-purpose household items in their gardens. This initiative encouraged time in nature, and increasing biodiversity by growing local and pollinator-friendly plants.

▶ **‘Go By Bike Week’**

Even though many of our staff are no longer commuting daily, they did have a chance to participate in “Go-by-Bike Week”, encouraging and supporting cycling for errands and exercise in addition to commutes. Information and articles were shared on the benefits of cycling for physical and mental health, and the reductions in greenhouse gas emissions from vehicle use. Team members from every region participated in our two sessions of Go-by-Bike Week. We also held Bike to Shop Week in July.



A photo taken by a staff member during the “Gorgeous” Growing contest.



▶ **Cooking Vegetarian Meals Together**

During our “Month of Meatless Mondays” campaign, staff swapped vegetarian and vegan recipes, and had the opportunity to participate in online cooking classes, hosted from employee households. This popular event allowed employees to expand their meatless recipe repertoires and connect over food.

▶ **TransLink Lunch and Learn**

With some staff returning to the office in 2021, the *livegreen* Council hosted a TransLink Lunch and Learn, to help staff feel comfortable returning to sustainable commuting options such as buses and rapid transit in the Metro Vancouver area.

▶ **30 x 30 Nature Challenge**

Connecting to nature was especially important to our employees during the pandemic as other activities were cancelled. Our annual 30 x 30 Nature Challenge encouraged employees to commit to spending 30 minutes a day outside, every day for 30 days.

▶ Virtual Lunch and Learns on various topics

▶ Other Gardening activities

Due in part to our employee engagement practices, Canada’s Top 100 Employers project has named BC Housing one of Canada’s Greenest Employers for eight consecutive years and we have been recognized as a Transformational Company by Canadian Business for Social Responsibility.



Staff participated in Meatless Mondays campaigns in 2021.

## PLANS TO CONTINUE THIS WORK IN 2022

- ▶ The Employee *livegreen* Council will continue its focus on encouraging BC Housing employees to make more sustainable decisions at work, home and in their communities. The focus will also be on connecting employees virtually until physical distancing is no longer necessary. Activities are planned in four focus areas:
  - **Food:** promoting sustainable food choices such as: growing your own food, buying local and organic food, and promoting a meatless diet.
  - **Commuting:** creating awareness amongst employees of the opportunities to make environmentally friendly commuting and personal travel choices.
  - **Home:** inspiring employees to reduce their environmental footprint at home, make informed choices, and reduce existing barriers to purchasing responsible products.
  - **Work:** encouraging employees to make sustainable decisions at work that lead to cost savings, higher efficiencies, and healthier lifestyles.

## Procurement

A significant portion of our public tenders include evaluation criteria that focus on sustainable product specifications, waste reduction and diversion, efficiency, and positive contributions to local communities. Last year, 63 per cent of tenders included such sustainability factors.

BC Housing is also part of a collaboration to pilot social procurement at one of our projects.

## Community Connections

BC Housing's employee-led community investment program, Community Connections had another record-smashing year in 2021, with staff raising over \$386,000 for 110 different charities. Since the start of the program in 2008, close to \$2.4 million has been raised for local charities contributing to environmental, social, and economic sustainability programs in local communities in tangible ways. While the program's Employer Supported Volunteerism component was limited by COVID-19 restrictions this year, BC Housing staff participated in the Coldest Night of the Year, Community Cleanup and other volunteerism that could be done remotely or within COVID-19 protocols.

## Further resources

For information about BC Housing's work on Sustainability and Resilience please visit:

<https://www.bchousing.org/about/sustainability>

<https://www.bchousing.org/research-centre>



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