Building Benchmark BC

Annual Report 2024







Building Benchmark BC Annual Report 2024 (Year 5)

Building Benchmark BC is a collaborative initiative spearheaded by local and regional governments, BC Hydro and the University of British Columbia that aims to promote climate change solutions in the built environment through collective action and innovation solutions. The participating jurisdictions and partners are exploring the role of building energy benchmarking and disclosure within a broader framework of climate regulations, policies, and incentives.

The program is managed and administered by OPEN Green Building Society, an independent non-profit that works closely with OPEN Technologies on research and the delivery of benchmarking programs. OPEN Technologies, is a private software company that

developed and maintains GRID, the data visualization platform central to Building Benchmark BC. OPEN is also contracted to provide services to Building Benchmark BC. We are grateful for the support of our partners who have provided funding or in-kind resources to make this program possible.

The Open Green Building Society and OPEN Technologies are based in Vancouver, British Columbia, on the unceded territory of the Coast Salish Peoples including the territories of the x^wməθkwəyəm (Musqueam), Skwxwú7mesh (Squamish), and Səlílwəta?/ Selilwitulh (Tsleil-Waututh) Nations.

Year 5 Partners















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Celebrating Five Years of Benchmarking Leadership

2024 marks the fifth year of Building Benchmark BC, a milestone worth celebrating as we reflect on half a decade of leadership in energy efficiency, sustainability, and climate action. Since its inception, Building Benchmark BC has grown from a Metro Vancouver based pilot initiative to a Province-wide program for municipalities, utilities, and private sector leaders who are committed to reducing greenhouse gas emissions and improving building performance.

I am very proud of what the project team was able to accomplish this year. It was a record year for interest in the program and we were able to offer new features to the program that offer even more insights to the market. This included for the first time 10 case studies that

provided deeper insights into zero carbon new developments and deep energy retrofits. This year we also brought back our awards that recognize leadership in energy conservation and climate action. My congratulations go out to all of this year's winners with a special shout out to our private sector benchmarking leader Colliers, who have been supporters of Building Benchmark BC since day one. I also want to recognize our public sector champions the Capital Regional District, The District of Saanich and the City of Victoria who in the past year all adopted a unified benchmarking program for Southern Vancouver Island. It's exactly these type of outcomes we hoped to achieve when we started this program five years ago.





Dave Ramslie

Director of the Open Green Building Society

Founder of Building Benchmark BC.

"I am very proud of what the project team was able to accomplish this year. It was a record year for interest in the program."







"The industry and utilities of this province have shown that they are ready for benchmarking. Building Benchmark BC is one of the largest voluntary benchmarking and disclosure programs anywhere in North America."

Which brings me to our final theme for this year—Catalyzing Provincial action! The industry and utilities of this province have shown that they are ready for benchmarking. Building Benchmark BC is one of the largest voluntary benchmarking and disclosure programs anywhere in North America, and it's time to take the next step and follow leaders like the provinces of Ontario and Quebec, the cities of New York, Seattle, Chicago (and soon Victoria and the District of Saanich) and make benchmarking a requirement for large commercial buildings.

We'll dedicate part of this year's report to how we think the province could plan



and implement a mandatory benchmarking program, achieve huge carbon and energy savings, all while driving clean tech innovation and creating jobs.

Thanks again for your support and we hope you gain some valuable insights from this year's report. If you are a commercial building owner or manager, now is the time to sign up for Year 6 of Building Benchmark BC at buildingbenchmarkbc.ca

Here's to a great first five years BC! And here is to five more years of taking positive action on climate!

-Dave Ramslie

Introduction

Growing Impact and Expanding Reach

Over the past five years, Building Benchmark BC has achieved remarkable growth, expanding to benchmark over 1,900 buildings, totaling over 15 million square meters of floor space. We have municipal partners all over the province from Kamloops to Nanaimo, from Esquimalt to Surrey. Building Benchmark BC has also garnered broad support from the industry. This last year BOMA BC, LandLordBC, BCNPHA and PAMA all encouraged participation from their members.

Program Snapshot



40 property types 🛛 🛶 🗿 📫 🐜 🔔





Number of Buildings by Property Type



304	K-12 Schools
301	Post-secondary Education
297	Multi-unit Residential
294	Commercial
271	Institutional
249	Recreational
148	Healthcare
55	Other
1,919	Total



"With 40 different building types reporting through the program we have shown that benchmarking is possible and beneficial for all types of buildings."

The program empowers property owners, managers, and policymakers with data-driven insights, enabling informed decisions that drive energy savings, operational efficiencies, and strategic investments. With 40 different building types reporting through the program we have shown that benchmarking is possible and beneficial for all types of buildings.

This year's report will focus on four key areas. The first is diving into the data. What did we learn from this last year of data collection, and from the past five years of reporting? Related to this, we will also highlight some of what we learned about individual buildings that were the subject of a case study. We will also recognize the successes of this year's award winners, and close the report with some recommendations about how we can take building energy benchmarking to the next level in the Province of BC.



Number of Buildings by Partner Jurisdiction





1,919	Total
5	Township of Esquimalt
5	Capital Regional District
8	City of Kelowna
13	Resort Municipality of Whistler
18	Metro Vancouver
21	BC Hydro
24	City of Port Moody
29	Township of Langley
29	City of Port Coquitlam
32	City of New Westminster
36	District of West Vancouver
36	City of North Vancouver
37	City of Nanaimo
41	City of Kamloops
69	District of North Vancouver
82	City of Richmond
113	City of Surrey
114	District of Saanich
123	City of Burnaby
145	City of Victoria
175	UBC
307	City of Vancouver
457	Other



Building Property Type by Total Gross Floor Area (m²)



Site GHGI and EUI by Building Type





25.55 kgC0₂e/m²

overall average GHGI

260.95 ekWh/m²/yr

overall average EUI

Year Five in Review

For Year 5 of BBBC, we observed a continued trend of overall emissions reductions with the average emissions intensity of participating buildings dropping from 27.5 kg/m²/yr to 24.2 kg/m²/yr. We note that this is not a weather normalized number, and 2023 was a milder year than 2022, and the addition of some impressive case study buildings to the participant pool may also contribute to lower averages, but the trend is still encouraging. This is the fifth year in a row we have seen declining emissions intensity in the program.

3.3

kg/m²/yr reduction in average emissions intensity of participating buildings

2024 Key Storylines



Office Buildings in the province have had their average annual emissions track down slightly over the last three years. Going from 17kg/m²/yr in 2021 to 16.7kg/m²/ yr in 2023. 28% of Multi-family buildings are all electric

Multi-family buildings were the most likely building type to be all electric in our data set, where 61 out of the 212 participating buildings had no emissions from fossil fuel based sources. The average EUI of a multifamily building has also dropped in the past three years from 203 ekWh/ m²/yr in 2021 to 190 ekWh/m²/yr in 2023.





54%

of College/University buildings connected to district energy



College and University buildings

were the most likely to be connected to a district energy system with 49 out of the 91 buildings reporting they were getting a portion of their heating or cooling energy from a district, or in this case, campus system.

As we mark the fifth anniversary of our program, this milestone year calls for special recognition of the dedication and achievements demonstrated by our participants. Congratulations to all of our award winners!



Best Improvement of Energy Performance



Lochdale Elementary Burnaby (SD41—Burnaby Schools)





Most Buildings per Organization

Public Sector

Municipal



UBC Point Grey



City of Surrey



Leadership Award

Most participation since launch of program

Public Sector



the f

City of Vancouver

Grey

UBC Point

City of Surrey



Private Sector

Quadreal Cuodileol

Colliers





Best GHG Reduction YOY 2023 Data

Fraser Pointe Apartments

Vancouver (Concert Properties)



Private Sector



Colliers



Champions Award

Most engagement and impact

Public Sector



District of Saanich



City of Victoria



Capital Regional

District











Quadreal





Highlighting Success **Stories Through Case Studies**

This year we were proud to partner with the Building 2 Electrification Coalition to develop detailed case studies to showcase the innovative approaches that are transforming the built environment in BC.



The goal was to zoom into ten projects and describe how and what was done for these

Great highlights of this year's case studies include:

777 Dunsmuir VANCOUVER. BC







buildings to achieve exceptional performance. The benefit of doing this as part of Building Benchmark BC is that we can check in on these projects every year and see how they are actually performing. Our goal is to make this an evolving data base that is a true resource for industry that is learning how to scale up zero carbon building and deep energy retrofits.

OSO Development

GOLDEN, BC

CASE STUDY

777 Dunsmuir VANCOUVER, BC

Cadillac Fairview completed Canada's first geoexchange retrofit of an occupied, mixed-use high-rise complex in downtown Vancouver with minimal disruption to occupants.

Partnering with Fenix Energy, the system, finished in 2014, captures and stores waste heat from the 19-floor office tower and Pacific Centre retail space, reducing steam usage by 85% in the first year and cutting approximately 658 tonnes of CO₂ annually. The system uses advanced water-cooled chillers, heat recovery modules, and a geothermal plant, with 30 boreholes drilled in a confined parkade space using innovative vertical drilling technology. Completed in six months through coordinated efforts, the project achieved significant energy savings and emissions reductions, showcasing the potential for geo-exchange retrofits in large existing buildings.



Manager / Owner

Cadillac Fairview

Year Built	Size
1990	450,
Year Completed	Steam En
2014	658



,000 sqft

missions Savings

tCO₂

New Equipment / System

3 Water-cooled chillers 2 Heat recovery chiller plants 6 MultiStack DHRC modules **Geothermal plant** Steam heat exchanger

CASE STUDY

OSO Development GOLDEN, BC

Showing that zero carbon doesn't just happen in the big city, we showcased OSO, a development in Golden completed in 2023.

OSO is a mixed-use development featuring two buildings with commercial and residential units, designed for cost efficiency and climate resilience. Vidorra's expertise in construction cost management contributed to achieving airtightness of 0.6 ACH using strategic structural designs. The all-electric mechanical system includes high-efficiency energy recovery ventilators (ERVs) with 85% heat recovery, Mitsubishi City Multi heat pumps providing heating even at -25°C, and SANCO2 heat pump water heaters integrated with Stiebel Eltron tankless systems.

To enhance tenant comfort amid climate change, the centralized ventilation system provides active mechanical cooling, with MERV 13 filters for air purification and optional carbon filtration for forest fire smoke. Cost-effective construction strategies included extensive energy modeling, a single utility meter for commercial rates, and eliminating gas infrastructure and related costs.



Manager / Owner

Vidorra Developments

Year Built

2023

Total Energy Use Intensity

83 kWh/m²/yr



Size

63,261 sqft

Annual Cooling Demand

1.4 kWh/m²/yr

Thermal Energy Demand Intensity

7.7 kWh/m²/yr

Greenhouse Gas Intensity

0.9 kgCO₂ eq/m²/yr



The Need for **Provincial Leadership** in Benchmarking & Disclosure

of participants in the program are choosing to voluntarily disclose their energy and emissions publicly To fully realize the potential of building energy benchmarking, it is time for the Province of British Columbia to take decisive leadership by making benchmarking and disclosure mandatory across the province.

Building Benchmark BC: Reducing Emissions and Boosting Efficiency

Building Benchmark BC has shown that consistently dropping over the five years of the whether you are a social housing provider, program. When we look at the more than 160 commercial property owner, school board, office buildings that participate in our program or local government, benchmarking and we have seen an average of a 10% drop in GHG intensity. We have seen even larger reporting is now widely accepted. What is more is that over 95% of participants in the GHG reductions in our Multi-family sample of buildings where we have 297 participating program are choosing to voluntarily disclose their energy and emissions publicly. buildings. These results are consistent with research from the United States where we What is also clear is that not only is have seen that benchmarking and reporting benchmarking and reporting happening, it's programs routinely and predictably result in helping. The average GHG intensity of the energy savings and lower emissions.

buildings in Building Benchmark BC has been





The Need for Mandatory Benchmarking & Performance Standards in BC

We also have seen that benchmarking and reporting has gone from being an innovative policy (implemented by leaders like New York and Seattle over a decade ago) into the mainstream. The Province of Ontario has had a requirement for more than 5 years, and the City of Vancouver is in its second year of Energize Vancouver. Other BC local governments are considering their own programs such as the City of Richmond, the City of Victoria, and the District of Saanich.

Many jurisdictions are also now moving beyond basic benchmarking to mandatory performance standards that require buildings to take action in reducing their energy use and emissions. Vancouver, New York, Seattle, Washington DC and Madison (Wisconsin) all have some kind of policy that requires a portion of the buildings in their reporting programs to improve their performance annually.

The Province of BC is falling behind on climate action, and while cities stepping into this void should be commended, it is leading to a fracturing of the regulatory environment as it pertains to existing buildings. Different reporting requirements with different processes and different schedules are emerging all over the province which is more difficult for industry to manage and leads to less optimal outcomes. This is because data collection, and by extension, the data sets themselves also become fragmented. All of this results in increased effort, more confusion, and less useful results than if the data were to be collected at scale under one provincial program.

"Vancouver, New York, Seattle, Washington DC and Madison (Wisconsin) all have some kind of policy that requires a portion of the buildings in their reporting programs to improve their performance annually."





"There is also no better prepared jurisdiction to implement benchmarking and reporting at the provincial level than the Province of British Columbia."

90%

of customers in BC served by the two major utilities

5300 buildings in BC in ESPM—second only to Ontario with 13,000

The Case for Provincial Leadership in Benchmarking & Reporting in BC

Provincial leadership would provide consistent regulations across British Columbia, enabling building owners and managers to participate effectively and equitably. It would also better empower local governments to align with provincial climate goals while ensuring better access to more consistent data for both the Provincial government, the utilities, and the industry as whole. Finally this would result in significant cost savings and energy savings for the industry in general and most importantly for many renters, apartment owners, and small businesses. There is also no better prepared jurisdiction to implement benchmarking and reporting at the provincial level than the Province of British Columbia. This is due in part to capacity building programs like building benchmark BC, but mostly because BC is fortunate to have some of the most progressive utilities anywhere in North America when it comes to benchmarking and reporting. Both major utilities have billing and data integrations with Energy Star Portfolio Manager. These two utilities serve between them more than 90% of customers in the province and have





years supporting their customers through the benchmarking process. Many jurisdictions that currently require benchmarking still do not have the levels of automation and access that both BC utilities currently provide. This support is also evident in the number of buildings entered into Energy Star Portfolio Manager. According to Natural Resources Canada as of December 2022, BC has 5,300 buildings in ESPM which is second only to Ontario with 13,000. "The proposed regulation could be phased in starting with large buildings over 200,000 square feet in the first year."

That is why this year the Open Green Building Society and our local government partners in Building Benchmark BC are calling on the Provincial Government to implement a benchmarking and reporting requirement for commercial and multi-family buildings in 2026 that reports on 2025 consumption data. The proposed regulation could be phased in starting with large buildings over 200,000 square feet in the first year, and then stepping down to buildings over 100,000 square feet in the second year, and finally buildings over 50,000 square feet in the third year.

The reporting deadlines could be negotiated with industry but be informed by the City of Vancouver's current reporting schedule.









Looking Ahead

As we celebrate this five-year milestone, we also look to the future. Building Benchmark BC remains committed to expanding our reach, enhancing data quality, and supporting our partners as they navigate new climate policies and carbon reduction targets. With continued collaboration and leadership, we are confident in our collective ability to build a more sustainable future.

Thank you to everyone who has been part of this journey. Here's to the next five years of innovation, impact, and leadership in building energy benchmarking.

Join the Movement

Intrigued by what you've seen here? Visit our Disclosure Map or take a deeper dive into the data at <u>buildingbenchmarkbc.ca/data.</u>

Visit our <u>website</u> to learn how you can participate as a building owner or city partner or contact us at <u>support@buildingbenchmarkbc.ca.</u>



