

How energy and carbon intensive are your buildings?

Compare with others local governments in BC

9TH ANNUAL PUMA BENCHMARKING SUMMARY
For BC Local Governments: 2021 Calendar Year

PUMATM
PUMA Utility Monitoring Inc.

Scope

The sites included in the benchmarks are from the following BC local governments that subscribed to monthly PUMA utility monitoring software & services during the 2021 calendar year.



About PUMA

PUMA comprises a combination of software and services that track over 23,000 electrical, natural gas, water, and other fuel accounts for government, commercial, and institutional customers. Since launching online in 2009, more and more organizations have enlisted PUMA to help track and analyze building energy use.

PUMA is currently used by over 20 Energy Managers, and more than 50 organizations across Canada. Our utility tracking software and services save time and money for owners of multiple properties by turning data into actionable information.

About this Report

Each year the PUMA team puts together a benchmarking report for school districts, advanced education and local governments. Based on compiled data from PUMA, this report enables the comparison of similar sites across each sector.

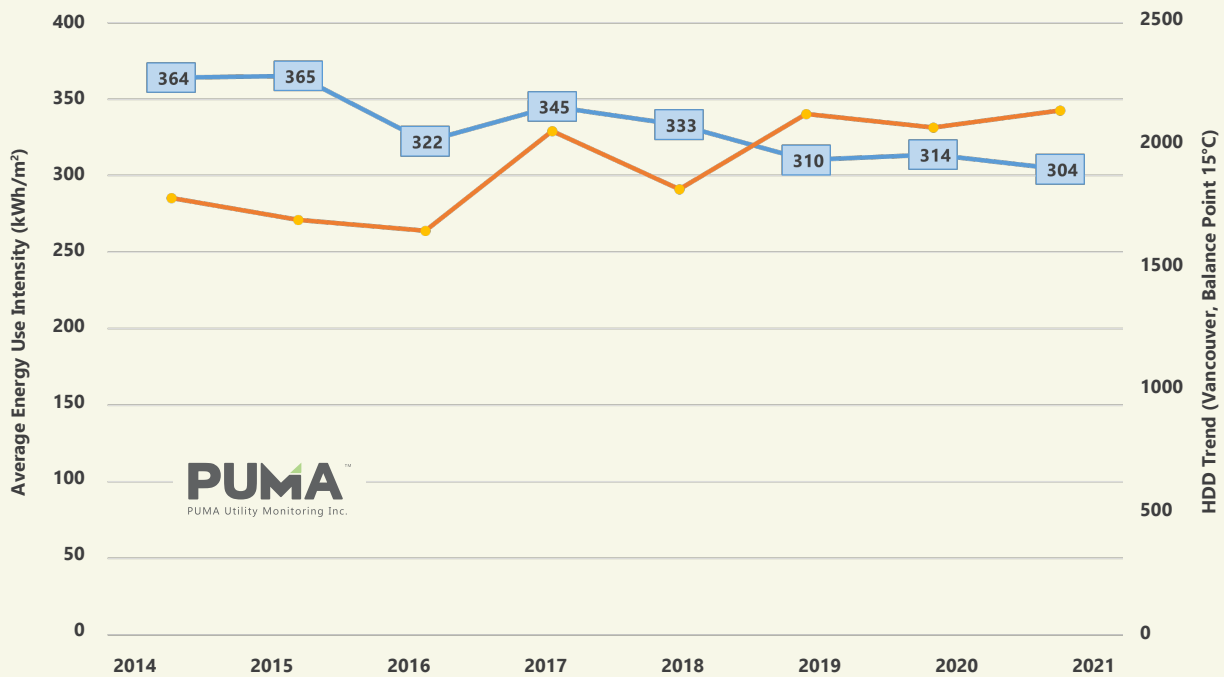
www.pumautilitymonitoring.ca

COVID-19 and 2021 Benchmarks

With COVID-19 persisting through 2021, it has continued to affect our daily lives and, in turn, our building energy use. We have continued to quantify this impact to help our clients understand both increases and decreases in energy use. We believe [our presentation in April 2021¹](#) on how our techniques can reveal the scale of changes remains relevant to our understanding of our energy use patterns in 2021.

Since **Benchmarking compares buildings during the same time period**, and the behaviour changes made in 2020 persisted across the sample area – British Columbia – **the comparison between how buildings performed remains valid**. In the chart below you can see that average energy use in 2021 is comparable to that of 2020. Comparisons with years prior to 2019 and 2020 are less informative, and require adjustment due to the **variability of the weather**. However, with the significant changes we have all experienced over the past 2 years, the history of average performance provides important context and is shown below for this sector.

BC Government Buildings Energy Use Intensity (EUI) Trend Over 8 Years



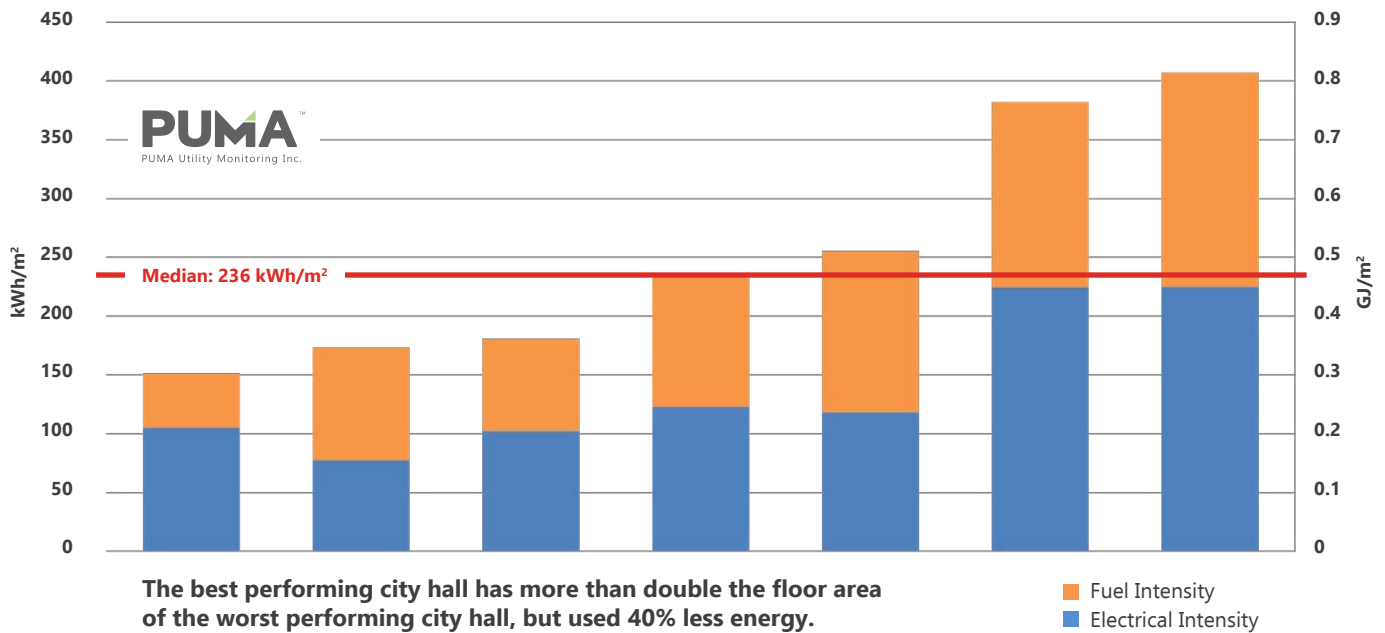
The energy use intensity (EUI) in 2021 was the lowest that we have seen since 2014. This occurred despite colder winters (more HDDs) in 2021.

— Average Energy Use Intensity
 — Heating Degree Day (HDD): Measure of the weather impact on energy use.

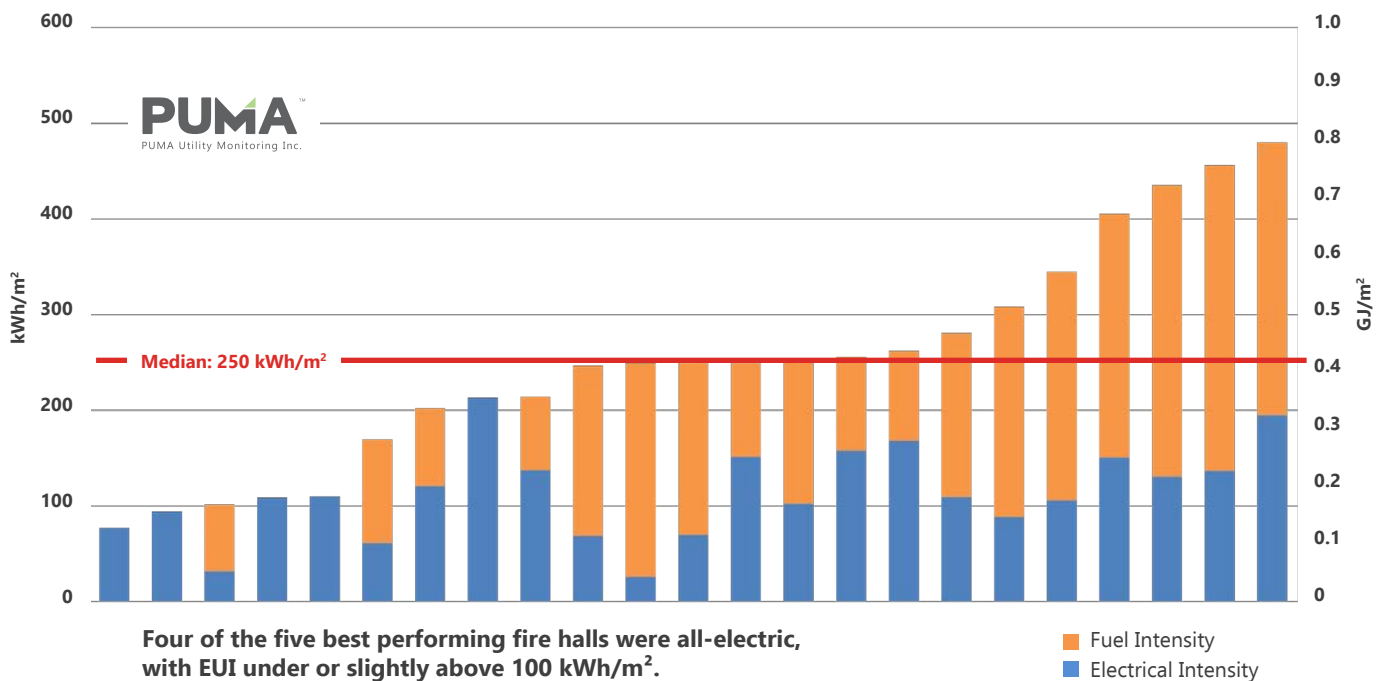
¹ View the presentation recording, "Quantifying the impact of COVID-19 on your energy bill": www.pumautilitymonitoring.ca/news-2021/may

How **energy intensive** are the buildings?

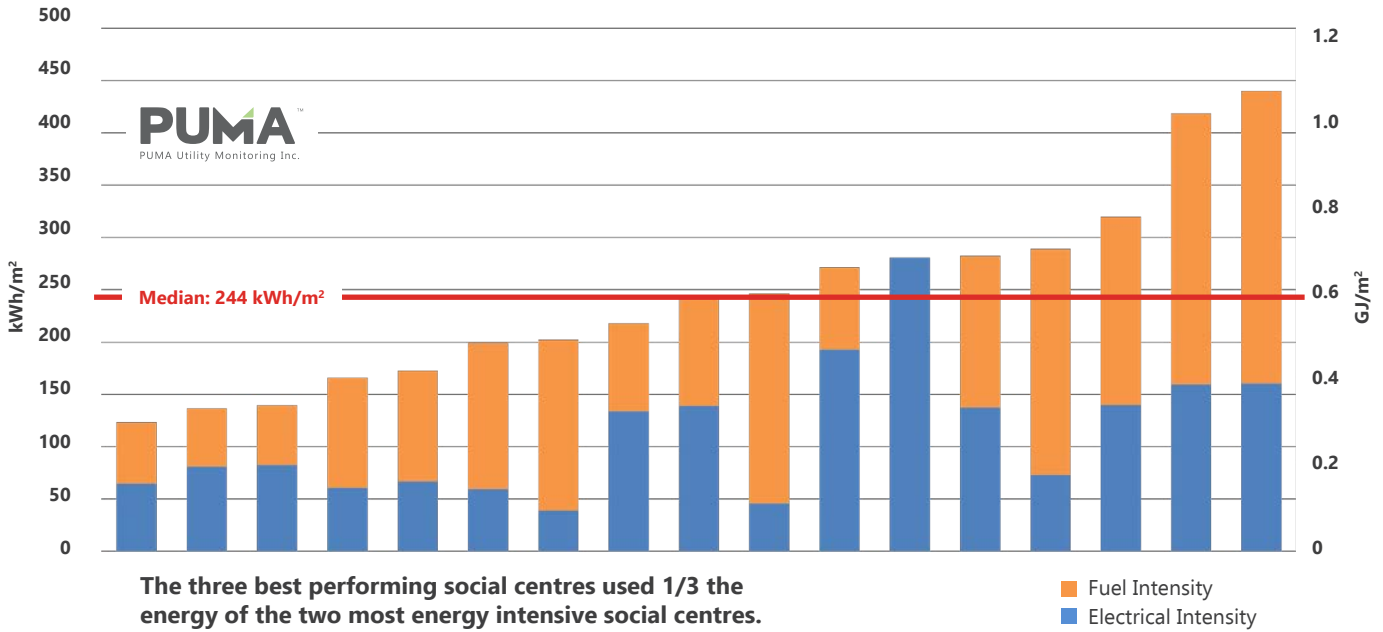
City Halls EUI Calendar Year 2021



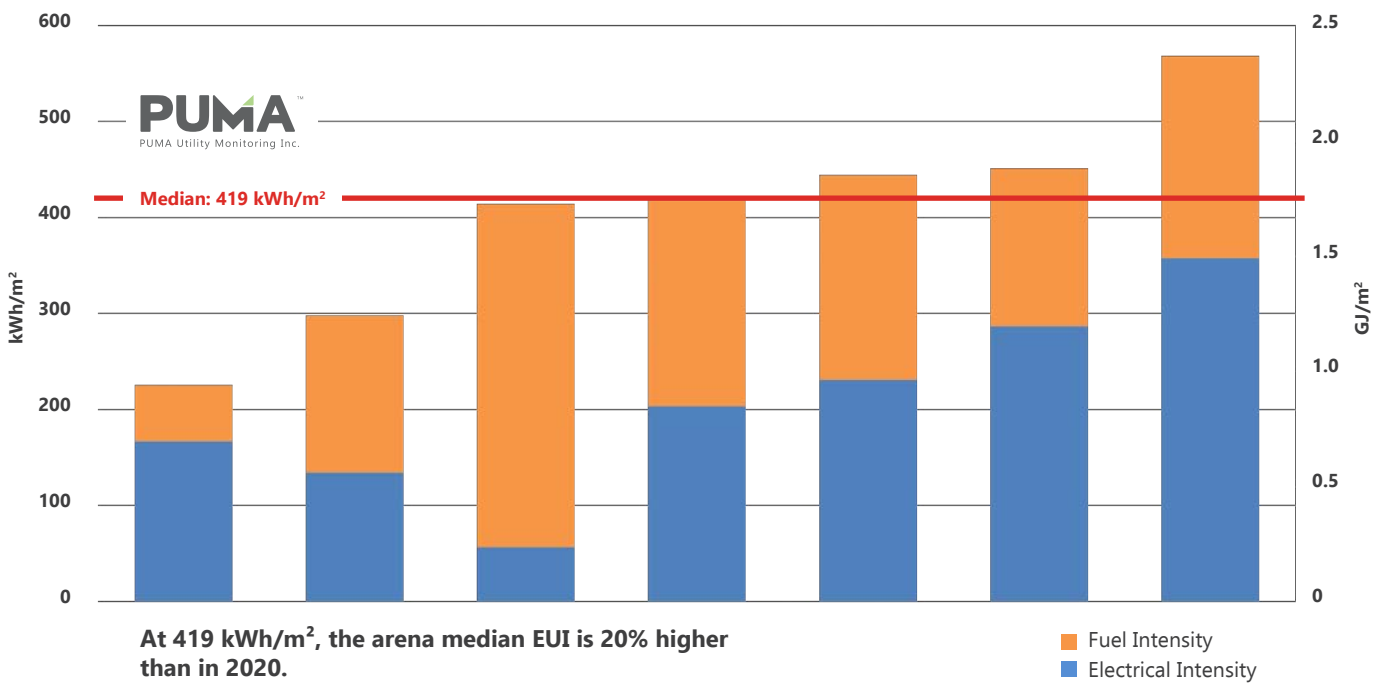
Fire Halls EUI Calendar Year 2021



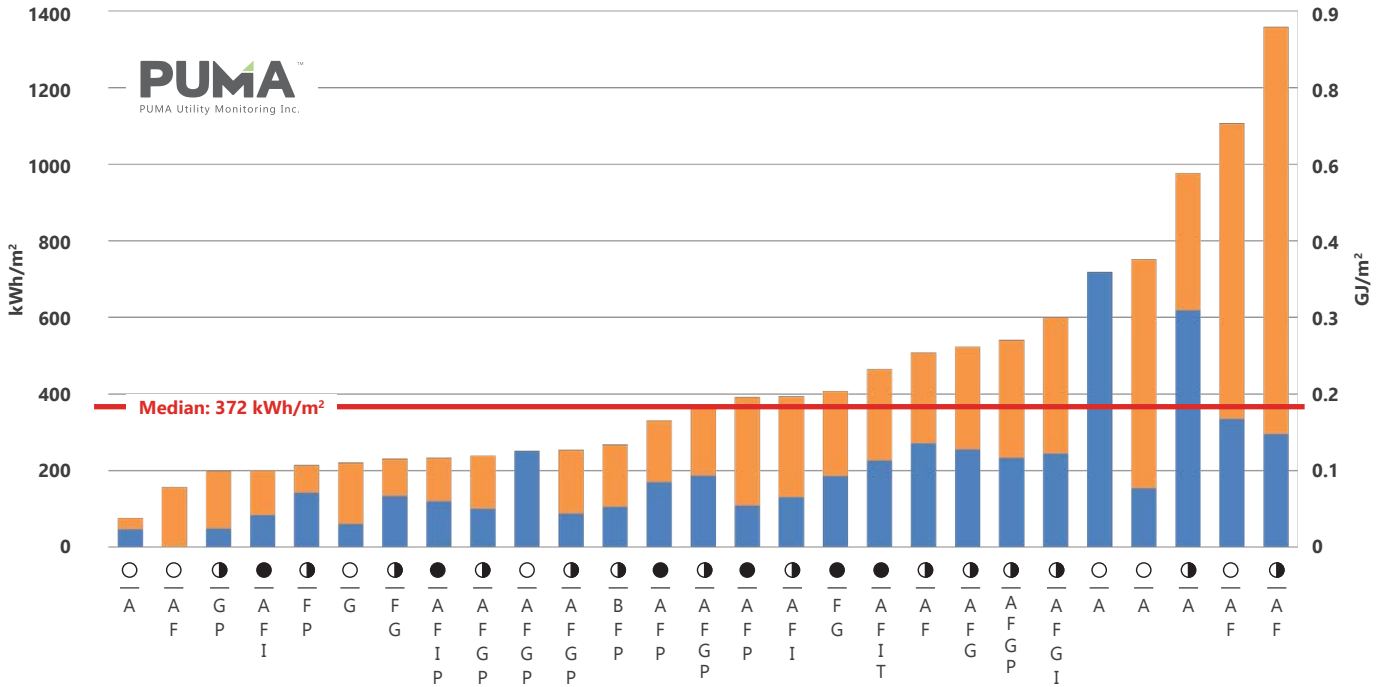
Social & Meeting Halls EUI Calendar Year 2021



Arenas & Rinks EUI Calendar Year 2021



Recreation Centres EUI Calendar Year 2021



The services offered by recreation centres varies considerably, resulting in large variance in EUI. In 2021, the recreation centre EUI range from 76 to 1,359 kWh/m².

Building Use

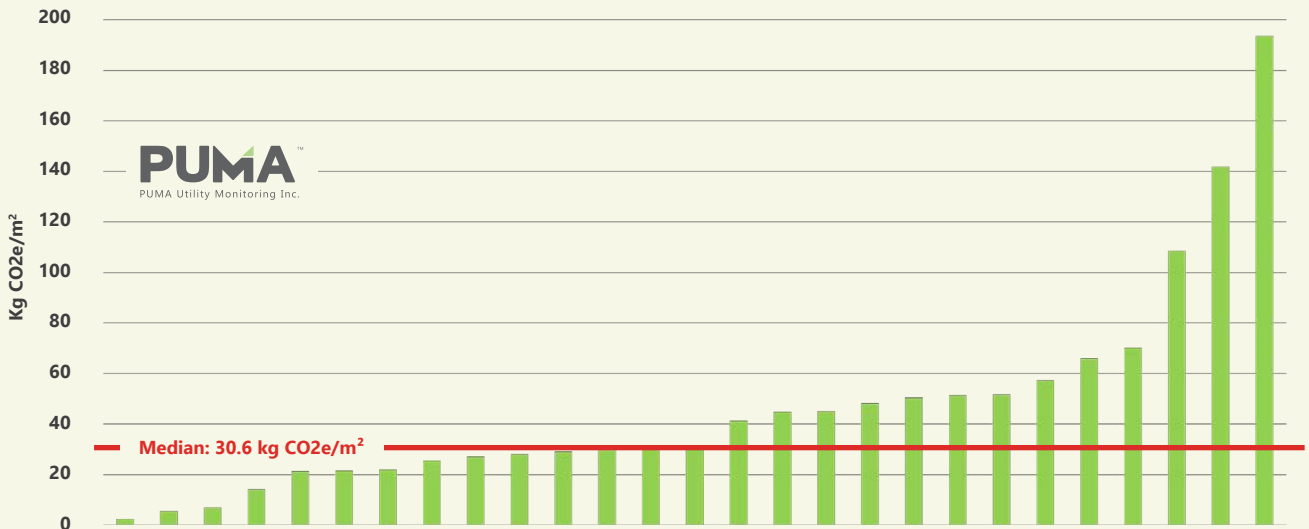
- A - Aquatic
- B - Barn
- F - Fitness
- G - Gym
- I - Ice Rink
- P - Programs
- T - Tennis

Building Size

- - Under 2000m²
- ◐ - Under 10,000m²
- - Over 10,000m²

- Fuel Intensity
- Electrical Intensity

Recreation Centres GHGi Calendar Year 2021



2021 Median Energy Use Intensity Summary

Municipal Building Type	Median Energy Use Intensity (EUI)	Median Emissions Intensity (GHGi)	Sample Size
City Halls	236 kWh/m ²		7 buildings
Fire Halls	250 kWh/m ²		23 buildings
Social & Meeting Halls	244 kWh/m ²		17 buildings
Arenas & Rinks	419 kWh/m ²		7 buildings
Recreation Centres	372 kWh/m ²	30.6 kg CO ₂ e/m ²	27 buildings
Parks	182 kWh/m ²		9 buildings

If a building uses more than the median, it could be a good candidate for energy saving opportunities. If it uses less than the median, it may be a good example of energy efficiency leadership. Looking closely at where a building fits in the distribution may be more informative in many cases.

Weather Data

The figures on the preceding pages are computed without weather or location adjustment for simplicity of comparison and are based on billed energy use. Four of the areas are in a common climatic zone, and so are directly comparable.

PUMA incorporates local weather data so that weather adjusted savings and weather normalized figures can be easily calculated. Contact us for more details.



PUMA Utility Monitoring Inc.


PUMA is an affordable and effective way to compare the performance of all the buildings in your portfolio, including the ability to normalize for weather.

www.pumautilitymonitoring.ca

Contact us to schedule a free demo:

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