TORONTO 2030 DISTRICT

FAIRMOUNT ROYAL YORK HOTEL ZERO CARBON CASE STUDY

First - Biggest - Largest - Net Zero Carbon Project - Toronto

https://2030districts.org/toronto/

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ABOUT

The 94 years old Fairmount Royal York Hotel in Downton Toronto has been certified a Zero Carbon Building – Performance Standard by the Canada Green Building Council (CAGBC).

It was an investment of $65 million and included significant planning with a net zero carbon audit and reconstruction of steam heating to a geothermal exchange system. The decarbonization retrofits run the gamut from energy efficiency upgrades to utilizing Enwave Energy Corporation's deep lake water cooling system, which uses water from Lake Ontario to cool buildings rather than natural gas-fired systems.

IMPACT

80 %

- **Reduction of its annual carbon emissions, or 7,000 tonnes per year. From 2023 to 2050, 165,000 tonnes of carbon will be removed,**

1558

- **The equivalent amount of carbon emissions reduced as cars taken off the road.**

DECARBONAIZATION PROCESS

The steps taken by KingSett included:

- **Studying and analyzing the building's energy load;**
- **Using Enwave's district energy network to transition heating and hot water systems away from steam equipment to electric heat pumps;**
- **Utilizing Enwave's deep lake water cooling system;**
- **Installing back-up generators for peak energy shaving; and**
- **Boosting energy efficiency with building automation and smart technologies.**

ADDITIONAL DETAILS

- **The Fairmont Royal York decarbonization project will remove over 165,000 tonnes of carbon emissions from execution in 2023 to 2050.**
- **The reduction of carbon emissions will generate over 35% utility savings in the first year.**
- **All carbon emissions reductions will be independently verified by the Canadian Infrastructure Bank verifiers and through the CAGBC and spending and project impacts will be independently verified through the CAGBC's Investor Ready Energy Efficiency (IREE) certification program.**
- **The building's path to the CAGBC's Zero Carbon Building – Performance Standard certification was achieved by:**

1. **Detailed study and analysis of building energy load, seeking to effect meaningful efficiencies,**
2. **Converting heating and domestic hot water from steam to electric heat pumps,**
3. **Converting cooling from electrical/chillers to deep lake water cooling, and**
4. **Significantly improving energy efficiency with a centralized building automation system and smart technologies.**

- **The project has employed over 70,000 hours of labour, creating valuable job opportunities for skilled workers and showing how environmental responsibility and economic benefits can work hand in hand.**

References

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