

Pacific Centre Tower

GeoExchange Retrofit

Who We Are

ThermaStor Solutions Inc. ("TSS") is a specialized engineering firm advancing geothermal and energy storage, delivering superior building lifecycle performance while supporting ambitious environmental targets. Our patented low-clearance drill rig enables geothermal retrofits even in constrained urban sites such as underground parking garages, unlocking decarbonization opportunities for both new construction and existing buildings. By integrating advanced hot and cold underground long-duration thermal storage (LDES) with base-building design conditions, we create unique HVAC demand management strategies that can reduce cooling-related electrical demand by up to 80% during peak hours and shift thermal production to higher-efficiency off-peak periods. This innovative approach provides a compelling financial case while ensuring grid-friendly, resilient, and scalable decarbonization solutions.

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Year	2017
Client	Cadillac Fairview
Project Location	777 Dunsmuir Ave, Vancouver, BC
Building Size	264,000 SQFT
System Size	30 boreholes @ 400 FT



A decade before the concept of decarbonizing commercial buildings heating systems was commonplace, Cadillac Fairview self imposed mandates to improve the efficiency of their Class A building portfolio. Despite falling natural gas prices and lack of

greenhouse gas emissions reductions target from any level of government, Cadillac Fairview led the industry with a solution to retrofit geo-exchange under the existing occupied building.

In 2017, ThermaStor Solutions original management team successfully planned and installed the worlds first 12,000 linear foot retrofit borefield under this commercial building to decarbonize the fossil fuel based heating system.

more than engineering - it demands surgical planning and unwavering coordination. This project demonstrated that with clear stakeholder communication and phased implementation, even highly disruptive technologies like geothermal can be installed with minimal impact on tenants or daily operations. However, before the innovation on drilling technology by TSS partner company, TCE, drilling within a parkade needed to be done with 3 foot drilling rods which rendered this type of project unfeasible at scale.

Lessons Learned

Retrofitting decarbonization systems into fully operational commercial buildings requires

