

Anglican Church of the Incarnation, Oakville, ON Greening Case Study

Mission and Background: Church of the Incarnation strives to offer excellent hospitality. They are a contemporary, inclusive parish for Christians of diverse ages and backgrounds. Children are especially welcome. They gather together to worship, pray, sing, laugh and grow. They are located in Oakville, ON and have been serving their community since 1987 when they started in the library of a local high school. They opened the doors of their church building, their home amongst the trees, in January 2000. The building is 9,282 square feet of space that is used for social events, community groups, and tenants.

This is a faith community that has always felt it is important to be responsive and proactive with the environment. They have always tried to be a green building. They reduce waste, promote reusable items and avoid single-use items, and they work towards improving their energy consumption. So, when it was time to replace their HVAC system, they had to decide: will they make a short-sighted decision or be long-sighted and take a risk?

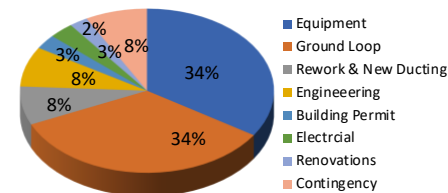
Motivated by the desire to stop burning fossil fuels, they started looking at implementing a geothermal system. It would cost an additional one-third of the price of a traditional HVAC system; it was an unknown technology to most of the congregation; and no one was sure if the changes were worth the large price tag. It was a risky proposition resulting in a two-year long debate about cost and understanding the technology.

Deciding on a geothermal system:

ALTERNATIVE #3 – New Geothermal System					
<ul style="list-style-type: none"> Indoor geothermal units. (likely 6) 600 foot vertical drilled holes outside. (likely 6) New ductwork in worship area to replace underground. New ductwork in the day care areas. Ductwork to tie in the office and kitchen areas. Baseboard heating and existing HVAC/AC units removed. 					
Annual Occupancy Cost Report					
	Unit	Annual Units Used	Unit Cost (13% HST)	Total 13% HST	Total with 3.94% HST
For 2017					
Natural Gas	M3	0	\$0.2318	\$ 0	\$ 0
Electricity	KWH	69,600	\$0.2039	\$ 14,191	\$ 13,054
Geothermal Maintenance		1	\$ 1,130	\$ 1,130	\$ 1,039
Repairs			\$ 1,356	\$ 1,356	\$ 1,247
Sub-Total					\$ 15,340
Financing Costs*					\$ 23,670
TOTAL		\$ 80,000	campaign		\$ 39,010
TOTAL		\$ 100,000	campaign		\$ 37,651
<small>* Financing costs include current debt & \$ 316,518 + 3.94% HST less \$ 80k/\$100k campaign * Annual capital provision is \$ 11,521 plus 3.94% HST</small>					
Annual cash outlay plus annual capital provision = \$ 49,626					
Observations					
<ul style="list-style-type: none"> This is a reliable system that will require equipment replacement in 25 years versus 16 traditional HVAC. No exposure to natural gas price increases. Slightly more exposure to electricity price increases than alternative #2. Overall this is the lowest expenses for energy costs. This is the greenest alternative. 					

Life Replacement Cost Annual Provision Requirement				
	Component Cost (no HST)	Expected Life	Replacement Cost (1.3% inflation)	Annual Provision (no HST)
Equipment	\$ 108,000	25	\$ 103,585	\$ 4,143
Ground loop (energy source)	\$ 108,000	75	\$ 284,533	\$ 3,794
Rework & New Ductwork	\$ 24,000	75	\$ 63,229	\$ 843
Engineering	\$ 25,000	75	\$ 65,846	\$ 878
Building Permit	\$ 9,018	75	\$ 23,758	\$ 317
Electrical	\$ 10,000	50	\$ 19,075	\$ 382
Renovations	\$ 7,500	50	\$ 14,306	\$ 286
Contingency	\$ 25,000	75	\$ 65,864	\$ 878
TOTAL	\$ 316,518			\$ 11,521

* Financing at \$ 316,518 + 3.94% HST less \$ 80k/\$100k Capital Campaign



Additional Eco-Actions:

- Pollinator garden
- Food garden

- Rain garden
- Green Audit
- Started modifying lighting (switch to LED lights)
- Compost/recycle programs
- Sermons about climate action/change
- Signage to turn off lights
- Power down for phantom lights (rely on natural lighting via the windows)
- Event practices, such as using reusable dinnerware, have reduced garbage and recycling amounts

Lessons Learned:

- Get your data ready; give presentations how changes will save money and mitigate the use of fossil fuels; people need to **believe** in what you are doing to support it and give money.
- Constantly tell your story over and over again and keep communicating; keep people informed where you are along the path.
- Put together a team of committed people including external advisors and knowledgeable people who will attend meetings and answer more challenging questions.
- It was a five-year process, and risky, but it is a far lesser risk than doing nothing about the environment.

Memorable Moments: Launched the geothermal system in February 2019 with the Oakville mayor, MPPs, MPs, Councillors and the community in attendance.

Moving Forward: Hope to add solar panels to their faith building. They are participating in OakvilleReady- a pilot project designed to provide a network of locations neighbours can go to during an extreme weather event.