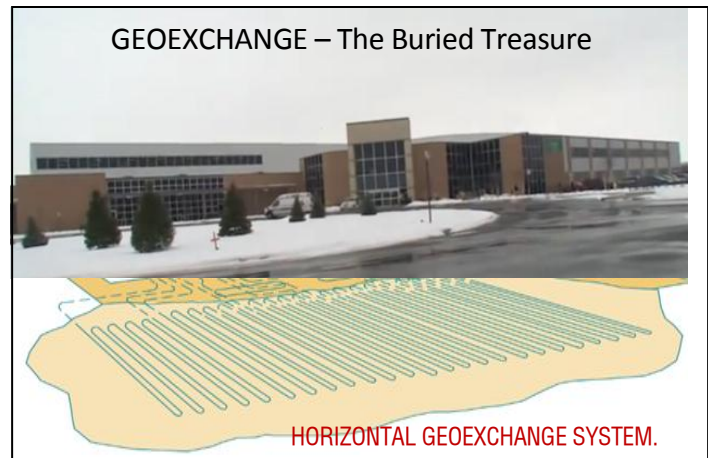


United Communities Credit Union Complex, On

Green Facts - Unique & Innovative Horizontal Hybrid GeoExchange Solution

LOCATION :	3259 Meloche Side Road, Amherstburg, Ontario
CLIENT REFERENCE:	Geothermal Solutions
CONSULTANT:	Geothermal ABS Advanced Buildings Solutions. Imran Majeed, P.Eng Consulting Engineer
PROJECT SERVICES:	<ul style="list-style-type: none"> • Geothermal System Design & Engineering. • Sustainable Design • Building System Integration



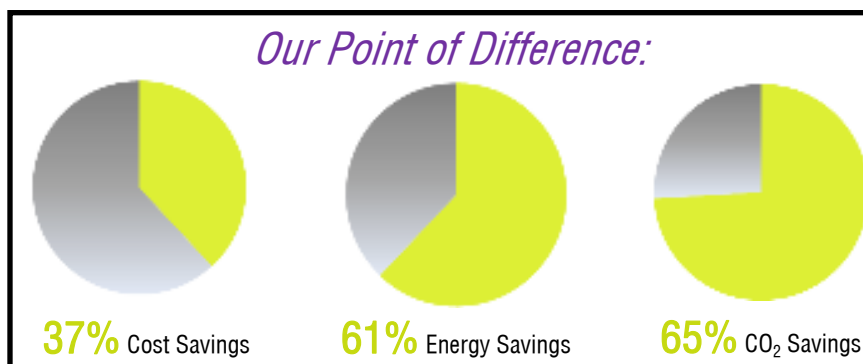
PROJECT DESCRIPTION: This Recreational Centre consist of 133,595 sq.ft indoor space that include; a twin-pad arena facility with 500 and 200 seats, an expandable third rink covered with an indoor playing surface, an indoor walking track, 2,900 sq.ft multiuse community room and 2,100 sq.ft of expandable retail lease space, along with other typical amenities. The outdoor components consist of Canada,s first Miracle League Ball Diamond for persons with special needs, Ontario,,s first community artificial grass baseball diamond, and the region first community artificial grass and regulation size soccer/CFL football field. The total design-build construction cost from the DeAngelis Construction/Norlon Construction/Spriet Associates partnership team came in at \$20,214,000.00.

The project is LEED Silver certified and include heat pumps (Ice Kube) and horizontal hybrid geoexchange system, for energy efficient heating and cooling of the facility fi this is a first for a community recreation facility in the Windsor area. This system exchange sub-surface ground heat during winter and reject any excess heat via fluid cooler and absorbed excess heat by the ground in summer.

EXECUTIVE SUMMARY OF ENERGY SAVINGS, GHG REDUCTIONS & ECONOMIC SAVINGS:

An independent analysis by Enermodel Engineering confirmed that after implementing overall building energy efficiency upgrades including geothermal, resulted in energy saving of **54%** when compare with MNECB building and **61%** when compared to improved base line design. As seen in the table below, the annual overall operating cost savings of this system is approximately **\$111,705.00** - significantly lower than Improved base line design. The building achieved **7 LEED points** with refrigeration savings (RS).

Based on energy saving, we anticipated that after implementing overall building energy efficiency upgrades including geothermal, the building saves approximately **1746 tons** annually in greenhouse gas emissions:



NOTABLE FEATURES:

The Green building features include:

- Unique & Innovative Geothermal System.
- 37% Lower Operating & reduced maintenance cost.
- Eliminate Conventional Chiller, piping, insulation etc.
- Ice kube heat pumps can draw heat from different heat sources & operate down to -15°F.
- Pumping Savings fiDemand reduction is easily accomplished result in lower pumping energy, lower electrical consumption & lower operating cost.
- Compact / Stacked Water-to-water heat pump (Ice Kube based) central plant resulted, a smaller mechanical room which result in construction cost savings.
- Fresh air heat recovery Ventilators to temper fresh air. Any additional heating or cooling energy needed will be provided & taken care by either Natural Gas or geoexchange system.
- Energy efficient building air handlers connected to Natural Gas and geoexchange system.

GEOEXCHANGE - The Buried Treasure
Which admire Environment & which helps to achieve Carbon Neutral Status with respect to Operating Energy.

AWARD: Received Appreciation Letter from City.



Geothermal Construction Photography



Preparation of Horizontal Trenches



Preparation of Horizontal Trenches



Geothermal System - Installation in Progress



Horizontal Headers Connected to 3/4" HDPE Pipes



Horizontal Headers in Trenches



Horizontal Headers in Trenches

Your Satisfaction.... is our Commitment...



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