



Green Developments Standards Workshop

Oct 25, 2019

Why Are We Here?

Developers are being forced to adopt sustainability across Canada

- Building Code Changes
- Carbon and Energy Targets Imposed
- Sustainability More Relevant in purchase and lease decision process
- Nationwide Electrification



The Developer Challenge

Balancing Profits with Sustainability

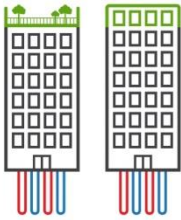
- ✓ Construction Costs on the Rise including Trades
- ✓ More Imposing Green Targets
- ✓ Increased Construction Complexity and Risk
- ✓ Un-predictable Delays in Schedule



Who Are We?



Diverso Energy Design, builds, owns and operates geothermal systems for Multi-Residential, Office & Institutional clients.



**OVER 200
SYSTEMS
INSTALLED**



**25 YEARS
COMBINED
EXPERIENCE**



**UTILITY GEOTHERMAL
MODEL
TAILORED FOR
DEVELOPERS**



**PENSION FUND PARTNERSHIP
FINANCIAL STABILITY AND
LONG-TERM FOCUS**

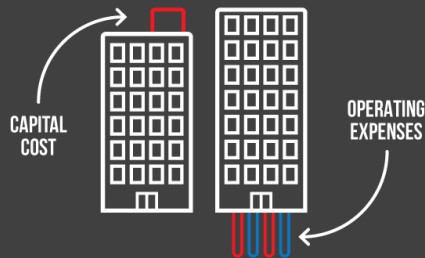
Diverso Utility Solution



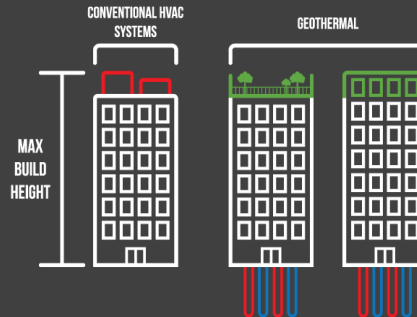
All the Benefits. None of the Risk.

Following a utility-like model, a Third Party Owner will design, build, pay for, own and operate the Geothermal Borefield

Reduce Construction Costs



Improve Building Value

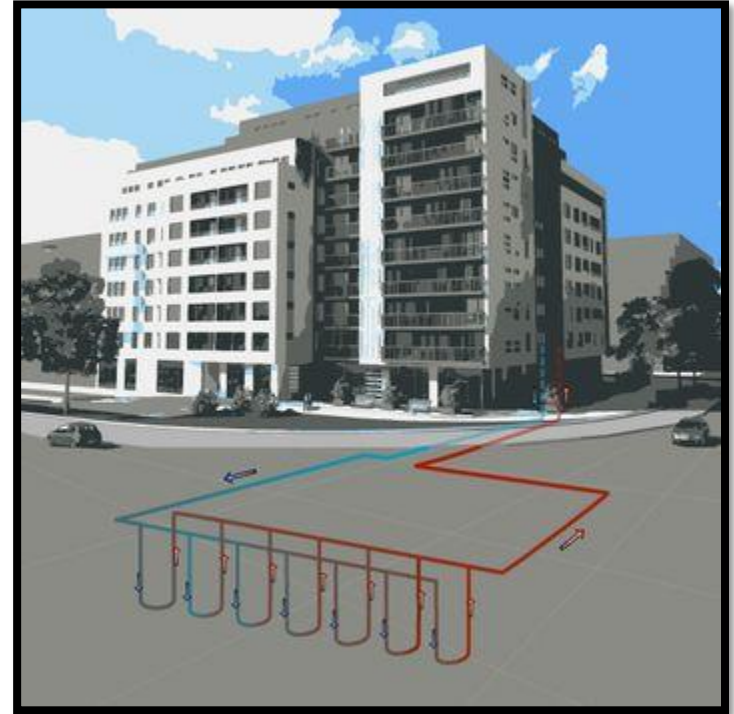


Meet Carbon/Energy Targets



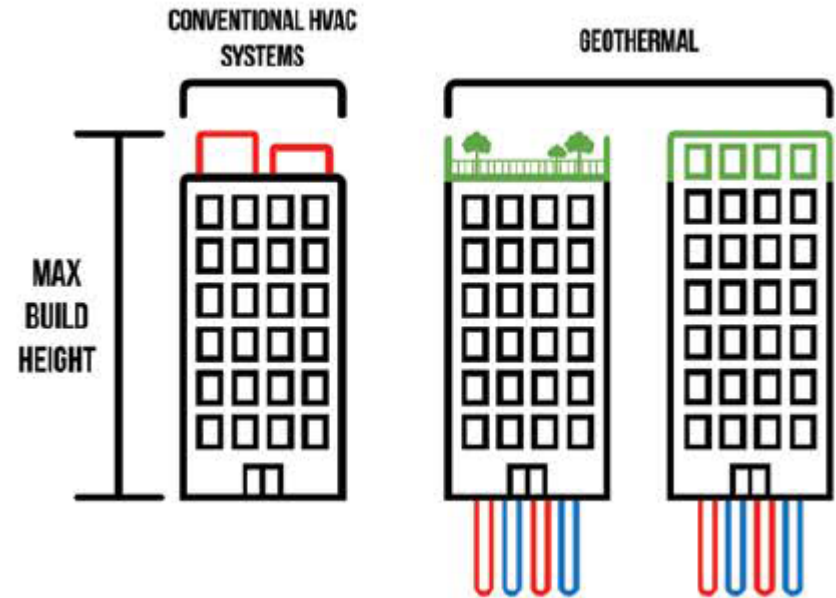
What is Geothermal?

- Simple Tech; Water, Plastic Pipes & Pumps
- Ground used as a battery to provide Thermal Energy
 - During the summer months heat from the building is rejected into the ground to cool the building
 - During the winter months heat is extracted from the ground to heat the building
- Compatible with conventional in-suite HVAC equipment (Heat Pumps, Water Source VRF, 2/4-Pipe fan coil)



Why Geothermal?

- Eliminates need for Cooling Towers & Heating Boilers
- Increased NOI, reduced opex.
- Reduces Carbon by up to 80% & Energy Usage Intensity by up to 15%
- Increased GFA & Amenity space
- More reliable than a conventional cooling tower & boiler system



New Construction vs. Retrofit

New Construction

- 100,000+ sf. GFA
- Multi-Res, Commercial Office, Institutional buildings
- Replacing the cooling tower and heating boiler (along with any other equipment required)

Retrofit

- Equipment approaching End-of-Life (cooling tower and heating boiler(s))
- Space to drill (parking, field, etc.)
- Hydronic based mechanical system

Geothermal Challenges

So why don't we see widespread adoption?



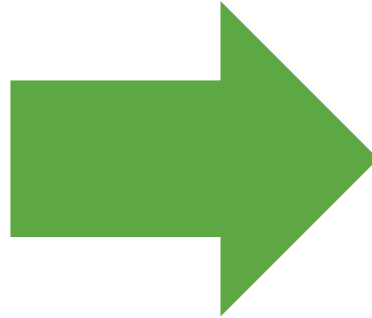
Capital Cost



Complexity & Risk



Capital Cost



Why?

- Up to 10x more than cooling tower and boiler
- Intensive Installation process

Factors

- Borefield requires constant temperature management
- Project Engineers have limited geothermal management experience
- Lack of experienced implementation partners
- Impact of potential delays on Project schedule



Complexity & Risk

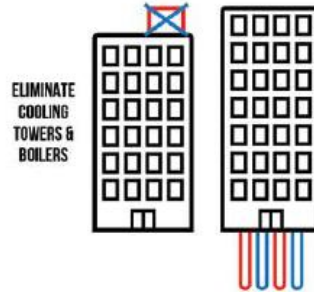
Who and What Drives Decisions During Construction?

- Lenders use traditional metrics to qualify loans (Targeting Loan to Value Ratios of 60 to 70%)
- Value is determined by the lender using conventional measures such as:
 - Sale/Rental price
 - Location
 - Features and amenities (granite countertops, hardwood flooring, etc.)
- No impact on ability to finance projects using 3rd party ownership

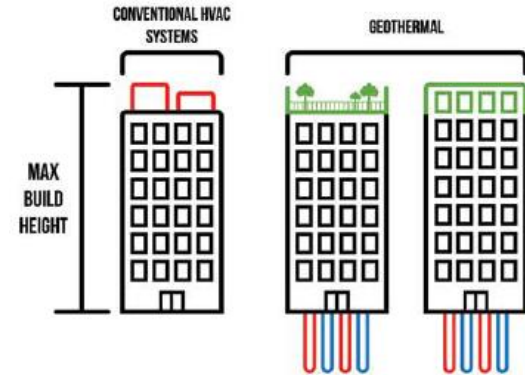
In most cases, Lenders determine if Geothermal will be implemented

Benefits to the Developer

REDUCE
Construction Cost



IMPROVE
Building Value



EXCEED
Green Standards



Benefits to the Building Owner

Budget Certainty

- Variable operating costs attached to the displaced conventional equipment are replaced with a single fixed fee.

Guaranteed Performance

- The Agreement carries a 30 year performance guarantee removing any uncertainty that this system will perform throughout the term

Marketability

- Benchmarking programs highlight buildings with geothermal increasing marketability.

WestWood Gardens

- Toronto, Ont
- 16 storeys
- 420 units
- 330,000 sf , two buildings, common parkade, main floor retail



Client Projects

Lillian Park

- Purpose built rental
- 26 storeys
- 600 units
- 500,000 sf, two buildings, common parkade



Client Projects

Garment St Condo, Office

- Kitchener, Ont
- 300,000 sf mixed use
- 26 storeys





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Questions?