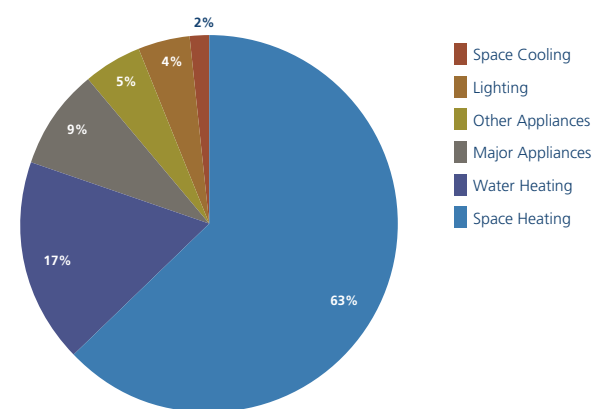


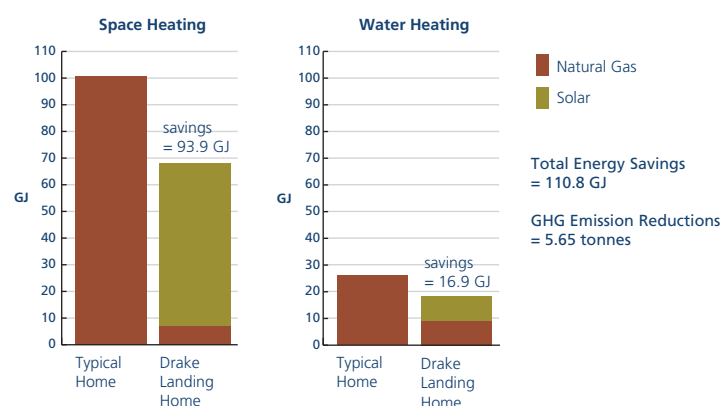


Background, Climate and The Solar Heating System

Residential Sector Energy Use (%)



Home Energy Efficiency and Solar Energy



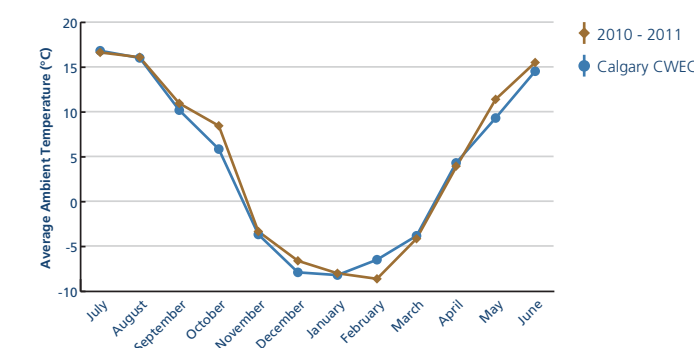
Climate Comparison

	Calgary	Amsterdam	Copenhagen	Munich	Stockholm	Vienna
Heating Degree Days	5199	3010	3611	3733	4291	3167
Incident Irradiation (MJ/m²)*	6426	3937	4289	4750	4280	4731
Latitude (N)	51.12	52.28	55.62	48.12	59.56	48.12

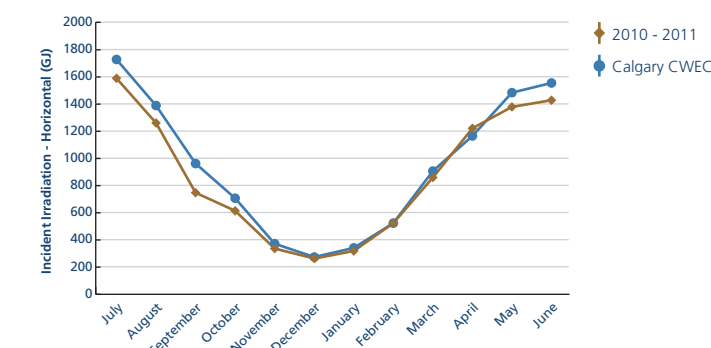
* Incident solar irradiation is calculated from horizontal irradiation data using the Reindl model. The surface tilt angle is equal to the Latitude.
Data Source: http://apps1.eere.energy.gov/buildings/energyplus/weatherdata_about.cfm | Calgary weather data: CWEC | European weather data: WEC



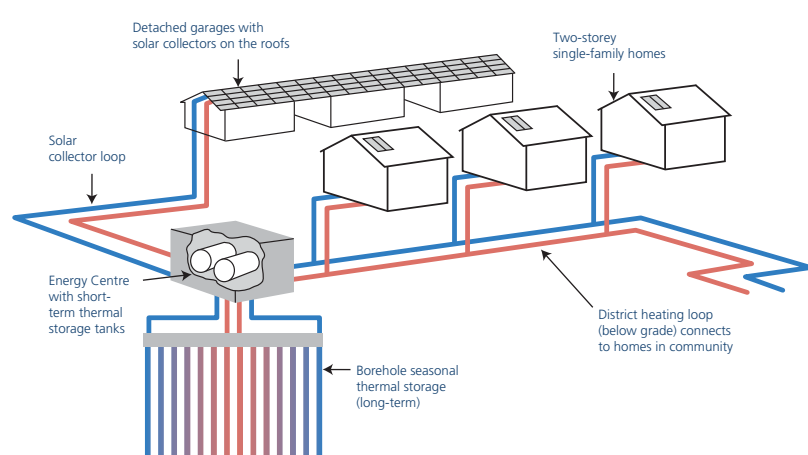
Ambient Air Temperature



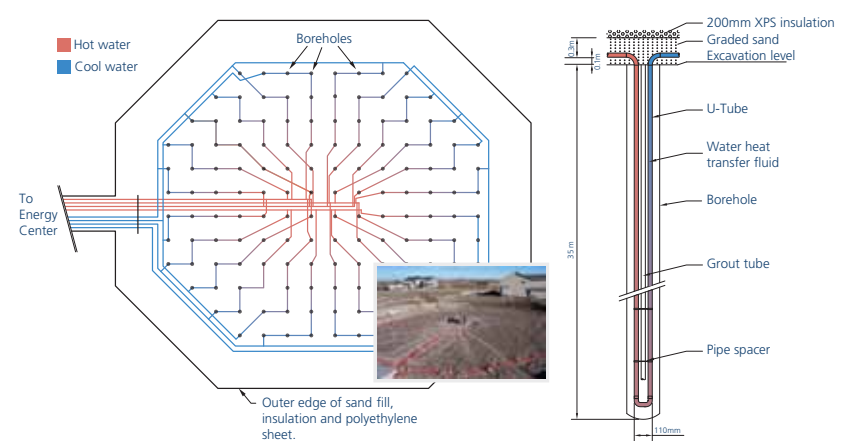
Horizontal Global Irradiation



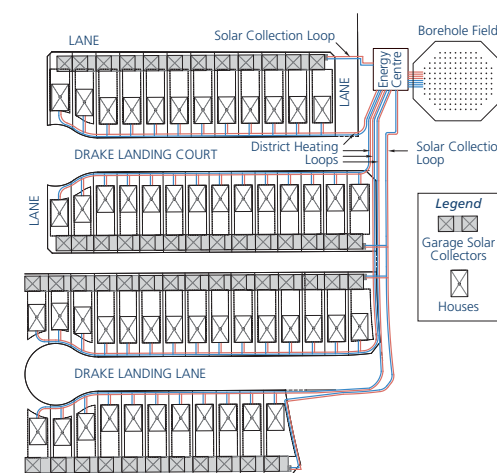
System Schematic



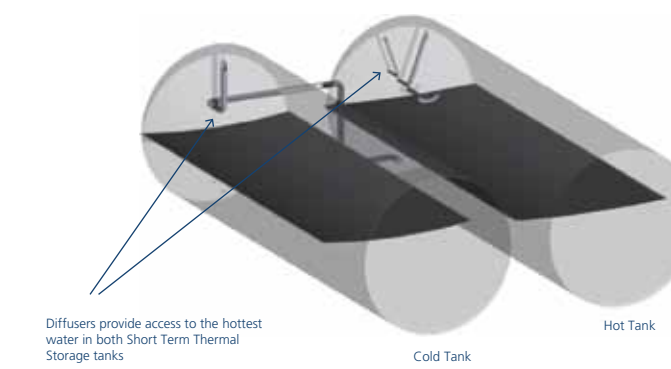
Borehole Thermal Energy Storage



Collector and District Heating Piping



Short Term Thermal Storage



Air Handler Unit

