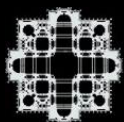


Sustainability in the Built Environment

Beyond Sustainability – Generative Architecture



ALVIN
REINHARD
FRITZ
ARCHITECT INC.

Sustainability in the Built Environment
Beyond Sustainability – Generative Architecture

Sustainability in the Built Environment

Beyond Sustainability – Generative Architecture

Presentation Outline

1. Reduced Carbon Footprint – Organizations that Incentivize – LEED, CaGBC
2. Diminished Consumption and Waste Processing – Reduce Reuse Recycle
3. Live Work Play Communities and Walkable Neighborhoods
4. Sustainability Through Density
5. District Energy Systems
6. Alternate Energy sources:
 - Solar Energy
 - Wind Energy
 - Geothermal Exchange Systems
7. Reduced Water Consumption – Lilac Pipe or Triple Pipe
8. Heightened Energy Efficiency
9. Reduced Storm Water Impact
10. Generative Architecture
11. Combined Heat and Power

Sustainability through Density



102 Scenic Drive

Grandview



Rio Vista



River Ridge



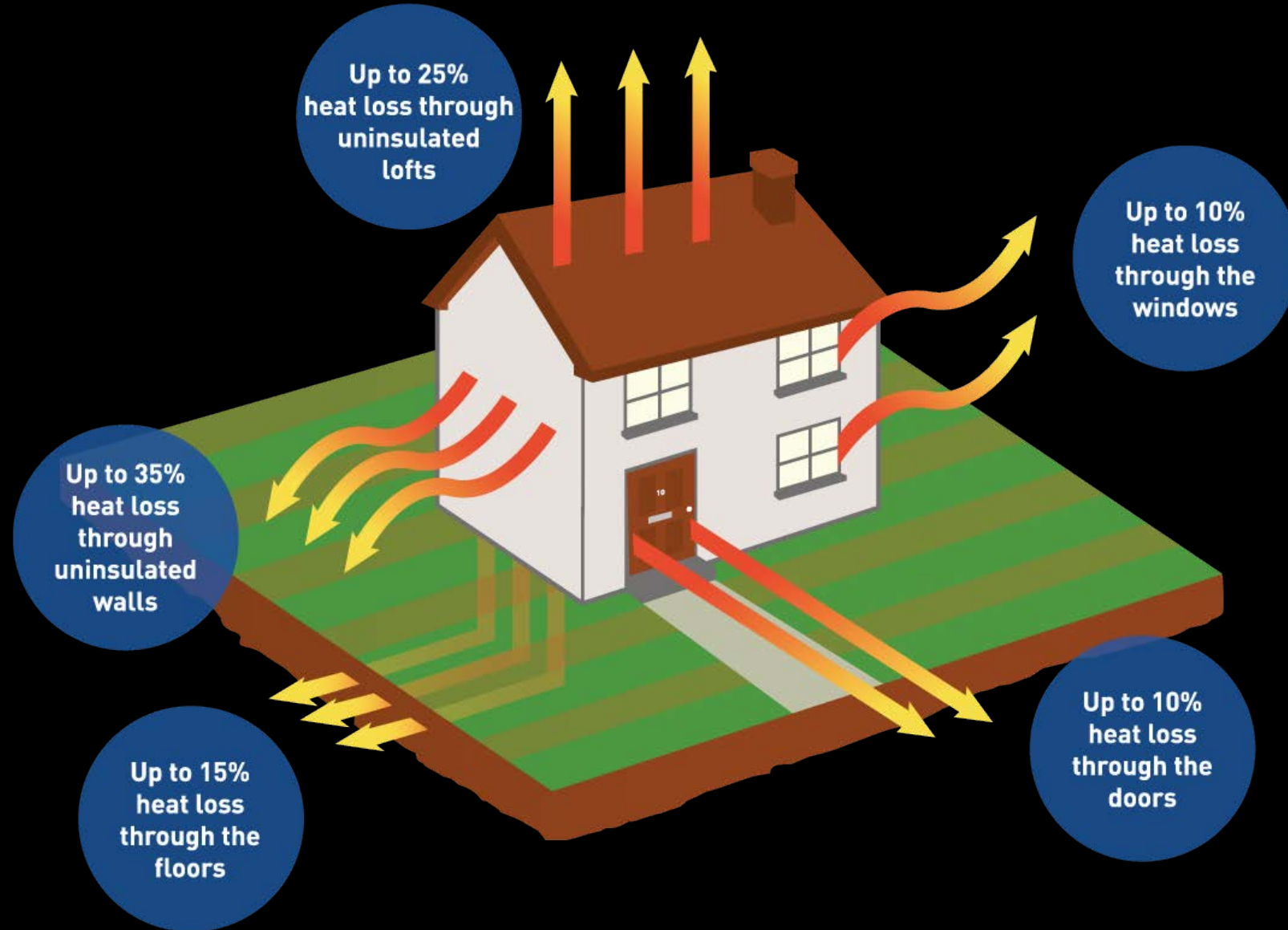
Sustainability through Density



Sustainability through Density



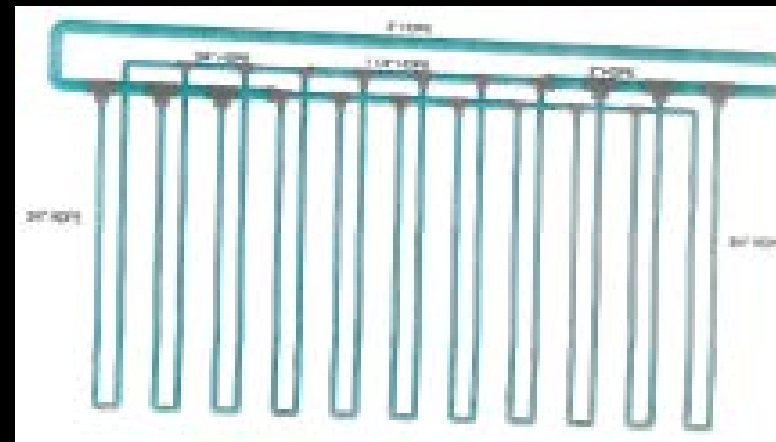
Sustainability through Density





Geo Exchange System

The ground source thermal mass is accessed by 110 boreholes 220 feet deep which house 3/4 inch diameter pipes containing a solution of water and 25% glycol





JR Seismic and Energy Smart Installing the System at the direction of Tim Padfield



**Boreholes are
strategically
placed to
accommodate
future
development**



**The Geothermal exchange system at Heritage Heights:
designed to accommodate 100% of the cooling and
heating load in phase 1**

**The system consists of ten 10 ton banks consisting of 11
loops drilled to a depth of 220 feet, providing about one
ton of capacity and located on a 15 foot grid are tied
together with reverse manifolds**



Photovoltaic Array on the roof at Heritage Heights



Photovoltaic System

A Photovoltaic System (PV system) uses solar panels to convert sunlight into electricity. The solar photovoltaic panels collect the energy from the sun and an inverter subsequently takes the DC power that is collected and converts it to AC power





Discovery Bay

The HVAC system, designed by TRAK Engineering (Burlington), serves 236 suites in five four story buildings covering 700,000 square feet of resort property. The suites are located over two concrete parking levels and around the edges. Pools, hot tubs, deck melt, ventilation, parking, domestic hot water heating, and all heating and cooling loads met by a 660 Tons in four networked GeoExchange central plants. TRAK controls coordinate the overall building operations.



TRAK Canada provided the design, GeoExchange ground loop and energy management controls. General plumbing and HVAC was provided by Valley Plumbing and Heating in Kelowna.

Noted by the Canadian Office of Energy Efficiency as the most energy efficient Multi-Residential Building in Canada – 2002.



Location: Kelowna, BC

Customer and General Contractor: Pointe of View

Construction Manager: Gary Gretzinger

TRAK Contract Amount: \$2M (GeoExchange & Controls)

Project Architect: Alvin Fritz

Completion: 2001-2002



- Energy**
- Energy Sources and Distribution
- Energy Efficiency
- Energy Resources
 - International Energy Cooperation
 - Funding, Grants and Incentives
 - Energy Offices and Labs
 - Office Energy Efficiency**
 - ecoENERGY Efficiency and Alternative Transportation Fuels
 - ecoENERGY Efficiency for Buildings
 - ecoENERGY Efficiency for Housing
 - ecoENERGY Efficiency for Equipment Standards and Labelling
 - ecoENERGY Efficiency for Industry
 - ecoENERGY Efficiency for Vehicles
 - Frequently Asked Questions
 - Office of Energy Research and Development (OERD)
 - CanmetENERGY
- Regulations and Standards
- Energy Publications
- Statistics and Analysis
- Data Analysis Software and Modelling Tools
- Fuel Focus

Office Energy Efficiency

The Office of Energy Efficiency (OEE) is Canada's centre of excellence for energy, efficiency and alternative fuels information. The OEE also offers [grants and incentives](#) and other resources, including [workshops for professionals](#), [statistics and analysis](#), and hundreds of free [publications](#).

Our Vision and Mandate

The OEE began operations on April 1, 1998, at which time employees and management adopted the vision statement, "Leading Canadians to Energy Efficiency at Home, at Work and on the Road."

The OEE is mandated to strengthen and expand Canada's commitment to energy efficiency in order to help address the Government of Canada's policy objectives.

Our Programs

ecoENERGY Efficiency

ecoENERGY Efficiency for Buildings

ecoENERGY Efficiency for Buildings

- [Energy efficiency for existing buildings](#)
- [Energy efficiency for new buildings](#)
- [Energy benchmarking](#)
- [Energy efficiency for federal buildings](#)
- [Energy management best practices](#)
- [Energy management training](#)
- [Capacity building resources](#)

ecoENERGY Efficiency for Housing

ecoENERGY Efficiency for Equipment Standards and Labeling

ecoENERGY Efficiency for Industry

ecoENERGY Efficiency for Vehicles

CHP

Combined Heat and Power

