Eclipse Nordic Hot Springs
Sustainable Environmental Design Features

Eclipse has been successful in creating Canada's greenest and most sustainable hot springs and spa facility. The design of Eclipse is based on Ecolibrium restorative principles—to be in balance with the carrying capacity of the land within nature's limits in maintaining clean air, soil, water, and environments that sustain all life. The facilities are designed as energy-efficient, green buildings to reduce emissions and provide a healthy environment for guests and staff.

Renewable Energy Design Systems

Geothermal Heat:

1. There are heat exchangers to provide geothermal in-floor heat for the 14,000 square foot building. The hot springs water flows downhill to the drain shed. It then goes through a **water-to-water heat exchanger** where the heat is removed from the water and is transferred into a new hot water pathway back to the building. In this way, the water for the showers and laundry is also preheated.

2. The hot springs water flows from the source into 16 pipes into a manifold room in the main building. This room overheats from the hot pipes. An **air- to- water heat pump** takes the heat out of the air and puts it into water. This water is then piped to heat the ceramic lounge chairs in the Relax Centre. This also helps cool down the manifold room.

Byproduct of Geothermal Heat:

The hot springs wastewater from the pools is pumped up to the pump shed. The pumps used to circulate the in-floor heating water system in the shed give off heat as do the pipes themselves. This causes the shed to overheat. The excess heat is carried through a pipe into the nearby garage. A fan blows the hot air into the garage, and another blows the cold air back into the pump room to cool it down. This system of **air-to-air heat exchange** heats the garage. Imagine having a sunroom in your home. If the sunroom door is closed on a hot day, you can open the door and let the heat from that room spread into the rest of your home.

Our Commitment to Energy Efficiency and Sustainability

1. **The facility was designed with energy efficiency and sustainability strategies, including:**

- Super-high insulation, ranging to R60 in the walls and to R100 in the roof
- Thermal mass heat storage with floors composed of 8" to 12" concrete slabs with (R20+) under slab insulation
- Triple and quad pane windows, with over 80% of glazing being south-facing.
- Heat Recovery Ventilators (HRV) / High Efficiency HVAC systems
- Fossil-free facility
- 100% LED lighting to minimize electrical use.

- Longevity of buildings and pools is estimated at 100 years plus for buildings and 200 years plus for pools, patios, and foundations.
- When the weather is very cold, and the facility needs extra heat, the hot springs' renewable woodlot feeds the highly efficient wood burner boiler, providing supplemental and emergency backup heat
- Extensive use of carbon-neutral/low-VOC materials, including natural and engineered wood products
- Maximizing solar orientation for passive solar energy and future PVC systems
- Heat pump ventless dryers for the laundry
- On-site guest education /eco & historical Interpretation
- Use of the Takhini pond to naturally clean hot springs run-off, and for fire protection

2. **Conservation measures for water and sewer include:**

- Motion-activated urinals, motion-activated and aerated sinks, and low-flush toilets.
- High-efficiency washing machines
- Separation of grey from black water, black water triple filtered prior to septic field discharge
- Pure water is discharged from the pools into the Takhini River
- Timed showers to optimize the use of reverse osmosis (RO) water.
- No chlorine is added to drinking water; chlorine is used only for sanitizing pools and surfaces
- Janitorial supplies are carefully selected to maximise the use of safe and green cleaners.
- Natural stone grit is used as an anti-slip agent on concrete surfaces to avoid the use of salt on ice in winter

3. **EV charging stations for staff and clients:** Presently, 2 EV staff chargers, 4 EV client chargers are coming in the summer of 2026.

4. **Garbage reduction measures include:**

- Refillable containers for liquid soaps, shampoo, conditioner, and moisturizers
- All organics from the kitchen and café are taken to the city compost.
- Recycling to capture all recyclables and returnable items
- Biodegradable containers for take-out
- Eligible plastics are forwarded to Yukon Plastics for transformation into retail goods
- Reusable drinking water cups
- Office systems run on minimal paper use, using electronic and reusable forms

5. **Commitment to healthy food and local producers:**

- Over a half dozen local suppliers to provide meats, berries, flour, beer, and teas
- All seafood purchased is sustainable or has an "ocean-wise" label
- Food is prepared from scratch using many organic ingredients and a few preservatives

- Listing of all ingredients available to customers to assist with food sensitivities and allergies

6. **Care of the land:**

- Sustainable logging of resort lands to ensure a continued “wilderness feel”, fire-smarting provides most of the wood required for the Eclipse boiler
- Use of native species in landscaping and decorative garden beds to minimize fertilizer use and requirement for watering
- Efforts to remove invasive species such as Sweet Clover, Sow Thistle and Narrow Leaf Hawkweed
- Use of special outdoor lighting to keep the sky dark and avoid light pollution

7. **Care for staff:** Living wages for staff with medical plans and generous vacation leave

8. **Research projects we support or have been involved in include:**

- Private sector sponsorship by Takhini Hot Springs Ltd. of the Yukon Geothermal Favourability Study
- University of Thuenen Institute of Climate-Smart Agriculture, Braunschweig, Germany, study on long-term geothermal warming affects on carbon in subarctic forest soils
- University of Laval study: Assessment of thermos-hydraulic properties of rock samples near Takhini Hot springs, Institut national de la recherche scientifique, Quebec
- Hospitality exchange with Quebec University

9. **Local materials and contractors:**

- During the construction of Eclipse, all but a few contractors were Yukon businesses, with outside expertise required for the natural stone pools and Japanese landscaping
- Extensive use of locally sourced materials, including sand, gravel, clean rock, boulders, timbers, and wood trusses

10. **Fire-Smart design and materials:**

- Fire-proof exterior materials: cement board siding, corrugated metal siding, aluminum soffits, metal facia, metal roofing
- Fire-breaks in the ceilings, hold-open fire doors, fire walls, fire alarm system (these were tested in a fire that occurred 6 days after opening, with a fire that could not spread in the first 45 minutes until the fire trucks arrived, limiting the damage and allowing for an easier rebuild)
- Forest canopy managed in the vicinity of the facility to create a mostly aspen forest, with selective planting of spruce, thereby reducing the risk of catastrophic wildfire