



**THE FAIRVIEW  
90 WOODRIDGE**





## BACKGROUND

Alliance helped Ferguslea achieve environmental sustainability for a 1960s building.

Ferguslea Properties Limited owns and operates Accora Village, a private residential rental community in Ottawa, Ontario. In 2011, Ferguslea announced a \$40 million investment in the community, primarily targeted at renewal and revitalization.

The community consists of 10 high-rise apartment buildings, and 986 garden and town homes. The Fairview, 90 Woodridge, is a 12-storey building with 260 suites made up of bachelors and one- and two-bedroom suites.

Ferguslea's key business objective is environmental sustainability. Thus, energy efficient lighting, water conservation measures, energy efficient appliances and tri-sorter waste systems had already been introduced to The Fairview.

### OBJECTIVES:

To renew and revitalize the property were the objectives. To meet these, Ferguslea developed an asset and investment plan, which was based on common area renovations and substantial lobby and suite renovations. Suite renovations included replacing existing balcony window and door systems with energy-efficient units, replacing suite entry doors, upgrading flooring to ceramic tile, and renovating kitchens and bathrooms.

Ferguslea also wanted to introduce central air conditioning to The Fairview. Many options were considered such as installing individual suite air conditioning units, installing a chiller, or searching for a more sophisticated and sustainable solution such as a geothermal heat pump or ground source heat pump (GSHP).

Ferguslea engaged Pivotal Projects to act as their Advisor and Project Manager to provide strategic direction and management expertise on the project. Halsall Engineering was appointed to undertake initial research and to make a recommendation on the most suitable option to the Ownership team.

Ferguslea chose to introduce a centralized GSHP to the building. This was the most complex solution, but also the most energy-efficient and in keeping with its focus on environmental sustainability.



## THE CHALLENGES

The age and condition of the building presented the most significant challenge: The Fairview was built in the 1960s so it had an aging electrical and heating distribution system. Another major challenge was to renovate the building while it was occupied.

### Other challenges facing this revitalization included:

- Working with an aggressive construction schedule that could only be done by overlapping the design and construction process
- Delivering a design-build model that required a cost guarantee during the tendering phase
- Replacing all the piping infrastructure to provide heat and air conditioning while taking into account the building's tenants who continued to live in their suites
- Updating the electrical system to support the new geothermal heating and cooling system as the existing electrical service was inadequate to power the ground source heat pump
- Using a large part of the surface parking to build the geo-exchange field that included 140 boreholes at a depth of approximately 250 feet, representing approximately 70 000 linear feet of piping
- Dealing with each tenant personally to ensure comfort throughout the project
- Harmful substance abatement and safety requirements because it was an occupied residential building
- Alliance had to resolve all these challenges with a guarantee of both cost and schedule – in just 9 months.



# THE SOLUTIONS

## 1. Guaranteed Cost

Alliance provided Ferguslea with its Guaranteed Maximum Pricing, which eliminated unnecessary project delays and budget overruns. With Guaranteed Maximum Pricing, Alliance was able to specify the cost for configuration, features and materials. Alliance also took on responsibility for all trades required for the project.

## 2. Design Build

The Pivotal Projects' management team and Halsall Engineering's consultants recommended and adopted a Design-Build procurement process, harnessing the construction industry's technical experience and achieving significant schedule and cost savings over the traditional Design-Bid-Build methodology. The traditional method can be time consuming, especially when dealing with a project of such complexity and with owners who expected the project to be delivered in 9 months—January to October.

"We understood from the outset that collaboration would be at the heart of this project. Alliance worked closely with our team from preconstruction to completion in order to achieve the client's objectives for The Fairview building," said Justin George, Business Manager at Pivotal Projects.

## 3. Minimizing Impact on Tenants

To reduce the negative impact on the tenants, Alliance put in a significant amount of time and effort scheduling and coordinating the removal and replacement of infrastructure components and completing the interior finishes. All of the work in the suites needed to be done outside the heating season to ensure maximum comfort.

Once all the new piping was installed throughout the floors, Alliance then sectioned off each floor into three sections for work to be completed in the tenants' suites. In each section of the floor, it had come up with a four-step plan:

- Remove the existing fancoil in the ceiling
- Install the new fancoil with all required connections
- Install a new ceiling to enclose the unit
- Ensure everything was running, clean the room and paint

Alliance found this process to be highly successful because it limited the number of trades at any given time, and allowed the tenants to plan for the required activities.

## 4. Installing the GSHP

With multiple crews working at each phase, and with an outside-the-box schedule—four phases running simultaneously as the crews moved throughout the floors—Alliance was able to install over 260 ceiling mounted fancoils while minimizing the impact on the building's tenants.

## 5. Updating the Electrical System

Alliance created a new hydro room within the building to support the new geothermal heating and cooling system that supplied energy for The Fairview's 260 suites.



# THE RESULT

Alliance partnered with a world-renowned expert in the field of geothermal exchange systems, Geoxergy, to develop the design for The Fairview.

The energy model results identified this building as a heating dominant type that would require more heat than cooling energy throughout the year. The building was also the recipient of recently installed high-quality boilers. Thus, the geo-exchange field was designed to handle 100% of the cooling requirement and almost all of the heating. When extra heat was required, the boilers would inject this into the system.

**Every system implemented into the design was based on energy efficiency. All of the base building HVAC was tied into a new web-based building automation system.**

- A 200-ton Multistack three-module heat pump to provide the heating/cooling water for the building. The main reason for a modular design was that it could be installed in the basement of the building where physical size was key.

- The heating/cooling pumps were designed with variable frequency drives to vary the flow of water-based on demand, this variable flow strategy is much more efficient than typical designs.

- The fresh air makeup unit was also retrofitted to use the heating/cooling water produced by the heat pump.

- All new fan coils with two-way control valves and programmable thermostats were installed in each suite.

Alliance successfully completed this turnkey project on time and within budget. Today, The Fairview has fresh interiors and was fully commissioned and ready to heat for fall 2013.

"Ferguslea now owns a high performance, sustainable building," said Stephen Ryan, Vice President Asset Management.

For more information about what Alliance can do for your project, please contact us.

