

CASE STUDY

# Banfield Corporate Headquarters





## Redefining Expectations for the Built Environment

**VANCOUVER, WASHINGTON** |

When Banfield Pet Hospital made the difficult decision to move its headquarters from its longtime Portland location to Vancouver, they gathered a team of like-minded local consultants. The company, founded in Portland in 1955, is dedicated to improving the well-being of pets and communities. It operates nearly 1,000 pet hospitals throughout the United States.

Envisioning their new corporate headquarters, Banfield Pet Hospital was adamant that the campus be a showcase of their corporate social responsibility efforts. Innovation, collaboration, and sustainability were of utmost importance when choosing a design and construction team. Interface had worked on tenant improvements for Banfield Pet Hospitals throughout the United States prior to being approached by TVA Architects on the Headquarters project. Banfield Pet Hospital assembled their team with Interface as the lead MEP engineer, lighting, building technologies, and fire life safety designer, and commissioning authority for the core/shell and the tenant improvements.

**Total project budget:** \$23 million

**Total project actual:** \$23 million

**Entrant's portion:** \$8.05 million

**Scheduled completion:** March 2017

**Actual completion:** March 2017



## OUR CONTRIBUTION

To achieve LEED Platinum in a multi-building campus, Interface brought integrated design expertise and creativity to the process. As a key player on other projects at Columbia Tech Center, a master-planned mixed use development, Interface brought knowledge of the renewable energy resources the area could provide. The designs met the stringent criteria for resource conservation, cost savings, and an aggressive design/construction schedule, all while providing excellent occupant comfort and health for the building's users.

## UNIQUENESS / INNOVATION APPLICATIONS:

The building consists of two three-story wings, and one two-story office wing. The complex includes a café, learning center, data center, and wellness facilities including showers and locker room. Drinking fountains inside the office include bubblers that dogs can operate themselves with no mess. A ramp replaces a typical staircase between floors for the convenience of daily four-legged visitors.

Unique in a new building, most areas were exposed to the structure. Creating coordinated pathways for piping, conduit, ductwork and placement of lighting was critical to an uncluttered building that appeared simple despite the underlying complexity. Identifying strategies early on like the low-height raised floor for routing power and data to furniture partitions helped greatly in planning. There was considerable and crucial coordination with the shell/core design team, the TI design team, and the contractor to make sure it all came together seamlessly.

The data center, one of two mirrored sites, serves the needs of the headquarters and over 900 nationwide clinics. Traditional hot/cold aisles were eliminated. Ducted racks were installed to pull hot air into a plenum space above the dropped ceiling and recirculate it through the local AC units. This reduces the cooling load through more efficient air movement.

Power is supplied to the data center through two multi-module 150kW high-efficiency UPS units in an 1+1 redundant arrangement, upgradable to 200kW by adding a module as future loads increase. The UPS units draw backup power from a 600kW standby diesel generator with provisions for a second 600kW generator to be added in the future. Each UPS operates at 99+% efficiency during normal conditions to minimize losses. During storms or other times of less stable power, each UPS will switch to a lower efficient dual-conversion to better shield sensitive loads from incoming power transients, thus providing a balance between high efficiency in times of secure power, and isolated clean power when the utility is less stable.

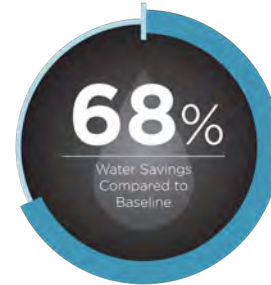
The overhead plug-and-play power busway system provides maximum flexibility for growth, installation, ease of replacement, and repair for the IT racks. Drop cords are easy to access and rearrange along the length of each busway. The system also features integral monitoring to alert IT staff when the system is nearing maximum capacity. Future capacity and redundant systems were provided to meet the growing demands of the industry-leading company.

The plumbing fixtures use 68% less water than a similarly sized complex would use if



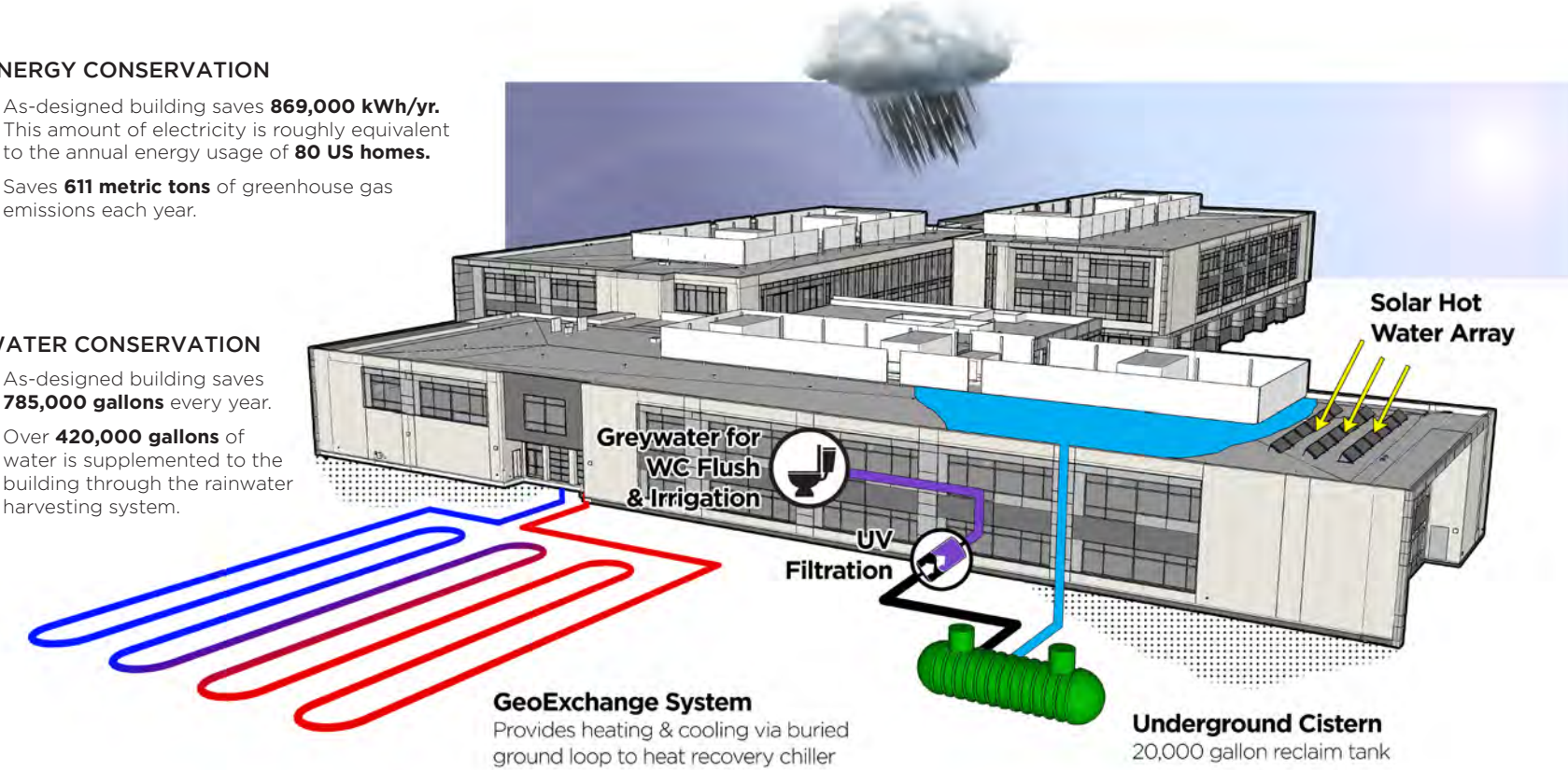
## ENERGY CONSERVATION

- As-designed building saves **869,000 kWh/yr.** This amount of electricity is roughly equivalent to the annual energy usage of **80 US homes.**
- Saves **611 metric tons** of greenhouse gas emissions each year.



## WATER CONSERVATION

- As-designed building saves **785,000 gallons** every year.
- Over **420,000 gallons** of water is supplemented to the building through the rainwater harvesting system.



designed to baseline code specifications. They are served from an expansive rainwater capture system — over 420,000 gallons is used to supplement the water used at the complex. The project was awarded an Innovation in Design point by the U.S. Green Building Council for this unique rainwater harvesting system.

Additional sustainable measures integrated into the campus include:

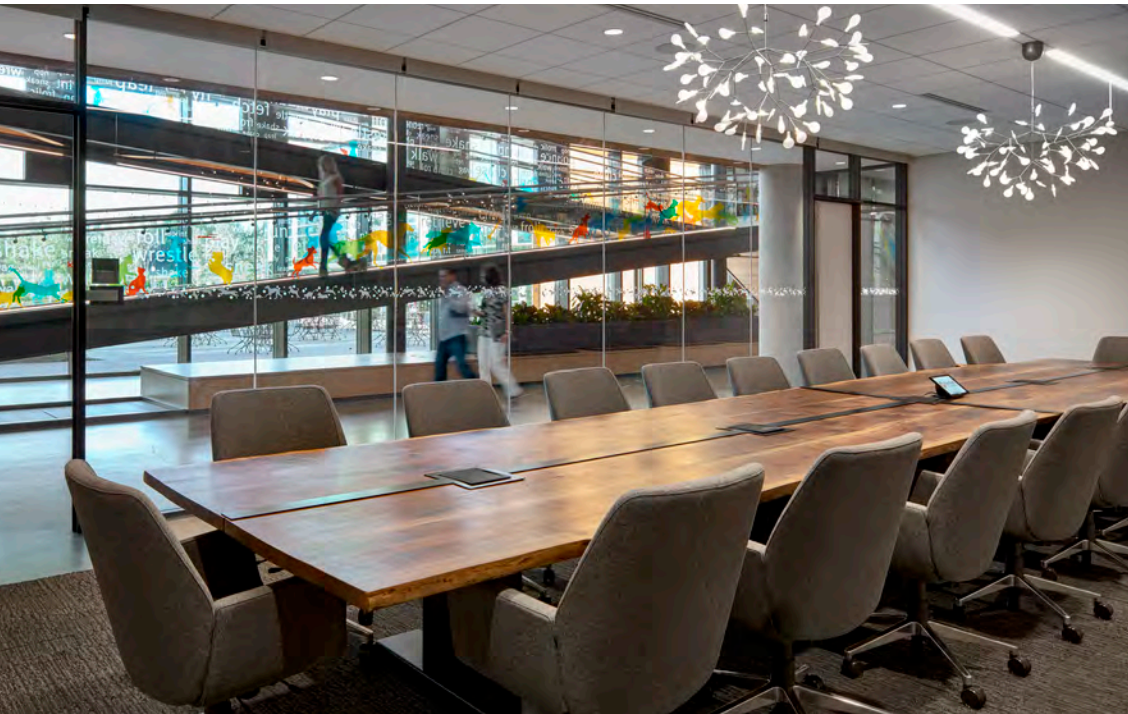
- » Geothermal heat exchange system provides heating/cooling to the building via a buried ground loop

- » Heat recovery system for the data center integrated into the chilled water loop
- » Roof mounted solar hot water array
- » LED lighting for the interior, exterior, and parking lot with daylighting controls
- » Daylighting controls
- » Utilization of low-VOC emitting building materials
- » Bicycle racks and showering facilities provided for building occupants
- » Twelve charging stations for electric vehicles

- » Extensive use of LED lighting
- » Regionally sourced building materials including wood, steel and concrete

## FUTURE VALUE TO THE ENGINEERING PROFESSION / PUBLIC PERCEPTION:

This project provides future value to the engineering profession by demonstrating the feasibility of utilizing a hybrid geo-exchange system that is extremely energy efficient while remaining within the client's budget. Additionally, the prevalent use of incandescent-style, LED filament bulbs for catenary-style lighting over the outdoor plaza, intimate lower-light



decorative pendants over the booths in the café, and as an art piece – the wonderful dog bowl chandelier in the commons area – does much to show how decorative filament bulbs can come back into commercial buildings in a very eco-conscious way.

As energy costs rise and conservation of resources becomes even more important, these high efficiency systems that significantly exceed code will become a necessity and ultimately standard practice. This project demonstrates that environmental stewardship and economic prosperity can co-exist and be mutually beneficial. This is a monumental step in the owner's commitment to be carbon neutral by 2040, which enhances their public image and reputation, and raises the public perception of sustainable building strategies enabling their increased implementation in the future.

#### **SOCIAL, ECONOMIC, AND SUSTAINABLE DEVELOPMENT CONSIDERATIONS:**

Banfield Pet Hospital created a community asset that demonstrates their commitment to the environment. As-designed the campus saves 869,000 kWh/yr (56%) compared to a code baseline building.

This amount of electricity is roughly equivalent to the annual energy usage of 80 US homes. It saves 611 metric tons of greenhouse gas emissions every year which is equivalent to:

- » 129 passenger vehicles off the road
- » 68,000 gallons of gasoline consumed
- » 578 acres of US forest

As-designed the campus saves 785,000 gallons (68%) of water every year compared to a code baseline building. Over 420,000 gallons of water is supplemented to the building through the rainwater harvesting system.

#### **COMPLEXITY:**

With nearly all the MEP systems exposed throughout the building, the complexity of coordination and attention to detail increased greatly. Careful coordination during design was important, aesthetically as well as acoustically, to ensure a productive workspace free from distracting equipment or airflow noise. Special measures were taken in equipment

locations, routing of ductwork and piping, and in the acoustic wraps and enclosures installed at certain points in the system.

Interface worked closely with Banfield to make complex building systems easy to use. Design includes simple and intuitive controls for both lighting and AV. Banfield staff can walk into a conference room and set up for a conference call or internal presentation in minimal time.

#### **SUCCESSFUL FULFILMENT OF CLIENT AND OWNER NEEDS:**

This project successfully met the client's and owner's needs by delivering a LEED Platinum facility on an aggressive budget with a fast-paced construction schedule. The project required a high level of coordination and collaboration across the design and construction team. This ultimately resulted in a project that met sustainability and cost goals, and enabled the owner to relocate their headquarters on time.

#### **SUMMARY:**

The Banfield Pet Hospital Corporate Headquarters triumphs as a successful integrated design and collaboration between all parties involved in the project.

Completed in June 2017, Interface Engineering designed several high-performance systems throughout the LEED Platinum campus. Our innovative contributions resulted in expected savings of 869,000 kWh/yr (56%) compared to a code baseline building and savings of 785,000 gallons (68%) of water every year compared to a code baseline building.

Designed with noteworthy energy, water, and money saving features, Banfield Pet Hospital Corporate Headquarters shines as an example to the Vancouver community of corporate responsibility. The Association of Washington Business selected the company as the winner of its Leading Environmental Practice Award. The company also strives to contribute to their new home town, offering meeting space for community meetings and making their half-acre dog park open to the public.

Throughout the project, Interface Engineering's energy modelers, designers, and commissioning authorities verified that the building systems would perform as required. Achieving the highest possible LEED rating of Platinum was accomplished with diligent and frequent design reviews and the boundless creativity, resourcefulness, and dedication of the team.

