Authorized Dealer

Kerr Controls Inc

Building Automation Specialists

Market segment
Government

Location
Vancouver, BC, Canada

Project type
Retrofit

Installation type
HVAC

Total area
6,400 m² (68,889 ft²)

Protocol
BACnet

District of North Vancouver Municipal Hall

Project Profile

The District of North Vancouver, on the traditional territory of the Squamish and Tsleil Waututh Nations, is a district municipality in BC that surrounds the City of North Vancouver on three sides. One of the wealthiest areas in Canada, the District stretches from Deep Cove in the east to the Capilano River Canyon in the west and is today home to more than 85,000 people. The District of North Vancouver Municipal Hall houses government and administration services for the region, including the mayor and councillors; committees, boards, and panels; bylaw officers; permit and licensing staff; corporate planners and financial staff; and more.

Authorized Dealer Kerr Controls was pleased to install a Reliable Controls building automation system in the municipal hall that decreased natural gas consumption by 40 percent and electricity use by 31 percent—particularly impressive achievements given these improvements were made without changing any existing HVAC or mechanical equipment.

Prior to the retrofit, occupant comfort was a consistent issue, in part due to the building's layout (an atrium, offices, meeting rooms, council chambers). The existing control system did not allow appropriate control of spaces for their designated uses. Energy consumption was high; although the District had implemented some manual adjustments to moderate energy use, mechanical equipment was operating more than necessary. In addition to resolving these issues, the District needed a way to track building data so it could plan for mechanical equipment upgrades.

Integrated equipment

IBC BoilerNet boiler system, Liebert CRV in-row cooling system, Critical Environment Technologies gas detectors, pCOWeb air-source heat pump

Total system objects

4,500

Installed equipment

3 MACH-Pro1™ controllers

10 MACH-ProAir™ controllers

2 MACH-ProCom™ controllers

3 MACH-ProSys™ controllers

140 MACH-ProZone™ controllers

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Kerr carefully designed the building automation system retrofit to achieve the following goals:

- To replace the existing, outdated system with a web-enabled automation system
- To add temperature sensors that collect data that could inform control strategies and capital equipment upgrades
- To use occupancy sensors to minimize heating and cooling of empty spaces and maximize energy savings
- To configure a complex scheduling strategy that meets the needs of the building and its occupants
- To implement a hot-water-heating setpoint strategy that maintains boiler-water temperature at a low setting while providing occupant comfort
- To identify areas of improvement with existing equipment (e.g., Kerr discovered oversize units that could not operate at a low enough speed to meet air-quality requirements)

The new building automation system controls all HVAC and water-heating systems in the building, including individual zone controllers. Kerr installed MACH-ProCom and MACH-ProSys devices to control large mechanical equipment. With their scalable inputs and outputs, extensive network routing abilities, and compact size, the MACH-ProCom and MACH-ProSys achieve an optimum balance between form and function. For control of midsize rooftop and small mechanical room equipment, Kerr used three MACH-Pro1 and 140 MACH-ProZone devices, each a fully programmable BACnet Building Controller. Packed with flexibility, the MACH-ProZone provides highly scalable inputs and outputs with jumper-selectable relay configuration. Designed to be a workhorse of the industry, the MACH-Pro1 is rugged, flexible, and ideal for applications like this one. For VAV control, Kerr Controls installed 10 MACH-ProAir devices with onboard damper motors and airflow sensors, eliminating the need for separate sensors and actuators.

Kerr used the power of RC-Studio software to integrate the BACnet values of all third-party controllers in the building so every piece of equipment is connected to the Reliable Controls system. Today facility operators access the system using RC-WebView, a time-saving browser-based building management solution that combines the power and accountability of enterprise tools with a simple interface. And thanks to RC-Archive software, the District now owns and controls all its building data. With continuous downloads of data logs to an industry-standard SQL database, RC-Archive delivers a robust, dependable record of building performance, so the District can easily monitor and continue to optimize efficiency and occupant comfort.

Today's building owners seek technology that provides not only intelligent control but also long-term sustainability. Although the District plans to update some HVAC equipment in future, the new building automation system will extend the useful life of existing equipment, reducing capital costs over time and minimizing the effects of planned obsolescence. Kerr Controls works hard to maximize its customers' return on investment by customizing solutions to the specific needs of each building and its occupants.

"Working in cooperation with the mechanical consultants and the District's energy manager, exchanging ideas and strategies, was the reason this project was such as success," said Chad Nichol, operations manager at Kerr Controls. "Additional projects to improve the system even further are coming up in the near future, and I look forward to being involved in the consulting, design, installation, and implementation."

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