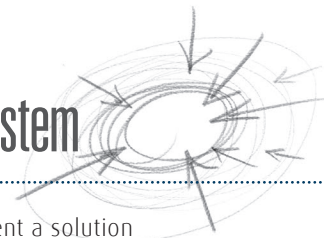


the 500 place d'Armes

The office building at 500 Place d'Armes, in the heart of Old Montreal, was constructed between 1965 and 1968 to serve as the headquarters of Bank Canadian National, as it was then called. With 32 floors, 30 of which are rented to tenants, this reinforced concrete tower, with glass, metal and black granite cladding, was one of Montreal's first skyscrapers.

Today the building is owned by Cromwell Management and has undergone a series of renovations since 2012 aimed at bringing it up to standard and restoring its former prestige. This initiative encompasses all of the electromechanical systems, including the elevators and air conditioning, ventilation and heating systems. To complete the upgrade, the owners called on Regulvar to install a new building automation system.

Creating a centralized system



Regulvar opted to implement a solution based on Delta Controls products and the BACnet protocol. The objective was to replace the **outdated pneumatic system** with a **digital system**, to centralize equipment monitoring, and to operate the new system from a single workstation.

One of the challenges was the fact that a tenant had installed products using a third-party protocol on seven floors of the building. It would have been easy to replace these products, but since they were almost brand-new, Regulvar proposed integrating them instead. This strategy was a bit more complicated to implement, but a lot less expensive than a full replacement—about five times less expensive!

The team found a way to integrate these devices—which use the LON protocol to communicate with the VAV systems and a proprietary protocol for the graphic interface—with the rest of the system. Licenses were added to the third-party devices to enable the BACnet module, which allows the desired control points to be exported.

As a result, all of the floors are controlled in a seamless manner by a single BACnet graphic interface, which greatly facilitates the work of all involved.



HVAC overhaul

The building automation system installed by Regulvar controls the HVAC systems on all floors. In total, the system has over 5,000 control points—a number that continues to grow as renovations are completed.

In the mechanical equipment rooms, the system controls approximately 50 variable speed drives for the four ventilation systems, four chillers, two cooling towers and five boilers. At the parking level, ventilation, heating and air quality are monitored by some 15 carbon monoxide (CO) detectors, as well as variable speed drives and a controller. In addition, the system monitors the temperature of the concrete entrance ramp, which has a built-in radiant heating system to melt snow.

On the office floors, the system helps to keep the temperature and ventilation at optimal levels. One of the unique features of the building is the fact that it has a lot of windows—52 per floor. Although this architectural feature is very advantageous in terms of light, it requires a top- quality HVAC system to keep the offices from becoming too cold in the winter or overheated in the summer.

Close to 1,500 room air induction units have been installed in the building along the perimeter of each floor. These devices circulate treated air from a central air handling unit, along with air from the room, around coils linked to the water system. The temperature of the water in these coils is adjusted according to heating or cooling requirements, which ensures that the mixed air is at an appropriate temperature before being circulated in the room.

To ensure optimal performance, the building automation system acts on each of the devices, which are equipped with a temperature sensor, a valve with an actuator for the water coil, and a controller.

Finally, the building automation system controls air terminal devices (318 so far), which feed the central areas of each floor with cool air.

Communication: key to optimal performance

The new automation system allows all building alarms to be sent to maintenance employees at all times, as well as to Regulvar's dedicated technician and project engineer. This makes it possible to rapidly correct or improve any element that is not performing satisfactorily. It's a good way to ensure the optimal performance of all of the building's electromechanical systems.

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