

Cliff Street Heating Plant Ottawa, Ontario



Project Description:

In late October 2009, after serving the Ottawa downtown core for 90 years, the Cliff Street Heating and Cooling Plant was rendered inoperable. This major heating plant had supplied heat via miles of underground steam tunnels to more than fifty Government of Canada buildings along Wellington and Sparks streets and as far away as the Byward Market including the headquarters of the Department of National Defence on Colonel By Drive.

Public Works and Government Service Canada (PWGSC) called upon PCL Constructors Canada and GENIVAR Engineering to design and construct a new boiler plant adjacent to the old Cliff Street facility.

Over the next six weeks, the new plant was to be commissioned and transmitting steam to the existing heat distribution tunnels by December 4, 2009.

It was decided that four 75,000 lbs/hr WABASH boilers would be set in the parking lot between the Supreme Court of Canada and the National Archives Building.

Black & McDonald was the projects' prime mechanical contractor.

Project Management

Black & McDonald provided project management and self-performed on erecting the boilers, pipe racks, piping, ductwork and boiler controls. Trades included pipe fitters, welders, millwrights, iron workers, sheet metal technicians and electricians.

Current Status: Completed

Project Type: Design Build

Black & McDonald Role:
Prime Mechanical Contractor

Project Schedule:
Both Phases Completed On Schedule

Key Challenges and Solutions Implemented:



The key challenges were clearly the fast-track six week schedule for completion and the close coordination of fabrication and resources for the project. To meet these needs, pre-emptive actions were planned and processes put into place to reduce the risks of delays. Black & McDonald's local pipe fabrication facility worked around the clock producing all the pipe racks & piping spools for the 8"Ø to 16"Ø natural gas, steam and condensate lines. Our resources

worked tirelessly with the engineers and other team members coordinating constructability and scheduling. They dedicated a great deal of effort to fast-track critical approvals from TSSA (Technical Standards & Safety Authority) for the boiler operation and complete steam system.

They further provided budgets for each scope and organized all the paperwork for the billings while remaining on site full time to coordinate all equipment and material lifts. Our superintendent commanded our 60-man multi-trade crew and was supported by 14 men working around the clock in the fabrication shop. The heavy gauge ductwork assemblies were fabricated by the Black & McDonald Southern Ontario Region Mechanical Fabrication shop in Toronto and installed at the Ottawa site.

The system was producing steam by December 2 and by December 8 all 52 PWGSC buildings were being heated by the new Temporary Cliff Street boiler plant.

In early February 2010, PCL-GENIVAR-Black & McDonald teamed up again back at Cliff Street, this time to add a new temporary superheated steam plant to provide dry steam to run the inoperable Cliff Street steam-driven turbine chillers. Working through the dead of winter, the team worked around the clock on this second fast-track assignment to ensure the three new 61,000 lbs/hr superheated boilers were on line by mid-May in time for the upcoming cooling season.

Relevance to Future Projects

The Cliff Street Heating and Cooling Plant project underlines once again, Black & McDonald's abilities to address the needs of highly complex projects within mission-critical environments and develop solutions that mitigate the risks of the client. Constructability and fast-tracking issues were identified and resolved with the highest safety and quality standards maintained.

Client References:

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