

Six Cyclone Hot Water Heater Installation

CLIENT

Toronto Pan Am Sports Centre

LOCATION

Toronto, Ontario

Project Description

The Toronto Pan Am Sports Centre needed to replace its water heater infrastructure. Black & McDonald was called on to provide its expertise and replace two A.O. Smith water heaters with six A.O. Smith Cyclone Mxi BTH-500A condensing gas heaters. B&M recommended that water consumption be metered and the design previously engineered be revisited to insure proper heater sizing and water loop design. A.O. Smith designed a domestic hot water heating system which would work with existing piping. It did not provide engineered drawings but did provide guidance on heaters installation, pump sizing and additional two runs which were completed by B&M in addition. B&M installed the system based on guidance provided by A.O. Smith.

B&M Scope of Work

The scope of work was divided into several stages to minimize the stoppage of hot water. The tie-in of heaters resulted in after hours work.

A.O. SMITH CYCLONE Mxi GAS WATER HEATERS BTH-500A

- 95 per cent thermal efficiency
- Three-year limited tank warranty by A.O. Smith
- One-year limited parts warranty by A.O. Smith
- Heat exchanger coil centred in the tank full of water to eliminate radiant heat loss
- Direct spark ignition
- Spiral heat exchanger keeping burner gases swirling to maximize efficiency heat transfer to water
- Spiral heat exchange design reduces buildup on water side which maintains efficiency over time
- Touchscreen allows precise temp control, water heater status, built-in diagnostics and running history
- iCOMM Wi-Fi connectivity on board to monitor remotely using the A.O. Smith app
- Temperature and pressure ASME relief valve
- Zero clearance to combustible materials
- Factory authorized startup

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During the first week of the project, B&M planned:

- Moving six new heaters and expansion tank to the mechanical room
- Full system shut down to install properly located isolation valves
- First existing water heaters were isolated while second heater remains running
- Existing supply and return lines, natural gas line, new venting and electrical were disconnected
- First existing heater to be taken apart and removed off site
- Three new A.O. Smith Cyclone heaters placed on the existing concrete pad
- Reconnecting supply and return lines, natural gas line, venting and electrical
- Insulating and wrapping all new piping
- Completion of commissioning and setup
- Testing all safeties during burner operation
- Monitoring operation watching water temp prior to starting on second group of heaters

The second week the professionals at Black & McDonald installed a second set of three cyclone heaters, including:

- Second existing A.O. Smith water heaters were isolated while new cyclones remained in operation
- Supply and return lines, natural gas line, venting and electrical were disconnected
- A.O. Smith heater will be taken apart and removed
- Three new cyclone heaters were placed on the existing concrete pad
- Supply and return lines, natural gas line, new venting and electrical were reconnected
- All six heaters were connected together
- All new piping was insulated and wrapped only
- Commissioning and setup was completed
- Operation was monitored for water temperatures
- Operator training was completed
- BAS was supplied and connected to the system on all six cyclone heaters

Benefits to Client or Problem(s) Solved

When the Toronto Pan Am Sports Centre had water heaters that needed to be replaced it called on Black & McDonald to assemble a team of professionals with the skills to make the installation in two short weeks. Black & McDonald took up the challenge and delivered the project to the satisfaction of the client and enabled athletes to maintain their training schedules with minimal interruption.