



## The Hudson's Bay Centre/Marriott Hotel

### *Saves Money and Solves Problems by Converting to Natural Gas*

#### **At a Glance:**

- 38–storey combined hotel and apartment tower converts domestic hot water and corridor air heating systems from electricity to natural gas
- Conversion expected to net \$340,000 in fuel cost savings annually
- Payback projected to be under four years
- Other benefits include improved comfort control and system reliability, reduced maintenance costs, and increased hot water capacity in hotel kitchen
- External routing, prefabrication and work done during off–peak hours minimizes disruption for occupants

The Hudson's Bay Centre, in downtown Toronto, is a 38–storey high–rise tower. The lower portion of the tower is a 258–room hotel with the upper 26 floors containing 336 apartment suites.

Over time, the complex began to face increasing challenges, including:

- Inadequate domestic hot water heating system
- Equipment failures
- Rising maintenance and electricity costs
- An insufficient hot water capacity in the hotel kitchen

In addressing these and other concerns, building management evaluated the potential of converting domestic hot water boilers to natural gas, along with the corridor heating system.

#### **The Project**

Enbridge Gas Distribution worked closely with the site manager and the customer to address the following design elements:

- Equipment options
- Optimal routing of gas and water piping
- Selection of suitable space for construction of new boiler room and appropriate venting
- Gas meter location
- Applicability of gas sub-metering
- The identification of operational requirements

Enbridge Gas Distribution helped the customer source quotations, and assisted in conducting site-review tours for bidding contractors.

After reviewing the bids, Hudson's Bay Centre awarded the contract to All Weather Gas Services. Four 1-million Btuh sealed-combustion Raypak ADB-1000 copper finned boilers were chosen for the domestic hot water conversion and were installed and piped to the existing storage tanks. One electric heater, replaced only 3 years prior, was retained to provide emergency back up for the new system.

As well, hydronic coils in the corridor air heating system's air handling unit were incorporated into the design to economize on conversion costs. Two 750,000 Btuh Raypak ADB-750 and one 1 million Btuh Raypak ADB-1000 unit was installed and piped to the preexisting coil. Boiler controls installed included the Tekmar indoor-outdoor reset controller.

To keep tenant disruption at a minimum:

- Gas piping was routed externally
- Much of the work was completed in off-peak hours and water piping was prefabricated to minimize system down time
- Electric boilers were kept online until the very last minute, when the final piping interconnections were made

## **The Benefits**

Now, with the conversion complete, the complex is expected to save an estimated \$340,000 in fuel costs annually. The occupants are enjoying improved comfort control, and the new system has freed up 1.38 MW of electrical capacity for other requirements. Improved reliability has reduced maintenance costs and the hot water capacity problems in the hotel kitchen, have been eliminated. Finally, despite the project's size, the payback is projected to be less than four years.