



# Waterloo City Hall

Innovative Retrofit Improves IAQ & Efficiency

Waterloo City Hall is a highlight of the city's green roof initiative, which has encouraged many public and

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“The City of Waterloo worked with Price to replace their aging rooftop units with higher efficiency retrofit units.”

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private buildings in the city to use green roofs as a way to increase the amount of green space in the city, improve energy efficiency for the building, and extend the life of the roof. The 16,800 square foot roof of Waterloo's City Hall was installed September 2005, around the existing rooftop air handling units (AHUs). In 2011, the City of Waterloo began working with Price to replace the aging existing AHUs with new retrofitted units.

## Project Summary

### PRICE PRODUCTS

60 Ton Gas Fired Make-Up Air Units - PMI model  
AW-A-2-32/D60

### PROJECT HIGHLIGHTS

Location: Waterloo, ON, CA  
Project Type: Public Spaces  
Year Completed: 2011  
Square Footage: 16,800 ft<sup>2</sup>

### DESIGN TEAM

Price Representative: Ironross Price Sales  
Mechanical Contractor: Sutherland & Schultz Inc.

## The Challenge

### Increase Capacity with Limited Space

There were multiple challenges with replacing the existing air handling units. The City of Waterloo had a 25 year guarantee on the green roof that would become void if the existing roof curbs were changed, so Price had to create replacement units that would fit those measurements. In that limited space, the team had to figure out how to increase the capacity of the four units to a total of 60 tons capacity, which is a 20% increase in capacity on the two original 50 ton units and a 50% increase in capacity on the two original 40 ton units.

Next, to improve indoor air quality (IAQ) the City required that the filter section be expanded from a 2" section to a 2" plus a 12" section to allow MERV 13 cartridge filters. Finally, closing City Hall was not an option, so all of the old units had to be removed and replaced with the new ones in one weekend.

## The Solution

### Retrofit AW-I Units

Price used their strong retrofit capabilities when working with the design team to create a custom solution for Waterloo City Hall. Four new 60 ton units were produced to meet the various requirements of the project including the increased capacity requirements within the size restrictions. In addition, sound levels were improved by using low sound, high efficiency condenser fans. The city also has a strategy to constantly improve building energy performance. The new Price rooftop units improved the unit Energy Efficiency Ratio (EER) by the use of high performance scroll compressors, ECM motors and innovative unit control that takes advantage of free cooling (economizer) whenever possible.

On the Saturday that the removal was scheduled, the team managed to remove the existing units and place the new units within 13 hours with a single crane lift. On Sunday, the team commissioned the units and the Waterloo City Hall was up and running on Monday morning.



## AW-I Units

The Price AW-I series is based on an industrial 3 pass drum and tube stainless steel gas heat exchanger. The cabinet can be built with either glass fiber or double wall foam construction. Integral DX air conditioning can be included as well as energy recovery (plate type, wraparound coils and enthalpy wheels). Unit configuration can be design to meet any site conditions including indoor, outdoor, knock down, sectional vertical or horizontal arrangements.



## Features

- 1500 CFM to 100,000 CFM
- 160 MBH to 4000 MBH Heating Output
- High Turndown Ratios
- Indoor/Outdoor Unit
- Replacements to Match Existing Installations
- Heat Recovery / Multi-zone / Dual Path
- Packaged Cooling Systems
- Cooling Coils – DX or Chilled Water
- C.S.A. Approved



*Sutherland & Schultz are positioning the new Price replacement unit on the existing roof curb. The replacement unit was designed to fit exactly since the warranty of the green roof didn't allow for any changes to the roof curb.*

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“Our hydro [electricity] bills have decreased due to the direct drive motors on the condenser fans and an added bonus is that the new units are drastically quieter in free cooling mode. The City of Waterloo is committed to doing our part to reduce hydro consumption in the building and we are more than happy with the finished product from Price.”

Kevin Lobsinger, *City of Waterloo, Property Coordinator*

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To improve indoor air quality the replacement unit used 12" Merv 13 filter cartridges instead of 2" filters.

## Retrofit Capabilities:

Price's team of air handling engineers is second to none in the industry, and our custom design capability in both air handlers and the accompanying controls is what differentiates us. Within our product lines we can adapt our direct fired (AW-D) and indirect fired (AW-I, PMI-IF) units to fit your building's needs. All of our standard and custom units are rigorously tested to ETL and CSA certification.

**Contact us today to learn more at 204.633.4808.**



## Design Team Profile

### Sutherland & Schultz Inc.

Sutherland-Schultz is a professional construction and industrial services provider based in Cambridge, Ontario, Canada. Their roots date back to a small motor rewind shop established in 1922. Since then, they have grown to manage complex industrial, commercial and institutional construction projects with an uncompromising commitment to safety and quality. Working with customers in all market sectors, while specializing in the automotive, food, beverage, steel, power, energy, and aggregate sectors, Sutherland-Schultz has earned a reputation for industry leadership in Southwestern Ontario.

[www.priceindustries.com](http://www.priceindustries.com)