

180 East Pearson

FIRST PLACE

ASHRAE Excellence in Engineering Award
Chapter Level

Project Highlights and Results

- Holistic review of the building's ventilation system to identify opportunities to improve performance and reduce energy consumption, and to improve occupant comfort
- 50% reduction in energy costs
- Improved occupant comfort through design approach that reestablished centralized humidification and improved building pressurization
- Conversion from electric resistance heating to hot water via a new natural gas fired high-efficiency condensing boiler plant

Project Background

Owner:	The Residence at Water Tower Place Condominium Association
Location:	Chicago, IL
Team/Team Lead:	Don McLauchlan, Ryan Hoff, Brian Malone
Elara Role:	MEP Engineer
Type:	Energy Retrofit
Construction Cost:	\$2,100,000

Project Overview

Building Type:	High-Rise Mixed Use
Building Attributes:	74 Stories (42 Residential), 758,000 SF
Initial Construction:	1976
MEPPIT Systems:	CHW, Condensing HW Boiler Plant (central), FCUs, electric resistance heating (condominiums), DCV, Heat Recovery, DDC

Innovation

- Design approach included the following components.
 - **Intelligent Ventilation Control.** Demand Controlled Ventilation (DCV) with dampers behind each condominium unit's exhaust grille that open when exhaust is required (morning, evening) and close when not (mid-day, overnight):
 - Reduced Fan Power to save significant energy,
 - Improved Building Pressurization to reduce air and water infiltration, drafty conditions, and stack effect, and
 - Reduced Makeup Air Volume to save significant energy.
 - **Optimization of Makeup Air Unit (MAU) Performance.** Converted the ventilation system to an intelligently controlled demand oriented system, converted electric MAUs to gas, and adding three forms of heat recovery. Specific strategies for each mode of operation include:
 - **Winter:** Exhaust Heat Recovery, Cooling Coil Economizer, Electric to Gas Heating Conversion, New Gas Humidifiers
 - **Summer:** Runaround Heat Recovery Loop

