

LHSC Cancer Center AHU Replacement & Upgrades

FIRST PLACE
ASHRAE Excellence in Engineering Award
Chapter Level

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Regional Level

Project Highlights and Results

- Two (2) Large Laboratory 100% OA air handling units were replaced within the basement of the building under tight physical constraints. New air handling units are full knockdown construction and assembled on-site. New unit capabilities include heat traced air intakes for snow melt, energy recovery, atomizing humidification, a variable speed fan array, and bypass damper operation.
- Existing Reverse Osmosis (RO) system was replaced and upgraded to increase capability for existing, new, and future RO needs as well as to improve reliability.
- Resource recovery was implemented to harvest both condensate drain water and exhaust air energy.
- The new air handler system design provides redundancy to avoid downtime of critical systems.

Project Background

Owner:	Loyola University Chicago
Location:	Maywood, IL
Team/Team Lead:	Brian Malone, Sean Hidaka
Elara Role:	MEP Design Engineer
Type:	MEP Equipment Replacement
Construction Cost:	\$2,500,000

Project Overview

Building Type:	Outpatient Care, Research Lab & Administration
Building Attributes:	4-Stories, 141,500 SF
Initial Construction:	1993
MEPFPIT Systems:	Laboratory Air Handlers, RO Generation, Intake Air Snow Melt,
	Condensate Recovery, Energy Recovery Loop, Atomizing



Additional Project Details

- Existing air handling unit steam humidification system replaced with atomizing humidification utilizing RO water from new and enlarged system. New RO system also supplies water to existing laboratories.
- Bypass design installed between (2) AHU distribution systems to avoid substantial downtime during replacement and allow for backup redundancy between zones. This capability is particularly important for critical laboratory applications at this building.
- Energy recovery coil system installed between rooftop exhaust systems and AHUs. Coils were retrofitted into existing exhaust ductwork and designed to accommodate varying airflows without disturbing system functionality.
- Heat-traced louver design was installed in new air handling units, along with enlarged air handler intake plenums and exterior shrouds, to minimize snow infiltration at air handler intakes located at the bottom of an intake well. Snow elimination was a point of emphasis as the previously existing air handlers suffered from regular snow build-up.
- Condensate is recovered from air handler sections in cooling season and injected into the campus' cooling tower water system in order to conserve water usage.