

NU Tarry Research & Education Center AHU and RO System Replacement

Project Highlights and Results

- Phased replacement of (4) existing, 62,000 CFM field-erected lab air handling units. Units provide ventilation air for medical research in the Tarry building as well as portions of the neighboring Ward and Morton buildings.
- The new lab air handling units incorporate active filtration, heat recovery coils, adiabatic humidification, low temperature hot water coils, chilled water coils, and variable speed fan arrays.
- A new central reverse osmosis system was also installed to serve the building's deionization system for lab use, adiabatic humidification, and cooling tower makeup water. The system operates at 92% efficiency compared to standard 70% efficient RO systems and is one of only a few systems of its type in the Chicago area.
- Construction was phased to replace one AHU at a time to ensure that a minimum of (3) AHUs were operational to serve the medical research laboratories continuously.

Project Background

Owner:	Northwestern University
Location:	Chicago, IL
Team/Team Lead:	Dustin Langille, Bhupendra Tailor
Elara Role:	MEP Engineer
Type:	MEP Equipment Replacement
Construction Cost:	\$8,200,000

Project Overview

Building Type:	Office and Research Laboratories
Building Attributes:	17-Stories, 350,000 SF
Project Construction:	2022-2023
MEPPFIT Systems:	Air handling units, reverse osmosis systems, controls

Additional Project Details

- Air handling units were designed as knockdown with ingress via the single elevator.
- The existing built up units were built using the concrete slab as a floor and were built around various columns and shafts. Over time deterioration led to water penetration. The new units incorporated fully insulated aluminum floors and double wall insulated casing around the shafts/columns.
- CFD analysis was utilized to confirm component placement and humidification performance with the various columns/shafts that pass through the units. CFD analysis was also used to confirm moisture carryover on the cooling coils would not occur.
- Creative staging and mechanical room preparation was specified to minimize sound disruption to the floor below and reduce overtime and mobilization costs during construction.
- The new units and RO system were designed and installed such that shutdowns were limited and the building could remain operational including critical research.
- Elara served as the prime consultant with architectural and structural subconsultants to provide a turn-key design team.

