ELARA ENGINEERING

Big Picture Thinking. Practical Approach. Sustainable Design.

North Broadway Mixed-Use Development

FIRST PLACE
ASHRAE Technology Award
Regional, International Levels

FIRST PLACE
ASHRAE Excellence in Engineering Award
Chapter Level

Project Highlights and Results

- MEPFP design of newly constructed 7-story apartment building with 125 residential units, indoor parking, retail spaces, fitness center, community area, and outdoor running track.
- Design incorporates geothermal heating and cooling, solar PV, exhaust air heat recovery, shower drain heat recovery, sidewalk snowmelt, and demand control strategies.

Project Background

Owner:	**DLG Management**
Location:	**Chicago, IL**
Team/Team Lead:	**Don McLauchlan, Dustin Langille, Ryan Hoff, Bhupendra Tailor, Nick Capretta**
Elara Role:	**MEPFP Engineer, Energy Modeler, Commissioning Agent**
Type:	**New Construction**

Project Overview

Building Type:	**Residential**
Building Attributes:	**7 Stories; 226,377 SF**
Initial Construction:	**2018**
MEPFPIT Systems:	**Geothermal, Demand Control Ventilation, Heat Recovery, Snow Melt, Radiant Heating**

Innovation

- Provided services include energy modeling, schematic design, design development, permit/bid/construction documents, biding assistance, construction services, and fundamental conditioning (Cx).
- 60-well geothermal filed located underneath the building structure on a limited urban site.
- Detailed energy modeling along with a parametric analysis allowed for careful sizing of the geothermal filed to minimize project costs. Detailed modeling reduced the field size by an estimated 40% over standard designs for geothermal systems in Chicago.
- The simplicity of the design allowed the building owner to assume portions of the project management duties and to utilize several contractors that had worked on previous smaller projects with them. This resulted in project costs well below similar projects in Chicago.
- The building's low actual EUI of 22 kbtu/ft² saves $159,555/year over the baseline model EUI of 44 kbtu/ft².
- The geothermal cost of approximately $500,000 is offset in just three years compared to the baseline building (1.5 years when compared to a typical Chicago new construction building), not including any avoided costs such as large central chiller/boiler plants.