

Energy Efficiency in Independent Senior Living

PERFORMANCE OUTCOMES:

210,000 KWH

DECREASE IN
ELECTRICITY USE

\$21,000

ANNUAL ENERGY
COST SAVINGS

CONCORDIA ARMS, NONPROFIT SENIOR HOUSING, MAPLEWOOD, MINNESOTA

PROJECT SUMMARY

HVAC

- ★ New common area heating and cooling
- ★ Replaced unit A/C sleeves

ENVELOPE

- ★ Pella® Impervia® with argon windows
- ★ New airlock vestibule

LIGHTING & APPLIANCES

- ★ LED lights in common areas and exterior
- ★ Fluorescent lighting in apartments
- ★ Occupancy sensor controls
- ★ ENERGY STAR® refrigerators

WATER

- ★ Low-flow toilets, faucets, and showerheads
- ★ WaterSense®-certified irrigation

Concordia Arms is a 125-unit renovation project of a 1979 existing senior living apartment building that provides senior Section 8 housing. The project includes seven units designed for the Long-Term Homeless, with additional units serving people with disabilities and special needs. Concordia Arms consists of 124 one-bedroom units and one two-bedroom unit.

CommonBond undertook a renovation of Concordia Arms apartments with key strategies to reduce energy consumption and save on future utility costs. The project participated in Xcel Energy's Energy Design Assistance (EDA) program to optimize energy conservation strategies. These strategies significantly reduce operation costs, helping to preserve much needed affordable housing for seniors. The goals of the project align with CommonBond's mission to build stable homes, strong futures, and vibrant communities.

SOLUTIONS

The renovation made key improvements to address several concerns. An upgraded mechanical system was installed to maintain a consistent temperature in the corridors. The existing system, which did not provide cooling to the corridors, caused large temperature swings in the summer months.

Improvements to the building shell included new Pella® fiberglass-framed windows for energy efficiency and resident comfort. The inclusion of

"...there was a lot of frost on the windows when I moved in, but not now—it is a lot warmer."

— Joyce Ewest,
Concordia Arms resident

PROJECT OVERVIEW

DEVELOPER/OWNER CommonBond

UNITS 125 **BUILDINGS** 1

YEAR OF CONSTRUCTION 1979

YEAR OF RENOVATIONS 2013

UTILITY PROVIDER Xcel Energy/
CenterPoint Energy

ELECTRICITY/GAS Master-metered

HEATING Hydronic

COOLING Through-wall units

UTILITY PAYMENT STRUCTURE
Owner-paid heat and hot water

new through-wall A/C sleeves was considered critical to reduce infiltration and drafts in the apartments.

Lighting upgrades included the installation of common area LED lighting and fluorescent lighting in the apartments, saving over \$20,000 a year in electricity.

In addition to the energy measures, CommonBond carried out a water conservation retrofit using low-flow toilets, showerheads, and faucets. A new EPA WaterSense®-certified, zoned, drip irrigation system around the building was also installed.

BENEFITS

Prior to the renovation, Concordia Arms community space had a door that went directly to the exterior courtyard. Resident Joyce Ewest noted, "People were complaining that cold air was coming directly into the dining room."

The renovation included the addition of an airlock vestibule that not only reduces energy loss, but also provides a more comfortable community dining room where residents are served a daily meal and socialize. Ewest said, "When people come in and out of the cold, it no longer affects the people inside."

THE BACKSTORY

Concordia Arms was at risk of losing its federal subsidies because of its expiring Housing Assistance Payment (HAP) contract, the maturing of its mortgage, and minimal capacity of the former owner entity, prompting Concordia Arms, Inc. to refinance the project through Minnesota Housing Finance Agency. At a cost of \$35,000 per unit (for energy and other upgrades), the preservation and rehabilitation of these existing housing units is extremely cost effective.



Joyce Ewest, Concordia Arms resident

PROJECT SUMMARY	REBATE	ANNUAL COST SAVINGS	ANNUAL ENERGY SAVINGS
LIGHTING	\$17,000	\$20,700	207,017 kWh
AIR CONDITIONING	\$3,300	\$327	3,271 kWh
PROJECT TOTALS	\$20,300	\$21,027	210,288 kWh

Rebate, energy, and cost savings reported by Xcel Energy Design Assistance program

For more information and ways to act, visit: <http://www.mnshi.umn.edu/program/EE4A>

To learn more about the importance of choosing healthy, non-toxic building materials for energy efficiency retrofits, visit: <http://www.bgadata.org/EEHousingProducts/about/about-database>

