

COMMERCIAL NEW CONSTRUCTION PROGRAM

CASE STUDY

STAR LOFTS

PROJECT OVERVIEW

Star Lofts, a mixed-use development in Des Moines, Iowa, demonstrates how high-performance design can advance both energy efficiency goals and housing affordability. Developed by Molly and Scott Cutler of Cutler Development, the team set a goal to integrate energy efficiency and affordability from the outset of the project.

With support from the Commercial New Construction (CNC) program by MidAmerican Energy, implemented by Willdan, the development team leveraged advanced energy modeling to evaluate efficiency strategies and guide key design decisions.

ENERGY EFFICIENCY STRATEGIES

To achieve Zero Carbon Certification, the project incorporated several high-impact measures, including:

- **High-efficiency air-source heat pumps** with energy-saving controls
- **ENERGY STAR® appliances**, smart thermostats and LED lighting
- **High-performance building envelope** designed to reduce heating and cooling loads

These strategies helped Star Lofts become the first Zero Carbon-certified building in Iowa, as accredited by the International Living Future Institute (ILFI).

CNC PROGRAM SUPPORT

The CNC program provided a customized energy model outlining projected energy savings, financial impacts and energy use intensity. Available incentives from MidAmerican helped offset upfront costs and support long-term affordability.

Beyond incentives, the modeling served as a critical design tool. The development team evaluated hundreds of potential efficiency measures, using the CNC analysis to identify the strategies that delivered the strongest energy performance relative to cost. While early assumptions focused on envelope upgrades, modeling revealed that mechanical system improvements offered more effective cost-to-performance results.

After comparing electric resistance heating and cooling with heat pump alternatives, the team selected high-efficiency heat pumps to align zero-carbon goals with budget realities.

“You are paired with a team of highly qualified energy professionals who will model several system design scenarios to provide you with options to decrease the building’s energy consumption.”

- Scott Cutler, Cutler Development

ESTIMATED ENERGY SAVINGS

24% annual utility cost savings compared to baseline

68,248 kWh in electric savings equivalent to:



Avoiding the CO2 emissions from 3,438 gallons of gas consumed



Carbon sequestered from 505 tree seedlings grown over 10 years

PROJECT TEAM

- **Developer:** Cutler Development
- **Architect:** ID8
- **Mechanical and Electrical Engineers:** Currie Engineering Associates, LPC
- **General Contractor:** Capital Homes

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DEVELOPMENT VISION

Star Lofts was designed to demonstrate that ambitious sustainability goals and affordable housing can advance together. Transforming a former gas station site into Iowa's first ILFI Zero Carbon-certified building required reducing energy use intensity by 25% compared to the state's baseline, operating as a fully electric building and offsetting remaining operational carbon.

By combining high-efficiency systems with low-carbon materials, such as mass timber, and strategically layering available incentives and funding sources, the project advanced both environmental performance and financial feasibility. The result is a high-performance mixed-use development that contributes to neighborhood revitalization while meeting aggressive energy and carbon reduction targets. The building includes four ground-floor retail spaces and twenty affordable apartment units serving households between 30% and 80% of the area median income (AMI).

SUSTAINABILITY, AFFORDABILITY AND NEIGHBORHOOD IMPACT

For affordable housing developments, energy efficiency is not only an environmental priority – it directly impacts long-term housing stability. By prioritizing the efficiency measures identified through the CNC modeling process, Star Lofts reduces overall building energy use and helps keep tenant utility costs low and predictable.

For the four units designated at 30% of AMI, monthly utility costs remain between \$20 and \$40, with the landlord covering any remaining balance. Lower and more consistent utility expenses help reduce energy burden and improve financial stability for residents.

The incentives available through MidAmerican further strengthened the project's ability to incorporate high-efficiency systems without compromising affordability. By aligning program incentives with performance-based design decisions, Star Lofts demonstrates how energy efficiency programs can support both decarbonization and affordable housing outcomes.

WHAT IS MASS TIMBER?

Mass timber uses wood panels nailed or glued together into layers to create strength and durability. It has a smaller carbon footprint than steel and concrete. Mass timber also lasts longer than other building materials, reducing long term operational costs. Its natural aesthetic allows it to be left exposed, cutting down on maintenance and construction materials.



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