

COMMERCIAL NEW CONSTRUCTION PROGRAM

ENHANCED ENERGY DESIGN ASSISTANCE

Consultant-led support for projects pursuing aggressive energy efficiency goals.

Early, decision-driven analysis for design teams advancing beyond standard practice and certification thresholds.

AVAILABLE ENHANCED SERVICE MODULES

(Select up to three modules)



HVAC Life-Cycle Cost Analysis

Compare long-term costs, operational efficiency, and payback periods across HVAC system options. This analysis helps teams balance upfront investment with performance, durability, and total cost of ownership over a 25-year horizon.



Carbon & Photovoltaic (PV) Analysis

Evaluate energy use, utility costs, and carbon emissions with and without PV integration across current and future electric-grid scenarios. This analysis helps teams understand the full financial and environmental impact of their energy choices.



Multifamily Financial Metrics

Use cap rate-based valuation to estimate increased property value driven by improved Net Operating Income (NOI) from energy efficiency improvements. This module also quantifies additional capital availability to support future energy upgrades.

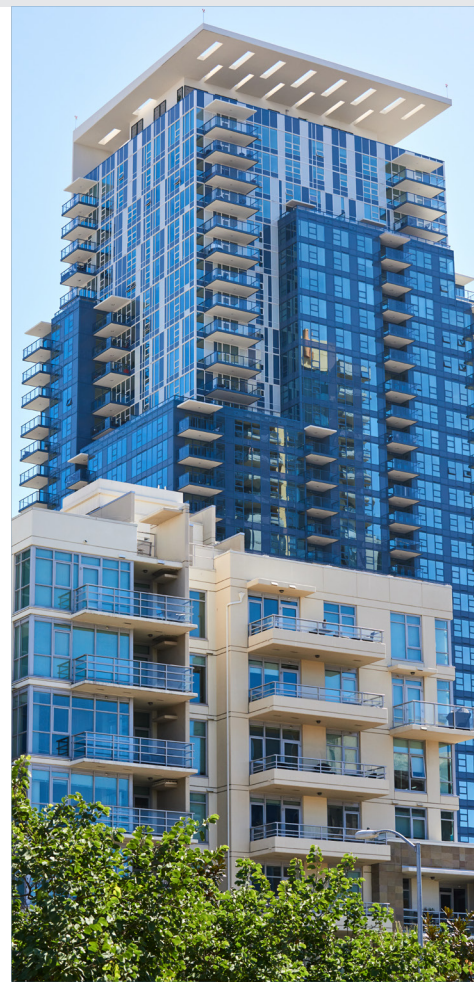


Daylight Analysis

Optimize daylight performance to enhance occupant comfort while supporting energy efficiency goals. This module quantifies useful daylight levels across occupied spaces, identifies and mitigates glare risks, and evaluates window-to-wall ratios, skylight impacts, and frit patterns to reduce glare while maximizing daylight autonomy.

SERVICE ELIGIBILITY

Projects pursuing Enhanced Services must achieve a minimum of 30% Energy Use Intensity (EUI) savings relative to baseline to qualify for the full incentive. To maximize opportunities, teams are encouraged to enroll during pre-design or early schematic design.



SEE HOW YOU CAN SAVE

Learn more and enroll a project:

IOWACNC.COM

Contact the program
implementor:

CNC@WILLDAN.COM

877.939.1874



iowacnc.com



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DES MOINES FIRE DEPARTMENT

PROJECT OVERVIEW

Des Moines Fire Station No. 4, completed in December 2025, replaces the city's 1959 station and relocates it to improve emergency response times. The new 18,500-square-foot facility includes living quarters, a full kitchen, fitness areas, administrative offices, a training/community room, and four drive-through apparatus bays.

With a LEED Silver goal, the City of Des Moines enrolled the project in the Commercial New Construction (CNC) program's enhanced offering. The CNC team supported the project with advanced analysis to help the City compare systems and make informed decisions early in design. Because the station experiences high call volumes and garage-door openings, occupant comfort was prioritized. As a long-term community asset, the building also needed to balance sustainability with affordability, so the City focused on efficiency strategies with a payback of 15 years or less.

ENERGY EFFICIENCY STRATEGIES

The project employed several energy efficiency strategies to meet this standard.

- **Early daylighting analysis** informed envelope and glazing decisions for the 24/7 fire station, balancing spatial daylight autonomy and glare across spaces. Iterative evaluation of glazing and skylight configurations supported selection of a high-performance building envelope with low-solar gain glazing, reducing heating and cooling loads while improving occupant comfort.
- **HVAC life-cycle cost analysis** compared three system options against high-efficiency alternatives to evaluate long-term cost and performance. The analysis supported selection of a ground-source variable refrigerant flow (VRF) system for personnel areas, with in-floor heating in the apparatus bay, based on its projected total cost of ownership and energy performance.

Following the analysis, the mechanical systems were revised during value engineering. Ground-source water-to-air heat pumps were installed in place of the VRF system, and the radiant heating system was removed. These updates were captured during program verification, allowing flexibility as the design evolved.
- **Operational carbon analysis** evaluated electrification and gas-based HVAC scenarios to assess long-term emission impacts. The analysis showed that all-electric scenarios reduced emissions relative to gas-based systems, informing design decisions to minimize operational carbon.
- **PV analysis** evaluated on-site generation options **during** design; however, MidAmerican's low-cost, low-carbon grid reduced near-term cost effectiveness. As a result, the project was value-engineered without on-site PV but designed to remain solar-ready for future deployment.

CNC PROGRAM SUPPORT

"The quality of the results is a valuable contribution to the design team... The meeting elicited good discussion about how the spaces will be used and operated. The architect tells me she found the analysis to be valuable feedback which will enable her to finesse the design for better performance and occupant experience."

Martha Norbeck, AIA, LEED Fellow, WELL AP
Owner, C-Wise Design and Consulting



ESTIMATED ENERGY SAVINGS

54% annual utility cost savings compared to baseline

297,000 kWh in electric savings – equivalent to:



Powering 31 homes for a year



Avoiding the CO2 emissions from 28,674 gallons of gas consumed



Carbon sequestered from 4,214 tree seedlings grown over 10 years

PROJECT TEAM

- **Owner:** City of Des Moines
- **Architect:** Substance Architecture
- **Engineer:** Design Engineers
- **LEED Consultant:** C-Wise

**DISCOVER YOUR ENERGY
SAVINGS POTENTIAL—GET
STARTED TODAY!**

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