colorado affordable housing
Walden35 Case Study | Aurora, Colorado

Project data

Project Location	Aurora
IECC Climate Zone	5
HTC Deal Type	Federal 4 percent Housing Tax Credits
Completed	2023
Size (sf)	89,289
Levels (#)	4
Units (#)	100 total (40 one-bedroom, 50 two-bedroom, 10 three-bedroom)
Buildings (#)	1
Construction Type	New construction
Fuel Type	All-electric
Green Building Certifications	National Green Building Standard - Bronze
Total Development Cost	$37,200,000 (2023)
Operational Cost (PUPA)	$5,035

Overview

Walden35 is an all-electric affordable apartment community serving residents with incomes up to 70 percent of the Area Median Income (AMI). The development, completed in October 2023, is located in a largely commercial area on the east end of Aurora. Walden35 was developed by the Aurora Housing Authority (AHA) to help address the shortage of affordable housing in this area of the city, especially for those households that often fall just outside of affordability requirements. The 100-unit development features amenities such as a dog park, a courtyard with a playground, and walkability to nearby retail.

Electrification strategies and features

Water Heating
Individual electric resistance water heaters

Space Heating & Cooling
Individual vertical terminal heat pumps

Ventilation
Natural ventilation

Cooking
Electric resistance stoves

Planning and design approach

AHA has noticed that the demand for affordable units has recently rivaled and even outpaced the demand for market-rate units in Colorado, and AHA has seen an increase in local and out-of-state contractors interested in affordable housing. This increased capacity and interest, coupled with the shortage of affordable units in the east end of Aurora, guided the site selection for Walden35.

Due to its location, land use planning for the Walden35 parcel had to satisfy the Sand Creek Metro District and the City of Aurora. With the high number of stakeholders involved in this project, it was important to lead a collaborative design process to achieve outcomes that would incorporate elements important to each.

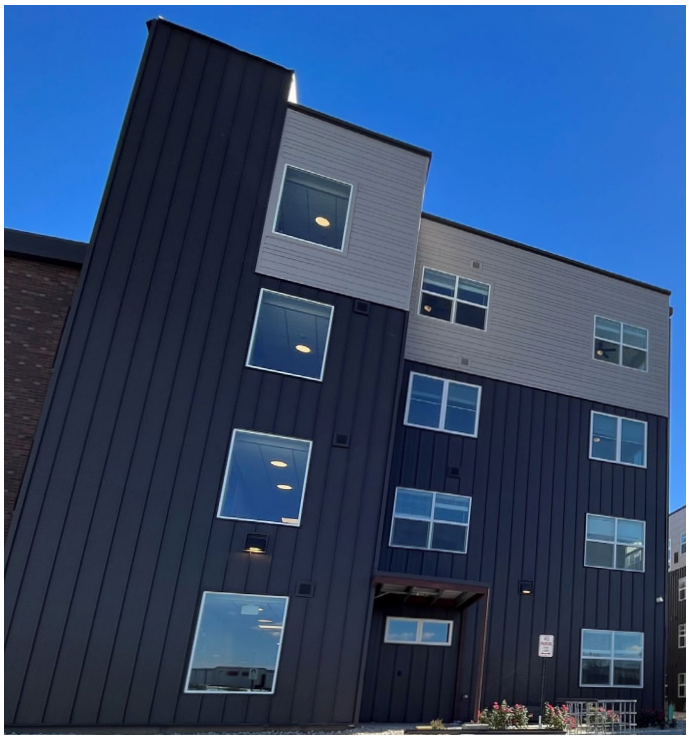
AHA has been developing all-electric buildings since 2018. The decision to pursue this strategy came from the desire to keep pace with development trends and policies, including Governor Polis' goal for the State of Colorado to achieve carbon neutrality by 2050.

The water heating, space heating, and ventilation systems utilized at Walden35 represent a strategy that prioritizes lower up-front costs, with the trade-off of higher operating costs. For instance, standard packaged systems such as the vertical terminal heat pumps (VTHPs) implemented at Walden35 have a lower equipment and installation cost compared to cold climate models or split system heat pumps, though they tend to be less efficient and less durable.

To learn more about electric space heating and cooling, visit our technical roadmap

To help offset the higher operating costs of these systems for residents, AHA has obtained a community solar subscription for the property. Walden35 utilizes a master meter for the building with electric sub meters for residents, a strategy which is considered best practice for properties employing solar. Utilizing this strategy means that the building owner is not tasked with the administrative burden of enrolling each individual resident in community solar. With nearly one year of operation at Walden35 complete, AHA reports that community solar typically saves residents $10-$20 per month on their electric bill.

To learn more about community solar, visit our technical roadmap



Financing and cost

The total development cost (TDC) of Walden35 was $37.2 million. The per unit per annum (PUPA) cost is $5,035 (2024). This is significantly lower than the Arapahoe County average of $8,572 (**CHFA Per Unit Per Annum (PUPA) Reporting**).

Like many recent developments, Walden35 was impacted by high construction and material costs due to supply chain interruptions caused by the COVID-19 pandemic. To curb some of these escalating costs, AHA signed a materials purchase contract early on to secure a lower price on materials. AHA paid up-front for the materials, and their general contractor stored them in a warehouse nearby. This was the first time AHA used this strategy to avoid cost escalation, and felt it was successful. The AHA team also noted that interest rates were favorable at the time of development, compared to more recent projects.

Successes

Walden35 has successfully addressed an urgent need for affordable housing in east Aurora with an all-electric development. This infusion of housing in the area has provided low- and middle-income residents with access to nearby jobs and retail. Additionally, AHA has utilized community solar to reduce operating costs, effectively delivering the cost-saving benefits of renewable energy to residents without developing on-site solar. Walden35 is an excellent example of a developer employing all-electric technology while prioritizing lower first-costs but finding creative ways to drive down operating costs.

Lessons learned

AHA has gleaned several important lessons throughout Walden35's development process that are relevant to multifamily affordable housing developers in Colorado.

While community solar subscriptions are a useful method for offsetting some of the operating costs associated with building electrification, it is important that developers have this conversation early in the design process, as certain electrical metering approaches may not be conducive to community solar subscriptions. AHA was able to coordinate with their community solar provider to determine the best approach for Walden35.

One of the biggest challenges faced in the development of Walden35 was a complication with the electric breakers. Just before residents moved in, AHA noticed that several of the units' breakers were being tripped by small actions, like opening the refrigerator door. AHA learned that the model of electric breakers they had used were undersized for the electrical load in each apartment, and had to be replaced quickly so that all units were in working order before residents moved in. AHA recommends that any developers considering all-electric building conduct plenty of research and energy modeling with an experienced consultant to ensure that they do not run into similar issues.

Finally, when Walden35 was developed, many of the unique funding, financing, and incentive opportunities for all-electric development that exist today were not yet available. AHA's approach prioritized lower up-front costs, often guiding them toward less efficient building systems. Today, many federal and state incentives such as the **45L Tax Credit for Zero Energy Ready Homes** are helping developers of affordable housing access higher-efficiency systems within budget. These incentive opportunities are evolving rapidly, and developers should work with their consultants and local officials to determine which are available and applicable for their buildings.

To learn more about current funding, financing, and incentive opportunities, visit the Colorado Resource Finder.

Project team

Developer	**Aurora Housing Authority**
Architect	**EJ Architecture**
General Contractor	**Palace Construction**
Structural Engineer	**Huitt - Zollars**
Civil Engineer	**Huitt - Zollars**
Mechanical, Electrical, and Plumbing (MEP) Engineer	**Given and Associates**
Energy Engineer	**Group14 Engineering**

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