

# Electrification Case Study

## Krisana Affordable Housing

Year Completed

**2024**

Average Monthly Utilities Bill

**\$65** per unit

(\$9,775 for whole building)

CO2 Emissions Saved

**3,312** metric tons\*

equivalent to 54,772 trees planted

### Background

This 151-unit affordable housing project is in the Virginia Village neighborhood in Denver. It has air-source heat pumps and heat pump water heaters for each unit. The project also includes level 2 EV charging and infrastructure for future EV charging units. While not originally designed to be an all-electric property, the developer decided to pursue it after another project required an extra \$200,000 for a gas line extension. The decision to go all-electric got stronger when the team learned about funding from the city.

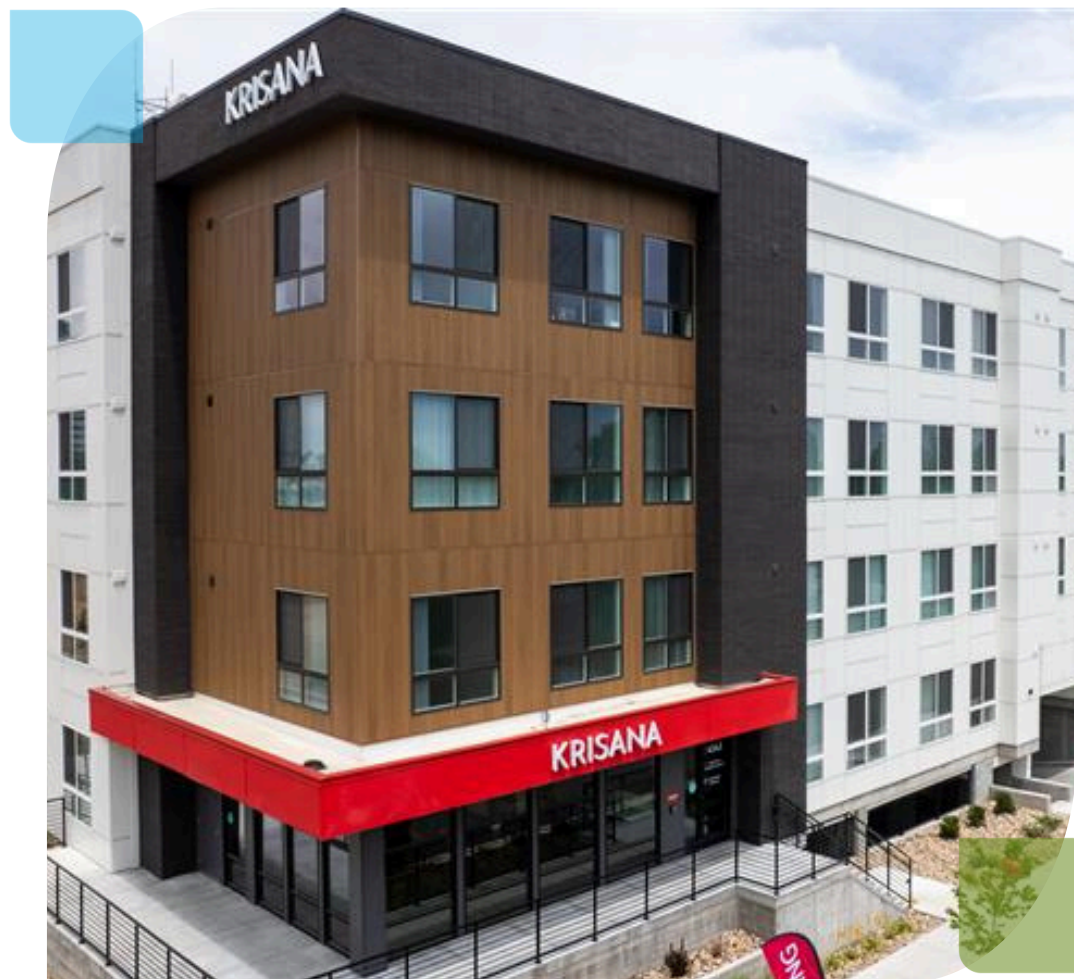
**“If you’re going to decide to [go electric], my advice would be do it from the start.”**

**- Todd Cooper, Architect**

### Lessons Learned

The decision to go all-electric mid-project ended with a successful design but the project team had some lessons learned along the way. Electrical panel sizing and meter stacking were the major adjustments that had to be made. The project also dealt with delays and extra costs due to a conflict between utility design standards and available equipment at the time. Even with those adjustments, the team was able to successfully install the necessary equipment and infrastructure to make this project happen.

*\*indicates cumulative carbon emissions saved through 2040*



### Key Takeaways

- In new construction, going all-electric from the beginning will help avoid extra hiccups throughout the process.
- Coordinating early and often with the local utility provider will help ensure infrastructure needs can be met and equipment needed is available.



## Additional Takeaways

- Clear information on available system design options, sizing, and incentives help developers in the decision-making process
- When electrifying, project teams can capitalize on savings by avoiding gas line extension work, gas piping materials and labor costs throughout the building.

## Features

### Heating/Cooling System for Each Unit

- Type: Split Air Source Heat Pump
- Outdoor Unit: ML17XP1-018 or ML17XP1-30
- Indoor Unit: First Co. 20UCX-5 or 37HXX-10
- Rating: 14.3 SEER2, 7.5 HSPF2

### Water Heating System in Each Unit

- Type: Heat Pump Water Heater
- Model #: State HPX-50-DHPTNE, 3.45 UEF

## Project Team

- **Developer/Owner:** Krisana LLLP, partnership of Lexton McDermott & Kentro Group
- **Construction:** Harmonic Construction Services
- **Architectural Firm:** Lewis Himes
- **Mechanical Engineer:** 5280 Engineering
- **Electrical Engineer:** RG Engineering Consultants Inc
- **Energy Consultant:** Energetics

## Cost Analysis

### Total Construction Costs

**Total Building Cost** ..... \$30,000,000  
**Cost/Square Foot** ..... \$242

### Upfront Cost Comparison

**Net Additional Cost for Electrification**..... \$322,378\*  
**Savings from No Gas Line Extension**..... (\$124,045)  
**Net Additional Cost per Square Foot**..... \$2.60

*\*Electrification costs include fees for expediting equipment, additional overhead costs, and labor costs due to switching to all-electric mid-project.*

### Ongoing Utility Costs

**Total Utility Costs for 1 year**..... \$117,300  
**Average Monthly Utility Bill** ..... \$9,775

**Read More  
 Electrification  
 Case Studies**



<https://bit.ly/ElectricPilots>

