

Aria Apartments

Energy Efficient by Design

Shared Vision

The 25 acre Sisters of St. Francis' Marycrest convent and campus in Northwest Denver became underutilized in the face of a dwindling membership and inability to maintain the property. In 2008, the Sisters chose to continue their legacy of charity and environmental stewardship by selling their property to the partnership of Perry Rose and Urban Ventures, who shared their visions for redevelopment of the site.

Through resourceful land use and innovative design, development plans were created for a new community to honor the Sisters' objectives and to underscore the team's commitment to creating model green communities focused on generational and socioeconomic diversity. The master plan for this mixed income community envisions 117 townhomes, 132 condominiums, 203 apartments, and 30,000 sf. of commercial space.

The development will include one acre of production gardens, integrated pedestrian and bicycle facilities, and will be located just six blocks from a commuter rail station. To date, 72 apartments and 13 townhomes have been constructed, all LEED Platinum and Energy Star certified.

Energy Efficient Buildings and Residents

The existing and future buildings include energy efficient roofing and façade materials, windows, HVAC systems, lighting, and automatic heating, cooling, and light controls. Some energy efficient features include:

- 90% efficient gas furnace
- 73% efficient water heaters
- Motion sensors in common areas
- Long lasting 13W fluorescent bulbs

A 65 kW solar panel system generates enough electricity to power the community spaces and common areas of the apartments. This system provided over 100% of the electricity used in the common areas, and is projected to payback in 10.5 years. Residents learn about the green features of their units and about behavior to minimize



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their environmental impact and utility bills. Together, Aria's energy efficient building systems, renewable energy generation, and environmentally conscious resident behavior make its buildings exceptionally energy efficient.

Aria's units were individually audited post construction through the Home Energy Rating Certificate program, and received an average score of 70, meaning that they are 30% more efficient than the average new home built to the IECC 2009 energy code.

Economy

Aria's developers and operators are triple bottom line businesses that simultaneously consider profit margins, environmental impacts, and social equity in their business decisions. Affordable housing developments like Aria utilize Low Income Housing Tax Credits (LIHTC), and must meet sustainability measures to qualify for these funds. All of Aria's green features, including its energy efficiency measures, qualified it for the LIHTC. Energy efficiency also increases the marketability of the market rate units based on buyers ethical values of environmental sustainability and the financial value of reduced future energy bills. In affordable units with capped rents, building owners and operators are susceptible to ever increasing utility expenses, and energy efficiency reduces these costs in the long term.

Equity

Perry Rose has a commitment to providing the best possible product for their residents, regardless of income level. Energy efficiency and water conservation measures provide low income people with access to advanced, efficient technology that will protect them from rising energy and water costs. In addition, many features of energy efficient design, such as day-lighting and fresh air ventilation systems, provide mental and physical health benefits to low income resident who may struggle to afford quality health care.

“Rose Companies believes that we have a moral obligation to current and future generations to design and build in an environmentally responsible manner, and to create model projects that encourage others to do the same.”

Environment

Rose Companies commitment to environmentally responsible development stems from a sense of urgency about environmental and social inequity issues. In the next 30 years, America will grow by 94 million people, and they believe developers and policy makers have a serious choice about how to accommodate this growth. Sprawl and status quo building practices will only increase the damage caused by climate change, and place increasing health and economic burdens on the poorest members of our society.

Tracking Energy Usage

Rose Companies Management uses BrightPowers Energy Score Cards (ESC) program to track energy usage at Aria and across its national portfolio. ESC is an online program that tracks energy usage on a per building and building system basis. This allows managers to compare energy efficiency between buildings, and also to understand which systems are underperforming within each building.

The program provides managers with automatic updates explaining which building systems should be prioritized for maintenance or replacement, based on estimated Return on Investment. The program is also fully integrated with Energy Star Portfolio manager, which Rose Companies uses as a reference ensure the accuracy of energy measures from ESC. Brightpower rates the Aria complex at an A, meaning it is more energy efficient than other buildings in the region.

Ongoing Management

As the Aria buildings themselves are new and extremely energy efficient, the two factors that could increase the energy usage of the property are resident behavior and deterioration of building systems. In order to prevent future energy waste, Aria’s property management team will continue to promote resident conservation of energy and water, to properly maintain, monitoring, and replacing their systems as they become less efficient.

Building Component	Standard (IECC 2009)	Aria Buildings	Improvement over Minimum Standard
Roof (R-Value Minimum)	38	43	13%
Walls (R-Value Minimum)	20	23	15%
Windows (U Factor Maximum)	48	30	38%
Refrigerator (kWh/Year)	404	383	5%
Furnace (Average Fuel Utilization Efficiency)	80%	95.50%	16%
Ducting (Max. CCF Air Leakage/100 sf)	8	2.57	68%
Lighting (% of Energy Efficiency Bulbs)	50%	100	50%

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