LUMA

CASE STUDY

LUMA

PROJECT TEAM

Owner:
Boylston Street Associates, LLC

Architect:
Weber Thompson

General Contractor:
Lease Crutcher Lewis

Structural Engineer:
Magnusson Klemencic Associates

Interior Design:
Weber Thompson

Landscape Architect:
Weber Thompson

Civil Engineer:
Magnusson Klemencic Associates

Mechanical/Plumbing Engineer:
Holaday-Parks

Electrical Engineer:
Berg Electric

Accoustical Engineer:
SSA Accoustics

Sustainability/LEED Consultant:
Rushing

Interior Lighting:
Studio Lux

PROJECT OVERVIEW

LUMA is the first high-rise condominium tower built in Seattle's First Hill neighborhood since 1982. The LEED Silver tower includes 168 luxury residences distributed over 23 stories with five levels of below-grade parking.

Sustainable design elements of the project emphasize community connections, energy and water conservation, construction waste reduction, low-emitting materials, and optimized access to views. The sustainability features of the project underscore the owner's commitment to create a healthy, safe, and beautiful home for residents.

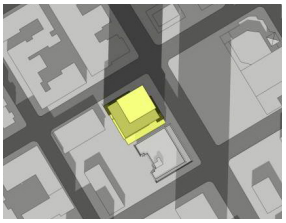
U.S. GREEN BUILDING COUNCIL
LEED SILVER
USGBC

RUSHING

LUMA

LAND USE AND SITE

LUMA rises from a tight, urban site in an area dominated by low- and mid-rise buildings. The design team was faced with the challenge of creating a high-rise tower that activated the street level and balanced neighborhood features with thoughtful consideration of safety and livability for future condo owners.



After considerable public feedback, the tower took shape as interlocking black-and-white façades that relate to solar orientation, creating a traditional form with contemporary touches. In response to the need for privacy on both sides of the small site's property line, lush and layered planting on level 2 creates a serene, verdant separation.

Adjacent to the vibrant Pike-Pine corridor and the downtown business district, LUMA's location places residents within walking distance of unique neighborhood restaurants and pharmacy, veterinary, and grocery services as well as major area employers.

The site provided an opportunity and challenge to create density while simultaneously reducing vehicle traffic and emissions. Substantial space for bicycles and connections to public transportation emphasize the commitment to reducing single-occupancy vehicle miles. The First Hill Streetcar line lies two blocks from the property, and numerous nearby bus routes provide connectivity to other parts of the city.

- Walk Score of 98
- Transit score of 96
- Bike score of 84

STRATEGIES

- 60 bike spaces provided - 18 more than required by code
- 4 electric vehicle (EV) charging stations, 5 preferred parking spaces for efficient vehicles
- Density = 84 units per acre
- Numerous services within a 1/2 mile radius including hospitals, restaurants, and a veterinarian
- Easy access to public transportation

LUMA

STRATEGIES

- Low-flow plumbing fixtures
- Drought-tolerant vegetation
- Seattle Green Factor rating of 0.5
- WeatherTRAK system used to minimize water use and reduce runoff
- Green roof
- Bioretention planters at grade

WATER

By selecting drought-tolerant plants fed by a high-efficiency drip irrigation system, the landscape design for LUMA achieved a 74% reduction in potable water usage compared to a typical irrigation system. Green roof, bioretention planters at grade, and use of WeatherTRAK controllers mitigate 100% of runoff from stormwater and irrigation.

Utilization of low-flow plumbing fixtures including sinks, toilets, and showers resulted in greater than 37% reduced annual water use. Low-flow fixtures also reduce the energy required for domestic hot water heating.

LUMA

STRATEGIES

- Low lighting power density
- 90% LED lighting
- Lighting controls (nLight) with automatic daylighting and shut-off control
- Daylighting
- Maximize glazing
- Total building performance energy model
- Split-system ACUs and water-based hydronic heat pumps
- Ducted HVAC for comfort, infiltration, and reduced stack effect

ENERGY

LUMA's heating and cooling systems operate through high-efficiency hydronic heat pumps in each residence. The benefits of this system are two-fold: energy cost savings for the HVAC system topped 24% compared against the ASHRAE 90.1-2007 Appendix G baseline design, and self-contained hydronic heat pumps do not require piped refrigerant for operation. A ducted outside air system increases operational efficiency by pre-heating 100% of the ventilation air. This allows the multi-speed heat pump fans to continuously distribute ventilation at low speed, increasing volume only to meet heating and cooling demand.

The annual projected energy costs for the building total $140,000 which corresponds to 1,675,912 kWh+25,872thm or 8,305 MMBTUs. The fuel mix is 18.4% natural gas and 81.5% electricity.

ANNUAL END-USE BREAKDOWN:

End Use	Quantity (kWh)	MMBTU
Heating	77,826+9,663 thm	1,232
Cooling	101,889	348
Lighting	309,285	1,055
Fans	222,827	760
Pumps	195,607	667
Plug loads & equip.	669,091	2,283
Vertical transport	84,253	287
Domestic HW	16,209 (thm)	1,621
Other End Use	15,134	52

PEAK POWER:

Fuel	Quantity
Electricity (Summer)	159,334 kWh
Electricity (Winter)	140,442 kWh
Natural Gas	399 MMBTU

LUMA

STRATEGIES

- Construction site waste diversion
- Recycling and composting facilities for residents
- Over 10% recycled materials
- Over 10% regional materials
- Heat Island Effect mitigated with reflective material selection
- 90% access to views
- Low-VOC specified materials
- Low-Emitting Flooring Materials (FloorScore, Carpet & Rug Institute Green Label Plus)
- Designed to meet ASHRAE thermal comfort standard

MATERIALS

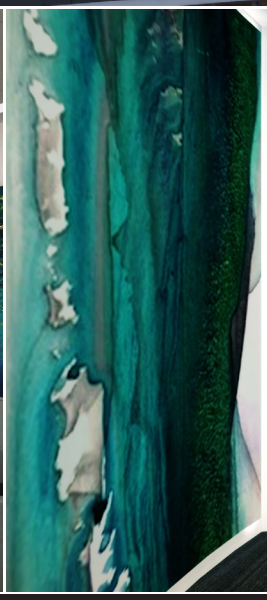
Construction waste diversion is a critical component of creating a sustainable building. Establishing the expectation that waste would be diverted from landfill in the design phase allowed for streamlined orchestration of the necessary sorting and storage facilities during construction. The project successfully prevented over 75% of all construction waste from going to a landfill.

Reducing the environmental impact of the building also included incorporation of recycled and regionally-produced materials. By limiting the energy needed to produce, extract, and process building materials, the lifecycle energy and emissions impacts of the building are also reduced.

INDOOR ENVIRONMENT

In line with the health and safety priorities established by the owner, LUMA's building materials include low-emitting adhesives and sealants, paints and coatings, and flooring systems. By using products that contain minimal levels of volatile organic compounds (VOCs) or no VOCs, the construction team ensures that residents will be healthier and enjoy clean indoor air.

As a condominium project, environmental tobacco smoke control requires compartmentalization and pressurization of the residential units. This ensures non-smoking residents will be segregated from their neighbor's pollutants and enjoy air that is free of harmful smoke and particulates.



All renderings courtesy of Weber Thompson Architecture, and Studio 216.

LUMA

For additional information, please contact the Rushing Sustainability Studio:

Alexandra Ramsden, Director
alexandrar@rushingco.com

Stefanie Young, Consultant
stefaniey@rushingco.com