JORGE MEDRANO

SUSTAINABLE DESIGN

SECOND PROJECT
GREEN BUILDINGS & LEED

The present project will look at the LEED rating system and how it evaluates buildings.

Eastern Village Cohousing Condominium

For the present project, I have chosen the case study of Eastern Village Cohousing (EVC) Condominium, located in Silver Spring, Maryland. They define themselves as a:

> *"…warm and friendly community. It is highly participatory, collaborative and eco-friendly. Each of the 56 condominium units comes with all the features you would expect in a condo. Plus the community has a large community dining hall for shared meals, community living room, kids playroom, game room, yoga room, library, workshop, hot tub, green roof & much more."*[1]

Dan Cunningham

As for their mission, EVC is committed to inclusive decision-making through consensus and the following principles:

[1] Eastern Village Cohousing: About us

- cherish and support diverse ages, ethnicities, interests, abilities, relationships and spiritual beliefs
- value ecological responsibility, sustainable design and a balance of aesthetics and affordability
- foster interconnectedness, growth, care, communication and respect among their members
- engage responsibly with their neighborhood and the wider world

Factsheet
Location: Silver Spring, MD
Building type(s): Multi-unit residential, Assembly
Renovation of a 1957 building
92,600 sq. feet (8,600 sq. meters)
Project scope: 85% of a building
Urban setting
Completed November 2004
Rating: U.S. Green Building Council LEED-NC, v2--Level: Silver (34 points)

Overview

For Buildinggreen Inc., EVC is a green building that represents a new direction in mixed-income, urban residential development. It consists of 56 residential condominium units. Residents have been involved from the beginning of the project, helping to plan and program EVC, and will participate to a high degree in the management of the community.

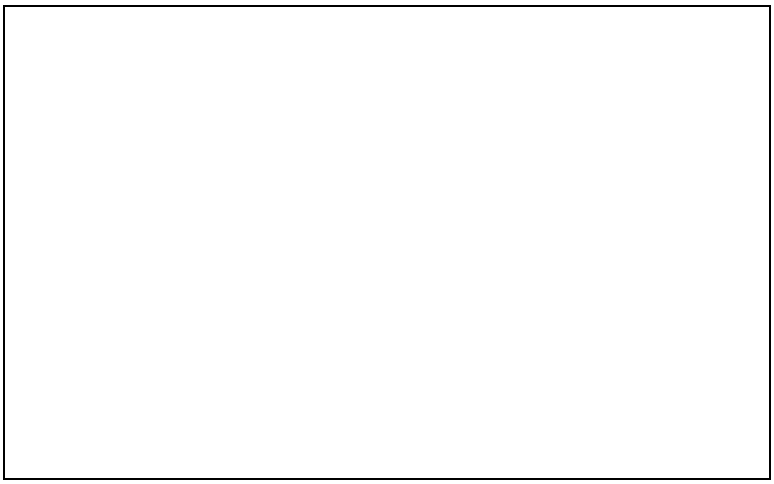
Cohousing

But, what is *cohousing*? Cohousing communities such as EVC and many others constitute small-scale neighborhoods providing balance between personal privacy and community living, where the neighbors share community activities, decision-making, work, and play. Cohousing provides personal privacy combined with the benefits of living in a community where people know and interact with their neighbors. It's about living in a way that's responsive to a world that has changed dramatically in the last fifty years, a world in which the home life has changed, women are integral in the labor force, resource limitations and environmental concerns are on the rise, and many people feel over extended.[2]

[2] Canadian Cohousing Network

Environmental features

The EVC building is an adaptive reuse of an abandoned office building originally constructed in the 1950s. The structure's courtyard had been a parking lot but is now a green space that includes benches, sculpture, a patio, and a children's play area. EVC incorporates such features as ground-source heating and cooling, low-emitting finishes, some rapidly renewable materials, and a green roof. Multifaceted commissioning was employed to ensure best practices and compliance with design requirements during the construction phase.



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Residents, many of whom contributed to the design process, actively participate in the management of the facility and grounds, including "green housekeeping" and other low-impact maintenance strategies where practical. The resident group has agreed contractually to install only Energy Star® appliances, both initially and through a replacement policy.

The LEED process

The U.S. Green Building Council's LEED® Rating System provided the primary framework for the design team to explore green building strategies best suited for the project. The U.S. Green Building Council awarded ECV LEED Silver certification in September 2005, making it the first LEED-certified cohousing structure.

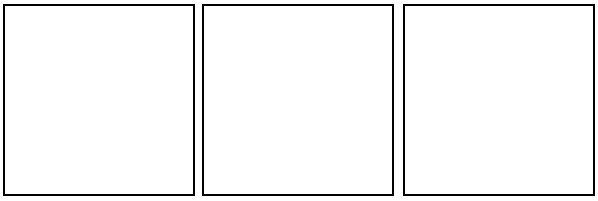
LEED can be applied to every building type and phase of a building lifecycle. Specific programs exist for:

- new commercial construction and major renovation projects

- existing building operations and maintenance
- commercial interiors projects
- core and shell development projects
- homes
- neighborhood development

USGBC is also developing LEED for Schools, LEED Retail for New Construction, and LEED for Healthcare.

Being a major renovation of a 1957 building, EVC falls into the LEED for New Construction and Major Renovations (LEED-NC) category. LEED-NC is a green building rating system that was designed to guide and distinguish high-performance commercial and institutional projects, with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types.



To achieve a LEED-NC certification, the project has to be evaluated in the following aspects:

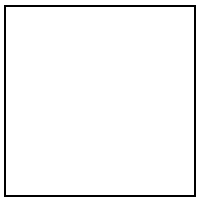
- Sustainable Sites

- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation and Design Process

In the case of EVC, this project has a Silver certification. The evaluation gives points on every aspect to a maximum of 69 points and EVC obtained 34. Those points were distributed as:

- Sustainable Sites, 8 of 14 possible points
  EVC did not get points for Brownfield Redevelopment, Alternative transportation (Alternative Fuel Refueling Stations and Parking Capacity), Reduced Site Disturbance (Protect or Restore Open Space), Stormwater Management (Treatment) and Light Pollution Reduction.

- Water Efficiency, 3 of 5 possible points
  EVC did not get points for Innovative Wastewater Technologies and Water Use Reduction (30% Reduction).



- Energy and Atmosphere, 10 of 17 possible points
  EVC did not get points for Renewable Energy, Additional Commissioning, Ozone Depletion and Measurement & Verification.

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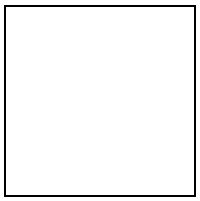
- Materials and Resources, 5 of 13 possible points
  EVC did not comply for Building Reuse (Maintain 100% Shell & 50% Non-Shell), Construction Waste Management (Divert 75%), Resource Reuse, Recycled Content (Specify 50%), Local/Regional Materials (20% Manufactured Locally, 2.5% Harvested Locally) and Certified Wood.

- Indoor Environmental Quality, 4 of 15 possible points
  EVC did not get points for Carbon Dioxide (CO_2) Monitoring, Increase Ventilation Effectiveness, Construction IAQ Management Plan, Low-Emitting Materials (Composite Wood), Indoor Chemical & Pollutant Source Control, Controllability of Systems (Perimeter and Non-Perimeter), Thermal Comfort (Comply with ASHRAE 55-1992 and Permanent Monitoring System) and Daylight & Views (Daylight 75% of Spaces)

- Innovation and Design Process, 4 of 5 possible points
  EVC only failed in getting a point in a specific title for Innovation in Design.



Conclusion

Even though it looks like EVC failed overall, it is not that way. To get a higher LEED certification is really difficult and requires much more investment. For instance, CO_2 and Indoor Chemical & Pollutant Source Control monitoring systems are expensive to buy and maintain. That is the reason why only big corporations and buildings have them. Moreover, EVC community can consider themselves as pioneers, since this is the first LEED-certified cohousing structure and is setting up a standard for new cohousing projects.

One thing that can be discussed is that LEED sets up a standard that should be applied universally. According to the book *Cradle to Cradle*, universal designs or solutions cannot be applied everywhere. Take for example this same cohousing project and place it in Lima, Peru. Is a big city, the building can be easily located to public transportation and comply with a lot of the aspects for a LEED certification. However, rain is almost inexistent there and this building would have been losing points for stormwater management. Or it could be the case that is located in Brasilia and could be getting extra points for being close to an alternative fuel refueling station, since ethanol is almost the standard fuel in Brazil.

References

1. U.S. Green Building Council. LEED certified project case study. http://leedcasestudies.usgbc.org/overview.cfm?ProjectID=404

2. Canadian Cohousing Network (http://www.cohousing.ca/whatis.htm)

3. A Comparative Analysis of Green Builidngs in the Boston area, Environmental Management 1. http://courses.dce.harvard.edu/~environment/em1_01_12_05/leed-presentation/index.html

4. U.S. Department of Energy. Energy efficiency and Renewable energy. http://www.eere.energy.gov/buildings/database/energy.cfm?ProjectID=404

5. Eastern Village Cohousing http://www.easternvillage.org/index.html

6. LEED Rating system ver. 2.0 June 2001