

Clackamas Community Land Trust's SE Phillips Creek



SE Phillips Creek

Clackamas Community Land Trust (CCLT), established in 1999, is the only non-profit organization working to develop affordable homeownership and educational opportunities for low-income families in Clackamas County in the Portland Metro region. It operates through a land trust model whereby CCLT holds title to the land underneath the houses, leases the land to homeowners for a nominal fee, and gives the homeowner the right to use the land and own a house on it. This model not only provides homeownership opportunities to those who might not otherwise be able to afford it, but it also ensures that the houses on the land remain affordable. To date, CCLT has developed 28 homes, and SE Phillips Creek was the first development since CCLT announced its deep commitment to sustainability; it was also the largest development by CCLT to date. CCLT built SE Phillips Creek with significant environmental goals in mind, but the project equally incorporated economic and social capital goals to build an affordable, supportive, healthy and enjoyable community.

Greening Goals:

Greening goals were to build homes that adhere to CCLT's sustainable construction guidelines, which include reducing the negative impact of the development on the surrounding ecosystem and the watershed, minimizing harm and intrusion to the site, developing the houses near retail and commercial centers with access to transit, and creating homes that are both healthy for occupants and environmentally responsible. The project set specific goals along the way such as recycling at least 80% of the construction waste.

Integrated Design Process:

The development team worked together to achieve "whole building" integration, whereby various systems and choices were planned from the perspective of the development as a whole. The use of an integrated design process helped reduce cost overruns because the team minimized unknowns in the development process. Furthermore, the design team used an Earth Advantage (EA) certification process to provide independent documentation of its green achievements.

Project at a Glance

Location: Milwaukie, OR

Project Type: New Construction

Ownership/Rental: Ownership

Size:

14 units (2-3 BR, 780-1,077 sq. ft. each)

1.25 acre site, 11 units/acre

Project Completion Date:

April 5, 2005

Affordability:

All units are for residents earning 80% or less of the Area Median Income (AMI)

Project Team:

Developer: *Clackamas Community Land Trust (CCLT)*

Architect: *Merrill Architects*

Contractor: *Glen/Mar Construction*

Development Cost:

Land cost: \$265,000

Construction costs: \$1,086,665

Soft costs: \$343,946

Infrastructure costs: \$649,512

Total: \$2,345,123

Cost/Savings of Greening:

Documented increased Cost of

Greening: \$82,350

Rebates and Grants: \$10,500

Net Cost of Greening: \$71,850

Standards Used: Earth Advantage Homes

Key Green Features:

- Community land trust leasing system to ensure affordability over the long term
- Advanced framing techniques
- Hazardous waste clean-up prior to the start of construction
- Recycled and natural materials
- Bio-swales planted with native plants
- Grass pavers and soakage trenches to reduce runoff and preserve surrounding ecosystem
- Open space common area
- Variety of public transit options
- Energy Star appliances
- Efficient HVAC system
- Healthy indoor air

Green Features

Site Design/Landscape Planning:

A primary goal of the development team was to select a site that would minimize intrusion into the surrounding ecosystem. After a site was selected, a two-phase environmental and geotechnical review confirmed the site's suitability. A hazardous waste assessment, however, indicated that a large-scale hazardous waste clean-up was necessary. In executing the clean-up, the team surpassed standards for human safety and made sure that the site passed ecological safety standards as well.

The development team kept a newly created road as small as possible, and the road drains to a bio-swale, which is planted with native plants. A tree preservation plan conserved existing vegetation on site. The project was not created at maximum density in order to include a large green space for the families to share. This area was sited away from the main street to protect safety and privacy. The open space serves as a children's play area, recreation space and community gathering spot as well as a mature habitat for wildlife.

The buildings are oriented to the south to optimize solar gain, with additional glazing on southern facades. Overhangs and porches shade the windows in the summer.

Location and Linkages:

The development is within walking distance of a large grocery store, schools, and the Clackamas Town Center, home

to many retail and commercial establishments. It is also on four bus lines, and the regional light rail system is planning to expand to serve the Clackamas Town Center. This would directly connect residents to downtown Portland, the airport, and many other communities.

Building Design Greening:

Energy: The SE Phillips Creek homes are modest in size. The exterior envelopes were sealed to standards set by Earth Advantage, a not-for-profit leader in the sustainable building industry in the Northwest, and tested with blower door and duct blast tests. Each home's heating system is a forced air gas furnace with 80% efficiency and operates on a timer. Heating ducts are sealed and wrapped with R-8 insulation. The water heater is gas, with 93% efficiency. The windows in the homes are vinyl, insulated, argon filled and low emmissivity, with a u-rating of .35. The kitchen appliances are Energy Star, the lighting is compact fluorescent and the exterior light is on a photo-cell light sensor timer. In addition, extended eaves and mature trees provide shading in the summer, reducing energy use for cooling.

Indoor Environmental Air Quality: While the homes are tightly sealed to promote energy efficiency, proper ventilation ensures that they have superior indoor environmental air quality. The kitchen fan vents to the outside to remove moist air, and the forced air heating system facilitates air movement. The whole house fan operates on a timer, and one window in each room has an integral window vent to manage air flow. All floors are wood instead of carpeting or vinyl to prevent off-gassing of VOCs and the accumulation of allergens such as dust, mold and mildew. A dehumidifier which connects to the washing machine drain also helps to prevent moist air in the homes.

Resource Conservation/Materials: The development team adhered to a waste



recycling plan with a goal to recycle 80% of construction waste in order to comply with the Earth Advantage program. The project site had separate containers for different materials, and an on-site supervisor enforced adherence to the plan.

A number of materials were selected with an eye towards minimizing material use and waste. Advanced framing techniques facilitated the efficient use of lumber, the trusses and joists were engineered wood and hardwood floors were on an engineered wood base. In addition, a number of the materials had recycled content: gypsum wallboard with a minimum of 12% recycled content, exterior paint with recycled latex, concrete made with 25% fly ash and rebar with 50% minimum re-melt steel. Natural content products included linoleum flooring in the kitchen and bathroom, some natural cork flooring, solid pine stair treads and solid wood cabinets.

Water Conservation: The development's namesake, SE Phillips Creek, comes from the name of the surrounding watershed, and the stormwater system was designed specifically to reduce the impact on the watershed. Thus, the project team designed a stormwater management system to keep as much runoff as possible out of the public stormwater system. The design incorporates grass pavers in the driveways, soakage trenches behind the homes so that roof runoff can recharge groundwater, preservation of trees on site and bio-swales planted with native plants to manage

Measurable Benefits

- Surpasses requirements of the Oregon Energy Code by 15%
- Recycled 80% of construction waste
- Cleaned the project site to standards eight times stricter than those required for humans by the Oregon Department of Environmental Quality

Green Features

runoff from the project's road. In addition, the graded road was made as narrow as possible to reduce the amount of impervious surface.

Significant efforts were also made to reduce the use of water consumed by the development. The landscape design has no irrigation system, as most of the plants are native to the area. The homes have low-flow toilets, front-loading washers and no garbage disposals in the kitchens.

Commissioning: Earth Advantage tested the ductwork and the HVAC systems, ensuring that they operated properly and that there was both minimal leakage from the units as well as proper ventilation.



Operations and Maintenance: Each homeowner pays into a reserve fund to finance the replacement of the siding, roofs, street and sidewalk as well as to maintain the common area and bio-swale. Contributing a small amount each month enables homeowners to build up the necessary reserve for more significant repairs. Because each homeowner is responsible for repairs on individual units, the Homeowner Services Committee trains homeowners on maintenance techniques.

Resident Education: Upon purchasing a home, each owner received a brochure describing the green features of the home. They also receive operating manuals for the appliances and heating system in their home, as well as information on how to care for the hardwood and linoleum floors. In early 2006, CCLT initiated a



Homeowner Services Committee to evaluate residents' need for maintenance and repair training. The committee was highly successful in interacting with residents and will continue to provide further training for homeowners on maintenance issues in the future.

Project Financing: Almost one-third of the project was financed by HOME funds (HUD). Modest financial and in-kind support was also received from an anonymous foundation, local County funds, and CCLT operating funds. The remainder (almost two-thirds of the total project cost) was funded as a bank loan that was repaid with the proceeds from the sales of the homes.

Cost of Greening:

The overall cost of greening the project was about \$82,350 (\$5,882 per unit) or 3.5% of the total development cost. Some of the green elements added no cost, some created savings, and some were particularly costly, including hardwood floors and linoleum instead of vinyl and carpet. The estimated increased cost of the flooring was \$40,000 or more. However, the homes remain affordable as homeowners enjoy lower operating costs than they did prior to moving into SE Phillips Creek.

Sources of Funding/Rebates:

An anonymous Foundation provided \$10,500 to cover some of the costs of greening.

Life-Cycle Cost Analysis:

CCLT has not done a formal LCC analysis, but expressed interest in doing so in

the future. Because they manage the resale of the homes, CCLT will be able to monitor the durability of the materials.

Occupant Satisfaction:

"CCLT really needs to be commended on what they've done for everyone, including building... 'green' households in a situation where they will be passed on to others who will love them as much as we do now. CCLT is an example for others to follow for responsibly built development."

—SE Phillips Creek Homeowner

Green Highlights

- Adheres to Earth Advantage certification system
- Energy Star appliances
- Low-e, argon-filled, insulated windows (u value of .35)
- 93% efficient water heater
- 80% efficient heating system
- Exceeds standards set by Oregon Energy Code
- Insulation values range from R-21 for exterior walls to R-38 for attic
- Bio-swales to reduce runoff
- Groundwater recharged with roof runoff and grass pavers
- Lighting fixtures hardwired for compact fluorescents
- Photo-light sensor for outdoor light
- Exterior-vented kitchen fan
- No carpeting to prevent off-gassing of harmful chemicals
- Use of recycled-content materials
- Use of native plants for landscaping; no irrigation system
- Low-flow toilets and front-loading washers
- Advanced framing techniques
- Engineered wood trusses



Looking Ahead

Challenges:

SE Phillips Creek was the first development in the county's newly designated high density zone, and was also the first to manage its own stormwater on-site. Coupled with the fact that the site had undetected hazardous waste (discovered after the subdivision was started) these issues posed challenges for the development team. Nevertheless, CCLT maintained a strong commitment to the sustainable aspects of the project and overcame the challenges. It was able to gather in-kind and financial support from the county, waste hauler, and lawyers in order to clean up the site and continue with the project.

In addition, the building permits took six months longer than expected, and the delay meant that the contractor was paid for extended time, and the cost of materials increased. The delays resulted in a dispute between CCLT and the primary contractor, which was ultimately resolved through arbitration. Despite the delays and budget revisions, green features were not abandoned.

Partnerships:

CCLT formed many critical partnerships in the development of SE Phillips Creek. Its work with Earth Advantage was instrumental in helping to achieve sustainability goals, namely those relating to energy efficiency, healthy indoor air quality, resource efficiency and environmental responsibility. In addition, CCLT worked closely with the Oregon Department of Environmental Quality in the clean-up of the project site and with the AmeriCorps program, which contributed a Vista volunteer to the project. In general, CCLT has made clear that a team approach is critical for achieving commitments to sustainability.

Policy/Practice Implications:

CCLT has proved to be a leader in both green design and ensuring long-lasting affordability of homes. It is continuously learning from its experience in order to inform future projects of its own and to share lessons with others around the country. Lessons learned from SE Phillips Creek in particular include the importance of setting aside funds for contingency plans, communicating with potential buyers to solicit their opinions, keeping all parties informed throughout all stages of the project, and remaining committed to sustainability.

"The Southeast Phillips Creek Project is an excellent example of utilizing the land trust model in a dense affordable housing development. Not only were all of the units sold to residents earning less than 80% AMI, the units will remain affordable in perpetuity. The relatively small size of the units themselves adds to their overall operating efficiency, and the project's attention to minimizing stormwater runoff is impressive."

-Member, Awards Advisory Committee

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