LEED Gold Certification for a New and Not-so-new Complex

LEED certification (Leadership in Energy and Environmental Design) represents a goal of "building green" to reduce the carbon footprint of a building – whether business or residential. Statistics at the US Green Building Council web site (www.usgbc.org) state that in this country, buildings represent 70% of electricity consumption, 39% of energy use and 39% of carbon dioxide emissions. A LEED-certified facility is one, either existing or newly constructed, that meets specific standards designed to minimize or offset the building's environmental impact.

Construction in progress on the First Unitarian Church of Portland's LEED-certified building.

Interest in green building had been steadily rising over the last decade but the more recent, dramatic rise in energy costs and the growing recognition of just how serious our planet is being compromised by pollution have seen this interest rise accordingly. Attendance at last year's GreenBuild International Conference & Expo was up over 70% from the previous year. A study done by US/UK commercial real estate information company, CoStar, found that "sustainable 'green' buildings outperform their non-green peer assets in key areas such as occupancy, sale price and rental rates, sometimes by a wide margin." It is no wonder then that companies and organizations seeking to be both socially responsible and fiscally prudent are incorporating LEED principles into their renovations and new constructions.

Some have been on board for a while though, and one such organization is the First Unitarian Church in Portland, Oregon.

In 1998, the First Unitarian Church was looking for ways to update and unify the buildings that comprised their complex located on an entire city block. The goal was to build a new structure that integrated the existing buildings, the main sanctuary, the administrative offices building and the Elliot Chapel, so that access to all components was available through the whole complex. The design needed to be seamless and elegant, and had to include classrooms, meeting spaces, a reception area and an outdoor courtyard.

Incorporated with the design goal was the additional desire to make the construction as environmentally friendly as possible, both from an occupant standpoint and an efficiency one, so applying LEED standards was a natural path. In addition to an emphasis on energy-use reduction, the standards also consider water consumption, indoor air quality and recycling.

There were several issues to consider for the project, site constraints and budget concerns among them. While the three buildings were all at the same ground-level elevation, each had different ceiling heights which required the design to include a staircase with several landings and an elevator with doors on both sides and multiple, staggered stops.

Remarkably, 97% of all materials from the deconstruction of the existing buildings were either recycled or diverted from landfill.

After sending out a Request for Qualifications to area architects, the church enlisted Thomas Hacker Architects for the long-term project. P&C Construction worked on implementing the plans and broke ground in June of 2006. Gardner Grice, the church's building manager and a graduate of the BOC program, coordinated with the architects and building contractors to work towards a high green standard and LEED certification. He credits BOC training with enabling him to knowledgeably interact with the various contractors associated with the multi-faceted project.

Remarkably, 97% of all materials from the deconstruction of the existing buildings were either recycled or diverted from landfill. Wood waste was composted and used for landscaping. Windows, flooring and doors, perfectly usable but inappropriate for the re-design, were sold.

For rebuilding, as much as possible, regionally-available materials were used, with CMUs (cement masonry units) and bricks all locally made. The use of recyclables was also extensive. Old cotton clothing

(blue jeans!), treated with borax so that it is both insect repellent and non-flammable, was used for insulation, and countertops were made with PaperStone, which is designed from recycled waste paper. To improve indoor air quality, no- or low-VOCs (volatile organic compounds) were used as adhesives, sealants, paints and in furnishings. Marmoleum, flooring made from natural materials and VOC-free, was used throughout the new and renovated structure and installed with solvent-free adhesives.

Lighting concerns were addressed in a number of ways: low-E glazing for all windows to maximize natural light, daylight sensors to set light level according to need, and occupancy sensors to shut off lights automatically when people just plain forget. For heating and cooling issues, a high-reflective roof was installed to prevent the "heat island effect" (when the usual black roof pulls in heat) and the HVAC system was CFC/HCFC-free. To reduce water use, low-flow plumbing fixtures were installed. Courtyard planters were set up as bioswales to treat stormwater runoff.

The new structure has added 20,000 square feet to its city block location, including 2,600 square feet for a reception area adjacent to a beautiful courtyard with native plantings. The setup accommodates a variety of functions from workshops to wedding receptions.

Meeting areas and classrooms were an essential part of the design requirements.

In September 2007, almost ten years after the seed idea to expand, and after lots of hard work and thoughtful planning, the new complex was dedicated and received a LEED Gold certification, the second-highest rating for excellence in energy efficiency under the US Green Building Council system. Now the challenge is to keep the complex running to the best of its "green" capacity.

Light and open areas make the facility warm and welcoming.

While it is still too early for year-over-year comparisons on specific energy and financial savings, the foundation has been laid. Though obviously a happy consequence, LEED certification for a building involves more than energy efficiency. Although knowing that the resulting facility is approximately 30% better than code is certainly a plus, the enhanced physical environment contributes to comfort and health and thus the quality of life for occupants.

There is still a long way to go, but the increased interest and participation are promising, as materials and processes improve and become the norm. Certainly for the First Unitarian Church of Portland, the experience has been a profitable one – from perspectives beyond just the financial.