



The Commons, Sutherland and Crawford Houses Vanderbilt University

- E. Baird Dixon, AIA, LEED-AP, Principal Architect

On January 25th, 2007, the planning team for the Vanderbilt University Commons presented this ongoing project to the Middle Tennessee Chapter, United States Green Building Council. Key points of this panel discussion centered on the environmentally sustainable features of the project, with an emphasis on the need for a quality team, effective communications, and a commitment to sustainable building principles from all involved. Participants in the presentation were Tony Fort, Vanderbilt University Campus Planning and Construction (Owner's Representative); Baird Dixon, Street Dixon Rick Architecture (Architect); Dan Barge, Barge Cauthen and Associates (Civil Engineer); Stephen Clinton, Smith Seckman Reid, Inc. (Mechanical and Electrical Engineering); Paul McCown, SSRcx, Inc. (LEED Consultant); and Joe Braden, American Constructors, Inc. (Contractor).

The following is a description of some of the primary sustainable design features of the Commons. This project has been submitted to the USGBC and is anticipated to receive LEED certification later this year. Currently the Commons is the largest LEED-registered project in the State of Tennessee.

Introduction

The Commons is a phased construction project representing Vanderbilt University's first key step toward a residential college system of living and learning for its undergraduate students. When this project is complete, all 1,600 Vanderbilt freshmen will live together in a cohesive community that offers instructional learning in the residential houses, senior faculty living on site in a community of scholars, and numerous social and community service activities for students outside the classroom. The project submitted here consists of two new residential houses. Ultimately there will be five new houses, five renovated existing houses, a dining center, numerous support facilities and an entirely new campus utility infrastructure.

It is interesting to note that when this project commenced in 2004, Vanderbilt students were among the most passionate about the need to strengthen the university's sustainability efforts. Accordingly, this project is

the first to seek LEED certification on the Vanderbilt campus. It has also propelled the university administration to incorporate LEED certification as the standard for future campus projects, wherever feasible.



The Site

The site is on the George Peabody campus of Vanderbilt, which was planned in 1905 by Stanford White of McKim, Meade, and White and modeled after Thomas Jefferson's Lawn at the University of Virginia. The original Peabody campus is a consistent architectural fabric of neoclassical structures, for the most part built between 1915 and 1930. The Commons is an extension of this Jeffersonian fabric to the east, and includes new structures organized around open quadrangles in a formal manner similar to the existing campus. To make way for this campus extension, two 1950's and 1970's student housing complexes and a significant amount of surface asphalt parking were removed, and drives and parking have been pushed to the perimeter. The resulting site represents a significant addition of green space for members of both the university community and the community at large. In addition, new outdoor walkways through these green areas are provided to provide pedestrian links to the existing grid-work of city streets, thus making this urban site an even more viable link to the existing nearby bus transit system. Dedicated bike storage facilities are also provided, offering another means of alternative transportation. A significant portion of the demolition materials and construction waste was also recycled and thereby diverted from landfills.

Promotion of healthy living for residents

A major goal of the university was to provide a healthy living environment for all residents of the Commons. To that end, con-

scious systems and material choices were made during the design stage to promote an atmosphere of good health and human comfort. Some of these choices are as follows:

- Individual heating and cooling controls are provided within all living units.
- A system providing positive fresh air ventilation, exceeding minimal code requirements, has been provided throughout.
- Typical building geometries afford all floor levels with a maximum perimeter orientation. All occupied spaces are provided with access to natural light. Daylight is introduced deep into the building interior wherever feasible, and access to exterior views is provided throughout.
- In addition to mechanical ventilation systems, all occupied spaces are provided with operable windows for fresh air.
- Interior materials with low VOC ratings- including carpets, paints, sealants, wall coverings and adhesives- have been chosen to promote healthy indoor air quality. Formaldehyde-containing products have been excluded.
- Vanderbilt University currently maintains a strict no-smoking policy throughout the campus.

Traditional context, together with innovative features

A primary mandate of the university was that any new structures fit as seamlessly as possible within the powerful historic context of the Peabody campus. A cursory review indicates that these are, indeed, very traditional buildings. Within this context, however, the planning team sought to make common-sense choices for all materials and systems that furthered the sustainability of the overall project. Following are a few examples:

- Exterior brick and stone were meticulously crafted to match as closely as possible the adjacent 1920's Peabody buildings. To that end, multiple sample panels were built that examined color, texture, tooling of mortar joints, joint pattern, and the like. An additional key factor was the selection of brick mate-



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continued

rials within close range of the project site, reducing the need for cross-country transport.

- Pervious paving has been provided at perimeter parking bays to reduce storm water runoff on the site and to minimize the impact on city municipal water systems.
- The roofs of all new buildings are designed to be reflective, thus reducing the heat-island effect and reducing building cooling loads.
- All plumbing fixtures have been designed to minimize water usage. Low-flow shower heads, lavatory faucets, and toilets are used throughout.
- In student rooms, dual-stage lighting controls are provided to reduce illumination levels.
- The design team looked for opportunities to educate residents on the buildings' sustainability features. For example, common study areas are outfitted with

bamboo flooring, and main entrance lobbies are provided with terrazzo flooring containing recycled glass. Linoleum flooring, a natural product containing no petro-chemicals, will be provided in student rooms of the three houses currently under construction.

Conclusion

The Commons project has been a fulfilling one for all involved. Recently, several project team members remarked that many of the sustainable elements of the LEED submission process are either systems or work processes that were already considered standards for all Vanderbilt campus projects. What is perhaps new is the intentional effort required throughout the planning process to consider the design as part of a cohesive whole. There is a renewed effort to consider the direct consequences of various design decisions on the health of building occupants, and ultimately the long-term viability of the planet. These sobering



facts remind all us design professionals of the heavy responsibility we bear in our noble calling. We are all grateful and proud to have participated in the creation of the Commons at Vanderbilt University.



A New Generation of Partners - Laurie Parker, NES



Rows of solar panels line the roof of Street Dixon Rick Architecture at 107 Kenner Avenue

The rooftop of Street Dixon Rick Architecture on Kenner Avenue in Nashville is drawing lots of attention... and sunlight. They've just installed 72 photovoltaic solar panels on top of their building.

Why'd they do it? The firm's co-owner, Steve Rick says, "We've been telling our customers all along to 'think green', and we felt like it was time for us to do the same."

Street Dixon Rick Architecture is the first business in Nashville to become a Generation Partner, a program offered through the Tennessee Valley Authority (TVA) and Nashville Electric Service (NES). Generation Partners provides support and incentives to homes or businesses for the installation of solar and wind generating facilities. Customers produce their own green energy and sell it back to TVA. Fifteen cents for every kilowatt-hour of power generated is then credited to their account.

The upfront cost to buy and install a photovoltaic system isn't cheap. Small installations can run anywhere from \$8,000 to \$20,000. The project at Street Dixon Rick was anything but small. It has the potential to generate 12 kilowatts per hour (kWh) of green energy. The architecture firm worked with Steve Johnson of Lightwave Electric, a local designer/installer of solar power systems.

Rick says, "We wouldn't have been able to do it without taking advantage of the Tennessee Clean Energy Technology grant program. They will pay up to 40-percent of a clean energy technology system. Being a Generation Partner only increases the benefit. We know this will pay off in a reasonable amount of time."

Rick encourages other businesses to move forward with environmentally-friendly initiatives. Some of the equipment took a long time to order and there have been a few weather delays, but he says overall it has been an easy process.

To learn more, visit www.nespower.com/generation_partners.aspx or www.gpsgenpartners.com.

Editor's note: NES has provided schematics of a few typical installations on the following page.