



2012 USGBC Central Florida Chapter LEEDership Awards Outstanding Green Building of the Year: Valencia College, Lake Nona Campus

Valencia College's fifth campus—the first new campus in 15 years—is in Southeast Orlando in the Lake Nona Medical City area. The three-story, 82,280 square foot building is first of four proposed buildings for the 23-acre campus, adjacent to Lake Nona High School. Designed by Schenkel Shultz Architecture and built by CPPI Construction, the \$21.7 million project includes classroom and support spaces, student services, bookstore, café, library, offices, biology and chemistry labs. Sitting areas throughout encourage studying in groups, socializing, or enjoying the third-floor view of Lake Whipoorwill. The building and new campus opened August 27, 2012 for the fall school term.

Design: This is Valencia College's fourth building since its 2006 commitment to construct all new buildings to LEED standards. The specific reason the college chose to certify this building under Green Globes (from the Green Building Initiative) instead of LEED was because the USGBC would not recognize bipolar ionization as contributing to Indoor Air Quality (IAQ). While educational facilities are required under LEED to bring in high amounts of outside air, conditioning this outside air adds significantly to energy load in warm humid climates. Bipolar ionization is a method to treat air within the building that saves a significant amount of energy.

Working through the certification process, the college learned that certification under Green Globes cost approximately half of that for LEED certification. Schenkel Shultz Architecture managed the certification process as part of its contract. The certification level achieved was Three Green Globes (roughly equivalent to LEED Gold).

The project's goals were to create a highly attractive as well as healthy environment for student learning, particularly in the math and sciences. The design, organized around a courtyard, gives all offices, classrooms, and study areas direct views to outside. There is basically no space in the building where one cannot see the outside. At the same time the college sought an energy efficient building with low operations and maintenance costs.

Energy: A green design facilitation process was used to support green design integration. As for all of Valencia College's new buildings, the design team was requested to emphasize the energy efficiency aspects of the green design. This started with a high efficiency chiller plant and other HVAC components as well as daylight harvesting and lighting control systems.

The floor area was optimized to efficiently fulfill the building's functional and spatial requirements, including circulation and services, while minimizing the amount of space to be heated or cooled. Windows are insulated and have low-e coating. They also have exterior shading devices that mitigate direct sunlight, as well as solar shades on the interior that occupants control.

Projected energy savings as a percentage compared to the reference base building are 27%, with the annual energy use projected to be 2,568,600 kBtu. Kilograms of CO₂ emissions avoided are 205,488. Fundamental and Advanced Commissioning were specified and carried out.

Site and Water: The 23-acre site on Narcoosee Road when purchased by the college was a treeless greenfield (pasture). The stormwater control plan achieves a 25% decrease in runoff. Runoff from the roof is directed to pervious areas.

Reflective (high albedo) materials were used for the roof: The slope portions are metal and flat portions modified bitumen with high SRI rating over 78. High albedo concrete was used around the building. The building's exterior materials are durable brick that will not require painting, with some metal panels.

Landscaping goals were to achieve a woody feel for the courtyards and exterior, while water use efficiency goals included choice of landscape plants to be able to withstand extreme local weather conditions. The water-efficient irrigation system is intended for establishment and drought only. Turfgrass installed is drought-tolerant Bahia grass, as in all Valencia College campuses.

Indoor water use efficiency was achieved through high efficiency fixtures installed throughout, including dual flush toilets and pint flush urinals. The most dramatic water use efficiency comes from the ZeroTek water treatment for the cooling tower system. Where traditional water treatment provides 3 to 4 cycles of concentration, the cooling towers at Lake Nona average 50 to 60 cycles while protecting and maintaining the performance of the equipment.

Materials and Recycling: The palette of materials was chosen to be low maintenance. High traffic floor areas are smooth and non-porous, requiring less cleaning. The terrazzo floors, which incorporate recycled crushed stone and glass in an epoxy resinous material, both fit the low maintenance requirement and are attractive.

Construction waste was a total of 183.28 tons with 85% (153.89 tons) recycled. Building materials with recycled content were used in construction, including steel, cabinetry, and wall board. As on all of the Valencia College campuses, waste handling and storage facilities for recycling of plastic, metal, paper and cardboard are in place. Paper recycling receptacles are in every classroom and office suite.

IAQ: Air quality is important to the college, and the Lake Nona campus, like all Valencia College campuses since August 2012, prohibits smoking. The college developed and implemented a Green Housekeeping program as early as 2006 and applies it to this building, as for all areas of the college. This involves trained staff and use of non-toxic cleaning materials. Walk off mats are in place.

All indoor composite wood and agrifiber materials contain no added urea-formaldehyde. All indoor adhesive and sealant products comply with the VOC limits; all indoor paint and coating products comply with the low VOC limits of Green Seal and SCAQMD standards. Carpeting complies with the testing and product requirements of the CRI Green Label Plus Program. Carpet tile that does not require adhesives is used.

The design team developed and implemented a construction IAQ Management Plan that followed the referenced guidelines, with MERV 8 filtration media in place during construction. MERV 14 filtration media were installed in all HVAC systems prior to occupancy. To avoid re-entrainment, air intakes and outlets were positioned at least 30 ft. apart, with inlets not downwind of outlets. Janitor's closets, bathrooms, and all labs have fume hoods providing a direct means of exhaust.

Ventilation is at the rate of 5 cubic feet per minute per person, with effectiveness achieved through bipolar ionization technology. CO₂ concentrations are monitored within all densely occupied spaces, and an increase of outside air is introduced when conditions exceed the set point.

Lake Nona Campus Executive Dean Michael Bosley and his team were pleased to welcome almost 1,800 students this August. Of the green features of the building, he is most excited about the Daylighting and points out that there are many days that they do not even need lights. "Our students move through our spacious hallways lit with the beauty of natural light. Our classrooms are designed to take advantage of the exceptional Florida weather. The flexibility and innovated design of our green building are noted each and every day by the excited students and dedicated faculty members. The synergy that is created in our building is created by exceptional effort in design!"



Photos: Top, Lake Nona Campus entrance; Bottom, Courtyard.



Photos: Top, Stairway second floor; Middle, Second floor breezeway; Lower: Study spaces



Photos: Top, Tour of high efficiency chiller and cooling tower; Middle, Tour of hallways near classrooms, with recycle bins, and Daylighting; Bottom, visit to library and bathroom with shower for use by bicyclists.