

Warren Wilson College - Orr Cottage



Type of Construction: New
Date of Completion: July 2005
Building Size: 6,850 sq ft
Major Funding: WWC
Certification: LEED-Gold
Location: Swannanoa, NC

“Our students come here planning to save the world. We have to do our part to live up to that goal.”- Larry Modlin, Vice President and Chief Financial Officer of WWC

Warren Wilson College's (WWC) Admissions and College Relations Building was named in honor of Doug and Darcy Orr as Doug Orr was president of the college from 1991-2006. Steve Farrell, LEED AP, of Stephen Smith Farrell Architecture designed this building that also houses Alumni Relations, Church Relations, Publications, and the Web Crew. Some of the most notable features of the building are that Warren Wilson contracted, built, and owns this LEED-Gold Certified building.

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The construction of this building has set an important precedence for the college as the first project to involve students through every step of development. According to Paul Braese, Director of Facilities Management and Technical Services, the beauty of the newly-completed building is that it has been a campus project. "This is our project," he says.

Doug Bradley, the supervisor for the campus support crew had obtained his unlimited commercial contractor's license allowing the school to maintain autonomy of the building.

The construction utilized the campus work crews for labor while providing an opportunity for experiential learning of trade skills to the students involved.

- The building consists of 20 offices, two conference rooms, student workspace, reception areas, storage and more.
- Students worked on all aspects - building services, purchasing, natural resources, campus support, carpentry, electric, plumbing, HVAC, paint, auto shop, locksmith, housekeeping, forestry, recycling, and landscaping.



Lower level waiting area / foyer: window trim is from WWC Forest.

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Sustainable Materials

- Wood siding & timber columns at entrance were sustainably harvested & milled from WWC Forest
- The boulder wall, steps, & terrace are all native stone with much masonry performed by WWC alumnus
- The wainscoting & window trim consist of hard & soft woods from WWC Forest
- Hardwood flooring were cut from WWC Forest & milled at the campus sawmill
- Some wood was salvaged from local felled trees by a cyclical pine bark beetle infestation
- High-volume recycled floor tile
- Salvaged/Re-used products: 80 antique interior doors, upper level desks & other furniture
- Rapidly renewable formaldehyde-free Wheatboard (harvested within 10 years) used in cabinets, lower level desks, & shelving
- Other locally/regionally sourced materials: heat pump loop pipe, concrete, gravel, drywall, shingles, upper level front door, foundation drain material, insulation, stucco, floor & roof trusses, & carpet



Salvaged doors with stained glass allows day lighting to enter most of building, local recycled carpet, and low VOC paint.



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Lower level office with day lighting mechanisms, Wheatboard desk tops/shelving, and salvaged desks.

Energy

- Geothermal HVAC closed loop system uses natural heating & cooling from the earth (70-80% more efficient than code). The system is an 11 ton heat pump that circulates water from 3 wells 400 ft below, where the Earth is a constant 55^o.
- Icynene insulation blown into walls & roof
- Radiant barrier on all exterior walls
- California Corners & T posts used to maximize insulation
- Insulation strips installed over all exterior walls for a thermal break between studs and sheetrock
- Tyvek vapor retardant/moisture barrier
- Exterior paint contains "Insuladd", a ceramic powder to lengthen the life of paint/deter pests
- 1 alternative fuel parking & refueling station, 1 dedicated EZGO Golf Cart powered by solar power for the Orr Cottage



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Energy Continued

- Windows are casement, double-paned, low-e, & Argon-filled. They're larger than normal to let more light in & exterior light shelves used for shading.
- Compact fluorescent lighting; natural daylighting simulated with 5000° Kelvin lamps. Most light fixtures are indirect cove lights (80% indirect/20% direct) with motion detectors.
- The building uses half the energy of a typical building its size
- WWC purchased wind power credits to offset 100% of the building's energy usage for the first 2 yrs of occupancy



Large cased windows with exterior light shelves, for summer shading, edible landscaping, permeable pavement and "Insuladd" in exterior paint to lengthen the life of paint and deter pests.



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Site & Water Conservation

- Re-used site of Early Learning Center location
- College pledged not to build on an adjacent green space equal to the development footprint for the life of the building
- Light pollution reduction from interior lights
- A bio-retention trench captures runoff from the building & filters it before draining into the Swannanoa River
- Dual flush toilets & low flow, sensor-activated faucets. Piping/fixtures in place for installation of waterless urinals when approved by NC
- Utilized floor to ceiling heights to minimize wood waste & sheetrock waste was reduced by 75%. All stud walls were 'finger-jointed', to reduce waste.
- ~90% of the construction waste was diverted from Buncombe County landfill due to efficient material use & recycling by the Recycling Crew
- Native, drought resistant, & edible landscaping



Patio with local stone (permeable), mitigated outdoor light pollution, walk off mats, and the wainscoting & window trim are made of hard & soft woods from WWC Forest



- Local stone used on/around the building
- Permeable driveways & patios

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The bio-retention trench that captures runoff from the building & filters it before draining into the Swannanoa River.



Dual-flush toilet and high recycled content tile in lower level restroom.



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Interior light shelf reflects light upwards to ceilings to provide soft daylighting. When no sun, daylighting simulated with 5000° Kelvin lamps with indirect cove lights (80% indirect/20% direct).

Indoor Air Quality & Health

- Daylighting design; large windows & use of recycled antique glass-paned doors as interior walls means that 90% of normal occupancy spaces benefit from natural light & views. Light shelves inside & outside offer shade & the inside shelves reflect light upwards to the ceilings to provide additional soft daylighting
- Digital controls for building. Lighting, equipment, & 'plug' loads are independently monitored to track consumption. CO₂ is monitored & an ERV is used to provide fresh outside air. The exterior wall envelope is thermally monitored to determine the wall temp outside & inside of the radiant barrier.
- All interior paints, clear coats, glues, & carpet are low-VOC & green-housekeeping with Green Seal approved products only.
- Interior-exterior walk-off mats promote cleanliness & health
- During construction, duct openings were covered to prevent dust/dirt from collecting inside



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Green Seal approved cleaning products dispenser in lower level.



Lower level recycling area and student work lists.



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Biagio Scibetta, a WWC graduate and the project coordinator, said, "We learned a lot of lessons in design, construction coordination, and materials from the EcoDorm project, but we didn't build that facility. This is the first green building on campus that we built and we were able to do it because we were the contractor and are the owner."



For more information:
www.warren-wilson.edu/~elc/