GOING LEED

SUSTAINABLE CAMPUSES

The Greening of Rice and the University of Houston

“A BUILDING IS NO LONGER FOUR WALLS AND A ROOF,” says Rives Taylor, who teaches sustainability courses for architecture students at both the University of Houston and Rice University. “Everything today is judged by performance.” His students learn to compute their own ecological footprints and to use their immediate surroundings as a laboratory, observing, for instance, the effects of Houston’s asphalt-covered landscapes on the local ecology. Phrases like “stewardship, cause, and consequence” are mantras in Taylor’s instruction.

UH and Rice have been implementing a number of progressive practices Taylor and others have promoted in recent campus retrofits and expansions. Rice will add nearly 1 million square feet to its 3.7 million by the end of 2009, and all new buildings will be LEED certified at a minimum, a decision the school’s director of sustainability, Richard Johnson, proudly credits three of his students with hastening. LEED stands for Leadership in Energy and Environmental Design. It is a third-party certification program administered by the USGBC (United States Green Building Council). The campus-wide policy was formally adopted following the students’ impressive presentation for an environmental studies class in which the mundane problem of a dorm room sink renovation was met with an ambitious green product solution. Administrators were impressed with the ease and economy of their selection and understood it to be an appropriate catalyst for the bigger picture.

A grander example of firsthand learning is Rice’s prospective LEED Gold building designed by noted British architect Sir Michael Hopkins: The new Charles and May Duncan Residential College is due to open its doors in summer 2009. The building is named for President Jimmy Carter’s Secretary of Energy and his wife, who donated $30 million toward its construction. The building will feature natural lighting and efficient water fixtures, cork or hardwood in place of conventional carpeted floors (which can harbor germ buildup), VOC (volatile organic compounds)-free and formaldehyde-free finishes and cleaning agents, additional vents in restrooms that will inhibit mold growth, and window sashes with heat sensors that close off the air conditioning when the windows are open. Intended as a pedagogical demonstration, Duncan Hall will also contain an off-the-grid teaching classroom, where roof-mounted photovoltaics will track the sun and a section of the wall will be left open to display its innards; a showcase of sustainable materials will be arrayed there as well. The building is designed to provide continuous data about its own performance, allowing Rice to assess it over time.

“Living in this type of building will make better citizens,” predicts Johnson. “The fact is, we’ve passed on to this generation a global systems crisis. We shouldn’t require that addressing that crisis diminish their quality of life.” As an undergraduate student in civil engineering at Rice in 1992, Johnson laments that he never saw any real-life examples of engineering processes and believes that these sorts of learning opportunities are critical.

Across town at UH, executive director of facilities, planning, and construction Dilip Ankellal reports a $2 million annual savings from replacing old high-wattage fluorescent lights and magnetic ballasts with energy-efficient fluorescents and electronic ballasts. Part of the Campus Energy Conservation and Cost Reduction Program designed to reduce the energy consumption of 115 older buildings on campus by 20–30 percent, the plan also includes raising all air-conditioning settings from 70 to 72 degrees (gaining an estimated annual 3–4 percent energy savings for each degree increase). In addition, every new building will feature occupancy sensors to reduce lighting and corollary electricity consumption.

The UH Board of Regents has informally directed that all current and future building projects should aim for a minimum LEED Silver standard. The University’s planners are approaching LEED certification cautiously, directing their consultants to prioritize those LEED criteria that provide the greatest overall energy use reductions and that recognize regional differences rather than using LEED criteria as project criteria. Despite this, the Michael J. Cemo Lecture Hall adjacent to the Bauer College of Business Building now being designed and slated for
completion in July 2009, is going for Gold. The two-story, 31,000-square-foot building is to house a testing center, a career services center, and serve as a home for the Global Business Minor program. In addition to rainwater collection, north-facing glass, and other energy-efficient strategies now common in buildings by BNIM Architects, its extensive use of LEDs as a light source will lead to significant savings in electricity consumption without compromising quality.

The campus will continue using its gas-fired turbine systems as part of the central plant, but with a twist: “If you’re going to use a nonrenewable energy source, you need to exploit it,” Anketell explains. An improved procedure both reduces and captures CO₂ emissions, while using “waste” steam to create electricity and cooling. Graduate and undergraduate students with paid project management internships are working with the school’s faculty on these and other innovative solutions. The chemical engineering department has developed a resin durable enough to construct 100-meter-long wind turbine blades. UH is a leading partner with Lone Star Wind Alliance; together they are designing a facility for testing the 70-100 blades in Ingleside, Texas.

While many of both institutions’ sustainable commitments are not visible, others are immediately present. UH recently reopened one of its underutilized buildings, a 1940s shop building that architect and UH faculty member Geoffrey Brune extensively remodeled into The Burdette Keeland, Jr. Design Exploration Center. It won a Texas Society of Architects design award this year. Located in front of the Gerald D. Hines College of Architecture, the building houses a fabricating, welding, and wood shop. Its sloping “green” roof is the only one of its kind in the city. “We’re proud of our landscape, above and on the ground,” says Anketell. As another example of recycling, the university recently spent $60,000 to move 22 mature live oak trees that were in the way of new construction projects to better locations.

Ambitious landscape preservation is also under way at Rice just south of its new South Plant, which will begin operating chillers and boilers for the 480,000-square-foot Collaborative Research Center at Main and University later this summer. Near the plant site is the Harris Gully Natural Area, a stretch of open grassland with scattered trees where the Harris Bayou once ran open across campus until it was routed into a culvert after Rice stadium was built. Johnson calls this site, used by ecology and evolutionary biology students as an outdoor classroom for gathering plant specimens, a “unique biodiversity eco hotspot.”

Although LEED standards typically require a 1-2 percent increase in overall project costs, Johnson thinks it’s key to view the university’s sustainable investments in terms of quality of life. “We should be asking, ‘What’s your baseline?’ instead of inquiring, ‘How much does it cost to implement LEED?’” In other words, how long do you expect a building or environment to function? The quality you’re seeking, he says, would likely be different for a prestigious university campus as opposed to, say, a mini-mall. “Julie Sinclair Eakin

PARKS HAVE SOMETHING OF A TALISMAN STATUS among politicians. There are few American cities that have not tried to revitalize their downtowns with a riverfront walk, a historic plaza, or a dancing fountain. Civic leaders imagine office workers eating alfresco, couples picnicking at sunset, and kids playing in fountains. But for every San Antonio Riverwalk, there are dozens of parks with empty benches, unappreciated historical murals, and outdoor amphitheaters used maybe once a month.

Downtown Houston offers numerous examples. Hermann Square (1939, Hare & Hare) is simple, classical, and grassy. Tranquility Park next door (1979, Charles Tapley Associates) is jagged steel and concrete. Jones Plaza (1966, CRS Architects; rebuilt 2001, Bricker & Cannady Architects) is centered on a terraced event space, and Root Memorial Square (2005, Kirksey) on an outdoor basketball court. And the second phase of Sesquicentennial Park (1998, Ray + Hollington Architects) has a sloping lawn. But none of these spaces attract people. Crowds are small even on a beautiful spring weekend. And on weekdays at lunchtime, most of the parks remain strangely empty. That’s not because Houstonians won’t go outside: the smaller office building plazas see much more use, and deserted downtown parks can be found all over the United States in many different climates.

So, when Mayor Bill White announced in 2004 that Houston would assemble four blocks to build another Downtown park, the obvious question was “How will this one be different?”

The answer was to learn from the exceptions to the rule: when a festival is going on, the parks are absolutely packed. If there is food, trinkets for sale, activities, and music, people will drive from