Green Building Breakthrough: Portland Engineering Firm Shows Path to Achieving Platinum-LEED Green Building Certification on Conventional Building Budget

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Portland, OR (PRWEB) November 15, 2005 -- Busting a key economic myth, a leading Portland building engineering firm is publishing an illustrated guide to achieving a top-rated green building on a conventional budget. Interface Engineering is releasing the book today at the GreenBuild International Conference & Exposition, the industry’s major annual event, and distributing it to top architects, engineering firms, design schools and other industry leaders.

“Interface Engineering has achieved a green building breakthrough,” said Christine Ervin, the first President & CEO of the U.S. Green Building Council and former U.S. Assistant Secretary of Energy. “Achieving such high levels of sustainability and performance at a first-cost savings will revolutionize the design of large buildings. The team has shown that top-level green design can be done with a standard budget.”

Interface Engineering Inc.’s 48-page book “Engineering a Sustainable World” shares the principles and secrets behind its engineering of Portland, Oregon’s “Center for Health and Healing” at the new River Campus of Oregon Health & Science University (OHSU).

The 16-story, 400,000 sq. ft. structure is on track to achieving LEED Platinum - the U.S. Green Building Council’s highest ranking - upon its completion in summer 2006. It will be the first Platinum-LEED building in Portland: the most efficient, large-scale building in the Northwest and one of the greenest in the world, with a design that emphasizes the health and comfort of occupants, along with significant energy and water savings.

The net mechanical and electrical systems costs are 10 percent under the $30 million allotted based on a conventional design.

“We’re delivering champagne on a beer budget,” said Andy Frichtl, Interface principal and lead project engineer. “The key to achieving more with less is integrated design. It’s a different approach that means working closely and early in the process with the architect, developer, owner, and builder. Integrated design allows us to engineer individual features to serve multiple purposes, saving money and allowing for innovative solutions.”

Rising on the site of a former shipyard, The Center for Health & Healing will be an anchor to a new neighborhood and the centerpiece of Oregon Health and Science University’s new River Campus. The building will generate a good percentage of its own electricity. Through the engineering design, it provides:

- 61% more energy efficiency than required by Oregon code and LEED standards.
- 54% reduction in potable water use vs. a similar conventional building.
100% on-site sewage treatment with rainwater and wastewater being harvested for toilets and landscaping, saving 15,000 gallons a day from reaching the city’s overburdened combined sewer system and cutting the owner’s future water and sewer bills.

Innovative features such as sunshades that double as solar power generators; the first large-scale on-site micro-turbine plant in Oregon to generate electricity; natural ventilation; displacement ventilation; radiant cooling; the first U.S.-use of chilled beams to replace air-conditioning in a large building; and other sustainable measures.

From the start, developer Gerding/Edlen insisted on a sustainable design that would reduce operating costs, improve occupant comfort, health and productivity, and reduce use of natural resources. Those goals meshed with the owner’s mission of promoting health and the building’s purpose as a mixed-use facility for wellness, medical research, clinics, surgery, and teaching.

The team realized many of its health and comfort goals as well as cost-savings by harvesting “free” resources provided by nature: harvesting rainwater that falls on the building for reuse in toilets and landscaping, allowing ample daylight and capturing the sun’s energy by topping the building’s 15th and 16th floors with a “Trombe wall” solar collector that assists in water heating. Conventional buildings seek to seal nature out of buildings and then rely heavily on mechanical systems to manufacture a controlled environment.

Another key factor was ample and early use of modeling – the architects and engineers modeled energy use, wind pressures, internal ventilation flow, and the movement of sunlight on the building considering current conditions and future development of the district.

“As far as I know, this is the first book of its kind by an engineering firm,” said developer Dennis Wilde of Gerding/Edlen. “Next to the architect, the engineer has the most influence over sustainable achievements. Interface Engineering is providing a service by sharing its engineering approach and allowing others to learn from the building’s innovations.”

Interface Engineering, Inc., which has been at the forefront of green building design in the Northwest, plans to distribute 6,000 copies of the book to architects, builders and developers, building owners, design schools and clients in an effort to spread the adoption of green building approaches. Headquartered in Portland, the company has about $13 million in annual revenue and 110 employees in Oregon, California and Washington, making it one of the top 50 mechanical and electrical engineering firms in the U.S.

Its notable LEED-certified projects in Oregon include Ecotrust’s Natural Capital Center (LEED-Gold), Clackamas High School (LEED-Silver), Marion County Courthouse (LEED-Bronze), Beaverton High School Cafeteria remodel (LEED-Certified) and Portland State’s Epler Hall dorms (LEED-Silver).


The integrated design and development team members are: owner OHSU, Gerding/Edlen Development, GBD Architects, Hoffman Construction Co. and Interface Engineering, Inc., KPFF Consulting Engineers, OTAK and Walker Macy. The total project costs are $145 million.

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