

## Geisinger Health System's green facilities painted in LEED gold and silver

### *PA system achieves a rarity: two green certified health facilities*

While scores of U.S. hospitals are becoming better environmental stewards through “green” initiatives involving energy, food and natural resources, few today are pursuing the coveted Leadership in Energy and Environmental Design (LEED) Green Building Rating, a nationally accepted standard for certifying high-performance green buildings with a minimal environmental footprint.

In fact, fewer than 100 U.S. hospitals currently have “green certified” buildings, part of an industry that trails other sectors like finance and retail. One recent industry report by the American Society for Healthcare Engineering found that many hospitals have



Source: EwingCole

In Geisinger-Gray's Woods, extensive use of natural daylight reduce dependency on electric lighting and provide window views for more than 90 percent of office space.



Source: EwingCole

In Geisinger-Gray's Woods, high-efficiency heating and cooling systems, along with building orientation and effective use of windows make the facility far more efficient than industry standards.

even less interest in green building certification than companies in other industries. Hospitals have traditionally lagged behind other industries in “green” building initiatives that employ environmentally friendly materials and construction methods for many reasons, including scarce construction dollars and skyrocketing costs.

Yet Geisinger Health System has accomplished a remarkable feat, earning a prestigious LEED Gold Certification for its newly built Geisinger-Gray's Woods, a multi-specialty clinic in State College, PA, and a LEED Silver Certification for its new Center for Health Research in Danville, PA.

*“The important thing to remember is that LEED certification involves a change in the way a project is traditionally implemented. If it’s addressed as a goal at the beginning of a project, there should be no increased level of difficulty.”*

**Al Neuner, CHFM  
Associate Vice President  
Facility Operations  
Geisinger Health System**



Inside Geisinger’s Center for Health Research: A building “skin” of glazed glass maximizes energy saving and interior light.

(Source: EwingCole)



The Geisinger-Gray’s Woods facility, in fact, is the only healthcare facility in the state of Pennsylvania to earn the designation and only one of seven in the nation.

Add to this Geisinger’s new Hospital for Advanced Medicine, an environmentally friendly green building set to open in 2010.

Administered by the United States Green Building Council (USGBC), LEED is a voluntary green building rating system that defines, measures and certifies buildings that are environmentally responsible, economically efficient and healthy. The LEED rating system was designed by USGBC to encourage and facilitate the development of more sustainable buildings. It measures and certifies buildings that are healthy places to live and work, environmentally responsible and economically efficient.

### **‘Rooted’ in the environment**

How Geisinger’s accomplishments came about is rooted literally in the environment surrounding the Danville, PA-based healthcare system.

For decades, community leaders and residents had raised substantial concerns about the health impact of environmental exposures in central and northeastern Pennsylvania, a state historically plagued with numerous human-created environmental challenges such as abandoned mine acid drainage and other industrial contamination and degradation, farm runoff, deforestation, and more broadly, structural challenges with local zoning ordinances and use of land and waterways.

In late 2006, the Geisinger Center for Health Research joined forces with the Department of Environmental Health Sciences in the Johns Hopkins Bloomberg School of Public Health to form the Environmental Health Institute (EHI). A cornerstone of that work was the creation of a comprehensive region-wide database and related methods that are suitable for creating exposure

“indices.” Geisinger officials say the resource is invaluable for efficiently conducting case-control studies of and bridging the relation between health and the environment, translating such knowledge into sustainable solutions.

Geisinger uses those indices to define its “environment” broadly, encompassing traditional hazardous exposures (e.g., pesticides, metals, air pollution) and more recent

areas of interest in environmental health such as land use, and the health effects of the built and social environments in specific communities.

And today, Geisinger, a known innovator in healthcare technology, is committed to the green building movement.

### **Green building features**

Geisinger-Gray’s Woods is a testament to that commitment. The stunning two-story, 64,000 square foot multi-specialty clinic, which houses both primary and specialty care and expanded ancillary services, including a state-of-the-art imaging center, is textbook *green*.

In fact, the green credo – energy-efficient buildings full of features that stress the natural over the chemical, the recycled over the new and the renewable over the finite – permeates the new facility, according to Geisinger project architect Patrick Brunner of EwingCole in Philadelphia. “We pursued the green concept because it was simply the right thing to do,” said Brunner. “Our goal was to create a building that is efficient, pleasing to both employees and patients and has minimal environmental impact in the community.”

Geisinger also proudly boasts its LEED achievement with the \$21 million Center for Health Research. “We’re extremely proud of this rating as it reflects our commitment to promote the well-being of our employees and our community,” said Robert Davies, Geisinger’s vice president, system services. “Sustainable buildings like our Center for Health Research use less energy to heat and cool, cost less to maintain and use renewable resources.”

Among the features at Geisinger-Grays’ Woods and the Center for Health Research are:



Source: EwingCole

Geisinger’s \$21 million Center for Health Research

- Non-toxic paint and finishes.
- Extensive use of natural daylight to reduce dependency on electric lighting and provide window views for more than 90 percent of office space.
- Lighting control systems that dim the lights when there is natural daylight available and turns off lights in unoccupied areas.
- High-efficiency heating and cooling systems, along with building orientation and effective use of windows to make the facility far more efficient than industry standards.
- Efficient plumbing fixtures that save almost 150,000 gallons of water per year over standard plumbing fixtures.
- Locally obtained building materials, with more than 20 percent coming from within 500 miles of the site.
- Rain and wastewater capture.
- Recycled materials used in construction and recycling of construction debris.
- Electricity provided from renewable sources.
- Storm water runoff control features.
- Eco-roof of soil and native plants to slow runoff and curb the “heat island” effect of sunshine beating down on conventional roofs.
- Environmentally friendly furniture with 95 percent recycled components.
- Building “skin” of glazed glass to maximize energy saving and interior light.
- Fresh air ventilation, an air filtration system and careful selection of building materials to provide high indoor air quality.
- Landscaping that uses native plants, requires no irrigation and reduces the amount of lawn maintenance and run-off from fertilizers.
- A wooded ridgeline that exceeds the open space code by 25 percent.
- Bicycle storage, showers and locker rooms for employees who bike to work.

Geisinger’s \$100 million, 308,000-square-foot Hospital for Advanced Medicine, meanwhile, also boasts a host of “green” building features such as recycled materials and energy efficient systems that promote the use of natural light into patient rooms and staff offices.

The flexible and technology-focused nine-story building adjacent to Geisinger Medical Center will house 50,000-square-feet of diagnostic and laboratory space, several floors of patient rooms, and a new 32,000-square-foot surgical suite with sophisticated robotic and interventional medical equipment. New patient rooms will house 60 acuity-adaptable beds, meaning that the beds can change from intensive care to recovery as the patient progresses through the health process.

### **Green building benefits abound**

For those institutions able and willing to make the investment in green design or pursue LEED certification, the paybacks in energy savings and community and patient health can be substantial.

According to Al Neuner, CHFM, associate vice president, Facility Operations, for Geisinger Health System, green buildings offer a host of tangible benefits. “Green buildings typically cost less to operate and maintain than a traditional building,” he said. “There’s also the intangible benefits such as the improved health of patients, staff and visitors.” Neuner said spaces that include more natural light and fewer volatile organic compounds found in toxic paints and flooring materials, for example, have been shown to promote a healthier indoor environment. Moreover, he added, reduced energy consumption results in less pollutants being emitted by power plants, resulting in lower greenhouse gas emissions and an improved carbon footprint.

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And according to the U.S. Green Building Council (USGBC), green building initiatives do not necessarily cost more than traditional construction. A recent USGBC report, in fact, concluded that that an added investment of 2 percent on top of normal construction costs yielded life-cycle savings of over 10 times the initial investment. Geisinger officials said utilizing green technology and construction materials at Geisinger-Gray’s Woods added no more than 1-2 percent to costs, and Geisinger stands to recapture those costs in energy savings.

### **Putting LEED in perspective**

Neuner said he is puzzled why more hospitals aren’t pursuing LEED certification, and is quick to debunk any myths that certification is too complex or green-building initiatives cost substantially more than conventional ones.

“LEED certification is not difficult to attain,” he said. “The important thing to remember is that certification involves a change in the way a project is traditionally implemented. If LEED certification is addressed as a goal at the beginning of a project, there should be no increased level of difficulty. Additionally, as more designers and contractors have become experienced with LEED, the process has become even easier.”

As with any construction project, it all starts with the design, Neuner added. “The LEED process is much more collaborative, involving people like engineers and commissioning agents much earlier in the process,” he said. “Energy efficiency and environmental stewardship should form the *basis* of design, rather than be an afterthought of design. Once designed, the construction process and materials sourcing have to comply with good stewardship practices to minimize the effect on the environment (recycling, use of renewable materials, use of local materials, low off-gassing components).

For Neuner and his colleagues at Geisinger, the pursuit of green building just makes sense, and flows seamlessly into the healthcare system's mission. "After all, improving health is what we are charged with," he said.

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