

11. Healthcare's Case for Green

Once considered the lost sheep of the sustainable design movement, the \$35 billion healthcare construction industry has made significant strides toward the greening of hospitals and other healthcare facilities during the past few years.

As many as 225 healthcare construction projects, representing more than 40 million sf of hospital space, are being designed and built with some level of sustainability. In August, the U.S. Green Building Council certified its sixth LEED-rated healthcare facility (there was just one in 2004), and as many as 132 healthcare construction projects are currently registered with the USGBC for LEED certification, more than triple the amount in 2004. The first LEED Gold hospital was certified this year, proving that, despite healthcare's complicated and costly construction model, hospital buildings can meet the highest standards of sustainability.

Another sign of progress is the overwhelming success of the Green Guide for Health Care (GGHC), a self-certifying, LEED-type system that covers both construction and operations. Since its launch in October 2004, GGHC has registered 105 pilot projects and gained more than 9,500 active users (see chart 11.1).

Still, the unfortunate reality is that the healthcare industry lags far behind most other major building sectors when it comes to green buildings. Hospitals make up less than

3% of the total number LEED-registered projects; the healthcare sector is outpaced by other institutional sectors, such as university projects (7%) and schools (5%).

The business case for green hospitals

Perhaps no other building type has more to gain from applying sustainable practices than do hospitals.

Each year, more than two million people admitted to hospitals become sick (or sicker) as a result of their stay, adding \$4.5 billion in excess costs to the healthcare system. Even worse, 90,000 of those patients will die from sepsis, pneumonia, and other nosocomial infections, according to the Centers for Disease Control and Prevention.

As healthcare organizations come to grips with the ghastly rate of hospital-borne infection, many are applying the principles of sustainable design to help ensure the wellness and safety of patients and staff. The use of antimicrobial surfaces and ultraviolet germicidal irradiation are just two of many approaches being employed to maintain infection-resistant environments.

From an operational perspective, the average healthcare facility uses 2.1 times more energy/sf than the typical commercial office building, and is second only to fast-food restaurants in energy consumption/sf.¹ These facilities must operate 24/7/365 and are packed with energy- and water-gobbling equipment and systems. Moreover, hospitals are predominantly owner-occupied and are designed for 50-year lifespans.

Hospitals that are investing in reducing energy and water consumption, as well as in cutting waste, are experiencing almost immediate paybacks. Institutions that have applied even the most basic, economical utility conservation measures, such as lighting refits, HVAC upgrades, and low-flow water fixtures, report annual utility savings of \$100,000 or more. When translated into a hospital's budget at current average operational profit margins, those cost savings are the equivalent of nearly \$3 million in new revenue.²

In the dog-eat-dog world of healthcare, sustainability is also about staying competitive and creating a market differentiator in an often overcrowded marketplace. In its first two months of operation, Providence Health Systems' new LEED Gold-rated medical center near Portland, Ore., has received a 99% patient-satisfaction rating (PHS average: 70%), with patients specifically citing abundant daylight, fresh indoor air, and upbeat hospital staff as positives. "Those people say they would recommend our facility to their family and friends," says Larry Bowe, CEO of PHS. "I love to hear that."

For an industry that has notoriously high turnover

¹"Commercial Buildings Energy Consumption Survey," Energy Information Administration, 2003. www.eia.doe.gov/emeu/cbecs

²"Greening Health Care Facilities: A CEO's Perspective," Green Guide for Health Care Newsletter, May 2006. www.ggbc.org

³"Value-Driven Design and Construction: Enriching Community Benefits Through Green Hospitals," Robin Guenther, Gail Vittori, Cynthia Atwood, September 2006. www.healthdesign.org/research/reports/documents/CHD_GuentherVittoriAtwood_edit_v2.pdf

Breakdown of Green Guide for Health Care pilot projects 11.1				
Project Type				
	Number of pilots	Average project size	Average construction credits	Average operations credits
Acute care	63	394,400	29	16
Medical office building	17	99,000	33	18
Retirement	8	125,500	33	14
Specialty hospital	17	165,200	34	26
Construction Type				
Addition	14	111,700	22	18
Combination	23	272,000	34	16
New	56	330,300	33	18
Operations	1	507,000	0	17
Renovation	11	375,000	28	24
Size				
0-19,999 sf	11	—	29	25
20,000-49,999 sf	9	—	28	19
50,000-99,999 sf	19	—	39	19
100,000-499,000 sf	40	—	29	15
500,000-999,999sf	11	—	27	15
1,000,000+ sf	5	—	38	18

Source: Green Guide for Health Care, September 2006

rates, recruitment and retention are a compelling measurable financial benefit of sustainability. Bowe says PHS's new facility played a key role in recruiting more than 20 physicians to the area—a task that proved difficult for PHS in the past. “The green features are not the sole reason they came, but they are certainly part of the benefits package,” says Bowe.

Other progressive institutions report similar success on the recruitment front. Dell Children's Medical Center, Austin, Texas; St. Mary's Health Center, Grand Rapids, Mich.; and the BC Cancer Agency, Vancouver, all attribute improved recruitment of nurses and physicians to their new or planned green facilities.³

Overcoming the cost objection

First cost remains a major concern for healthcare organizations and a significant roadblock for implementing green strategies.

Hospitals and other healthcare facilities are inherently expensive structures, ranging from \$200/sf to more than \$700/sf in some areas, so there's often little wiggle room in capital budgets. At a time when as many as one-third of hospitals in the U.S. are losing money every year and with the cost of healthcare at an all-time high, many in the hospital executive suite are concerned about any spending that has the slightest appearance of frivolity.

Even when presented with reasonable payback periods, some hospital administrators balk at energy- and water-conservation measures because utilities typically represent a small percentage of a hospital's total operating costs (less than 1% in some cases).

Finally, some senior leaders believe that any additional funds would be better spent on new equipment or the latest technology, which would go a long way toward keeping their staff (and patients) happy. Or they'd rather spend any “extra” cash on recruitment and retention efforts.

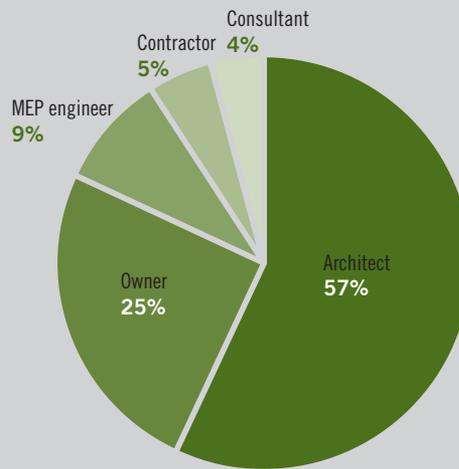
Earlier this year, Health Care Without Harm, a global industry group comprised of 443 healthcare organizations, set out to quantify first costs and other hurdles associated with sustainable design in healthcare facilities. HCWH commissioned cost-planning consultant Davis Langdon to conduct a study on the first costs associated with implementing the construction section of GGHC for new construction projects.

The final report is expected to be released this month, but preliminary findings conclude that about 40% of the Green Guide's 96 points can be implemented with little (less than 1% of total cost) or no additional cost if the Building Team employs an integrated design approach to project delivery.⁴ The report is expected to help dispel the general perception among healthcare organizations that going green means higher cost.

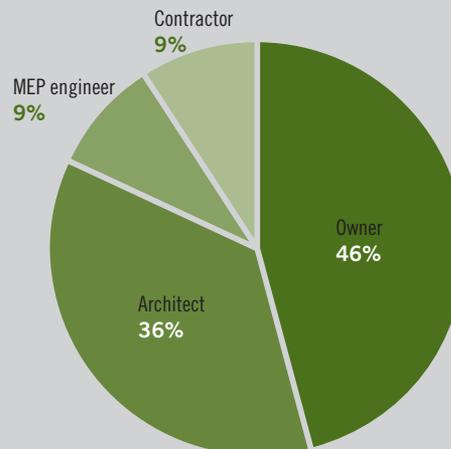
Who's leading GGHC pilot projects?

11.2

New Construction Projects



Renovation Projects



Source: Green Guide for Health Care, September 2006

Davis Langdon evaluated each point based on construction costs, “soft” costs (e.g., design costs), and documentation costs (a requirement of GGHC). According to the early findings, 23 of the 96 points can be achieved without added design and construction costs, 16 points cost less than 1% of total project cost, and only nine credits require “substantial” cost premiums (more than 2% of total project cost) from a construction standpoint.⁵ The general conclusion is that healthcare organizations can achieve a “reasonable level” of sustainability in their buildings with minimal upfront cost using integrated design.

Beyond first cost, the report cites conflicts with the strict code and regulation requirements of healthcare environments as another barrier to implementing the

⁴“The Business Case for Green Buildings,” Healthcare Design Magazine, June 2006. www.healthcaredesignmagazine.com/CleanDesign.htm?ID=5148

⁵“The Business Case for Green Buildings: GGHC Cost Study,” Lisa Fay Matthiessen, Davis Langdon, CleanMed, April 2006. www.cleanmed.org/2006/download/lisa_fay_matthiessen/lfm1.html

⁶“Understanding the Cost Implications of GGHC,” Peter Morris and Lisa Fay Matthiessen of Davis Langdon, presented at the 2006 International Conference and Exhibition on Health Facility Planning Design and Construction, American Society for Healthcare Engineering, February 2006. www.asbe.org/asbe/education/2006pdf/feb27.html

⁷“Factors Causing Variation Between the LEED Pilot and Final Checklists in Green Health-Care Projects,” Priyanka Tyagi, August 2005. www.BDCnetwork.com/article/CA6307296.html

GGHC guidelines. Issues related to infection control, security, maintenance, and regulations were noted as conflicts (actual or perceived) to sustainability. For instance, a number of study participants felt that approaches suggested by GGHC for conserving water, especially related to water used for process equipment, might conflict with infection control goals.

Respondents also noted that the GGHC credit for medical equipment efficiency (EA Credit 7) may be difficult to achieve because of limited options currently available for energy-efficient medical equipment. Most manufacturers don’t even supply information on energy usage, let alone market power-smart devices.

Other general observations, based on Davis Langdon’s research:

- Density requirements are generally easy to achieve because new hospitals are typically built on existing campuses and sited in more densely populated areas to be close to their patient populations.

- Hospitals are not likely to deliberately select a brownfield site just to meet criteria of GGHC (or LEED). The perception by some is that hospital sites need to be healthier and safer.

- The use of low-flow faucets and showerheads is becoming more common, but waterless urinals are still a tough sell (due to pushback from the maintenance staff and a perceived lack of water savings).

- Building places of respite requires a careful design approach, but is not as difficult and costly as initially perceived.

- The general trend is to include views in all patient rooms, as well as at the end of corridors. However, projects are often constrained in size, shape, and orientation by the fact that they take place on existing campuses, which can limit the options for daylight and views.⁶

GGHC has been judicious about addressing these and other concerns in updated versions of the green guide. Version 2.2, expected to be released in early 2007, will include major enhancements to the construction section based on feedback from the pilot projects, according to Adele Houghton, pilot project manager for GGHC. For instance, the new version will outline types of strategies that could be implemented to achieve the credits for Circadian Rhythm (EQ Credit 8.4) and Places of Respite (SS Credit 9)—two under-researched areas that are emerging as important to better patient outcomes.

“These credits are not quite as verifiable or justifiable as some of the other credits that were derived from LEED,” says Houghton. “We’re a performance-based tool just like LEED, but you have to give enough benchmarks and protocols to give people an idea of when they’ve met the intent of that credit.”

Looking for a LEED benchmark

Despite the continued success of GGHC, some experts believe that sustainability will not reach critical mass in the healthcare sector until the long-awaited LEED Application Guide for Healthcare is published.

Because GGHC is completely self-certifying and does not actually verify the “greenness” of facilities, the healthcare sector lacks a basic standard for sustainability. Having such a verifiable benchmark and rating system will allow healthcare organizations, states, and municipalities to set environmental standards and mandates for their healthcare buildings, much like what has happened with government buildings, schools, and commercial offices.

The LEED program may fill that void, but hospital-chain owners have long complained that LEED is not healthcare-friendly.⁷ It remains to be seen whether the LEED application guide, due out in mid-2007, can rectify that situation.

