DAILY JOURNAL OF COMMERCE
WWW.DJC.COM

August 25, 2005

Hospitals have been slow to try green building

Sustainability is good for patients, employees and the community

By RICHARD GERBER
CDi ENGINEERS

Most companies that want a green building cite two bottom-line reasons: better resource management and lower energy costs.

Pacific Northwest hospitals are taking the concept one step further, with a "triple bottom line" concept that adds community responsibility and social awareness to the mix.

The result will no doubt be enhanced positioning — as well as healthier patients, employees and community residents.

Do no harm

Green building is an especially good fit for the medical profession, whose members pledge "above all, to do no harm" to patients. It makes sense to do no harm to employees, communities and the environment as well.

Yet the industry has been relatively slow to jump on the sustainability bandwagon. Why? Because hospitals, by their very nature, consume higher quantities of energy and other resources than most other buildings.

Stringent regulations determine the amount of outside air required for hospitals. Air pressure must be carefully controlled to prevent the spread of infection. Redundant systems like triple standby generators protect patients in the event of loss of power or breakdown.

All of these increase energy use, and they also cost a lot. Hospitals cost about $300 per square foot to build, compared with just $120 for commercial structures.

Another reason hospitals are expensive to build is that they're owner occupied. Owners oftentimes demand higher quality than landlords, and initial construction incorporates improvements that would be otherwise done by tenants.

Similarly, medical facilities are expected to last for 50 years, not the 20 to 25 years of most commercial buildings. This means higher standards in everything from materials to systems, which translates into more money.

Creative cost-cutters

Engineering ingenuity is one way hospitals are battling the potentially higher costs of going green. Consider the case of Providence Portland Medical Center, which recently replaced its central utility plant.

The plant uses fuel from the local utility, and converts it to steam and hot or chilled water. The new variable-primary-flow chilled-water system includes two variable-speed chillers as well as a waterside economizer in order to optimize chilled-water plant performance.

A new high-efficiency boiler has a stack economizer to preheat incoming feedwater with the exiting flue gas. Premium efficiency motors with variable-frequency drives add further energy savings.

These are just a couple of the many efficiency measures incorporated into the project.

The new systems made financial sense as well. Providence's engineering innovations qualified it for nearly half a million dollars in funding from the Oregon Energy Trust and the state's business energy tax credit, money that goes a long way toward helping to pay for the enhanced infrastructure.

Selling power to utilities

Another brilliant concept is to make use of hospitals' excess generation capacity. Large hospitals have huge generators to meet standby requirements, and for most of the year they just gather dust.

Providence entered an agreement with its local utility where, in return for enhancing the generators, the utility gets to put those generators on the grid when demand is especially heavy.

The program more than pays for itself, and allows the utility to put off building new power plants. This is a great example of triple-bottom-line thinking — the benefits will be experienced by hospital administrators, utility consumers and residents of potential power plant sites.

Innovation in Gig Harbor

Plans are afoot to incorporate sustainable engineering into Gig Harbor's planned 80-bed St. Anthony Hospital. Still in design phases, the facility will feature some of the most progressive green-building concepts around.

A high-performance central energy plant will reduce energy needs. Rather than recirculating air within the hospital, all air will come from the outside. Heat will be recovered from the air before it is exhausted.

By specifying these innovative engineering practices, as well as other strategies, the hospital can expect to trim as much as 15 percent off its energy costs.

A "healing garden" at St. Anthony will provide a place of quiet comfort. Healing gardens are becoming increasingly popular in health care settings because they make people feel safe and reduce stress.

Because healing gardens use environmentally friendly designs, they help hospitals achieve triple-bottom-line goals, being good for patients, guests, communities and the land itself.

Ideas like these are urged by the Green Guide for Health Care, which is similar to LEED. LEED has not yet addressed health care construction, although pioneers like Boulder Community Hospital in Colorado have adopted its guidelines for commercial buildings.

Boulder was the first hospital in the nation to achieve a LEED designation. Closer to home, Providence Health System in Newberg, Ore., is on track for a silver LEED rating.

Everett sets green goals

A new cancer center being developed on Providence Everett Medical Center's Colby campus is addressing triple-bottom-line goals as well.

Eco-charettes have been part of the early design process, featuring refrigerants that do not deplete the ozone, recycling programs, and diverse energy efficiencies in both equipment and ongoing operations.

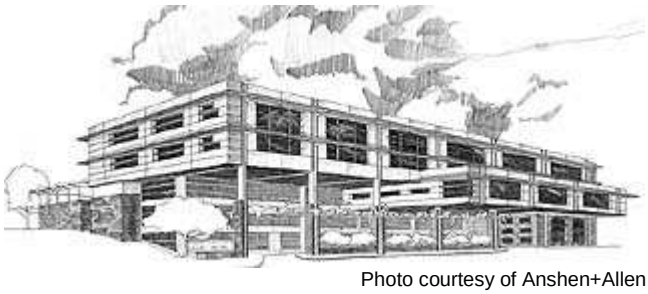

Photo courtesy of Anshen+Allen

A new cancer center at Providence Everett Medical Center's Colby campus features eco-friendly design elements such as refrigerants that do not deplete the ozone and energy-efficient equipment.

By making sustainability a goal at the outset of the project, all players on the Everett design team have an increased awareness of the importance of green construction.

This helps ensure that the final product turns about to be more environmentally friendly, and that costs for green practices are minimized as much as possible.

For years, designers have assumed that not much can be done about heavy resource usage in a medical-facility setting. Now we know that by thinking outside the box, we can indeed build healthier hospitals, resulting in better cost control, community relations and environmental conditions for our planet.

Richard Gerber is a principal of CDi Engineers, a mechanical engineering firm headquartered in Lynnwood.