By Gregory J. Wieland, AIA

Healthcare Exterior Design:

Grounds for Healing

This is the second in a two-part series on how healthcare facility exteriors can contribute to the creation of a healing environment keeping green and sustainable considerations in mind.

Good healthcare facility design has no limits, even when it comes to energy efficiency and environmental issues. Through careful planning and innovative thinking, hospitals and other medical buildings can be healthy for the environment and for the people who use them. Sometimes the biggest opportunities lie in the small but significant planning and design decisions made in the early stages. Here are some options to consider.

Work With the Site

Let the site dictate the layout of the healthcare facility, rather than try to force the site to fit the building. Take advantage of topography, prevailing drainage patterns, existing vegetation, access, view and sun angles to create better passive solar conditions that save on energy usage. Use building orientation to reduce lighting demand and to increase the amount of therapeutic natural light that enters the facility. Seek out ways to maximize scenic views from as many areas of the building as possible.

Heal the Environment

Look for ways to restore native vegetation and preserve the natural features of the site. A good example is the Patrick H. Dollard Discovery Health Center in Harris, N.Y. Completed in 2003, the facility sits on the reclaimed site of a defunct poultry farm, with views of pasture and woodlands to the east and the center's community-sponsored organic farm to the northeast.

The land, now used for farming

FARM: DAVID ALLEE; PATH: DIRTWORKS, PC

Above: The Center for Discovery, Harris, N.Y. A bucolic pedestrian path system, open pasture, native plants and farming fields occupy the site. Left: By reusing the former industrial agriculture site (Left), the development spares prime farmland and restores previously damaged development.

and grazing, is not irrigated, and former marshland grasses have returned. The facility's site contours gently downhill toward the north, and a series of marshes and ponds recharge a fast-moving underground aquifer.

Providence Newberg Medical Center in Newberg, Ore., also restored many natural facets of the land where it is sited. Formerly a cultivated organic farm, the land was lined with impervious clay tiles to channel water through the crops. The tiles were removed to increase the site's water absorption. Native and drought-tolerant plants were added to reinstate the original landscape. Relocating the greenhouses and other site buildings ensured the structures' continued use. These and other efforts led to the medical center becoming the first LEED Gold-certified hospital in the country.

Sculpt the Building

Think outside of the box — literally. Mass the building in a way that minimizes its footprint while creating architectural interest. Maximize the number

Left: Christ Hospital Heart Center, Cincinnati: The character of the landscape and the architecture speak loudly about the hospital's brand, values, and attitude toward the community and the environment.

Below: Wayne Hospital addition, Greenville, Ohio: The use of sculpted forms and a cantilevered structure minimize the facility's footprint and open up internal areas to natural light that otherwise would have been enclosed by the building's volume.

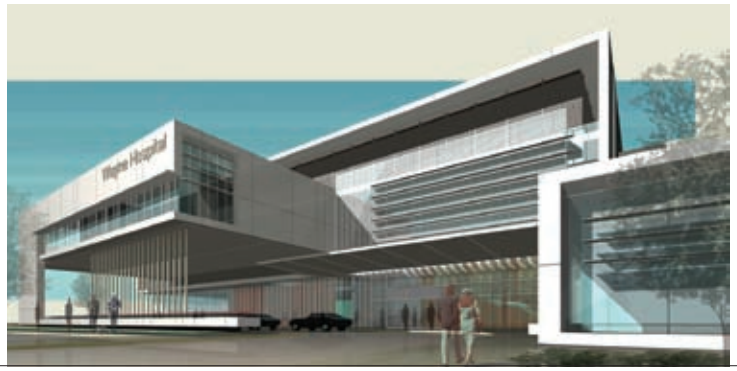
of stories wherever the program allows. Stack forms at interesting angles or use cantilevers. Even the most complex programs and department adjacency requirements can be accommodated in something other than a rectangular or square building.

Diagnostic and treatment typically are the largest floors in a healthcare facility. In developing the design for the new addition to Wayne Hospital in Greenville, Ohio, the URS design team located these services on the second floor, which created a large cantilever, minimizing the building's footprint. At the same time, this allowed the team to sculpt the building to create a more striking image. This included a large entry atrium that extends natural light further into the building.

Sculpt the Site

Create earthen berms to enhance the effect of landscaping and energy conservation. Placed along structure walls, berms can provide additional insulation for heating and cooling requirements.

Use sculpted earth mounds and other landforms to reinforce vehicle routes by providing direct views to key destinations. Properly integrated into the landscape design, they also can screen parking on the site from distant views as well as from the healthcare facility itself.



Spare the Water

Leave buffer zones undisturbed to protect wetland areas. Maintain existing watershed patterns by designing detention structures that reduce runoff flows during construction. Sedimentation structures that remove suspended sediments from runoff water greatly reduce the chance of ecological damage and pollution to surface waters.

Incorporate water-efficient landscaping to reduce water use. Particularly in arid climates, native plants can require substantially less water. They also often require no chemicals or herbicides for protection since they have built-in resistance to local pests that exotic plants don't.

Recycle Again and Again

During construction, designate existing topsoil at the site to be stockpiled and reused during final grading and seeding operations. Consider alternatives to hauling off blasted or excavated material. Crush limestone or similar rock on-site and reuse it as a base under the building or under pavement, saving the cost of importing base material (excavated elsewhere and trucked in). Reuse granite materials within the landscape design to create more visual interest and texture.

Park it Outside

Think of parking lots as outdoor rooms. Visually compartmentalize them with the use of berms and

CHRIST: TIM GRIFFITH/NBBJ; WAYNE: GREGORY J. WIELAND/URS CORP.

Christ Hospital Heart Center, Cincinnati: The pattern and rich texture of a courtyard creates a visual respite for patients, visitors and staff.

plants. Vary the paving surfaces from one "room" to the next.

Make these outdoor rooms environmentally friendly. Use permeable payment systems to capture runoff, allowing the runoff to percolate into a depth of gravel below. The cost of porous pavement, with its built-in storm water management, usually is less than that of an impervious pavement with a separate storm water management facility somewhere downstream.

Up on the Rooftop

Install green roof gardens to capture and mitigate roof runoff. Green roofs also reduce heating loads by adding mass and thermal resistance value, and lower cooling loads through evaporative cooling.

Design green roofs to accommodate therapeutic gardens and places for contemplation, relaxation, and therapy for visitors, patients and staff. The Joel Schnaper Memorial Garden, a restorative rooftop garden, shows the effectiveness of gardens to influence and enhance the quality of the healthcare environment.

Located at the Terence Cardinal Cooke Health Care Center, a long-term care facility in New York City, the rooftop garden welcomes all residents, visitors and staff while providing a therapeutic environment for the adjacent AIDS care wing.

A green roof also can serve as an oasis for native wildlife. It provides a habitat for plants, insects and animals that otherwise have limited natural space.

What's on the Outside Counts

For the facility's exterior, specify locally produced or harvested materials. Consider recycled materials as well.

Incorporate larger windows, light wells, clerestory windows and glass-enclosed areas into the building's design. They bring in healthy natural light to help make employees and patients feel better, at the same time reducing electricity usage.

Control the amount of light entering the building with tinted and glazed windows with "low E" coatings and shading coefficients. Use wide overhangs and brise-soleil louver shades as interesting design features that also eliminate direct solar gain.

Light Up

Many healthcare facilities are 24-hour-a-day, seven-day-a-week operations. Exterior lighting for security and wayfinding are essential. Exterior lighting also can be used to accent architectural features on a building. Consider strategically located renewable energy sources such as photovoltaic panels. Seek out ways to integrate them into the building's design rather than tacking them on as an afterthought.

Just for the Health of It

Both the U.S. Green Building Council's LEED and the *Green Guide for Health Care* offer more ideas and guidelines for designing healthy healthcare buildings inside and out. But don't get hung up on certifications and ratings systems. There are many ways to achieve healthier design solutions. Not all are awarded points. Focus efforts on creating healing environments in the most environmentally conscious ways possible. Ultimately, what's good for the environment is good for everyone. ■

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