

Prognosis Green

Green roof courtyards contribute to research studies on patient recovery rates.

by Leon Drachman AIA, Rachel Loeffler
May 1, 2010

Natural light, fresh air and sunshine have historically represented well-being in healthcare environments. Yet in today's high-tech world, the relationship between the well-being of the patient and architecture's physical form has been blurred by an uncompromising faith in technology and the apparatus necessary for a patient's care. Recently, scientists have been documenting the effects of space, light and other environmental factors on the healing process. Studies have indicated that the average length of stay in a patient room that has adequate natural lighting can be reduced by as much as 15 to 20 percent. Current trends in healthcare design place more emphasis on improving the physical environment in which patients are treated — the quality of space, natural light, a patient's autonomy and a visual link to the landscape.



View of the Cancer Institute Healing Garden at dusk. Photo Copyright Warren Jagger Photography.

Penn State Hershey Cancer Institute and the Penn State Hershey Children's Hospital

Size: 7-acre campus

Location: Penn State Milton S. Hershey Medical Center, Hershey, Penn.

Under consideration for LEED certification, Innovation in Design, and Green Guide for Health Care; Case study for green roof maintenance; Case study for patient recovery rates adjacent to green roofs.

Project Team

Owner:

The Pennsylvania State Milton S. Hershey Medical Center

Architect:

Payette, Boston, Mass.

Associate Architect

(Cancer Institute): Array Healthcare Facilities Solutions, King of Prussia, Pa.

Landscape Architect:

Hargreaves Associates, Cambridge, Mass.

Civil/Structural Engineer:

Gannett Fleming Inc., Camp Hill, Pa.

MEP:

Bard, Rao + Athanas Consulting Engineers LLC (BR+A), Watertown, Mass.

Lighting Design:

Available Light, Boston, Mass.



Aerial view of the clinical quadrangle highlighting the four courtyard spaces: 1 Healing Garden. 2 hospital Courtyard. 3 Children's Courtyard. 4 Children's terrace. Courtesy of Payette.

Architectural firm Payette teamed up with landscape architects Hargreaves Associates to design a new medical complex on the campus of the Penn State Milton S. Hershey Medical Center in Hershey. The new complex includes the Penn State Hershey Cancer Institute (completed in 2009) and a freestanding Penn State Hershey Children's Hospital (scheduled for completion in 2011). The landscape-based plan uses open space as an organizational device for planning a community and designing with nature in order to reconnect patients and staff to the environment in which they live.

Four outdoor spaces weave the complex together: the healing garden, the hospital courtyard, the children's courtyard and the children's roof terrace. Each of these four courtyards is built over structure and is, in essence, a green roof.

Nestled between the existing hospital's emergency department and the new cancer institute's infusion bays, the healing garden provides an area that showcases diurnal and seasonal change for patients and families in adjacent waiting rooms, treatment areas and research labs. The design is inspired by the geology of the surrounding hills and an agricultural heritage. The landforms were achieved by stacking 1- to 2-inch-thick layers of rigid insulation covered with a maximum of six inches of soil so as not to exceed weight limits.

The main hospital courtyard functions as an event space, provides extra café tables for seating and serves as an iconic focal point for hospital patrons trying to orient themselves. The design considers the Japanese principle of *ma*, which evokes calm and reverence while shaping the spaces around the garden with curved sloping forms.

An extension of the children's hospital's main floor, the children's courtyard provides a formal garden with raised planters of hedges and flowering vines as well as a playground, a maze and a café seating area for families. In order to accommodate the multiple activity levels and types of play, the design uses raised planters to separate and unify these spaces. The system rests atop the roof structure via a system of grating and pedestals, and the planters are lined with rigid insulation to help prevent roots from freezing.

Above the main hospital atrium, the third-level roof adjacent to the children's hospital is a private and easily controlled outdoor space that will be used as recreation and respite for patients and their families. Playing up the notion of floating and elevation, the design features a raised "island" boardwalk for a Big Wheel tricycle circuit. Below the island, a gradient of wide bands of sedum showcase seasonal change. The plantings are contained in LiveRoof's pre-grown vegetated modular panels, which will be grown offsite and installed directly on top of the roof.

Both the children's hospital and cancer institute projects are pursuing LEED certification and are being used as case studies for the new Green Guide for Health Care designation. In addition, the green roofs will be able to contribute to a larger body of knowledge as Hershey's medical school and Penn State Center for Green Roof Research initiate parallel studies on patient recovery rates and the maintenance required for each of these green roof courtyards.

Leon Drachman AIA

Leon Drachman, AIA, has led design teams for several of Payette's major teaching, research and healthcare clients, including the laboratory renovation for the Schepens Eye Research.



Rachel Loeffler

Rachel Loeffler is an associate with Hargreaves Associates in Cambridge, Mass. Since 2002, she has led and contributed to a number of PROJECTS. SHE teaches graduate level architecture with an emphasis on sustainability and systems.

