



September 13, 2011 by Michael Hinchcliffe, AIA, LEED AP BD+C

Connecting Cancer Care Centers with Nature

While there are many uncertainties in the world of healthcare, there are even fewer certainties in the world of design. We do, however, have a new and well-established “normal” for the integration of sustainable design and sustainable operation practices into healthcare facilities, few of which draw more attention than those dedicated to cancer care, diagnosis, treatment, and research.

This may be a result of new awareness of the linkages between the emergence of certain cancers and environmental factors, coupled with a growing patient and staff demand for new facilities that better address these sustainable concerns. This article will explore how several facilities—some recently completed and some still in the design stages—have incorporated sustainable design features.

From the early origins of construction, and before our current dependence on fossil fuels, people sought the ways and means to integrate buildings into the environment to improve aspects of habitation. During the emergence of modern healthcare in the 18th and 19th centuries, airy and light-filled wards were typical. Perched high on hills to catch the breeze or removed from cities altogether, hospitals and spas were seemingly at one with nature, seeking to ease stress and provide comfort.

With porches and garden views open to the air, early hospitals were designed to incorporate sophisticated ventilation systems to reduce infections. The daylighting schemes of today were prefigured by yesterday’s more straightforward solution: big, tall windows. In many ways our leading healthcare facilities are returning to these sustainable principles, using today’s techniques, materials, and aesthetics.

For just as long as we have been building buildings, cancer has been with us, too. The fossil record and Egyptian mummies show evidence of cancerous growths near the year 400 BCE; Hippocrates coined the terms *carcinos* and *carcinoma* to describe his observations of malignancies. Later, around the year 100, the Roman physician Galen began using the now familiar Greek root-word *oncos* in reference to the swelling of malignant tumors. Today’s physicians and scientists persist in their search to explain its causes and find better means to manage the disease, and the medical community continues to work with architects to create environments that foster the dignified delivery of care.

The three examples presented below are new cancer care facilities from academic medical centers that typify a range of the American experience: a rural setting, a small city, and a dense, urban downtown area. Two of the facilities are recently completed and one is in design, allowing us to explore what is possible to achieve in different settings.



Figure 1. Floor plan, infusion suite and pharmacy, Thomas Jefferson University Hospitals Ambulatory Care Center. © Payette.



Figure 2. Section view at Thomas Jefferson University Hospitals Ambulatory Care Center. © Payette



Figure 3. Cancer care infusion suite, University of Massachusetts Ambulatory Care Center. © Payette, Image by Rachellyn Schoen.

Thomas Jefferson University Hospitals' new Ambulatory Care Center (figure 1), when completed, will be the new home to outpatient clinics and infusion therapy for the Kimmel Cancer Center. Situated in Center City, Philadelphia, this new high-rise tower—in one of the oldest and densest of our cities—is a study in how integration of modest gardens and unseen sustainable measures makes an impact. The building itself will correct hundreds of years of site disruptions by reducing utility consumption with an aggressive “storm-water neutral” strategy that will protect the region’s waterways.

On the interior, however, a unique new plan configuration permits patients and staff to have direct (and visual) access to two pocket “sky-gardens” integrated into the infusion therapy clinic (figure 2). These brief respites from the concrete jungle will ease the stress of treatment (and a long day’s work). They fulfill a second, greater need as the locus of shared community space, where small groups of patients, families and friends, and staff join in fellowship and friendship in a lounge atmosphere to reduce the negative effects of isolated treatment bays.

For patients at the recently completed University of Massachusetts Memorial Medical Center Ambulatory Care Building (figures 3 and 4), the focus is on daylight and its benefits to patients and staff. Situated in Worcester, Massachusetts—a city of almost 200,000 located in the center of the state—the facility connects to a new parking garage for easy access and has a long and narrow footprint enabling access to daylight and views.

The infusion therapy center features floor-to-ceiling glass and a variety of shading devices that allows patients to tailor the environment to suit their needs. With views of the nearby



Figure 4. University of Massachusetts Ambulatory Care Center. © Payette, Image by Rachellyn Schoen.



Figure 5. Penn State Hershey Cancer Institute. © Warren Jagger Photography.



Figure 6. Penn State Hershey Cancer Institute. © Warren Jagger Photography.

rolling hills, the intent is to lessen demand on artificial lighting—even during the long, harsh New England winters—and mitigate the overwhelming impact of regular visits to a large academic medical center complex.

Another recently completed example of integrated sustainability is the Penn State Cancer Institute at the Milton S. Hershey Medical Center (figures 5, 6, and 7). This bustling academic medical center is juxtaposed with the pastoral, rolling farmland of central Pennsylvania. The challenge was to incorporate comprehensive cancer care programs and research into a single facility. The solution was a series of complementary courtyards and atria that bring patients and staff into closer and more regular proximity to daylight, with views affording strong connections to nature and more gardens.

At Penn State, connection to the community, the land, and landscape are essential. The hybrid research-treatment building has the full complement of sustainable systems that are now the norm: heat-recovery ventilation, high-efficiency lighting, recycling stations, bicycle racks, construction waste management, and the like. But it is the integration of nature to the places where people spend the greatest amount of time that sets it apart.

In infusion therapy, for example, all the treatment bays are arranged to afford views of the garden and connections to their neighbors. The design was inspired by the fields and hills of the region, planned for seasonal variations of the low-maintenance and low-irrigation plantings to provide cancer patients and the staff with connections beyond the cycle of their regular treatments and daily duties (figure 5).

All hallways and corridors end in daylight, even those below grade in the radiation treatment



*Figure 7. Penn State Hershey Cancer Institute.
© Warren Jagger Photography.*

suite using many skylights and open floors, to help guide and orient visitors and to refresh staff that might otherwise spend many hours without seeing the natural progression of the day outside.

The institute's central atrium—a “beehive” of activity—and the main hospital entry lobby are daylight-filled and connected to the gardens. These signature spaces highlight a commitment to good environmental stewardship and an exceptional attention to patient-centered care.

This facility, as well as the University of Massachusetts Memorial Medical Center Ambulatory Care Center, have received certificated recognition for its sustainable design and construction practices under the USGBC LEED program.

In the end, at each of these facilities, the most important element is the thoughtful design that went into crafting the experience of place, in the formal sense, for an individual or for a group of people together. Whether birds in trees, the beauty of flowers in a garden, or dappled sunlit views, distractions from treatment and connections to nature afford people in these facilities a greater measure of sustainability: as healthy buildings and as healthy people.

Yes, they all contain sophisticated behind-the-scenes systems that reduce how much they cost to operate and how many resources they consume, but for the average patient, nurse, or doctor on the average day, these things mean little. As these new facilities age, or are completed, the true tests of their sustainability and the green aspects of their designs may be how little noticed they are by the people who use them.

Like the prized institutions of previous ages, well-designed buildings with integral connections to nature will effortlessly become good places to be, despite the challenging reasons people have for visiting them.
HCD

Michael Hinchcliffe, AIA, LEED AP BD+C, is an Associate Principal with Payette. He can be reached at mhinchcliffe@payette.com.