

A **BIG**-Picture APPROACH

Commitment to stewardship and benefits to patients, staff and community make sustainability a key feature of a new hospital.

JAKE GEHRING, MARCH, EDAC



“Large.” “Always open.” “Energy- and water-intensive with lives dependent upon the availability of both.” Stringent operating requirements make hospitals particularly challenging when it comes to

sustainable design. Nationally, only a small percentage of LEED-certified projects are healthcare related, and most of those are not as energy-demanding as hospitals.

These challenges did not

deter the team at Monroe Clinic in Monroe, Wis., when it began planning a new replacement hospital. The team was committed to achieving LEED Silver certification, which is still pending.

The original hospital, opened by the Congregation of Sisters of St. Agnes in 1939 and expanded in the 1950s and 1970s, no longer met the needs of the growing community. Construction of the new hospi-



tal was an opportunity to build a modern healthcare campus that fulfilled Monroe Clinic's mission of creating healthy communities and its commitment to being a good steward of natural and fiscal resources.

The new 225,000-square-foot, four-story, \$83 million hospital opened its doors in March 2012, and features 50 acute- and critical-care beds, an expanded emergency department, imaging, a surgery

and procedure center, birthing and women's health services, a cardiology department and cardiac rehabilitation services.

The design team, led by architecture and experience design firm Kahler Slater and

The front entrance of Monroe Clinic.

IMAGE COURTESY OF DANA WHEELLOCK, 2012



The cafeteria has access to outdoor rooftop dining.

IMAGE COURTESY OF DANA WHELOCK, 2012

consisting of more than 200 employees from throughout the hospital, was challenged to incorporate sustainable features and operational efficiencies into the new building while using the project as an opportunity to facilitate cultural change throughout the organization. That shared vision shaped the building into a healing sanctuary that provides ample access to natural light and garden views while representing the facility's local cultural context.

As a Catholic-sponsored organization, Monroe Clinic sees stewardship of resources as a

responsibility and an important part of its identity. The team believed that building green was simply the right thing to do, and it wanted the accountability and proof that LEED certification would bring.

Beyond operational cost savings and environmental benefits, Monroe Clinic also recognized the beneficial impacts that a facility designed and constructed for sustainability could have on patient outcomes, and patient and staff satisfaction. The team sought to develop a facility that would be a source of community pride and be

attractive to physicians and staff who want to be associated with an environmentally progressive organization.

MECHANICAL SYSTEMS

The inherent energy- and water-intensiveness of any hospital means that sustainability initiatives must begin with the facility's mechanical systems. Monroe Clinic was no different.

Hurst boilers and chillers that are more than 30 percent more efficient than code requirements were installed, helping to reduce the hospital's annual energy costs by more than \$200,000.

Multistack LLC Model MS70X modular heat recovery ventilators allow heated supply air to be returned to warm, incoming fresh air, further cutting heating and cooling costs from 30 percent to 35 percent.

Excess heat from the data center is captured and funneled to the helipad's coiling ice-melt system during Wisconsin's cold, snowy winters, helping ensure safety and eliminating the need to spread chemical deicing agents on the landing area and walking paths.

The water softening system is equipped with brine reclamation technology that returns some of the salt water to the brine tank for reuse. The system uses 25 percent less water and salt than conventional systems and reduces the amount of brine sent to the local water treatment facility.

All plumbing components, from Zurn faucets and toilets to showerheads, are low-flow to reduce water consumption. Toilets are equipped with dual-flush systems, allowing users to control their water consumption.

Elkay EZH20 bottle fillers are located at drinking fountains to encourage sufficient hydration for staff and other users while reducing waste from plastic water bottles.

LIGHTING AND WINDOWS

The entire building is equipped with energy-efficient lighting, reducing the hospital's energy use by 30 percent



The lobby is an example of the emphasis placed on allowing as much natural light into the building as possible.
 IMAGE COURTESY OF DANA WHELOCK, 2012

and lowering annual energy costs by more than \$35,000. Occupancy sensors were installed where appropriate to ensure that those spaces are lit only when in use.

Paint colors used throughout the building have high light-reflective values, reducing lighting requirements.

Patient rooms have softer, more indirect lighting that feels “homier” than a typical hospital room, creating a more restful environment.

Great emphasis was placed on allowing as much natural light into the building as possible, through such means as the Kawneer curtain wall, reducing the need for artificial light and creating a more pleasant atmosphere for patients, staff

and visitors. Studies show that natural light improves people’s moods and may help patients go home earlier.

High-performance low-E Oldcastle BuildingEnvelope windows, along with exterior sun shades, focus patient attention outward while reducing summer heat absorption and winter heat loss. Many of the 1,000 pieces of glass are etched with nature-inspired designs, further helping connect patients, staff and visitors to the beauty of the great outdoors.

INTERIOR FINISHES

Muralo BreatheSafe low-VOC, ceramic-based paints were used throughout the building. These paints perform like an

Monroe Clinic

LOCATION: 515 22nd Ave., Monroe, Wis.

SIZE: 225,000 square feet

OPENED: March 24, 2012

ARCHITECT: Kahler Slater

INTERIOR DESIGNER: Kahler Slater

LANDSCAPE DESIGNER: GRAEF

GENERAL CONTRACTOR: CG Schmidt

MECHANICAL, ELECTRICAL AND PLUMBING ENGINEERS:
 Ring & DuChateau

STRUCTURAL AND CIVIL ENGINEERS: GRAEF



Products Incorporated

VEGETATIVE ROOFS:

- ☐ LiveRoof Pre-vegetated Hybrid Green Roof System

BOILERS/CHILLERS:

- ☐ Hurst hotwater and steam boilers
- ☐ Multistack LLC Model S70X heat recovery chiller

WINDOWS:

- ☐ Kawneer 1600 Series curtain wall
- ☐ Oldcastle BuildingEnvelope low-E glazing

BRINE RECLAMATION SYSTEM:

- ☐ BrineMaker 9-ton underground unit
- ☐ Widen P400 pump
- ☐ Reading Technologies RT500-G air filter/regulator
- ☐ EchoSwitch II ultrasonic level control
- ☐ ASCO 8210G094 solenoid valve
- ☐ Endot Industries ENDOPOLY 1-inch tubing

PLUMBING FIXTURES:

- ☐ Zurn Z5660 with AquaVantage Z6000AV-DF dual-flush valve toilets
- ☐ Zurn EcoVantage Z5798 ultra-low consumption urinals
- ☐ Zurn Z5340 lavatories
- ☐ Zurn Z6919 ADM AquaSense faucets
- ☐ Haws H1011.8 electric water coolers
- ☐ Elkay EZH20 water refilling stations

PAINT:

- ☐ Muralo BreatheSafe (Interior, water-based, zero VOC)

Patient rooms have softer, more indirect, lighting that feels “homier” than a typical hospital room.

IMAGE COURTESY OF DANA WHELOCK, 2012

epoxy-based paint, but are half the cost and promote healthy indoor air quality.

Carpeting in the hospital was manufactured with significant pre- and post-consumer recycled content and was installed using a low-VOC bonding agent.

CONSTRUCTION WASTE

During construction, contractors strove to divert as much construction waste from landfills as possible. They far exceeded the goal of 75 percent recycling, tracking a recycling rate of more than

90 percent. In all, 5,276 tons of drywall, asphalt, wood, metal and other wastes were recycled.

Sustainable thinking requires innovative strategies and successful implementation to bring maximum benefit to end users, the surrounding community and the environment. More than half of all construction and demolition waste can be recycled into usable commodities that can replace virgin materials and become new revenue streams or reduce project costs. For example, 143 tons of scrap drywall

generated during construction of the hospital was repurposed as soil amendment and animal bedding at a nearby farm, improving cow comfort while saving Monroe Clinic the cost of disposing of the drywall.

SUSTAINABILITY OUTSIDE THE HOSPITAL

Sustainable strategies were not just employed inside the hospital. The hospital was built within the existing campus on the site of a former parking lot, thus maintaining the campus footprint and preserv-



ing adjacent neighborhoods. Taking advantage of the building site's natural slope, the central utility plant was designed as a two-story space, cutting the plant's footprint in half.

The 500-space staff parking lot was designed with narrower parking spaces that, while still wide enough for easy access, saved more than 5,000 square feet of asphalt.

Campus water runoff is directed to a dry retention pond, reducing municipal stormwater management capacity requirements.

Landscaping throughout the campus—including nearly 1,000 daylilies, dogwoods and other native plants—was planned to minimize, and in most cases eliminate, the need for mowing, fertilizing and watering.

Bike racks and dedicated parking spaces for low-emission/hybrid vehicles are located throughout the campus.

The most visible testament to Monroe Clinic's sustainability pledge is its three inten-

sive LiveRoof Pre-vegetated Hybrid Green Roof Systems. Totalling 11,000 square feet, the roofs are designed with hardy plants such as sedum, euphorbia and allium that will provide attractive foliage throughout the seasons. Two are near patient rooms and the third is accessible to staff, patients and visitors. In addition to providing a beautiful connection to nature, the vegetative roofs will reduce stormwater runoff, minimize the heat island effect, double the roofs' lifespans and lower indoor air temperatures from 6 degrees to 8 degrees, decreasing cooling demands.

Continued acceptance of sustainable strategies and technological innovations will help healthcare providers fulfill their mission of delivering quality, cost-effective care. As Monroe Clinic's new hospital shows, achieving maximum benefit from these strategies and technologies starts with a shared passion and strong teamwork among owner, designer and contractors. edc



TOP Paint colors used throughout the hospital and in the family birth and women's center have high light-reflective values, reducing lighting requirements.

ABOVE An aerial view shows the hospital's three vegetative roofs and helipad.

IMAGES COURTESY OF DANA WHEELLOCK, 2012

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