Anything is Possible

The Center for Discovery believes in the impossible—for its clients and health-care facility.
WHEN A CHILD IS BORN WITH A DISABILITY, parents often hear “There is a reason you were chosen to take on this special challenge” or “You’re stronger than I would be in your situation.” These parents, however, don’t always feel strong or understand the reasoning as they face the great difficulties of raising a disabled child. What often empowers them is the support of amazing doctors and physical therapists who motivate, encourage and provide optimism when it’s needed most. • In Harris, N.Y., the CENTER FOR DISCOVERY offers parents and caregivers inspiration through residential and outpatient programs for disabled adults, ages 21 to 90, and children, ages three to 20. Most patients have been diagnosed with autism, pervasive developmental disorders, cerebral palsy, mental retardation and other neurological impairments. Located on a 350-acre (142-hectare) pastoral campus, the center provides medical, physical and psychological assistance in a natural setting featuring livestock and an organic farm. Believing that the environment has a direct correlation to health, the center employs its adult patients on its organic farm, which features raised plant beds easily reachable from a wheelchair.
"I've seen a lot of kids who have been injured or their mother or father was injured by environmental toxins and the outcome is a disabled child or premature birth," says Patrick Dollard, the center's chief executive officer. "Twenty-five years ago we were doing national symposiums about infants at risk where we talked about polychlorinated biphenyls and heavy metals and all kinds of stuff that people weren't thinking about. We've been involved with environmentalism for a long time."

Because of its work with the environment, the Center for Discovery made it its mission to build a sustainable clinic for its patients. The group named the clinic the Discovery Health Center. At first, Dollard and others at the Center for Discovery were skeptical whether a health-care facility could be energy efficient while providing high-quality care. They also wondered how the facility could be built completely without toxic substances and continue to operate without them. With the help of Robin Guenther and Peter Syrett, principals of Guenther 5 Architects PLLC, New York, the unfathomable became reality.

**Melding with the Site**

Wide-open spaces make the Center for Discovery's site seem more like a vacation destination than a medical environment, and that's just what the doctor ordered. "This is a friendly place," Dollard says. "You look out a window and you see cows and a 350-tree apple orchard that's going to produce 4,000 bushels [100 metric tons] of organic apples in about three years. We're also putting in this huge medicinal garden where we're hoping to carefully use certain medicinal herbs, teas and other alternative medicine opportunities to advance our level of care."

The site's built environment currently features 80 buildings, including group homes, school buildings, recreational buildings, and a bed and breakfast in an old farmhouse. Plans for green buildings are in the works, including a new medical center and an institute for environmental health and sustainable farming that Dollard plans to push past the confines of LEED Platinum. "I don't think we're ever going to build anything again that's not as green as we can possibly make it," he says.

When it came time to design the Discovery Health Center in 2000, Dollard contacted Guenther 5 Architects after hearing about the firm's work through a colleague. At first he wasn't necessarily interested in a green building; he just knew he didn't want the Discovery Health Center to have an institutional feel.

"At the time, we were working on trying to use healthier materials in medical work, so we were just starting to formulate our own broader vision of sustainability with saving energy and using healthier materials and less hostile construction processes," Guenther remembers.

The planned site for the Discovery Health Center gave Guenther the opportunity to play with her sustainability vision. What once was the site of four 2-story concrete-block chicken coops was chosen as the perfect place for the clinic. Although the coops had to be demolished (more than 12,350 tons [11204 metric tons] of the concrete ended up as surfacing for roadbeds) and a large
amount of soil had to be trucked in to remediate the damages from nitrogen-filled chicken droppings, Guenther was motivated by the site.

“Because they own 350 acres [142 hectares], the center could’ve picked any number of places to build this building that didn’t require the some level of thought and expense. But they chose this site for all the right reasons,” Guenther says. “They chose it because their organic farm is downstream and the water-quality issues they were experiencing on the farm directly connected to what was left over from the chicken farming processes. Not only could they get better water quality on their farm, they could recover more farmland because the area around those coops hadn’t been used for farming and they could get their clinic on it.”

Guenther notes this is a typical lesson associated with green building; sometimes the money you spend to fix a site that has modest environmental issues comes back to you and the community in ways on which you can literally build.

And build, they did. The 27,000-square-foot (2508-m²) Discovery Health Center features a high-performance building envelope. According to Syrett, the Center for Discovery was resolve on wood-frame construction so a lot of time was spent adapting the enormous building to that construction method. The building includes steel columns and concrete bearing walls in certain places. The envelope features exterior sheathing, wood siding and cellulose insulation with an R-value of 26.

To minimize the use of finish materials, the 3 1/2-inch- (89-mm-) tongue-and-groove roof deck sits on top of glulam beams, creating a beautiful wood ceiling in the public area. The roof system features rigid insulation with an 18.75 R-value.

Orientation of the building was important to the architects because of the inclement weather that tears across the rural landscape. According to Guenther, the building’s orientation and location on the site were determined by a complex set of factors: where the road that intersects the property was, the idea that healing in terms of Feng shui comes in from the north and all the views on the site were to the northeast.

“The grade on the site allowed us to do a 2-story building with pretty broad exposure to the east,” she notes. “It wasn’t a building that organized itself around an east-west axis (primary façade south-north), but it does kind of barricade itself from the northwest, which is where the worst weather comes from in the winter.”

Guenther and Syrett managed to place windows in almost all the occupied spaces of the building, including public areas, exam rooms and the gyms. Guenther notes the building organizes itself to maximize daylighting and screen direct sun penetration. A brie-soleil, or horizontal wood lattice strips, on the building’s exterior provide shading on the glass in areas that get direct sun. Sensors prevent electric lights from turning on when there is plenty of daylight, and multiple levels of lighting are available in some spaces so when there is not enough daylight an appropriate level of electric lighting is provided.

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“People really like the building, and when I ask why they tell me it’s all the daylight,” Syrett notes. “It feels open and sunny even on the cloudiest days. I think that is directly attributable to the daylighting techniques we used.”

Inside and Out
Although LEED guidelines were not available when Guenther and Syrett began working with the Center for Discovery, Guenther’s work with ground-source heat pumps and the amount of land available at the site dictated the use of these highly efficient heating systems.

“I innocently asked ‘what kind of fuel do you use,’” Guenther explains. “They’re not in natural gas territory so all their buildings run on fuel oil. At the time, we asked if they’d consider doing ground-source heat pumps. Dollard didn’t really know what they were, but there were enough area examples of them that he could kick the tires.”

The center traditionally builds its buildings on radiant slabs because of their high level of thermal comfort. The slabs also remove the chance for those who are wheelchair-bound to run into heating elements. Marrying the radiant slab into the ground-source heat pump system was an effective link and gained the attention of the New York State Energy Research and Development Authority (NYSERDA), which was offering rebates for ground-source systems and had an energy incentive program in place.

At that point the U.S. Green Building Council’s LEED 2.0 became available. Guenther 5 Architects had seen the 1.0 pilot and was interested in certifying the Discovery Health Center. “We brought LEED to the Center for Discovery and said ‘We could do this; we’re already pretty far along with a sustainable building,’” Guenther recollects. “NYSERDA was offering to cost share the energy modeling and commissioning costs. Based on that, the center said ‘let’s do it.’”

Although some things changed after deciding to move forward with LEED certification, for the most part the design team was on the right track. Water conservation was an important aspect of the building’s design. Inside, hand-washing stations and bathrooms feature low-flow fixtures. But according to Syrett, the real water story comes from the roof. Any water that runs off the roof is captured and supplies the fire reserve for that part of the campus. In addition to the fire reserve, the rainwater is used to irrigate the farm.

Because the firm always has had an interest in the link between the built environment and health, Guenther and Syrett took great pains in specifying low-VOC and nontoxic finishing materials for the Discovery Health Center. In line with that idea, the center only has used green cleaning solutions and methods since it opened in 2004. Six months after the Discovery Health Center opened, the Center for Discovery mandated green cleaning for all its campus facilities. Thomas Burnham, executive assistant for the center’s director of environmental policy, says the decision basically came down to odor from typical cleaning fluids. “The anecdotal evidence that green cleaning products are better is overwhelmingly positive though we can’t say we’ve had four less asthma attacks,” he notes.
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Better than Expected

Today the Discovery Health Center is LEED certified and performing beyond expectations. According to Burnham, the center used 457,600 kilowatt hours of energy in 2005. That number represents 28 percent energy savings over ASHRAE 90.1 compared with a conventional building of the same size and 50 percent savings compared with a similarly sized health-care facility.

Not only is the building performing better than anticipated, the mindset of its administration has changed. Guenther explains: “When Peter and I started working with the Center for Discovery and we pulled into the executive/administrative parking lot, everybody had SUVs and they would say ‘it snows here’ or ‘we’re on these dirt roads, we really need these big powerful vehicles.’ Now when you pull into that parking lot, 30 percent of the vehicles are hybrids.

These people see themselves fundamentally as being part of something larger. They believe their decisions have impact, and that to me is the most interesting part of doing this work. It’s like the gift that keeps on giving; it keeps reminding you day in and day out that we all have an individual responsibility to environmental stewardship.”