Assurance of Quality

BY CHARLES J. CARTER, S.E., P.E., PH.D.

Choosing steel for a health center in Haiti assures designers they will get what they specify.

An internal open covered walkway at the GHESKIO Center will serve as the facility's waiting area and organizing spine.

The GHESKIO Center in Port au Prince, Haiti, will combine nutrition, ob-gyn, pediatrics, adolescent and family planning departments within a single complex.

WHEN ANDREW WRIGHT, AIA, LEED AP, of Tonetti Associates Architects, PC, New York, and David T. Biggs, P.E., of Ryan-Biggs Associates, PC, Clifton Park, N.Y., collaborated to develop the architecture and structural plan for the GHESKIO Health and Nutrition Center in Port au Prince Haiti, they quickly recognized the challenge of building a hurricane- and earthquake-resistant building in a region that has little construction supervision and code enforcement. "We chose a steel frame building because of the lower mass of the building as compared to the standard Haitian concrete and masonry construction, and because of the great control of the detailing of the structure," said Wright. "Proper reinforcement is rare in Haiti—if reinforcing steel is placed at all." Wanting a solution that would result in the actual construction matching the design, the design team chose a steel structure.

The client on this project is GHESKIO, the Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections, which was founded in 1982. Affiliated with the Cornell University Global Health Initiative, GHESKIO is well recognized for its work with the HIV/AIDS population, and more recently, with the people displaced by the Haiti earthquake of January 12, 2010.

About the Center

The GHESKIO Maternal Health and Nutrition Center is the result of the team effort of the architects and GHESKIO staff to design a building that reflects the organization's commitment to patients, that is responsive to the climate of Haiti, and that recognizes the construction constraints in post-earthquake Port au Prince. The design brief identified a variety of discrete patient components: ob-gyn, pediatrics and adolescent clinics, family planning and nutrition centers and pharmacy and phlebotomy. In addition, the brief identified a staff facility for research and training.

The importance of proximity among these components was stressed to increase the efficiency of health care. To achieve this, the components have been integrated into an architectural program in which the total area of the complex, including covered walkways, is 2,070 sq. m (22,281 sq. ft). The enclosed building area is 1,430 sq. m (15,392 sq. ft).

In response to these goals, the patient clinics are housed in separate pavilions organized linearly along an internal open covered walkway. Patients enter the facility through a two-story portal building onto this internal street. It serves as the waiting areas and organizing spine. Green areas located along the spine will provide places for the children to play as well as shade.

From the street there are views to the sports field and the mountains beyond. The area is screened to shield the users from the sun. The density of the plan is balanced by clustering of waiting areas, the planted areas and sunscreens.

The second floor of the portal building is a non-public area housing offices, research facilities and areas for staff training. In the area closest to the existing campus buildings is a shaded outdoor nutrition training area. There mothers can learn to operate high-efficiency stoves and best cooking practices.

The low pavilions are designed to take advantage of natural ventilation and to increase the air movement in the central street. The windows of the west façade of the portal building and the pavilion windows facing east are shielded by awnings.

In response to the threat of flooding from hurricanes and the possibility of another major earthquake, the building is built on a plinth, which will raise the building above flooding and isolate the structure from soil liquefaction. The building will rest on a heavy mat slab.

The possibility of using an alternate waste water treatment system is under review. One process of biological treatment that appears to offer some virtues is a system of artificial wetlands in which the waste water cycle is repeated during the course of a day. The waste water is kept below a level of planted rocks and not accessible to the public.

Renderings of the courtyard, entrance, and corridor (see accompanying graphics) show how promising and inviting a health center this building will be.

Construction Partners Wanted

The design team undertook this project as an opportunity to help the people of Haiti after the devastation they experienced in the Haiti earthquake. As the design is nearing completion and construction is now being planned, the team is seeking like-minded general contractors, steel fabricators, steel erectors, and others who would like to be part of this project. Interested parties can contact Andrew Wright at andrew@tonettiaa.com or by calling 212.581.2750. For more information about GHESKIO, visit **www.gheskio.org**. MSC

◄ Steel framing has been chosen for the GHESKIO Center because of its lower mass and the greater likelihood of construction that matches the design.

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