GHESKIO Cholera Treatment Center
Port-au-Prince, Haiti

Case Study Format Developed By:
AIA Academy of Architecture for Health | Research Initiatives Committee

About | Design Intentions

Cholera—a curable, preventable disease that had not existed in Haiti in over a century—emerged following the 2010 earthquake and ran rampant throughout the country. Since the outbreak, cholera patients have been treated in temporary tents, which are difficult to keep sanitary, hot in the Haitian climate, and deficient at ensuring prevention from infection and the human right to dignified health care.

In partnership with leading Haitian health care provider Les Centres GHESKIO, MASS designed and built a state-of-the-art permanent cholera treatment center, incorporating an on-site wastewater treatment facility to thwart recontamination of the water table and consequent spread of the disease. The GHESKIO CTC is the first purpose-designed permanent cholera treatment center in Haiti, and has a 300 patient capacity for thirty-five mild cases and sixty-five severe cases.
The Haitian example will provide a model for other countries to emulate in the years ahead.

Dr. Roger Glass, Director of the NIH Fogarty International Center

**Sustainable Design**

The building is made from compressed stabilized earth blocks (CSEBs). All materials were fabricated in-house and sourced locally, which allows for complete oversight and quality control, ensuring high-grade product. The CSEBs reduce CO2 emissions as they require half the cement, and create jobs, since a team of 10-12 is required to operate the manual machine for each production shift.

Bordering a landfill settlement along the coast, the new 7,500-square-foot reinforced-concrete and steel structure is earthquake- and hurricane-resistant and sits on a slab raised more than 3 feet above grade. This not only thwarted potential flooding but also provides room for a cistern under the building that captures rainwater from a gutter on the steel roof. The rainwater is treated and purified for nursing and cleaning. To prevent contamination of the groundwater (only about 6 inches below grade), the architects worked with San Francisco-based Fall Creek Engineering to develop a wastewater decontamination system. This efficient anaerobic biodigester with four chambers (instead of the more typical three) introduces chlorine at the third stage.

**TRAVEL DISTANCE ANALYSIS**

1. Admitting/Diagnostic/Treatment
2. Rainwater Catchment System
3. Wastewater Treatment System
4. Chlorine Production and Community Distribution

**KEY SPACES:**

1. Outdoor Waiting Area
2. Entrance
3. Administration/Check-in
4. Mild Cases Observation (830sf)
5. Severe Ward (414sf)
6. General Ward (710sf each)
7. Patient Attendant Seating
8. Staff Entrance to attendant seating area 124ft
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DESIGN STRATEGIES

Interior Design
On the interior, there are distributed hand wash sinks and pour flush toilets for direct access to clean hands and waste disposal, and distributed floor drains for collecting soapy water from floor washing. A 1.5m perimeter access corridor around the building allows for expedited movement of beds and staff, and nurse stations are situated in each patient bay for direct observation.

PROJECT SUMMARY:

Project: GHESKIO Cholera Treatment Center
Project location: Port-au-Prince, Haiti
Owner/Client: Les Centers GHESKIO
Architect: MASS Design Group
Structural engineer: Matt Sisul, YCF Group s.
General contractor: a., Port-au-Prince
MEP: Arash Guity, Mazzetti
Civil: Fall Creek Engineering, Inc.
Photographs/Illustrations: Iwan Baan
Construction cost: $700,000
Building area GSF: 7,500 square feet
Cost per square foot: $93
Substantial completion date: March 2015

AIA/AAH DESIGN AWARD WINNER
Category D: Innovations in Planning and Design Research (Built and Unbuilt)

JURY COMMENT

▶ The craft of design and construction are evident throughout this facility. This is a culturally relevant response to specific community concerns that will have an impact far beyond the act of placing a healthcare building on a site. Sustainability for the environment by addressing the building systems and sustainability for the community by developing worker skills are key attributes that set this project apart.

▶ It addresses the functional need in a creative and cultural sensitive way while also providing on the job skills training for the workers who were building it so they will have the employable skills to provide for their families long after this project is complete. The utilization of local resources and embodiment of local culture is powerfully executed.

▶ This submission embodies the triple aim of improved quality, reduced cost and expanded population health – acting as both a demonstration of sustainable water technologies and as a training opportunity for the Haitian construction industry. This project holds multiple lessons for healthcare designers of all scales: healing the community as well as the patients through culturally specific, innovative solutions.