Architecture can heal.

Butaro Oncology Support Centre
Butaro, Burera District, Rwanda
Infectious Disease Mitigation

Over the past ten years, our team has developed an expertise in the planning, design, construction and evaluation of transformative healthcare environments.

Our history has been defined by partnering with leading organizations at the front lines of the world’s major health challenges - from responding to acute epidemics of Ebola and cholera, to addressing the chronic injustices of structural health inequities. Always prioritizing local capacity building and sustainable development practices, we are uniquely positioned to shape innovative, elegant, and cost-effective health care infrastructure globally.

From our beginning, MASS, or a Model of Architecture Serving Society, has been committed to dignifying design that creates transformative impact. Our work in Butaro directly responded to the needs of the community, and through continued proximate engagement, we worked with Partners In Health and the Government of Rwanda to transform Butaro into a hub for global health excellence.

Our work in Rwanda, Haiti, and Liberia taught us that true impact extended beyond the singular healthcare facility. We have worked directly with the communities and governments of these nations to create new standards of healthcare infrastructure.

MASS is committed to demonstrating that architecture can heal, and that design must become a necessary consideration in infectious disease mitigation and pandemic readiness. Our research and project teams conduct evaluation of our projects along measures of social, economic, environmental, and health impacts. We review our findings to continually refine our designs and find ways to share what we have learned among other industry leaders.

Select Project Chronology

2008 Butaro Medical Campus
Butaro, Rwanda

2011 GHESKIO Tuberculosis Hospital
Port-au-Prince, Haiti

2011 Rwinkwavu Neonatal Intensive Care Unit
Rwinkwavu, Kayonza District, Rwanda

2011 Maternity Hospital of Rwanda
Nyamata, Rwanda

2011 Mamohau Hospital
Mamohau, Lesotho

2011 Liberia Health Infrastructure Standards and Guidlines
Liberia

2011 Hierarchy of Needs: Cincinatti Children's Hospital Design
Cincinnati, Ohio, US

2012 Butaro Doctors’ Housing
Butaro, Bureera District, Rwanda

2012 Munini District Hospital
Munini, Nyaruguru, Rwanda

2012 Kayanja Centre for Global Health
MUST University Campus, Mbarara, Uganda

2012 St. Boniface Hospital
Fond des Blancs, Haiti

2012 Bishop Masereka Medical Centre
Kasese, Uganda

2013 GHESKIO Cholera Treatment Center
Port-au-Prince, Haiti

2013 Maternity Waiting Village
Kasungu, Malawi

2013 Rwinkwavu Hospital Masterplan
Rwinkwavu, Kayonza District, Rwanda

2014 Albert Schweitzer Hospital
Lambarene, Gabon

2015 Buhanga Specialty Hospital
Kigali, Rwanda

2015 Butaro Sharehousing
Butaro, Bureera District, Rwanda

2015 University of Global Health Equity (UGHE)
Butaro, Rwanda

2015 Childbirth Facilities and Maternal Health
Nationwide, US

2016 Rhode Island Neighborhood Health Station
Central Falls, Rhode Island

2016 Redemption Hospital
Monrovia, Liberia

2016 Redemption Hospital Campus Masterplan
Monrovia, Liberia

2016 Nyarugenge District Hospital
Kigali, Rwanda

2017 African Center of Excellence for Genomics of Infectious Diseases Laboratory
Ede, Nigeria

2018 Boston Health Care for the Homeless Program
Boston, Massachusetts, US

2019 Family Health Center at Virginia Parkway
McKinney, Texas

2019 Butaro Oncology Support Centre
Butaro, Bureera District, Rwanda
How We Work

“I haven’t ever seen buildings like this. In the process of making them, MASS has created a different language about what architecture can aspire to be.”

—Chris Anderson, Chief TED Curator

We immerse ourselves.
Getting proximate is necessary to understand the unique constraints and opportunities, uncover questions we didn’t know need to ask, build relationships, and develop a shared vision for how design can achieve the project mission. This expanded concept of engagement also meaningfully brings a broader group of stakeholders into the process.

MASS was commissioned by The Atlantic Philanthropies and the S.D. Bechtel, Jr. Foundation, which jointly funded over $1 Billion in projects for non-profits and those serving the public, to evaluate the role of design in achieving impact. Based on these case studies and research we authored the Purpose Built design tool that we use to guide our partners through all phases of the process and to achieve maximum impact over the entire life cycle of their projects.

Deep research.
We leverage grants from governments and foundations to dig deeper and uncover opportunities to catalyze and amplify the mission of our partners. We have partnered with leading researchers and think tanks, such as the Ariadne Lab, to publish and advocate for this work in peer reviewed journals of medicine and public health, op-eds, and as public policy at the national and international level.

Making architecture.
We understand that each choice, each detail, each material selection is an opportunity to create value. It will affect the way services are delivered, determine what and how many jobs are created, the technologies we advance, the mark we leave on the planet, and leave a lasting impact on the people who build and use the spaces we create. Our philosophy incorporates the most cutting edge technologies in design and fabrication, while also incorporating the value of craft, the handmade, and the locally fabricated.

We stay connected.
We measure to understand how well did we do, did this building and landscape achieve our collective goals? We devise post-occupancy evaluations to measure impacts of the project, qualitatively and quantitatively.

We help tell the story.
MASS began producing films as a tool to uncover the cultures, histories, and everyday experiences that inform design and make projects possible. The process of collecting narratives helps us understand and convey why a building was needed, who it is being built for, and whose hands constructed it.

We are a collective.
MASS Design Group is governed by a board of directors who oversee and advise on the organization and the maintenance of our mission. The board is comprised of a diverse group of thought leaders from different sectors and perspectives that meet quarterly to review the organization’s strategy and operations.

The full-time senior leadership of MASS Design Group is comprised of design principals and senior directors: Sierra Bainbridge, Christian Benimana, Justin Brown, Kelly Doran, Patricia Gruits, Chris Kroner, Erin McGurn, Sarah Mohland, Michael Murphy, Alan Ricks, David Saladik, Amy Shaw, Matt Smith, Katie Swenson, and Peter Torrebiarte, and Regina Yang who develop and administer the strategy of MASS’s work. The group meets weekly to assess where to direct grants in the form of in-kind services, select what projects to take on, and review general operations and strategy.
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As part of the Partners In Health mission to bring high-quality healthcare to Rwanda's poorest regions, and developed in partnership with the Rwandan Ministry of Health, MASS Design Group was brought in to plan and design a state-of-the-art district hospital facility in Butaro.

MASS and PIH's partnership created a holistic model of architecture that choreographed the process of construction to employ, educate, and empower the local community. The 150-bed Butaro District Hospital was developed to provide both inpatient and outpatient services, with a particular emphasis on maternal services. A laboratory, neonatal intensive care unit, and operating rooms were core programs to provide referral care and critical care services. Centered around an umuvumu tree, the hospital is a landscaped campus of buildings on the terraced hillside. It is designed to mitigate and reduce the transmission of airborne disease through innovative systems, including overall layout, patient and staff flows, and natural cross-ventilation.

Local materials—such as the volcanic rock from the Virunga mountain chain—and local labor-intensive practices delivered site-appropriate, sustainable design, and stimulated the local economy. The careful coordination of design and construction held the budget of the hospital to two-thirds of comparable projects elsewhere in Rwanda.

**Butaro District Hospital**
Butaro, Burera District, Rwanda

**Date:** Completed 2011  
**Client:** Rwanda Ministry of Health, Partners in Health  
**Size:** 6,000 sq m / 64,583 sq ft  
**Construction Budget:** $5.5MM USD

A 150-bed tertiary hospital with in- and outpatient services that employs natural cross-ventilation to mitigate airborne disease transmission.

**Awards & Press**
- BBC News  
- Metropolis Magazine  
  “The 16 Best Buildings of the Twenty-First Century (So Far)”, 2016  
- The New York Times  
  “In Redesigned Room, Hospital Patients May Feel Better Already”, 2014  
- The New Times Rwanda  
  “Butaro Hospital: An Icon of Modern Health Service Delivery”, 2014  
- Time Magazine  
  “Designs with Dignity: The Architects of a New Kind of Health Care”, 2012
Developed for Partners In Health, who are pioneering non-communicable disease care in sub-Saharan Africa, the Butaro Cancer Center of Excellence (BCCE) is the first comprehensive cancer center in East Africa. The facility adjoins the Butaro District Hospital and administers IV chemotherapy in an outpatient setting.

The clinic’s chemotherapy hall is designed to be a patient-centric space. Its infusion chairs arranged radially around central pods for ease of physician access. The arrangement allows each patient access to the exterior through an operable pivot door façade, bringing the beautiful landscape and vista of the Virunga mountain range directly into the infusion room. The ventilation system maximizes natural air flow and includes strategically located ultraviolet germicidal irradiation lights, which neutralize 99 percent of harmful pathogens. The facility and many of the furnishings were built with locally sourced materials, custom-assembled on site. The facility’s construction created jobs for more than 550 people, 30 percent of them women.

**Butaro Cancer Centre for Excellence**
Butaro, Burera District, Rwanda

*Date: Completed 2013*
*Client: Partners In Health*
*Size: 575 sq m / 6,190 sq ft*

The first comprehensive cancer center in East Africa, designed to provide a spectrum of diagnostic oncology and cancer treatment services.
The Butaro Oncology Support Centre is the first inpatient cancer support facility in East Africa, providing both a home and psychosocial support for patients and families traveling long distances for treatment at the adjacent Butaro Cancer Centre of Excellence (BCCE). In 2013, MASS teamed with Partners In Health to open the BCCE, now serving over 3,000 patients from across the region as a hub for medical excellence. The new Butaro Oncology Support Centre will support the increasing number of patients at the BCCE and the growing demand for inpatient care.

To inform the design of the Support Centre, MASS met with patients, attendants, and clinicians, revealing the unique needs of each user group. The design includes outdoor porches and a gallery common area with spaces to sit, to share moments with other patients and families, and to enjoy the view. The Support Centre's exterior walls curve with the steep, terraced hillside, offering beautiful views of the surrounding hills for patients and their families.
Rwanda is slated to build several district hospitals in the coming years. An individual exemplary facility is not enough to achieve systemic change, and prototypical buildings poorly implemented can cause disastrous effects. Creating a model of high-quality infrastructure that can be easily adapted to the context and needs of the individual project can have a transformative effect on the way health infrastructure is developed globally.

MASS partnered with Rwanda Ministry of Health to develop a set of principles driven by design to improve health outcomes that can be adapted to the specific needs of each site's context and programmatic requirements. The MoH Typical Plans will become a global model of implementing a framework that can adapt to the specific context and hospital needs and improving health outcomes.
Catalytic Infrastructure
Port-au-Prince, Haiti

The Catalytic Infrastructure feasibility study extends and scales the work of the Cholera Treatment Center. A team of researchers and designers spent three months in Port-au-Prince, Haiti, meeting with a variety of stakeholders: government officials and departments, non-governmental organizations, private waste services, community groups and members in an informal settlement, and GHESKIO doctors, nurses, and staff.

The team partnered with a women’s group, community members, students, and community health workers to map existing water, wastewater, and sanitation infrastructure in the informal settlement of Cite de Dieu. Meetings with government partners in water services (DINEPA), private waste service company (JEDCO), and an international non-profit working to reuse and recycle waste (Ramase Lajan), among others, helped to inform a business plan and feasibility study. The MASS team iteratively worked with these partners and the community leaders to best understand how the community’s priorities and needs aligned and could be addressed by a systematic scaling of the driving ideas informing the cholera treatment center. The team incorporated these various inputs of data (digital mapping, policy documents and strategies, community workshops, individual meetings, and business models) to inform a bottom-up, off-the-grid proposal to address rampant infrastructural concerns in Port-au-Prince.
Cholera emerged in Haiti in October 2010 after contaminated waste leaked into the water- 
table of Port-au-Prince. The disease spread rapidly, and Haiti’s health infrastructure had 
not yet recovered from the earthquake that had occurred in January that same year. 

Les Centres GHESKIO, a Haitian healthcare and research organization led by Dr. Jean 
William Pape, mobilized to combat the cholera outbreak through direct treatment in tent-

based clinics. However, Dr. Pape recognized that a new model of patient care was needed 
in order to provide long-term solutions to Haiti’s systemic infrastructural shortcomings. 

The Cholera Treatment Center (CTC) was designed to accommodate one hundred 
patients at a time. Skylights and plantings create comfortable environments for recovering 
patients. Large fans, high ceilings, and a custom-built perforated facade help to move air 
through the facility. All materials were chosen for their durability and infection-resistant 
properties. The building has the capacity to treat more than 250,000 gallons of sewage a 
year, helping prevent recontamination of the area's water-table. 

Since its opening in 2015, the CTC has helped mitigate the spread of cholera, affectively 
treating sick patients in dignifying spaces while increasing staff comfort and efficiency, 
and responding to systemic challenges through local water and sanitation infrastructure.
The GHESKIO Tuberculosis Hospital provides TB patients with an effective, dignified place to stay for the duration of their long-term treatment. The 2010 earthquake in Haiti deeply disrupted the country’s health infrastructure and treatment systems, and precipitated an outbreak of multidrug-resistant tuberculosis (MDR-TB). Patients require treatment lasting up to 24 months, and remain infectious for the first few months of their treatment regimen.

Both infection control and addressing patient trauma—emanating from extended seclusion and severe side effects of medication—informed the design of the GHESKIO Tuberculosis Hospital. Strategies of passive ventilation and infection control help reduce in-hospital transmission of TB while lessening energy costs for the facility. The hospital accommodates 32 patient isolation suites, exam and x-ray rooms, offices, nurse stations, and two pharmacies, setting a new standard for TB care in Haiti.

Despite exacerbated post-earthquake healthcare conditions, GHESKIO has had incredible success treating patients with multidrug-resistant tuberculosis (MDR-TB) at the hospital. Of their first 110 patients after the earthquake, 86 percent were cured or still receiving treatment—a number comparable to the most effective treatment programs around the world.
The African Centre of Excellence for Genomics of Infectious Diseases (ACEGID) is leading the effort to better equip the African continent to stop epidemics as quickly and effectively as possible. In partnership with the Broad Institute and MASS Design Group, ACEGID is creating a new genomics laboratory in Ede, Nigeria—the first of its kind on the continent, enabling African scientists to use cutting-edge technology to handle highly toxic pathogens.

The center is designed to increase collaboration between scientists, students, and international partners through an integrated layout of labs, shared space, offices, and classrooms, allowing collaborators to share ideas fluidly across disciplines. The building will also showcase the high tech potential of locally available materials such as stabilized rammed earth walls.

ACEGID will build capacity by training African scientists in genomics-based tools for the control and elimination of infectious diseases. By sharing these findings globally, ACEGID will become part of a bio-surveillance network monitoring some of the world’s greatest health threats and supporting clinical care.

**ACEGID: African Centre of Excellence for Genomics of Infectious Diseases**

**Ede, Osun State, Nigeria**

**Date:** 2017 - Present  
**Client:** African Centre of Excellence for Genomics of Infectious Diseases (ACEGID) and Redeemer's University  
**Size:** 1,300 sq m / 13,933 sq ft  
Rammed-earth genomic lab facility outfitted with cutting-edge technology to support the surveillance, control, and elimination of infectious diseases.
New Redemption Hospital Caldwell
Caldwell, Montserrado County, Liberia

Date: May 2016-Present
Client: Liberia Ministry of Health (MOH), The World Bank
Size: Built: 9,200 sq. m. Site: 35 ac
Budget: $16MM

Hospital design and masterplan for a welcoming, transparent, effective, safe, and dignified setting for care in the wake of the Ebola epidemic.

Since 2010, MASS Design Group has been working with the Liberia Ministry of Health on a series of projects and initiatives, including a masterplan for the new Redemption Hospital in Caldwell. In collaboration with Rebuilding Basic Health Services, an initiative of the John Snow Institute funded by USAID, MASS previously developed architectural and engineering standards for all scales of facilities of health care development in Liberia, following a civil war that decimated the country’s healthcare infrastructure and service delivery system.

The Redemption Hospital in Caldwell is the centerpiece of Liberia’s renewed drive to build an optimized system to avert future epidemics and deliver comprehensive services to a growing population. Phase 1 encompasses comprehensive pediatric and maternity services and makes use of solar chimneys to minimize energy use, ensure effective infection control, and reduce operational costs. When completed, the two story, 155-bed facility will comprise the highest quality facility in the country.
Although universal architectural standards and guidelines exist to assist mobility impaired patients in medical facilities, these strategies are universally inappropriate for children. Our team partnered with Cincinnati Children’s Hospital’s renowned Cerebral Palsy Team, and further found that the designed spaces contradicted many of the specific needs of Cerebral Palsy patients. Through a three-pronged methodology of immersive research, spatial analysis and mapping, and outcome assessments, we sought to challenge and rethink how medical environments could be better calibrated to serve children with mobility and communicative impairments.

MASS conducted several week-long immersive research visits to shadow doctors and staff; document caregiving processes; and engage children, family, and caregivers to better understand unaddressed issues and identify opportunities to leverage built spaces. We found with simple alterations, guidelines and codes could begin to achieve more specificity for these individuals—vastly improving their health care environments, and by extension, health and therapy outcomes.

To summarize our findings, MASS authored a Hierarchy of Needs report establishing guidelines and recommendations on modernizing ADA compliance for children with mobility and communicative impairments. The guidebook additionally offered suggestions to retrofit typical healthcare spaces and specific design principles to the space at Cincinnati Children’s Hospital.

Liberia National Health Infrastructure Standards and Guidelines

Date: 2013–2014
Client: Ministry of Health, Liberia
Rebuilding Basic Health Services (RBHS)
Partners: Fall Creek Engineering, Mazzetti Engineering, NOUS Engineering

Liberia’s civil war between 1989 and 2003 decimated the country’s healthcare infrastructure and service delivery system. Recognizing the importance of rebuilding, the Government of Liberia developed the National Health and Social Welfare Policy and Planning 2011-2012 (NHSWPP) to increase access to basic health services and strengthen the decentralized management of the health system.

MASS’s research team collaborated with the Liberian Ministry of Health and Social Welfare to propose National Healthcare Infrastructure Standards and Guidelines for the country, emphasizing investment in decentralized rural care networks paired with the development of specialized referral centers. After a comprehensive assessment of existing facilities and situational analysis, MASS produced clear building standards to establish minimum compliance for all existing and new health facilities by participant stakeholders, including establishment of a transparent Project Delivery Process comprised of pre-construction reviews and approvals, definition of roles and responsibilities of the Infrastructure Unit and stakeholders, and establishment of a process of regular monitoring of all existing facilities for regular maintenance and evaluation. With an ongoing presence in Monrovia established to guide infrastructure development in the post-Ebola reconstruction effort, MASS is encouraging use of these guidelines as it spearheads the effort to rebuild key nodes in the referral system, including the Redemption Hospital in Monrovia.

Hierarchy of Needs

Cincinnati, OH

Date: April 2011–April 2012
Partners: Cerebral Palsy Team, Cincinnati Children’s Hospital

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Since 1985, Boston has assured access to the highest quality health care for all homeless men, women and children in the greater Boston area. The integrated care model at BHCHP unites physicians, physician assistants, nurse practitioners, nurses, case managers and behavioral health professionals in close collaboration. They follow patients in a variety of settings - on the streets, at the Barbara McInnis House, in our shelter-based clinics, in the hospitals and in housing - providing regular contact and uninterrupted care.

As a national leader in healthcare delivery, the organization has continued to grow. In response BHCHP purchased a 5,000 SF space to relocate its accounting department, freeing room in the existing facility for its healthcare programs to grow. Recognizing the need for the department to be connected to the mission of the organization in spite of its physical disconnect, MASS worked with BHCHP to develop an interior design solution to reconnect the department to the organization’s culture. This resulted in an open-plan design and innovative half-part central meeting zone to encourage collaboration while taking advantage of the site’s expansive views and access to sunlight.
Homelessness and opioid addiction are national challenges faced by many cities in the US. In Massachusetts, the state with the 5th highest rate of homelessness in the nation, deaths from opioid overdose have tripled in the past five years. An increasing number of residents from across the state seek treatment in Boston, the leading city in the provision of recovery services in the region. Historically, a dozen social service organizations have been located along the Massachusetts Avenue Corridor - running between the South End and Roxbury neighborhoods through the industrial Newmarket District. The recent closing of Boston’s ‘Long Island Shelter’ in 2014 placed further demand on services on Massachusetts Ave, contributing to a rise of homeless and opioid use on the streets and causing the area to receive the negative moniker of ‘Methadone Mile’.

As the neighborhood intersection develops, inadequate urban planning and rising real estate values are leading to widespread gentrification, heightening tensions between residents, patients, local businesses, service providers, law enforcement, and local government departments. In response, in fall 2016 Mayor Walsh established a Working Group on the issues of Homelessness and Addiction at Massachusetts Ave and Melnea Cass bringing together a range of stakeholders to address these issues.

After attending Working Group meetings, MASS Design Group established a collaboration with the Boston Architectural College and the Rhode Island School of Design to explore how design can contribute to the short and long terms solutions to these public health issues. This collaboration brought together architects, landscape architects, and industrial designers to conduct interdisciplinary research, analysis of the urban conditions, and community engagement, in order to develop holistic and inclusive design solutions to the issues at Massachusetts Ave and Melnea Cass Ave. The project resulted in rich data visualization, film documentation and a masterplan strategy for the corridor that will address gaps in facilities and services for those seeking support for addiction or homelessness as well as create a just and equitable Boston for all. This masterplan was presented to the Working Group for feedback in summer 2017. Next steps are to identify priorities and key partnerships to move forward with implementation.
Harm Reduction for People Who Use Drugs
Durban, South Africa

Date: December 2018–Present
Client: Safer Cities, eThekwini Municipality

In collaboration with Advance Access & Delivery and the Safer Cities Initiative of eThekwini Municipality, MASS is exploring how the built environment can amplify harm reduction activities for people who use drugs.

Issues of opioid addiction and homelessness are intimately tied to conditions in our built environment. Trends in housing, real estate development, urban planning, and social service provision intersect with individual and community well-being across the world. Early research and visioning work with Advance Access and Delivery (AADD) is working to answer: How can a building prevent drug overdose? In collaboration with AADD, our team in South Africa has developed guidelines for the renovation of existing facilities and the creation of a new “Africa Centre for Hope.” Building upon research from international models, we aim to create an exemplary program for opioid treatment and HIV/TB care. Service provision is envisioned to include safe needle exchange, methadone therapy, TB/HIV care, linkages to primary care, and sexual and reproductive health resources, tailored to the different vulnerable and street communities the Centre will serve.
African Leadership University (ALU) aims to create transformational leaders by encouraging students to declare a mission, not a major. ALU’s Kigali Innovation City Campus will house 1,200 undergraduate students in its first phase. The modular design directly reflects ALU’s unique learning cycle with spaces like student work hives, facilitated learning labs, and centralized pods dedicated to self, peer, and facilitated learning, and a campus that promotes discovery. Students are encouraged to interact and collaborate as they learn to think entrepreneurially and launch their own ventures.

The design pursues spatial efficiency by weaving interior and exterior spaces ideal in Kigali’s climate and terraces down the hill looking back toward the city. Through in-depth engagement with leadership, faculty and staff, and students, MASS developed a site-specific program, masterplan, and architectural designs that create spaces that work in tandem to support students across each phase.

Date: 2017-2020
Client: African Leadership University
Size: 6,500 sq m / 69,965 sq ft
Academic campus for 1,200 undergraduate students.
The University of Global Health Equity (UGHE) in Butaro, Rwanda will train a new generation of global health leaders from around the world. The vision of Partners In Health, UGHE seeks to advance healthcare delivery and expand health science education by rethinking every aspect of the university—from curriculum and research priorities, to the design and location of the campus. MASS led the design of housing and created a masterplan for the 30 hectare campus.

Following the university’s pedagogy, designs were informed by a “One Health” approach that recognizes the intersection of human, ecological, and animal health. Based on deep research into social interaction, learning spaces, and regional ecological patterns, the design fosters trust and community while encouraging discovery at every scale. Located adjacent to the Butaro District Hospital and Butaro Cancer Centre of Excellence, UGHE contributes to an active system of rural health delivery in a region that struggled to access basic healthcare a decade ago. Balancing health education and ecological restoration, UGHE will advance health delivery and educational leadership in Butaro for years to come.
The University of Rwanda commissioned MASS to design a center of excellence in biomedical engineering, rehabilitation, and e-health to provide a hub for introducing leading clinicians and technicians to Rwanda’s healthcare sector. The center aims to be a model for biomedical innovation and engineering throughout Africa.

The University of Rwanda Center of Excellence of Biomedical Engineering & E-Health (URCE) is financed through the African Development Bank and various East Africa member states. The objective of the project is to contribute to the development of a relevant and highly-skilled, competitive workforce in biomedical sciences and e-health to meet East Africa’s immediate labor market needs. The project seeks to boost the East African regional integration strategy in science and technology, service delivery, and expansion of labor markets.

The seven-story building’s innovative and unique facade draws upon the local craft tradition of imigongo for its pattern. The building’s energy plans and programming incorporate passive principles, including daylighting as well as natural ventilation for airflow and temperature control. These systems are married with program and collaboration needs, resulting in a space that sparks innovation and connectivity between all users.

**University of Rwanda Center of Excellence of Biomedical Engineering & E-Health**
Kigali, Gasabo District, Rwanda

**Date:** July 2018–Present  
**Client:** University of Rwanda  
**Size:** 70,934 sq m  

The University of Rwanda commissioned MASS to design a center of excellence in biomedical engineering, rehabilitation, and e-health to provide a hub for introducing leading clinicians and technicians to Rwanda’s healthcare sector. The center aims to be a model for biomedical innovation and engineering throughout Africa.

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Nyarugenge District Hospital
Kigali, Nyarugenge District, Rwanda

Nyarugenge District Hospital is a 300-bed hospital that implements the National Program and Design Standards developed by MASS for Rwanda’s Ministry of Health to guide the creation of several new district hospitals in the coming years, as adapted to contextual, demographic and programmatic needs. The hospital will serve the most densely populated district in Rwanda.

Phase I included a 120-bed referral hospital with an emergency department, high-dependency unit, operating rooms, labor/delivery and postpartum wards, adult and pediatric medicine wards, an outpatient clinic, pharmacy, diagnostic imaging and dentistry. Paired bar buildings step gently down the urban hillside, oriented to the contours to reduce erosion, maximize views from inpatient wards, and promote natural ventilation. The campus’ landscape features multiple outdoor waiting areas, an early labor walking garden, and a living wall that enhances thermal comfort for the building’s interiors. MASS provided construction supervision for the project to ensure safe and high quality implementation of the design.

Date: 2016 - Ongoing
Client: Rwanda Ministry of Health
Built: 2,360 sq m / 25,403 sq ft
Site: 14,587 sq m / 157,000 sq ft
Budget: $10 MM
Design and construction of a 300-bed hospital that implements national hospital design standards developed by MASS for the Rwandan Ministry of Health.
Munini District Hospital
Munini, Nyaruguru District, Rwanda

Date: 2016–Ongoing
Client: Government of Rwanda
Size: 14,427 sq m / 155,000 sq ft
Budget: $13 MM

A 300-bed hospital implementing new design standards developed by MASS for one of Rwanda’s poorest districts.

MASS designed the Munini District Hospital to pilot the National Program and Design Standards, developed by MASS for Rwanda’s Ministry of Health. A 300-bed facility in Nyaruguru, the hospital sets a new standard for referral hospital infrastructure in one of Rwanda’s poorest and most remote districts.

The facility reduces the spread of communicable diseases with natural ventilation systems, isolated services, and improved access to hand-washing stations. Patient, staff, and visitor flow are optimized to minimize overlap with at-risk patients. The buildings conform to the natural contours of the landscape with strategic openings for prevailing winds. A landscaped path to the main entry provides tranquil waiting areas, given the majority of patients arrive on foot. The building is equipped with a cutting-edge maternity suite, including delivery, OR, ICU, and NICU wards to further reduce Rwanda’s infant and maternal mortality rates.

Awards & Press

European Healthcare Design Awards: Future Healthcare Design
Architects for Health, 2019

Canadian Architect Award of Excellence
Canadian Architect Award, 2015

LEVEL 1 PLAN
Block X
1 Reception + Cashier
2 Pharmacy
3 Lab

Block Y
4 Maternity Reception
5 Pre-Delivery
6 Delivery
7 Post-Partum Ward
8 Chapel

Block Z
9 Maternity Surgery
10 NICU + Kangaroo Care
11 Post C-section
12 OB/GYN Ward
13 Post Traumatic Delivery Ward
14 Warehouse and Services Entry
15 Auditorium
Muso Health Community Health Centers
Mopti Region, Mali

Date: April 2015 - June 2017
Client: Muso Health
Size: 8 Community Health Centers

Muso Health is a non-profit whose mission is to end preventable deaths rooted in poverty. Their proactive healthcare model employs a three-pronged approach: proactive search, doorstep care, and rapid access clinics. Muso trains community healthcare workers to actively seek patients in the community and treat them at home, with free care provided at rapid access clinics that aim to build trust in the healthcare system. Muso’s eight clinics are located in the midst of a current conflict zone and offer immunizations, outpatient and inpatient services, and labor and delivery.

MASS’s involvement in this project started with an immersion and assessment of the eight existing centers that Muso proposed renovating. MASS worked with Muso on a replicable clinic design that uses local materials to match the existing buildings and a natural ventilation system that includes dust-mitigation. The surrounding communities and Muso were able to choose the colors as the project was implemented through a local architect.
McKinney, Texas is a rapidly growing community that is challenged to meet the needs of its expanding population, which include access to healthcare, transportation, housing, and employment opportunities, resulting in disparate health outcomes. The Family Health Center seeks to address this need by providing a sustainable, holistic approach to community health as a Federally Qualified Health Center (FQHC). In addition to primary medical, behavioral, and dental care services, the center houses community-oriented student training programs, and onsite programs that link patients to key resources. It also incorporates maternity and pediatric services within a community health context.

The design concept mimics traditional Texan breezeway houses, or “Dogtrot houses,” which are characterized by multiple buildings connected by a breezeway and common roof. The center will have distinct buildings for each service, allowing visitors to experience the services individually, while remaining united through shared social spaces inside and out. Through its emphasis on health, connectivity, and sustainability, the Family Health Center supports patients in living the fullest life possible. Design is well underway, with the project expected to be completed in the summer of 2020.

Family Health Center at Virginia Parkway
McKinney, Texas, US

Date: 2018-Present
Client: Family Health Center at Virginia Parkway
Size: 25,000 Sq ft
Budget: $8 MM

A patient-centered, medical home designed to create a sustainable model for health through access, connection, and education.
Indigenous people's health status represents some of the worst metrics in the U.S. and due to a history of medical ‘colonization’ and associated abuses, there is deep cultural mistrust of establishment medical care. This represents an opportunity to create a more allopathic, traditionally grounded facility, representing a mode of healthcare delivery that more thoughtfully reflects the powerful culture of the Dakota Lakota, and has the potential to become a model for a better approach to health care delivery and spaces for indigenous peoples.

Building on UCSF work on ‘decolonizing medicine’ and the powerful multi-tribal protest movement at Standing Rock, this project is positioned to rethink appropriate health care delivery for indigenous peoples, ideally bringing the critical need of this marginalized group to the attention of the public and the profession.

This project will become a permanent place for decolonized medicine to be delivered to the community of Standing Rock.

Mni Wiconi Community Health Clinic
Fort Yates, North Dakota
Maternity Waiting Village
Kasungu, Kasungu District, Malawi

In Malawi, maternal mortality continues to be a major public health challenge, largely because few deliveries are attended by a skilled professional. Maternity waiting homes (MWH) address this issue by providing a facility within reach of a hospital or health center where expectant mothers, after their 36th week, can stay until their delivery in order to receive care. In collaboration with the University of North Carolina and the Malawi Ministry of Health, MASS developed a new prototype for maternity waiting homes to provide additional areas to sleep, adequate ventilation, and sanitation.

This prototype reflects the local vernacular, creating a maternal “village” from an aggregation of smaller sleeping units rather than a large, single “home”. This strategy provides necessary privacy while allowing for greater adaptability to the site, optimizing natural ventilation, daylighting, rain-water collection, and solar power. These features work to ensure the health and sustainability of the structure, and creates a safe, comfortable, and dignified place for mothers and their guardians. The design and construction prioritizes local material and local labor ensuring that the prototype can be replicated to other sites in the future. Post-occupancy studies have shown that this new village prototype has improved the overall experience of mothers as compared to a traditional maternity waiting home transforming a negative experience of “waiting” into an empowering one.

Date: September 2013–October 2015
Client: Malawi Ministry of Health, The Presidential Initiative for Safe Motherhood, University of North Carolina - Malawi
Size: 7,212 sq ft / 670 sq m

Awards & Press
Midwifery
“Built spaces and features associated with user satisfaction in maternity waiting homes in Malawi”, 2018

Architizer A+ Awards
Architecture +Humanitarianism, Winner, 2017

The Plan Magazine Awards
Health: Health Centres and facilities, Winner, 2016

Architectural Record
“Labor of Love: A Short-Term Housing Village in Malawi By MDG Provides Safety and Comfort for Expecting Mothers”, 2016

**JJ Carroll Redevelopment**  
**Brighton, Massachusetts**

Date: In Progress, CDs complete 2020.  
Client: 2Life Communities  
Size: 142 units / 180,000 sqft

142-unit age-restricted affordable housing development featuring a health center, commercial ad openspace all positioned for help residents age in community.

The JJ Carroll Redevelopment advances the vision of aging in community. The 142-unit age-restricted affordable housing community is thoughtfully considered to help residents live better, longer.

MASS worked with 2Life Communities - a leader in providing age-restricted affordable housing - to develop a model for high density housing that prioritizes connecting residents to each other and the communal activities linked to aging well. The conventional double-loaded corridor apartment block was reconsidered to create clusters of unit “neighborhoods” that plug into a central zone of community program space. This framework creates opportunities for meaningful communal programming at a variety of scales throughout the project. From an urban design perspective, the perceived scale and bulk of the project is greatly reduced and the various parts of the project are deliberately positioned to best respond to the surrounding urban fabric.

In addition to providing much-needed affordable housing, the project features commercial space, a community health center, and over 15,000 SF of publicly accessible open space. Prioritizing open space, the JJ Carroll project welcomes the community at large through intergenerational programming and play space, epitomizing the organization’s commitment to better connecting those increasingly susceptible to isolation to the benefits of community.
Redemption Hospital: Campus Masterplan
Monrovia, Liberia
Client: Ministry of Health, Liberia
Partner: Ministry of Health, Liberia
Size: 7,965 sq ft / 740 sq m
MASS is partnering with Liberia’s Ministry of Health to develop the Master Plan and design documents for the new Redemption Hospital in Caldwell.

St Boniface Hospital Masterplan
Fond des Blancs, Haiti
Date: August 2012–January 2013
Client: St. Boniface Hospital Foundation
Size: 79653 sq ft / 7400 sq m
Located inland on Haiti’s south peninsula, in the remote town of Fond-de-Blancs, the St. Boniface Hospital worked with MASS on a new maternity ward, laboratory, and masterplan for a future facility expansion.

Bishop Masereka Medical Centre
Kasege, Uganda
Client: Bishop Masereka Christian Foundation
Size: 5,000 sq m / 53,820 sq ft
In partnership with Bishop Masereka Christian Foundation, MASS designed an efficient, modern hospital for the region surrounding Kasese, Uganda to offer improved services with new wards, reception, microbiology and hematology lab, HIV consolation, operating theater, and radiology facilities.

Rwinkwavu Hospital 20-Year Renovation & Expansion Master Plan
Rwinkwavu, Rwanda
Date: June 2013–December 2013
Client: Rwanda Ministry of Health, Partners in Health
Size: 16,620 sq m / 178,896 sq ft
In 2013, MASS partnered with Inshuti Mu Buzima (IMB) to help the Rwinkwavu District Hospital in the Kayonza District consider its 20-year development and growth from 2014-2034.

Maternal Health and Design
United States
Date: August 2015–November 2016
Client: Robert Wood Johnson Foundation
Partner: Ariadne Labs
Building on the emerging research that modifiable design elements of clinical environments can have a significant upstream influence on the safety, affordability, and experience of healthcare delivery, MASS, in partnership with Ariadne Labs, conducted a one-year project that will lay the groundwork for establishing this link.

Albert Schweitzer Hospital
Lambarene, Gabon
Client: Albert Schweitzer Hospital
MASS provided visioning and planning services for the Albert Schweitzer Hospital in honor of its centennial anniversary to preserve the legacy of Dr. Schweitzer and address several challenges related to its current campus.

Buhanga Specialty Hospital
Gahanga, Kicukiro City of Kigali, Rwanda
Date: 2018–Present
Client: Expert Care Inc.
Size: 1,483 sq m
Passive and Mechanical infection control, Campus plan with open air circulation and waiting areas, Courtyards defining public spaces for the hospital users, Patient centric ward and optimized OR sequence

Rhode Island Neighborhood Health Station
Central Falls, RI
Date: January 2015–August 2015
Client: Rhode Island Department of Health
MASS worked with a coalition of partners in Rhode Island to develop the concept, programming, and community orientation strategy for the Neighborhood Health Station as part of the aspiration to create a statewide network of health stations.
“The single greatest work of 21st century American architecture”

—Mark Lamster, Dallas Morning News on the National Memorial for Peace and Justice

Recent Press and Awards

Architect’s Newspaper
“Six big-name teams shortlisted for National Pulse Memorial and Museum”, 2019

J. Irwin and Xenia S. Miller Prize
Exhibit Columbus, 2019

2019 International Fellowship
Royal Institute of British Architects

Architectural Record
“New Institute for Justice and MASS Design Group Reimagine Prisons”, 2019

The Boston Globe
“Walsh announces master plan effort to improve Franklin Park”, 2019

Architect’s Newspaper

The Boston Globe
“Winning Design Announced for Monument to Martin Luther King Jr., Coretta Scott King”, 2019

2019 Top 100 List
The Architectural Digest

2019 Top 100 Architecture Firms
Domus Magazine

CNN
“The Rwandan design school re-shaping Africa’s future”, 2019

The World’s Most Innovative Companies
Fast Company, 2018

Architectural Digest
“These Rising Star Designers Are Making the World a Better Place”, 2018

Dallas Morning News
“The single greatest work of 21st century American architecture will break your heart”, 2018

TIME Magazine
“The National Memorial for Peace and Justice. The World’s 100 Greatest Places of 2018”, 2018

The Republic
“Miller Prize winners chosen. Exhibit Columbus attracts designers ‘at the top of their game.’”, 2018

National Design Award Winner: Architecture
Cooper Hewitt, 2018

2018 Award for Architecture
American Academy of Arts and Letters

The New York Times
“A Lynching Memorial Is Opening. The Country Has Never Seen Anything Like It”, 2018

Washington Post
“A powerful memorial in Montgomery remembers the victims of lynching”, 2018

Top 10 Design Firms
ARCHITECT Magazine, 2017

The New York Times
“In Haiti, a Building Fights Cholera”, 2017

ARCHITECT Magazine
“Editorial: MASS at Scale”, portfolio issue of the magazine dedicated to MASS Design Group, 2017

A+ Awards: Architecture + Humanitarianism
Architizer, 2017

The New Yorker
“The Legacy of Lynching, on Death Row”, 2016
“Since MASS began in 2008, what has been central to their ethos and approach is that architecture must be both beautiful and centered on the dignity of the people that it serves.”

—Chelsea Clinton, introducing MASS for the 2017 National Design Award for Architecture

**GOOD**

We believe everyone deserves good design. Good design is beautiful and just. It is essential to delivering human rights, essential services, and the spaces that will build a better world.

**CLEAN**

Being climate positive is an imperative. Our projects strive for not only efficient operation, but the design of the entire supply chain to be sustainable, resilient, and regenerative.

**& FAIR**

Looking at the design and construction process holistically—from material extraction to assembly and operation—ensures we have safe and equitable labor practices.
We are 120+ architects, landscape architects, engineers, writers, film makers, and researchers representing 20 countries across the globe.

MASS Team Member’s Professional Registrations

- LEED Leadership in Energy and Environmental Design
- RAIC Royal Architectural Institute of Canada
- RIA Rwanda Institute of Architects
- AIA American Institute of Architects
- RIBA Royal Institute of British Architects
- RAIC Royal Architectural Institute of Canada
- IDI Institute of Engineers Rwanda
- ASLA American Society of Landscape Architects
- C. Eng Chartered Engineer with Engineering Council, UK
- ICE Institution of Civil Engineers, UK
- MIStructE Member of Institution of Structural Engineers
- MCIWEM Member of Chartered Institution of Water and Env. Mgmt
- MStructE Member of Institution of Structural Engineers
- FICE Fellow of Institution of Civil Engineers
- FIStructE Fellow of the Institution of Structural Engineers
- OAQ Ordre des Architectes de Quebec
- RICS Royal Institution of Chartered Surveyors
Organizational Qualifications

As a mission-driven 501(c)(3) organization, MASS Design Group was founded to support other nonprofits deliver capital projects that fundamentally improve lives. Our mission is to research, build, and advocate for architecture that promotes justice and human dignity. As such, the vast majority of MASS’s clients are themselves nonprofits, government organizations, and NGOs. Current and past clients include Partners in Health, the Equal Justice Initiative, Colorado College, Conservatory Lab Charter School, Ariadne Labs, Boston Healthcare for the Homeless, and local nonprofit developers Historic Boston Inc., Nuestra Comunidad, and Preservation of Affordable Housing, among many others.

Federal Employer Identification Number
61-1659704

Age of Firm
10 Years

Current Number of Employees
2019: 114

Firm Location
334 Boylston Street, Suite 400
Boston, MA 02116

Law and Jurisdiction
MASS Design Group Ltd is a 501(c)(3) not for profit corporation incorporated in Washington D.C.

Insurance
MASS Design Group has coverage for:
1. General Liability up to $1,000,000 per occurrence, $2,000,000 per aggregate
2. Automobile Liability up to $1,000,000
3. Umbrella Liability up to $1,000,000
MASS intends to secure additional coverage if necessary to meet the requirements outlined in the Search Statement.

Litigations and Claims History
MASS Design has no history of litigation or claims.
MASS Design Group is an architecture and design collective with offices in Boston, MA; Poughkeepsie, NY; and Kigali, Rwanda. Our mission is to research, build, and advocate for architecture that promotes justice and human dignity. We support partners to advance their impact through the built environment, including architectural design, master planning, landscape architecture, engineering, and strategic planning, as well as research, evaluation, education, and policy development.