



Vital Places for Health

Leadership and Capabilities for COVID-19 Response Strategies

1 Global Health Sector Overview

Responsive and Transformative

We know that health and wellness are essential to human happiness. That's why the spaces we design create a sense of hope and possibility. They deliver care but go further, connecting us as humans to each other, and to the natural world. We innovate at every point along the spectrum of planning and design to deliver spaces that nurture the human spirit and inspire deep bonds within the community.

Balancing immediate and critical needs with a passion for tomorrow's possibilities

We work at the intersection of best practice, medical technology, and care delivery. This helps us realize our goal: guiding communities toward a healthier future while supporting immediacy for the range of care required for COVID-19 within our communities.



↑
Penn Medicine at Cherry Hill - Adaptive Reuse
Cherry Hill, NJ
Top: Before, Bottom: After

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Main Line Health at Exton Square- Adaptive Reuse
Exton, PA
Top: Before, Bottom: After

We design safe and adaptable environments for people

PATIENTS AND FAMILIES

Pandemic response design requires consideration of safety over all. This can leave important social connections and physical comforts out of the conversation. We believe that more than ever, this is the time to be creative and include opportunities for social connections through digital means and comfort with a focus on infection prevention.

CAREGIVERS

Healthcare environments are work settings for physicians, nurses and care team who provide services for patient care. For care teams to do their jobs well, individually and in collaborative settings, and to thrive as caregivers, their work areas must be designed for effectiveness, efficiency, and well-being. Natural light, views, and spaces for respite allow care team to be reinvigorated. Design and the experience it creates can help support peak performance and satisfaction in a high-stress workplace. This is especially true in emergency, critical care, and isolation based environments where caregiver resiliency is key.

COMMUNITY

The ecosystem of health and wellness extends to the greater community. Places for prevention, wellness, and care are a part of the community fabric and must be designed for ease and convenience. Personal responsibility for health and access to information along with care at the most convenient and appropriate levels results in an engaged and empowered community.

Essential strategies for maximizing your resources now

LEAN PROCESS IMPROVEMENT DESIGN

Doing more with less. Getting rid of waste and optimizing resources. Providing better quality care because outdated and time-consuming procedures have been eliminated. These are the promises of a lean-designed response and are embedded in our solutions.

ALTERNATIVE PROJECT DELIVERY (P3/PFI/IPD)

Modular and Prefabrication Responding to immediate care needs requires streamlined design and construction processes that deliver well-designed, consistent, and safe care settings. Through this process we offer clients the an agile approach with tailored solutions.

FLEXIBILITY AND ADAPTABILITY

One thing is certain—change. To respond, our anticipatory approach to design is based on standard room sizes for multiple uses; interventional platforms for diagnostic and treatment spaces; discrete paths for the public, care team, patients, and materials; structural bay sizes that accommodate multiple functions; and strategic placement of fixed elements. Along with these strategies, we recognize that change management is needed for organizations in rapid transition.

PROGRAM AND PROJECT MANAGEMENT

Projects can be full of surprises. We know from experience that delivering a fast-track and complex project without surprises doesn't mean there won't be challenges, but our creative strategies can head off most problems and provide early warnings on the rest, meaning you can manage with confidence.

OPERATIONAL READINESS

You need to be ready when your new space is ready. Our operational readiness planning professionals help you plan and implement all the operational activities required to successfully provide programs and services in your new or adapted facility. We prepare your professionals with operational processes that allow them to conduct business seamlessly in your new environment.

Disciplines and Services

Together, the medical planning, architecture, engineering, program management, information communications technology, and operational readiness consulting services combine to provide a complete and integrated service offering for all health sector areas of practice. From renovations to existing buildings, to the design and construction of temporary and permanent new facilities, our integrated Stantec team is able to provide all consulting services required.

MEDICAL PLANNING

Functional programming to determine department sizes, bed requirements, flow, stacking and massing for effective patient care.

ARCHITECTURE

Detailed architectural design of healthcare space including infection prevention and control requirements.

INTERIOR DESIGN

Space planning and fit-out for adaptive re-use healthcare facilities and expertise in healthy materials to support wellbeing.

MECHANICAL ENGINEERING

Detailed design of air systems, plumbing, medical gases and fire protection for healthcare facilities. Specific focus on outbreak control and pressure sensitive space design.

ELECTRICAL ENGINEERING

Detailed design for power and lighting systems specific to Healthcare facilities.

STRUCTURAL ENGINEERING

Detailed design for foundations and superstructure.

PROGRAM AND PROJECT MANAGEMENT

Coordinated and effective management approach that drives timely solutions with proven tools to communicate across organizational levels.

INFORMATION COMMUNICATIONS TECHNOLOGY (ICT)

Detailed design of information management and information technology systems.

OPERATIONAL READINESS

Design aspects to address continuity of operations, emergency preparedness, resiliency and climate change impacts.



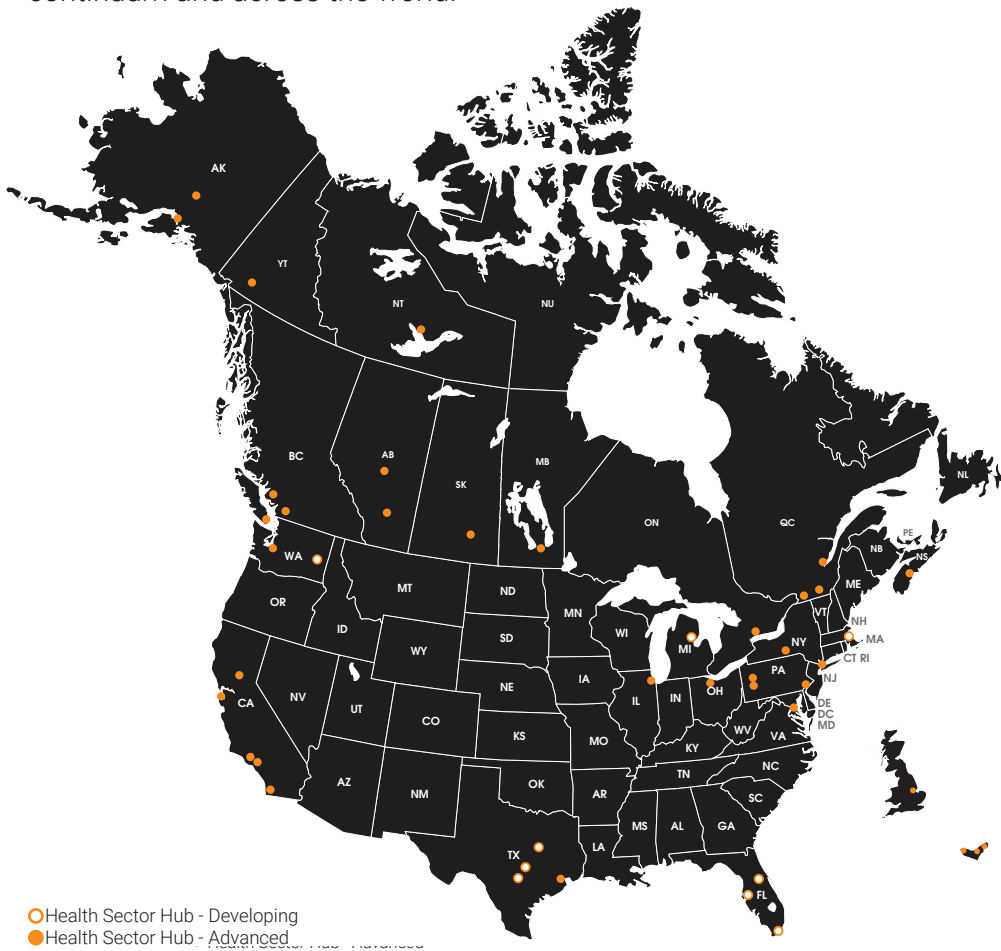
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Geisinger AtlantiCare Health Park, Manahawkin Campus - Adaptive Reuse
Manahawkin, NJ
Top: Before, Bottom: After

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Northwell Health Syosset Surgi Center- Adaptive Reuse
Syosset, NY
Top: Before, Bottom: After

2 Global Health Sector Leadership Team

Industry Leaders

Our clients are in the business of creating care environments that align with the evolving needs for our communities, and we design to make that happen. Stantec has been a leader in healthcare planning and design for more than five decades. Principles of safety, infection prevention, efficiency, adaptability and access, and continuous improvement are hallmarks of our design approach for community health crises. We design to improve efficiency and reduce costs while facilitating connections amongst care teams, researchers, academics, patients, and families. Our work improves the health of our communities across the care continuum and across the world.



○ Health Sector Hub - Developing
 ● Health Sector Hub - Advanced

US PACIFIC

San Francisco, CA
 Sacramento, CA
 San Diego, CA
 Van Nuys, CA
 Irvine, CA

CA MOUNTAIN

Calgary, AB
 Edmonton, AB
 Kamloops, BC
 Vancouver, BC
 Victoria, BC

US NORTHWEST

Anchorage, AK
 Fairbanks, AK
 Seattle, WA
 Spokane, WA

CA PRAIRIES + TERRITORIES

Regina, SK
 Winnipeg, NB
 Yellowknife, NT
 Whitehorse, YT

US SOUTH

Orlando, FL
 Miami, FL
 Tampa, FL

CA CENTRAL + ATLANTIC

Dartmouth, NS
 Hamilton, ON
 Ottawa, ON
 St. John's, NL
 Toronto, ON
 Quebec City, QC

US NORTHEAST

Binghamton, NY
 Boston, MA
 Butler, PA
 New York, NY
 Philadelphia, PA
 Pittsburgh, PA
 Washington, DC

UNITED KINGDOM

London, UK

MIDDLE EAST

Dubai, UAE
 Doha, Qatar
 Abu Dhabi, UAE

US CENTRAL

Austin, TX
 Cleveland, OH
 Houston, TX
 Chicago, IL
 Plano, TX
 San Antonio, TX

As a leader with more than 25 years of experience, Brenda is responsible for inspired and energized service for our healthcare clients in a timely manner. Her goal? Creating places of healing and wellness. Brenda has supported the national development of reimagined care models. Through active listening and engagement, she translates design and planning intentions into places that reflect the mission and vision of her clients.



BRENDA M. BUSH-MOLINE
 AIA, ACHA, LEED AP, EDAC
 US Health Vice President Sector Leader, Chair

Over **4,000 buildings professionals** with **450 healthcare practitioners** and more than **175 awards won** for health sector projects.

FIRM RANKINGS

#1 TOP 10 ARCHITECT/DESIGN FIRMS - HEALTHCARE BY COMMERCIAL CONSTRUCTION + RENOVATION

#2 ARCHITECTURE FIRM BY MODERN HEALTHCARE

#3 TOP 150 HEALTHCARE ARCHITECTURE FIRMS BY BUILDING DESIGN + CONSTRUCTION

3 Snapshot of Stantec's Current Engagements in North American COVID-19 Responses

The Stantec Health Sector team is already deeply involved in COVID-19 response efforts to transform built environments for a range of care models. Please see below for a detailed example from a tertiary care center followed by briefs on other health systems, and representative of our ongoing efforts:

DETAILED EXAMPLE:

Confidential US Midwest Academic Medical Center: Stantec provided regulatory interface, technical thought leadership and development of external resources for this academic medical center in achieving an increase in beds for patient care addressing the COVID-19 Virus. This assistance achieved increase in bed capacity on several strata, as outlined below.

- First, Stantec negotiated approval with the State and Federal Agencies to allow conversion of Operating Rooms into two patient COVID-19 patient care rooms with ventilator capability to treat the most critically ill COVID-19 infected patients. Our solution was universal in nature and used materials available to most healthcare institutions. Regulatory approval was critical for achieving appropriate level of care for the patient, achieving liability protection and reimbursement alignment for the client. As a result of our success in negotiating these agreements, Stantec is engaged to assist the client with articulating and negotiating alterations to spaces within their (nine) other hospital locations.
- At a second strata – Stantec is assisting both our Academic Medical Center client and the state regulators in articulating the requirements for creation of off-site patient care areas using mobile solutions such as tents, panelized construction and mobile vehicles. We gathered and presented resource material for our Academic Medical Center client to use in determining which off-site options were most viable and could be constructed in an expedited manner.
- At a third strata – Stantec has located viable off site locations for expanded patient care within a mandated 60 day window of implementation - these include vacant/available laboratory space, hotels, dormitories and space in nearby hospitals for our client to expand into should the volumes dictate. We have advised the owner on design considerations and unique challenges faced in altering these spaces.

REPRESENTATIVE EXAMPLES IN BRIEF:

- **Confidential client:** Stantec providing design and engineering consulting services for creation of several hundred bed hospital in parking lot location with non-traditional building materials and consideration of modular units
- **Confidential client:** for a series of three (3) major medical centers currently in final stages of construction, supporting operational efforts to increase speed to market and increase patient care capacities
- **Confidential Mid-Atlantic Academic Medical Center:** supporting standards development for negative pressurization of patient care areas as basis of design for immediate start projects
- **Ongoing consultancies across the US:** consultation to healthcare organizations across the US to transform existing patient care environments to negative pressure isolation for patient care

4 Evolving Trends and Perspectives on the Ongoing Evolution of COVID-19 Responses

Today healthcare providers and governmental agencies are deeply concerned about the lack of capacity in healthcare inpatient beds available for COVID-19 patients. There's a pressing need to increase patient bed space capacity as quickly as possible to treat infected patients. Following is a brief overview of design expertise that our healthcare clients from around the world are currently asking for.

ACCOMMODATING THE INFLUX OF COVID-19 PATIENTS QUICKLY

Preferably, COVID-19 patients are treated in Airborne Infections Isolation (All) Rooms because these enable care providers to contain the virus within a given patient room and because the respiration necessary for critical COVID-19 treatment produces infectious aerosols. State licensing agencies and healthcare planning codes require that minimally 10% of all licensed beds be constructed as patient isolation rooms, however this current built quantity falls far short of the current demand for All's.

As a result, Clinicians and Administrators face a key question: how can they quickly create more negative pressure isolation rooms that can accommodate the influx of COVID-19 patients? In parallel with the migration of COVID and non-COVID patients, hospitals are adding more All-compliant isolation rooms to house ventilator dependent patients. Some hospitals are now locating two patients into every private patient room that already has "decompressed" med gases available for two Med/Surg level patients with the caveat that they both must be COVID negative.

CREATING COMPLIANT SPACES FROM EXISTING PERIOPERATIVE SERVICES ZONES

Clients are also creating compliant spaces carved out of their existing perioperative service zones. Operating Rooms are very quick, viable candidates for conversion into isolation spaces because of the way they are constructed and provided with the right types of ventilation, air exchange capacity and ducted exhaust.

CREATING COMPLIANT SPACES FROM EXISTING SPECIALTY SERVICE ZONES

In addition to the Operating Rooms, we are working with clients to consider the PACU, LDR, C-Section, Bronchoscopy, Endoscopy, Interventional Radiology, and Cardiac Cath Lab areas. Leveraging our experience, we are assisting clients in negotiating CMS and state approval to use these spaces and be reimbursed at an ICU level.

CREATING NEGATIVE PRESSURE SPACES IN LINE WITH ASHE

We are also working with clients to convert existing neutral pressure patient rooms and departments to become negative pressure spaces. Although not specifically All level spaces, the creation of negative pressure spaces is in line with the practice guidelines being provided by the American Society of Healthcare Engineers (ASHE).

CREATING NEGATIVE PRESSURE OPERATION ROOMS FOR COVID-19 PATIENTS REQUIRING SURGERY

Further considerations are being given towards conversion of existing positively pressurized operating theaters to negatively pressurized operating theaters, for use in performing surgeries on infected patients. Through the use of appropriate design techniques we are able to create spaces that are both safe to the infected patient and the remainder of the hospital population.

CONSIDERING TEMPORARY STRUCTURES

One of the viable strategies in creating additional COVID-19 and general bed capacity which hospitals, healthcare organizations and governmental agencies are now turning to is the use of temporary structures external to the hospital. There are a variety of options available and can be located adjacent to the hospital buildings or offsite; a location decision that must be weighed by the healthcare organization. The types of temporary structures could be either constructed as tents or fabric structures, lightweight panelized constructed buildings, or even modular buildings.

CONSIDERING CONVERTIBLE SPACES

There is a strong push for conversion of “healthcare similar” facilities for “hospital” status, even field hospital designation. Examples of this include converting existing hotels, dormitories, classrooms/schools, community centers, convention centers or other large unoccupied buildings into COVID-19 or general patient care spaces. Beyond infrastructure considerations, there are numerous other design and planning considerations that we are providing. These types of spaces conversions require equipment storage, clean and soiled facilities, waste holding, materials management, food/dietary supplies, and spaces for caregivers to rest, wash, and to apply and discard PPE products. Further consideration is being given to how these spaces, equipment and staff will be disinfected.

STANTEC'S COMMITMENT TO CONTINUED EVOLUTION

The Stantec Health Sector team is committed to contributing to and advancing the body of knowledge and potential solutions to rapid response required for COVID-19. Beyond this, we are equally committed to re-aligning healthcare strategy for future investments as this pandemic or others have the potential to cycle over time.



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Our Lady of the Lake Regional Medical Trauma Center Helipad
Baton Rouge, LA

5 Relevant Experience

Designing with a Purpose

Throughout the COVID-19 evolution the Stantec Health Sector team has supported the ongoing initiatives by healthcare organizations to respond to the growing needs of our communities. Our capabilities and talents allow us to offer insights and ideas about rapid response solutions from our real-time global efforts. We have assisted in knowledge sharing regarding existing mechanical systems to create negative pressure spaces for isolation, supported efforts to convert existing perioperative platforms into isolation-based patient care spaces and ideation on creating temporary care settings for COVID-19 patients outside of traditional healthcare settings.

In the pages that follow, we include examples of our relevant experience that has allowed us to pivot effortlessly in support of the COVID-19 response.

CONVERSIONS OF NON-MEDICAL USES FOR HEALTH-RELATED SERVICES:

Stantec offers capabilities to successfully assess and communicate information related to conversion of existing non-healthcare based facilities and structures to medical use across the continuum of care from preventive care and clinics, to outpatient diagnostics, to acute and intensive inpatient care to post-acute and rehabilitation care. Our world-class global health sector team has actively participated in conversions for decades as a way to integrate care into communities. We are thrilled that this expertise can now be tapped to support care environments for this pandemic. Included are recent examples of these assessments resulting in successful conversions. Many of these are focused on outpatient care based on recent past needs of our healthcare clients. Due to Stantec's capabilities we are able to take on both small scale and mega-scale assessments, outlining existing conditions and requirements to upgrade to various levels of care and treatment deemed necessary, from testing centers to critical care centers with complex isolation requirements.

LARGE SCALE, COMPLEX HEALTHCARE PROJECTS:

Stantec's health sector team has programmed, designed and planning some of the most complex and difficult healthcare solutions in the world. Our integrated teams focused on lean operations, experiential design and efficient building systems offer best in class solutions that have created flexible and adaptable care platforms for highly specialized services for internationally recognized healthcare systems.

DISASTER RECOVERY:

At Stantec, we're trained professionals with cool heads and warm hearts. We understand what it's like to be affected by disaster—as residents of the communities where we live and work, we've been there during and after the unexpected occurs. That's why we deeply believe in the value of the disaster management process for minimizing risk and accelerating recovery through our:

- Multidisciplinary expertise
- Risk-based, all-hazards approach
- Best practices
- Community engagement
- Innovation

After a disaster strikes, communities need a range of support services to cope and tackle the recovery tasks that lie ahead. Our disaster recovery experts understand the importance of making good resource management decisions from the beginning. We'll quickly tune-in to local disaster impacts and find the best ways to mitigate damage and accelerate recovery. We understand how your institutions, economy, environment, and physical infrastructure are related, and we know how to work through the time and budgetary constraints you face. It's our job to help you regain stability, prevent repetitive damage, and get back on the path to resiliency as soon as possible.

We're active members of the communities we serve.
That's why at Stantec, we always design with community in mind.

ADAPTIVE REUSE OF NON-MEDICAL BUILDINGS FOR HEALTH-RELATED SERVICES :



MAIN LINE HEALTH AT EXTON SQUARE Exton, PA

If you go to the Exton Square Mall to do your shopping, you will find a wider choice of offerings than usual, from designer clothing and accessories to physicians and CAT scans. The idea of combining retail and medical services under one roof may seem a little unusual at first, but for people trying to make efficient use of their time it brings health care to an extremely convenient location.

The Health Center offers patients easy access to their physician or specialist, obtain lab work, undergo imaging studies, screenings and physical therapy, as well as receive cancer treatments, all in one location. And its location inside the mall also offers patients and their families the convenience of completing their shopping or getting a bite to eat before, in between or after appointments.

The design of the revitalized space includes a curving public concourse that guides patients from both exterior and interior entries toward their destination, while a centrally located registration desk functions as a hub of integration for the center's many services. In addition, a modular floor plan with standard room types of a universal size allow for greater adaptability to both current and future services.

The value of this one-stop healthcare concept proved itself shortly after the facility opened when a patient's cardiac condition was identified, diagnosed, and scheduled for treatment during one office visit.

COMPLETED 2013
COST \$6.5M
SIZE 31,600 SF



PENN MEDICINE AT CHERRY HILL Cherry Hill, NJ

Our designs helped Penn Medicine transform a two-story, 155,000 square foot windowless big-box retail space into an airy, light-filled facility. In addition to abundant windows, we incorporated a new building façade, roof and two-story entry. We also replaced and upgraded all building systems, including installing eight new mechanical units, water, fire, gas, and electrical services.

Penn Medicine's new shared services healthcare model co-locates infusion, lab, primary care, obstetrics, and specialty care exam-based practices within the rejuvenated space. Programs for radiology, radiation oncology, physical therapy, and a retail pharmacy have been included to complement and expand upon previously offered services. Centralized registration streamlines and unifies the patient experience throughout, regardless of service line.

With this new location, Penn Medicine continues to deliver on their vision and promise of being a top healthcare provider.

COMPLETED 2016
COST \$26.5M
SIZE 15,500 SF

ADAPTIVE REUSE OF NON-MEDICAL BUILDINGS FOR HEALTH-RELATED SERVICES :



GEISINGER - ATLANTICARE HEALTH PARK Manahawkin, NJ

At the periphery of their current market footprint, this location pioneers new market share for AtlantiCare. The large volume of the former retail building provides ample room for AtlantiCare's practices to be consolidated in one location as well as to provide space for other health providers for partnership opportunities. Reuse of an existing structure was attractive not only because it saved initial project capital costs but also because it allowed for patient services to be brought to market faster than new construction. Although the masonry shell was retained, new façade materials were provided for the entire exterior in order to refresh the facility for a new use as well as rehabilitate to meet current energy codes.

The new health mall's design utilizes several elements crucial to the project's vision, one of which is a wooden "boardwalk" inspired by the nearby oceanfront, which originates on the exterior and flows throughout the interior circulation spaces of the building. Second, a beacon of light greets existing and potential patrons at the entrance of the building's site. The ceilings in the main public area have the form of ocean waves, and the color schemes are inspired by the sea. Skylights are carved out of the existing roof to bring daylight into the patient welcoming areas and waiting rooms.

The interior circulation is planned in a radial or hub-and-spoke pattern, where one reception "hub" greets the patient, with each service is at the end of a "spoke". Spokes include OB/GYN, Cardiology, Urology, Primary Care, as well as subleased suites.

COMPLETED 2017
COST \$10M
SIZE 55,000 SF



NORTHWELL HEALTH, SYOSSET SURGI CENTER Syosset, NY

The two structures include a single-story former showroom facing the street and a high-bay service garage sitting several feet lower. The site, which slopes away from the street, and the straddled building provided two unique opportunities. With the change in elevation, the site creates natural discretion for patients as they leave surgery. At the same time, the high-bay service garage has ample ceiling space to support all the equipment necessary for a surgical suite.

Taking advantage of an otherwise challenging building configuration, the planning was arranged to allow a singular flow-through; patients enter registration and the waiting room through the upper-level entrance canopy and leave discreetly from the lower level. With five new operating rooms, twenty patient holding bays, and on-site instrument processing, the ambulatory surgery center at Syosset provides a powerful platform for outpatient surgery in a very prominent, convenient, yet unassuming location.

COMPLETED 2018
COST \$16M
SIZE 18,000 SF

REPRESENTATIVE LARGE SCALE HEALTH SECTOR PROJECTS:



UPMC PASSAVANT PAVILION Pittsburgh, PA

The University of Pittsburgh Medical Center, Passavant needed to expand to accommodate growth in the region and to provide a new oncology center as a Center of Excellence. This new addition supports the caregiver's ability to provide comfort and treatment technologies for patients. Through its design, it communicates to the community a holistic and renewed image of modern healthcare.

For staff, physicians, and administrators, we designed efficient workspaces and logical layouts that enhance clinical workflow as well as spaces with access to sunlight and views that reduce stress and foster relaxation. For families, we designed amenity-rich family lounges, areas in the patient room so families can visit or stay overnight, and small "respite areas" to confer with staff or interact with extended family. Patient floors are arranged to allow in as much natural light as possible with large windows that bring daylight into the corridors, lounges, and patient rooms.

Cancer patients who come to the hospital for multiple infusion treatments need privacy, dignity, and choice. The oncology center is located in the lowest level of the building where we exposed the perimeter of the basement floor to provide daylight into the treatment areas. We created a garden with a serene patio that the patient can either view from the inside or enjoy good weather. The intent is to reaffirm the healing process by reconnecting the patient with nature.

COMPLETED 2010
COST Confidential
SIZE 250,000 SF



CLEVELAND CLINIC TAUSSIG CANCER CENTER Cleveland, OH

Cleveland Clinic selected Stantec to lead the healthcare planning of a new cancer treatment center on their main campus. Working in association with design architect William Rawn Associates, we provided programming, planning, and design services for the 380,000 sf, seven story outpatient building. The facility consolidates cancer treatment, research, and administrative space supporting a multi-disciplinary team approach to multi-disciplinary disease programs. Rather than asking patients to travel from one specialist to another, our design supports meetings either together or sequentially to address each patient's unique needs.

Designed to meet LEED for Healthcare, Silver, the high-performance curtain wall communicates with the building management system, so occupants remain comfortable throughout the cold winters and warm, humid Ohio summers. A bridge at Level 2 connects the Cancer building to the intercampus 'skyway', and a sculptural ground level skylight drives light to below-grade patient waiting spaces. The Lower Level houses Building Support, Investigational Pharmacy, and leading edge clinical environments. Ground floor public spaces have views to adjacent gardens and Laboratory and Pharmacy are situated for straightforward access. Levels 2-4 contain 98 light-filled infusion rooms arranged along the north window wall. Staff collaboration and 108 clinical exam and procedure rooms on the south side are designed with future flexibility in mind.

COMPLETED 2017
COST \$267M
SIZE 337,000 SF

REPRESENTATIVE LARGE SCALE HEALTH SECTOR PROJECTS:



UCSF MEDICAL CENTER AT MISSION BAY AND BENIOFF CHILDREN'S HOSPITAL San Francisco, CA

Mission Bay in San Francisco is a center of innovation. An existing UCSF life sciences research campus made the addition of a new medical center adjacent to it a compelling idea. This would allow UCSF to enhance translational medicine activities while at the same time providing needed space for its highly regarded cancer, children's and women's programs. Importantly, it provides San Francisco with its own world-class children's hospital.

The designers were challenged with how to maintain the identity of each entity, but still maximize shared services to reduce construction, operational, and staffing costs. In the 868,000-square-foot structure, each hospital and ambulatory building has its own wing, but shares a platform of support services and diagnostic treatment spaces arranged along a main spine. For example, a kaleidoscope of colorful diachroic glass enlivens the building's surface and entry to the Benioff Children's Hospital. Sky lobbies allow families access to the outdoors on patient floors while over six acres of gardens on terraces, some accessible to patients, keeps this hospital connected to the natural environment.

COMPLETED 2014
COST \$750M
SIZE 868,000 SF



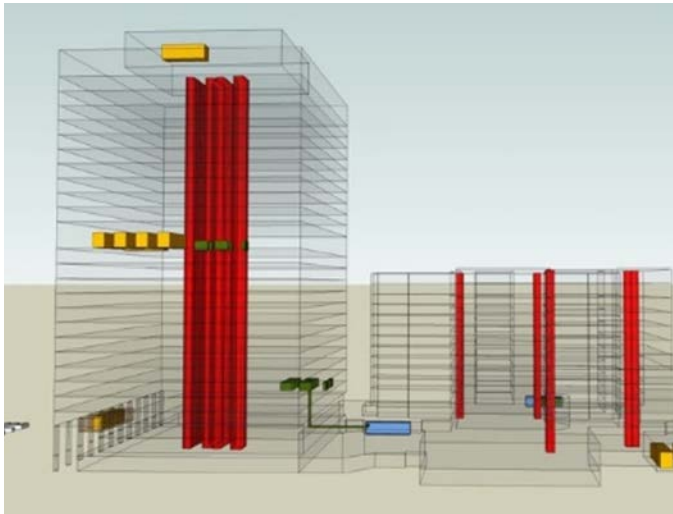
UCSF BAKAR PRECISION CANCER MEDICINE BUILDING (PCMB) San Francisco, CA

Designed to spur collaboration and integrate research and care, our challenge is to successfully integrate PCMB with the Gateway MOB while ensuring each has a unique identity. Levels three to five of the six-story building will be integrated floors for women's services and infusion/clinic space. Our design elegantly draws from the existing building, as the strong horizontal lines of the Gateway MOB continue through to PCMB, disrupted by glass fins inspired by the children's hospital. Transparency echoes the building's program, with more privacy at street level and abundant use of glass on the upper infusion floors. The massing is pulled back dramatically at the edges to create a generous and exciting street-level experience.

The new six-story, 170,000 sf building will consolidate UCSF's current solid tumor practices. In addition to clinic space for most cancers, PCMB will house chemotherapy infusion, radiology, pathology, radiation oncology, blood draw, a patient resource center, and support services. Bringing these practices together at Mission Bay, already a robust site for cancer research, will integrate research and clinical care and encourage collaboration between researchers and medical teams.

COMPLETED 2019
COST \$160M
SIZE 170,000 SF

REPRESENTATIVE DISASTER RECOVERY ENGAGEMENTS



HHC FACILITIES, DISASTER RECOVERY EFFORT New York, NY

On October 29th, 2012, massive flooding devastated HHC's public hospital network, and the basements of the network's three largest hospitals (Bellevue, Coney Island and Coler) were flooded. The power at these facilities was also knocked out, along with critical mechanical, electrical and medical systems. The damaged facilities posed unique challenges, not only related to those associated with being a critical healthcare service provider, but more specifically because of the importance of protecting the patients that remained after critical mechanical and electrical services had been damaged. The hospital required specific logistic considerations including building assessments of the damages from the flooding Hurricane Sandy.

Stantec has been on the ground performing since the days following the catastrophic event. Today, Stantec remains fully engaged providing a broad array of specialty planning, architectural and engineering disaster response and recovery services throughout New York City Health and Hospital Corporation's (HHC) network of facilities. Stantec, in partnership with BASE Tactical, has been supporting HHC maximize FEMA reimbursements while implementing both effective temporary and long-term resilient solutions. A list of specialty hospital and healthcare architectural and engineering disaster recovery services that Stantec has provided by facilities includes:

All Facilities including Bellevue, Coney Island and Coler hospital facilities

- Mechanical, Electrical, Medical System damage Assessments
- FEMA 406 / 404 Mitigation Funding Education and Consulting
- Temporary / Permanent System Replacement Analyses

- Replacement In-kind Cost Analyses
- Resiliency Planning Support
- FEMA Building Assessment Team Facilitation and Mediation
- Codes and Standards Compliance
- Advisory Flood Elevation Analysis
- Field Survey

Bellevue Hospital

- Pre-Hurricane Season Resiliency Brainstorming
- Proposal Development for Seven (7) System Replacements
- Emergency Cellar Ceiling Structural Assessment

Coler Specialty Hospital

- Electrical Distribution / Switch Gear Replacement and Relocation Proposal Development
- Emergency Generator Guidance and Specification Bid Package Development
- Mechanical / Electrical System Resiliency Planning
- Environmental Bid and Remediation Support
- Structural Damage Evaluations and Facility Analyses
- Electrical Code and Standards Analyses

Coney Island Hospital

- Electrical Distribution Analyses
- Long-term Visioning Charrette
- Electrical Pad Structural Design

Metropolitan Hospital – Draper Hall

- Perimeter Flood Wall and Flood-proofing
- MA Alternate Project /406 and 404 Mitigation Funding Consulting
- Mechanical, Electrical System Replacement Cost Estimating
- Mechanical, Electrical System Damage Assessments
- FEMA Advisory Flood Elevation Analysis
- FEMA Damage Assessment Facility Facilitation

Goldwater Hospital

- Damaged Records Storage Relocation Assessment
- FEMA Damage Assessment Facility Facilitation

Harlem Hospital

- Roof Damage Assessments and Cost Opinions
- FEMA Facilitation and Staff Outreach

J.W. Carter Hospital

- New Construction Resiliency Consulting and Assessment

Neponsit Nursing Home; Jacobi Medical Center; Queens Hospital Center

- Roof Damage Assessments and Cost Estimating

REPRESENTATIVE DISASTER RECOVERY ENGAGEMENTS



COLER HOSPITAL AND NURSING FACILITIES Roosevelt Island, NY

On October 25th, 2012, Hurricane Sandy related flooding and surge overcame devastated HHC's Coler Hospital and Nursing Home facilities, flooding the basement of all buildings, knocking out power as well as critical mechanical, electrical and medical systems. Within days of the disaster, Stantec was engaged providing needed emergency A/E guidance, support and services. The damaged facilities posed unique challenges not only related to magnitude of the damages but more specifically because of the importance of protecting and continuing healthcare services to the patients that remained in the impacted facilities. Stantec's worked hand-in-hand with HHC leadership, HHC's contractors; assessing the extent of mechanical, electrical and medical system damages; providing input on how to stabilize, repair and temporarily replace critical systems.

Stantec remains on-the-ground and performing a broad array of specialty architectural and engineering disaster response and recovery services. Ongoing A/E services include: Mechanical, Electrical, Medical System Damage Assessments; FEMA 406 / 404 Mitigation Funding Education and Consulting; Temporary / Permanent System Replacement Analyses, Replacement In-kind Cost Analyses, Resiliency Planning Support; FEMA Building Assessment Team Facilitation and Mediation; Codes and Standards Compliance; Advisory Flood Elevation Analysis and Field Survey. Coler Hospital and Nursing facility specific support services included:

Electrical Distribution / Switch Gear Replacement and Relocation Proposal Development - A/E services included evaluating

damaged electrical distribution system, coordinating with ConED and Johnson Controls Inc. (JCI), and assisting in developing of bidding documents, the bidding process and the evaluation and negotiations with the apparent low bid contractor. Services today include participating in daily HHC facility contractor meetings, reviewing preliminary contractor designs, reviewing shop drawings and supporting in the field reviews and approvals.

Emergency Generator Guidance and Specification Bid Package Development - A/E services included evaluating existing emergency generator system, developing and assessing both temporary and permanent emergency power replacement options ranging from replacing the single damaged system verses replacing the single unit with multiple (5) temporary generator units designed to support each individual building. Services included developing generator guidance bidding documents, generator specifications, coordinating with generator manufacturers and suppliers, developing cost opinions and overall project bidding support.

Mechanical / Electrical System Resiliency Planning - A/E services included prioritizing damaged critical systems required to serve patient needs as well as achieve DOH approval. Services included evaluating equipment, codes and standards as well as architectural and structural considerations for complying with FEMA's Advisory 0.2% flood elevation.

Environmental Bid and Remediation Support - A/E services included assisting in developing contractor bidding documents, evaluating contractor bids, reviewing contractor technical submittals and supporting project close-out and acceptance.

Structural Damage Evaluations and Facility Analyses - A/E services ranged from conducting field investigations of flood related sink-holes threatening various building foundations to evaluate various rooms for their ability to support modified loads related to relocation of patient records or relocation of electrical motor control centers and switchgear above FEMA's advisory flood elevations.

Electrical Code and Standards Analyses - A/E services included researching national, state and local codes, coordinating with FEMA representatives and developing recommendations on how to achieve code compliance while maximizing FEMA's reimbursement of costs to replace damaged systems.

REPRESENTATIVE DISASTER RECOVERY ENGAGEMENTS



BELLEVUE HOSPITAL New York, NY

On October 25, 2012, Hurricane Sandy disaster related flooding and surge overcame New York City devastated HHC's Bellevue Hospital, flooding the basement of all buildings, knocking out power as well as critical mechanical, electrical and medical systems. Within days of the disaster, Stantec was engaged providing needed emergency A/E guidance, support and services. The damaged facilities posed unique challenges not only related to magnitude of the damages but more specifically related to the need to re-establish healthcare services to the community in an effective, expedited manner.

Stantec's support to-date has included working hand-in-hand with HHC leadership, HHC's contractors; assessing the extent of mechanical, electrical and medical system damages; providing input on how to stabilize, temporarily repair and / or replace critical systems.

Today, Stantec's remains on-the-ground performing a broad array of specialty architectural and engineering disaster response and recovery services. Ongoing A/E services include: Mechanical, Electrical, Medical System Damage Assessments; FEMA 406 / 404 Mitigation Funding Education and Consulting; Temporary / Permanent System Replacement Analyses, Replacement In-kind Cost Analyses, Resiliency Planning Support; FEMA Building Assessment Team Facilitation and Mediation; Codes and Standards Compliance; Advisory Flood Elevation Analysis and Field Survey. Specific support services provided at Bellevue have included:

Pre-Hurricane Season Resiliency Brainstorming - Based upon Stantec's participation in daily facility recovery meetings, familiarity with damaged medical, mechanical and electrical systems, knowledge of FEMA's mitigation grant programs, Stantec was asked to facilitate a "brainstorming" session to identify opportunities to harden the facilities from near term threats associated with the next hurricane season as well as long-term threats over the long term life of the facilities. During the session, participants brainstormed solutions, document ideas, categorizing them into "buckets", preliminarily identifying implementation schedule (short-term or long-term) and relative magnitude of cost (<\$500K, < \$1M, <\$5M, < \$10M or > 10M) to implement the solution. Hospital systems addressed in the brainstorming session included: Fuel Oil Systems, Emergency Back-up Power (Generators); Vertical Transportation (Elevators); Domestic Water / Flood Pumps; Medical Systems (Bulk Oxygen and Nitrogen Oxide); HVAC; Morgue Support Systems; Vacuum Pumps systems, fire pumps and the reliability of ConEd's primary power feeds.

Proposal Development for six (6) System Replacements - One A/E services key short-term deliverables that resulted from the "Resiliency Brainstorming" introduced above was the development of a series of six fast-tract RFP's. The goal of these RFP's were to accelerate projects that had potential to be implemented prior to next year's hurricane season and therefore reduce risks associated with a future disaster event. The projects focused on hardening individual critical systems that significantly contributed to the need to evacuate the facilities. The critical systems addressed in these RFP's included: 1) 1500 kw emergency generator replacement 2) Medical gas system mitigation and design, 3) vertical transportation mitigation and design, 4) Backup Steam Source and distribution, 5) Expansion of Emergency Power Distribution and 6) Domestic Water House Pump Relocation and Replacement

Emergency Cellar Ceiling Structural Assessment - On February 21, a portion of the ceiling in the cellar loading dock area collapsed hitting and damaging a vehicle below. At the request of facilities leadership, Stantec mobilized an emergency structural assessment team to evaluate cause of the failure, relationship of the cause of the failure to the disaster / flooding, identify any imminent hazards and finally to outline a plan to mitigate risk of future ceiling collapses.

6 Modular Solutions

Through the use of prefabricated and modular construction systems, installation and construction time on site can be significantly reduced, construction costs can be reduced, worker safety can be improved. Inherent standardization also improves operational efficiency and reduces ongoing maintenance costs. Specific to environments for health, we bring expertise in:

MODULAR OPERATING THEATER CEILING SYSTEMS

Prefabricated and pre-coordinated complete ceiling air distribution systems.

MODULAR AND PREFABRICATED WASHROOM PODS

Modular and prefabricated complete washroom assemblies that can be craned into place and connected.

MODULAR INTERIORS

Prefabricated and complete with services already installed, modular walls can be used for service intensive partitions.

MODULAR & PREFABRICATED MEP PLANT ROOMS

Containerized plant rooms that can be fabricated off site and dropped into place.

MODULAR SERVICE DISTRIBUTION SYSTEMS

Multi-trade racks and prefabricated riser assemblies for MEPS systems and distribution.



Better together



Comprised of over 4,000 building design professionals globally, our health sector design staff live and work locally, but access colleagues who are working around the globe for fresh and informed input. Our teams are supported by our company-wide proprietary health research, experience in lean planning and design, and expertise in alternative delivery systems. Through inspired design, we put our clients at the forefront of best practice, new technology, and new healthcare delivery with rapid response capabilities.

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