



IDEA2022

Building Connections

June 6-9 | Sheraton Centre Toronto Hotel | Toronto, ON



INTERNATIONAL
DISTRICT ENERGY
ASSOCIATION

Apocalyptic Storm Reveals New Healthcare Operations and Strategy

Michael Cooper P.E., FIED AP

Bernhard



Hurricane Katrina & Ida

Facility Impact Stories

KATRINA: THE STORM WE'VE ALWAYS FEARED

The Times-Picayune

50 CENTS 188th year No. 221

TUESDAY, AUGUST 30, 2005

HURRICANE EDITION

CATASTROPHIC

STORM SURGE SWAMPS 9TH WARD, ST. BERNARD
LAKEVIEW LEVEE BREACH THREATENS TO INUNDATE CITY



By Bruce Nelson
Staff Writer

Hurricane Katrina struck metropolitan New Orleans on Monday with a staggering blow, the swamping Louisiana Delta, the landmark disaster of an earlier generation. The city is flooded huge swaths of the city, as well as 100,000 on the north shore of Lake Pontchartrain, in a process that appeared to be spreading even as night fell.

A powerful storm surge pushed huge waves toward the hurricane, flooding much of St. Bernard Parish and New Orleans' Lower 9th Ward, just as it was 40 years ago. But this time the flooding was more extensive, spreading across as well as over parts of the city.

As with before, people scrambled into their attics or atop their roofs, pleading for help.

HITTING BOTTOM

THE WATER HAS FINALLY STOPPED POURING IN BUT
IT COULD BE OCTOBER BEFORE THE CITY DRIES OUT



































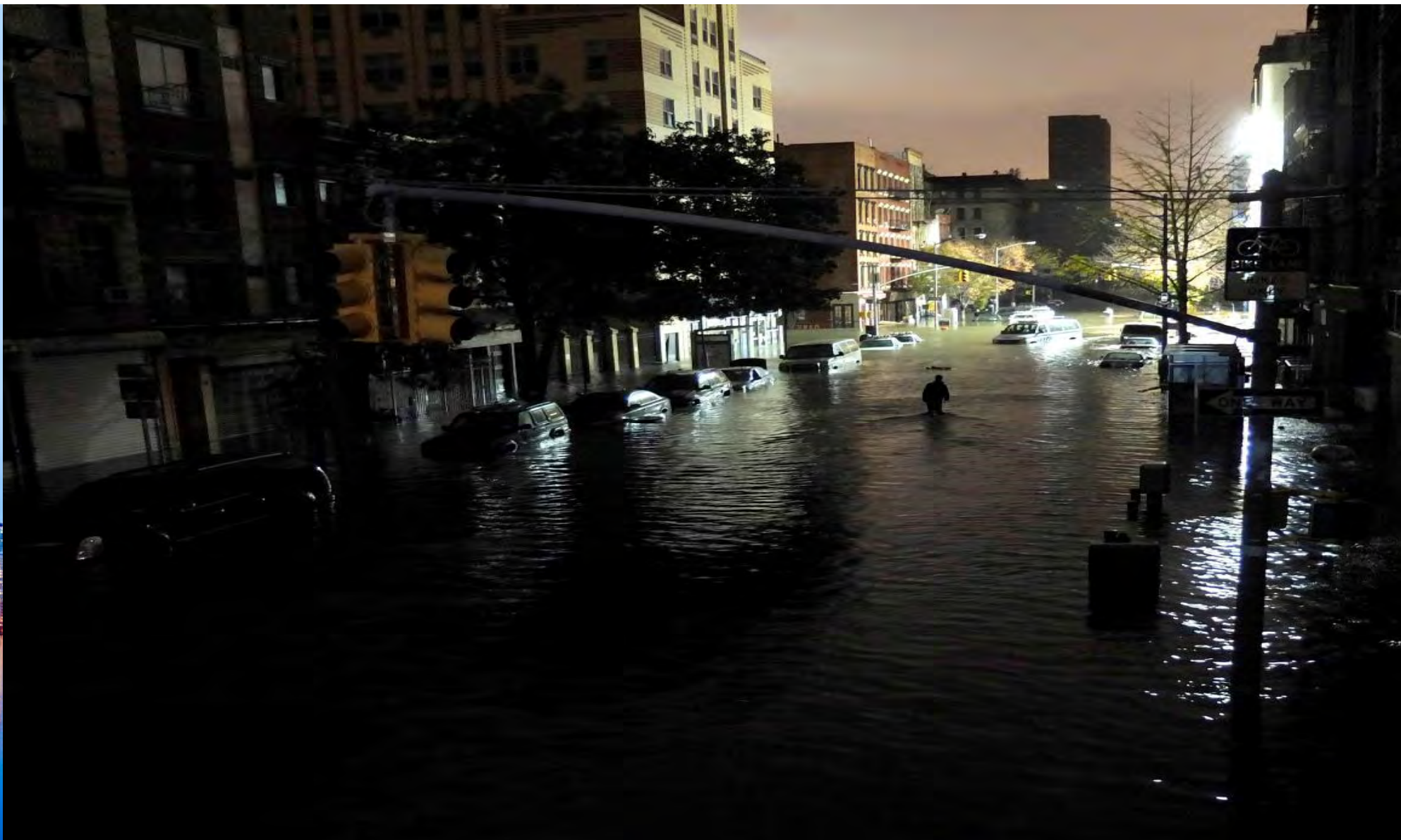


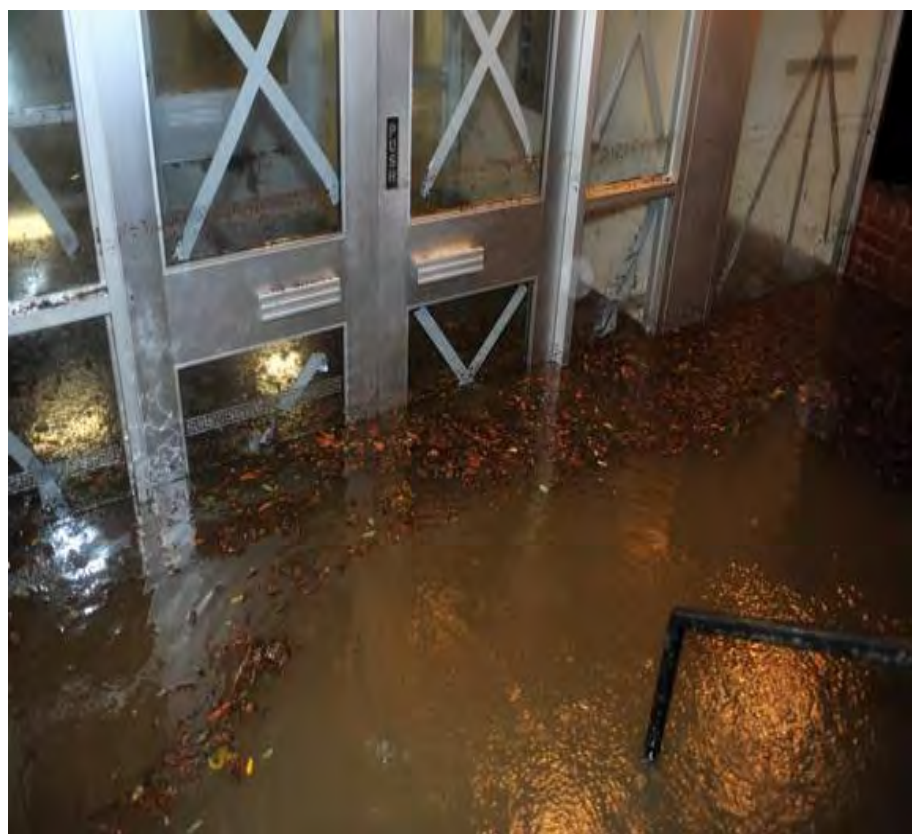


Superstorm Sandy

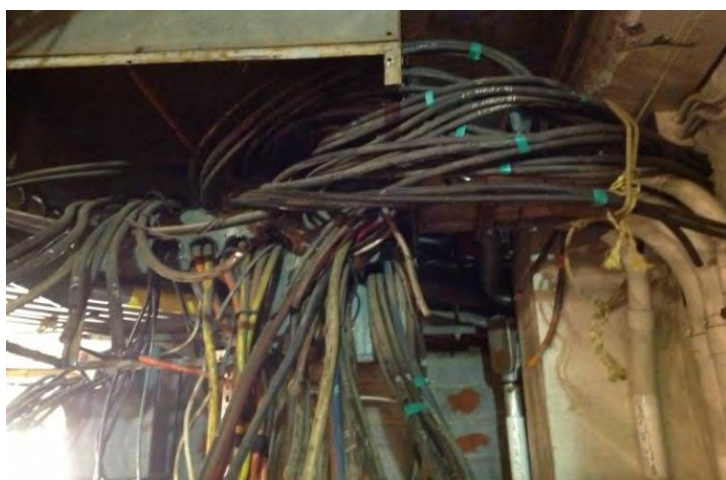
Facility Impact Story











You Will Never Be
Prepared
for Everything





Preparation

- Continuous improvement and documentation.
- Risk assessments of facilities.





Hardening & Resiliency

- Permanent Emergency Utility Systems
- Location of Critical Utility Systems
- Temporary Utility connections
- Elevators
- Roofs





Temporary Facilities

- Housing
- Washer/Dryer/Shower trailers
- Respite areas for staffing



Future Building Designs

- Flexibility of space
- Acuity adaptable ICU Rooms
- Standardized details/fixtures
- Modular systems
- Infrastructure upgrades
- COVID-19 Surge Capacity



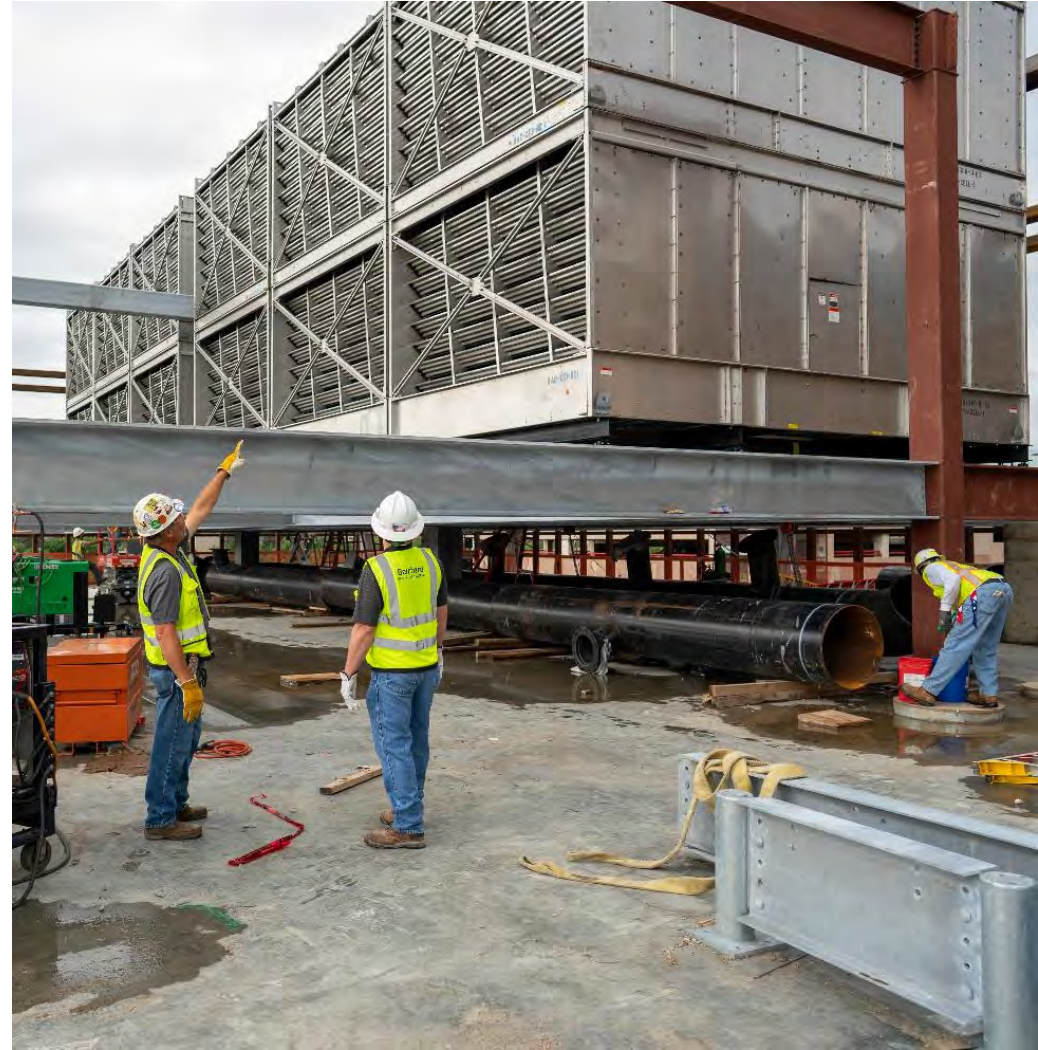






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2020 West Tower Project

WEST TOWER ORIGINAL SCOPE



- **Renovation of 100,000 sq. ft.**
 - 3 floors of Hospital “shelled” space to accommodate COVID ICU patients.
- **Constructed, Furnished & Licensed 102 Patient Rooms in 100 days**
 - 24 hrs. / 7 days / week / 3 shifts / day.
 - Installation followed each Construction
 - Zone Phase completion from front to back, sequentially.

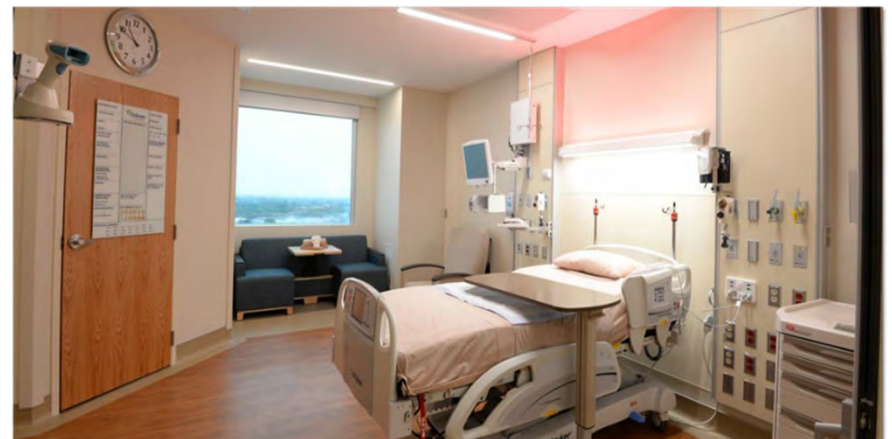
WEST TOWER COVID -19 REDUCTION



2020 West Tower Project

Build-Out Floors: 14, 15 & 16

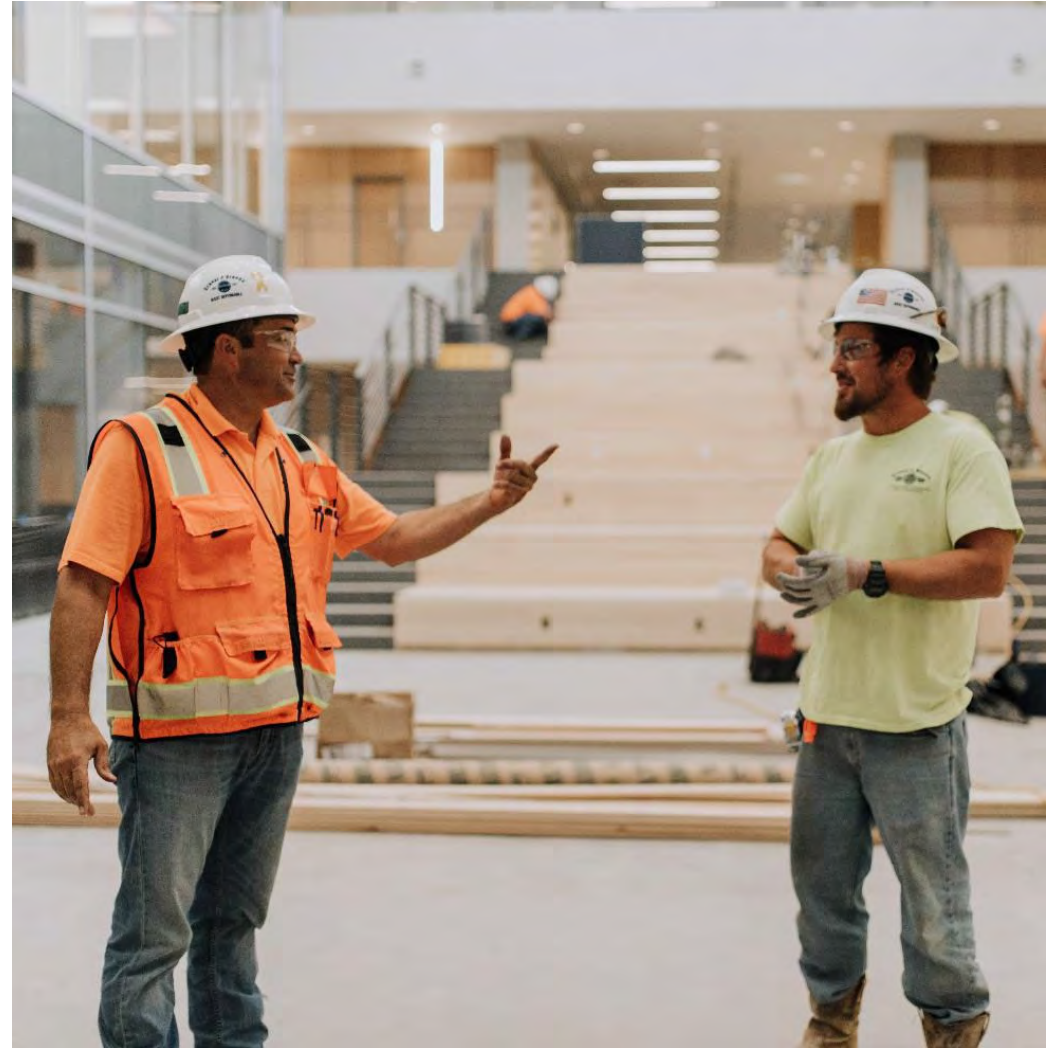
- Built out over existing 11 floors of occupied Critical Care patient tower.
- 102 Total ICU Beds in 100 Days
 - 34 Beds Per Floor.
 - All rooms equipped for eIC.
 - AcuityAdaptable capability.
 - All rooms built with Negative Pressure capability.
- Construction
 - Simplified construction details (ceilings, millwork, flooring, paint, storage & med supply rooms).
 - Standardized details / fixtures.
 - Modular Nurse Stations.
 - Optimal Hospital components: Copper infused grab bars & overbed tables, red overbed lights.





Relationships

- AHJ's – licensing, permitting, waivers, emergency requirements
- Engineers, architects, contractors, vendors
- Internal Operational and Support Services teams



North Louisiana Covid Response

Addition of 77 ICU Covid Unit



North Louisiana Covid Response

Step One: Relocation of Women's and Children's Services from Main Hospital

- **Renovation of 110,000 sq. ft.** of unoccupied Hospital to accommodate Labor Delivery, Post Partum, NICU, PICU, and Pediatric Units as well as supporting functions.
- **Design in 3 weeks.** Coordinated with 45 stakeholders and 14 different clinical groups.
- **Build-out in 4 weeks** took 200 men/day. 60,000 man hours. Daily calls with regulating agencies to secure licensing. 13,000 LF of Med gas piping replaced.
- **Installation** of new Equipment and Furniture.
- **Relocation of Patients** and equipment over 3 days with the help of the Louisiana National Guard.

NICU
PICU
Ante Partum
Labor Delivery
2 ORs
Post Partum
Pediatric Med
Lab
Pharmacy
Body Holding
ICU
Materials-
Management
Admissions
Security
Janitorial
Food Services
Administration



North Louisiana Covid Response

Step Two: Build out of 77 ICU Bed Covid Unit at Main Campus

- **Renovation of 60,975 sq. ft.** of the recently vacated Women's and Children's units.
- **Build-out in 4 weeks** converted private rooms to negative pressure. Increased Nurse Call and Med gas capacity.
- **Installation** in new equipment and furniture.
- **LDH License** required daily calls with regulatory agencies and 3 waivers.

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Don't Just Check the Box



Infrastructure Resiliency

- Nothing below grade
- Generators
- Water / Sewer
- Elevators
- Helipad Location





Infrastructure Resiliency

- Lockdown
- Communication
- Commissioning
- COVID





Continuity of Service

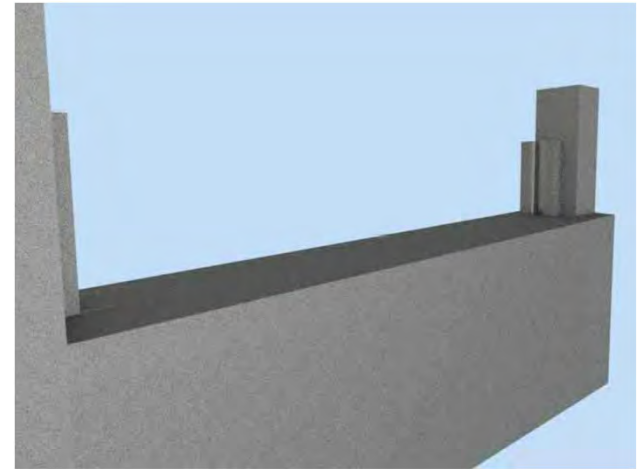
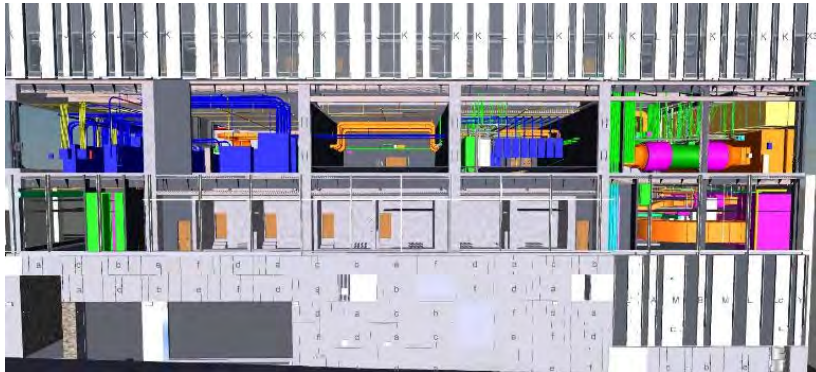
“Patients and Essential Healthcare Workers FIRST.. Always!”

Facility Design Attributes

“Physical Hardening”

“System Resiliency”

“Costs vs. Loss of Services”







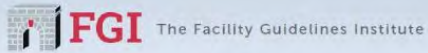
The Facilities Guidelines Institute develops & issues an “Emergency Conditions Whitepaper” document

Emergency Conditions Committee

Mission Statement

To create a white paper to help health and long-term care organizations plan for emergency conditions in the future and to develop Guidelines for emergency conditions using a multidisciplinary consensus process advised by research, that can be used to create an advanced, cost-effective, high-quality built environment for the health care community.





Guidance for
Designing Health and
Residential Care Facilities
that Respond and Adapt to
Emergency Conditions

FGI EMERGENCY CONDITIONS COMMITTEE

March 2021



FGI

FACILITY GUIDELINES INSTITUTE

The keystone to health care planning, design, and construction

1. *Risk Assessment*
2. *Surge Capacity Considerations*
3. *Alternate Care Sites*
4. *Resiliency*
5. *Renovation & Future Facility Design*
6. *Small and/or Rural Healthcare Facilities*
7. *Emergency Preparedness*

Thank You!

Michael Cooper P.E., LEED AP

A black and white photograph of the Toronto skyline, featuring the CN Tower and various skyscrapers, reflected in the calm waters of Lake Ontario. The image serves as a background for the text.

Bernhard

