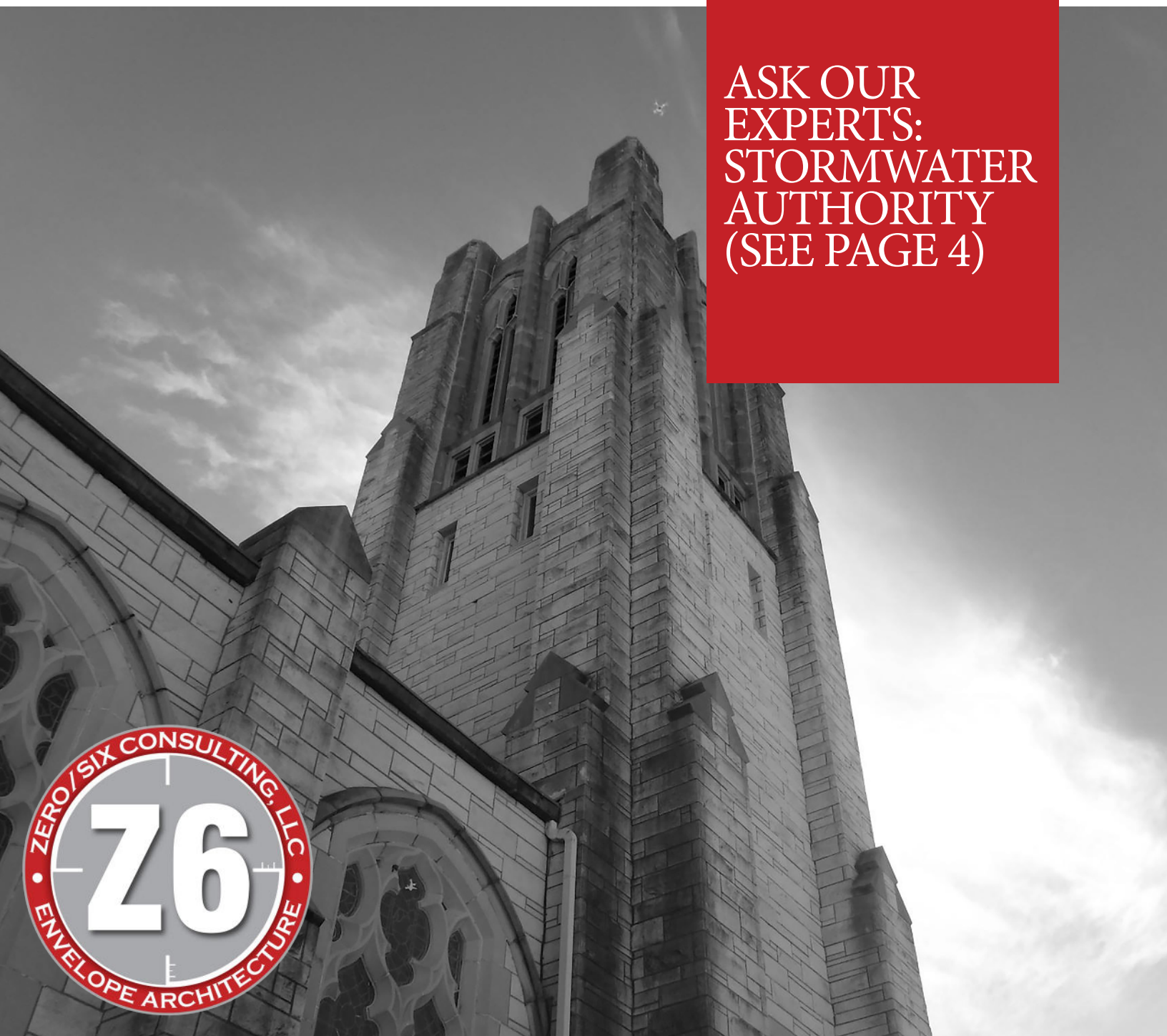
# Zero/Six

BEYOND THE EXTERIOR

February 2018

## ASK OUR EXPERTS: STORMWATER AUTHORITY

(SEE PAGE 4)



# CONTENT



# ASK OUR EXPERTS

## STORMWATER AUTHORITY

WORDS: MR. SCOTT LEIMER, P.E.

THE STORMWATER AUTHORITY DIVISION WAS ESTABLISHED TO MITIGATE THE DETRIMENTAL EFFECTS OF FLOOD & DESTRUCTIVE WATER

Z6 Commissioning recently announced the launch of Stormwater Authority, a new division that offers flood hazard analysis, levee management and design, disaster recovery, dry flood proofing, wet flood proofing, as well as geotechnical engineering. Any doubts as to the vital importance of Stormwater Management would quickly evaporate after engaging in a conversation with anyone who experienced the effects of Hurricane Harvey first hand. Z6 Commissioning's Stormwater Authority Division was established to mitigate the detrimental effects of flood and destructive water levels and surges. From small site-specific projects to county or region-wide assessments, Z6 Commissioning is the authority for all aspects of stormwater management.

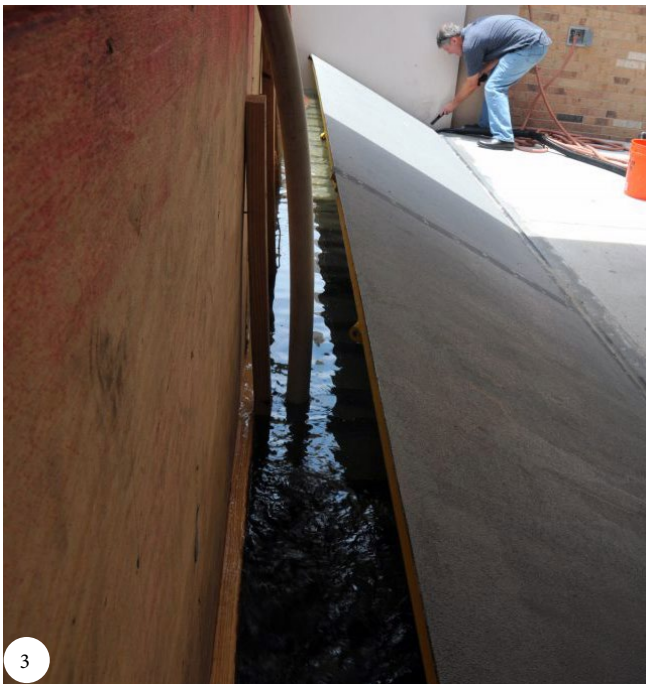
Scott Leimer, P.E., an accomplished engineer, joins the firm's new division as Vice President. He will lead the division's tactical initiatives and help drive growth and develop new business opportunities, leveraging his extensive levee management experience and professional network.

**ABOUT SCOTT**

Scott is a Registered Professional Engineer with the State of Texas and has over 21 years of experience, serving as the U.S. Army Corps of Engineers Galveston District Levee Program Manager and previously as a Geotechnical Engineer for the Geotech and Structural Engineers Section. Scott led the Levee Safety Program in an area spanning across 50,000 square miles, containing more than 1,000 miles of channels, and serving 28 ports and 700 miles



1. Photo Info : Floodwall Testing at UTMB's Primary Care Pavilion
2. Photo Info : Floodwall Testing at UTMB's Primary Care Pavilion
3. Photo Info : Floodwall Testing at UTMB's Primary Care Pavilion




of coastline. Prior to his time at the Corp, Scott was an equipment operator for Leimer Brothers Construction where he gained invaluable, hands-on experience as a construction contractor, performing duties such as material estimating, scheduling, cost management, site characterization, and general land surveying. He holds a Bachelor of Science in Civil Engineering from Texas A&M University.

Learn more about the Stormwater Authority Division and the services offered from our Q&A with Scott. Join in on the discussion by contacting Z6 Commissioning at info@z6cxing.com or (409) 740-0090.

**STORMWATER ENGINEERING & MANAGEMENT**

**WHAT IS STORMWATER ENGINEERING?**
Stormwater Engineering is the evaluation of, planning for, and management of stormwater. This takes on many forms, ranging from single building flood proofing, to city and county drainage systems, to regional levee systems and dams. The planning of a successful stormwater engineering project involves close coordination by the project managers and design engineers with the owners/operators/users of the facility. Proper project scoping and full project implementation is crucial for a successful project.

**WHAT IS THE PURPOSE OF STORMWATER MANAGEMENT?**
Stormwater management is necessary to provide risk reduction to life safety and property from rainfall or storm surge events. This is both the physical structure that conveys or constrains water along with the communication effort that address the likelihood and consequences of an event. Stormwater management should reduce the likelihood that flooding will occur to an acceptable level and communicate that likelihood to those that would be impacted should a flooding event occur.

**WHAT TYPE OF STORMWATER STRUCTURES NEED TO HAVE MAINTENANCE AND CLEANING?**
Stormwater management relies on a system of components functioning as designed and constructed. All of the components in the system must be operated and maintained in good working order for the system to perform as it is designed. Operation and maintenance, rehabilitation and replacement, along with total system assessment and reevaluation, should be conducted on a routine basis on all stormwater engineering projects.

> STORMWATER MANAGEMENT RELIES ON A SYSTEM OF COMPONENTS FUNCTIONING AS DESIGN AND CONSTRUCTED

## LEVEE MANAGEMENT

### INSPECTIONS CONDUCTED FOR FLOOD RISK AND LEVEE CONDITION ASSESSMENT.

Levee systems should have continuous inspections and condition assessments performed by the owners/operators. These condition assessments range from visual inspections to evaluate the physical condition of the levee system components, to full geotechnical and structural reevaluation to ensure the initial design and construction was adequate. Pumps, floodgates, drainage structures and other project features should also be reviewed and assessed routinely for operational adequacy.

### WHAT DOES IT MEAN FOR A LEVEE TO BE CERTIFIED?

Levee certification is when an engineer or Federal agency completes an evaluation of the levee system and signs a statement stating that the levee complies with the applicable Federal requirements for design, construction, and operation and maintenance.

### HOW DOES LEVEE CERTIFICATION DIFFER FROM LEVEE ACCREDITATION?

Levee certification is provided to FEMA by an outside party, whereas levee accreditation is action that FEMA takes so the community living behind the levee system has National Flood Insurance Program (NFIP) benefits.

### WHY IS IT IMPORTANT TO UNDERSTAND THE RISKS ASSOCIATED WITH LEVEES?

All levee systems have some risk associated with them. These risks can include potential overtopping, levee or floodwall failure, or excessive rainfall that exceeds the interior drainage capacity. Ultimately, levee systems are man-made structures that have design limitations. It is important to understand these limits so we can provide the necessary information to allow those who live within the levee system to develop a plan of action in the event those limits are exceeded to protect their community and property.

1. Photo Info : Floodwall Section
2. Photo Info : Floodwall Gate Structure
3. Photo Info : Flap Gates on Interior Drainage Structure
4. Photo Info : Floodwall at Industrial Structure
5. Photo Info : Matagorda Levee

**WHO IS RESPONSIBLE FOR BUILDING AND MAINTAINING LEVEES?**
Levee design, construction, operations, and maintenance is not solely controlled by one entity; responsibility and ownership can vary from Federal, State, local or regional authority to private entities.

**GEOTECHNICAL ENGINEERING**

**WHAT IS GEOTECHNICAL ENGINEERING?**
Geotechnical engineering, for this discussion, is the study and evaluation of the surface and subsurface material for the design and construction of a structure. The structure could range from a building, to a roadway, to a flood damage risk reduction feature, to a ship dock. The geotechnical engineer, through coordination with the project team, develops a soil investigation plan that defines the foundation requirements for the proposed structure.

**WHAT DOES A TYPICAL GEOTECHNICAL SITE INSPECTION ENTAIL?**
Geotechnical site inspections are conducted for a variety of reasons and the scope depends on the proposed project and the information that is needed. A site inspection for new construction would focus on defining any potential foundation issues and developing a plan for future subsurface investigations. An existing facility site investigation would focus on addressing any known issues and assessing the need and scope of any additional subsurface investigations.

**HOW IS A GEOTECHNICAL INVESTIGATION CARRIED OUT?**
Geotechnical investigations are carried out by utilizing a drill rig or other soil sampling methods to identify existing conditions and obtain samples around a site. The soil sample is then tested in a laboratory to define and develop the physical and engineering properties of the soil for use by the design engineer. The generated data helps the engineer to understand the materials and properties that can influence the project requirements and determine the risks that may be created by existing site conditions.

THE GEOTECHNICAL ENGINEER, THROUGH COORDINATION WITH THE PROJECT TEAM, DEVELOPS A SOIL INVESTIGATION PLAN THAT DEFINES THE FOUNDATION REQUIREMENTS

**WHAT LOCATIONS ARE MOST VULNERABLE IN THE TEXAS GULF COAST REGION?**
Soil varies throughout a region due to the process in which it was deposited over the last tens of thousands of years; the main areas of concern tend to be in proximity to meandering streams, rivers and coastal estuaries. These areas have more recent soil deposits that can create design and construction challenges.

**WHAT ARE THE BENEFITS OF A GEOTECHNICAL REPORT?**
The geotechnical report usually documents the subsurface soil profile, along with certain soil parameters and, if requested, foundation design recommendations. This allows the design engineer to properly characterize the subsurface soil conditions


4


5

at the site, which is essential to having a successful project. Proper site characterization allows the design engineer to develop the most efficient foundation design, which will likely reduce project cost and construction time.

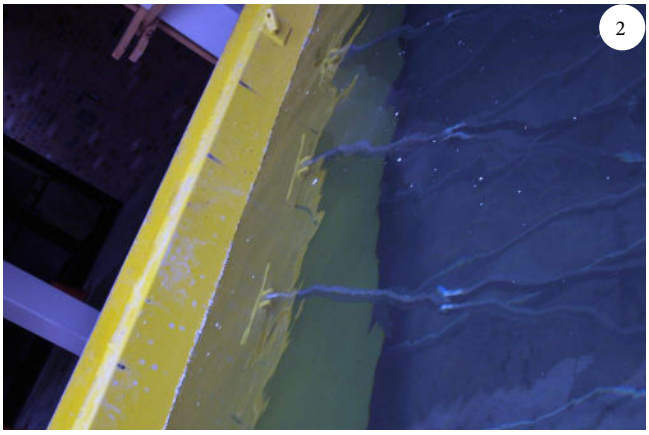
**WHAT SHOULD A GEOTECHNICAL REPORT FOR COMMERCIAL DEVELOPMENT CONTAIN?**
The information contained in the geotechnical report must be sufficient to ensure the successful construction and long term utilization of the development. Coordination of the scope of the geotechnical investigation with the designer of the development is a critical step in the overall execution of the project.

**DISASTER RECOVERY**

**WHAT IS DISASTER RECOVERY?**
Disaster recovery is a multi-step process that allows for the mitigation and recovery from damages due to a natural or man-made disaster.

**WHAT IS THE IMPORTANCE OF A DISASTER RECOVERY PLAN?**
Disaster recovery plans are extremely valuable to the owner and user of any facility. The disaster recovery plan allows concise action to be taken that can prevent, minimize, or reduce damages from occurring after a disaster.


1


2

**WHAT ARE THE KEY STAGES OF DRAWING UP A DISASTER RECOVERY PLAN?**
There are numerous steps in the creation of a disaster recovery plan, the main components are the initial risk assessment and site evaluation, development of risk reduction measures, plan formulation, and plan implementation.

# THE DISASTER RECOVERY PLAN ALLOWS CONCISE ACTION TO BE TAKEN

1. Photo Info : Floodwall along Sabine Neches Waterway

2. Photo Info : Floodwall Testing at UTMB's Primary Care Pavilion

AT-A-GLANCE

## HOUSTON METHODIST WEST PHASE II EXPANSION

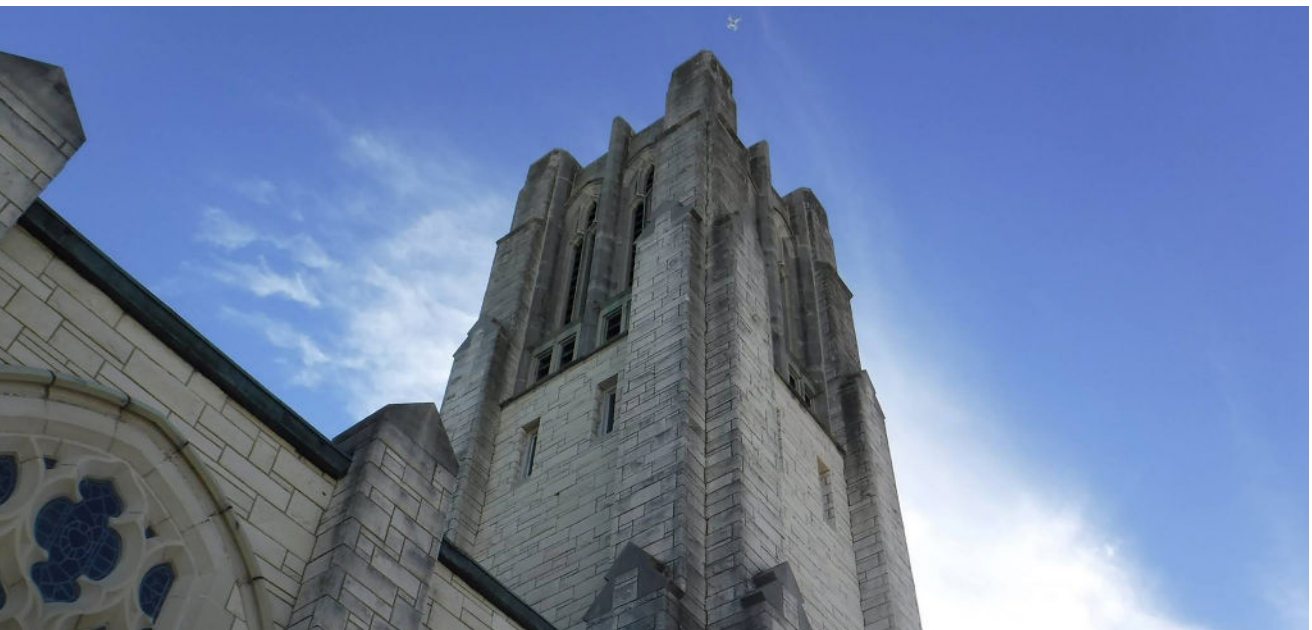
After opening its doors just five years ago, Houston Methodist West Hospital is currently expanding its campus to better serve the community. To ensure the expected life cycle is realized for the Houston Methodist West Hospital Phase II Expansion, Zero/Six provided construction administration services, including peer reviews, submittal/shop drawing reviews, and observation of the ongoing construction of building enclosure components twice a week to compare with the construction documents. Performance testing of the installed enclosure systems included air/water infiltration testing and diagnostic nozzle testing of fenestrations to ensure the final product exceeded expectations.

| | |
|---|---|
| **Owner** | Houston Methodist Hospital System |
| **Architect** | Page/ |
| **Contractor** | Vaughn Construction |
| **Location** | Houston, TX |
| **Type** | Expansion |
| **Status** | 2018 |
| **Scope of Work** | Drawing Review, On-site QA/QC and Reporting, Commissioning of the Building Envelope, including Air Infiltration Testing per ASTM E783, Static Pressure Water Infiltration Testing per ASTM E1105, and Diagnostic Nozzle Water Testing per AAMA 501.2. |

## FIRST EVANGELICAL LUTHERAN CHURCH

Founded in 1850, the First Evangelical Lutheran Church is one of the oldest churches on Galveston Island. After suffering damages in the Great 1900 Storm, a new brick veneer structure was built in 1915, which features massive stone walls, jeweled windows, and a rich wooden interior of Gothic design. Zero/Six conducted a full building envelope evaluation to remediate moisture issues. The team utilized our drone to safely access hard-to-reach areas within the facility to efficiently collect real-time data during our investigation.

| | |
|---|---|
| **Owner** | First Evangelical Lutheran Church |
| **Location** | Galveston, TX |
| **Type** | Forensic |
| **Year Built** | 1850 |
| **Scope of Work** | Exterior Envelope Forensic Assessment |




**HEALTH EDUCATION CENTER**

The construction of The University of Texas Medical Branch Health Education Center marks the first significant educational/academic building to be developed on the Galveston campus in almost 40 years. Zero/Six is currently providing preliminary construction documents, submittal, and RFI reviews pertaining to the exterior envelope to ensure an air and water tight facility and verify Texas Department of Insurance compliance with the design plans, the local Building Department and local building codes.

| | |
|---|---|
| **Owner** | The University of Texas Medical Branch |
| **Architect** | EYP Architecture & Engineering (Rendering provided by EYP) |
| **Contractor** | Vaughn Construction |
| **Location** | Galveston, TX |
| **Type** | New Construction |
| **Scale** | 162,000 SF |
| **Status** | Spring 2019 |
| **Cost** | $90.4 million |
| **Scope of Work** | Drawing Review, On-site QA/QC and Reporting, TDI Windstorm Inspections and Certification, Sound Monitoring, and Commissioning of the Building Envelope, including Roof Membrane Uplift Resistance Testing per ASTM E907, Air Infiltration Testing per ASTM E783, Static Pressure Water Infiltration Testing per ASTM E1105, and Diagnostic Nozzle Testing. |


THE UNIVER

# PROJECT SPOTLIGHT

# UT SYSTEM

## REPLACEMENT OFFICE BUILDING

### PROJECT DETAILS

| | |
|---|---|
| **Client:** | The University of Texas System |
| **Location:** | Austin, Texas |
| **Construction Type:** | New Construction |
| **Architect:** | Page/ |
| **Contractor:** | DBR Construction |
| **Project Scale:** | 330,000 GSF |
| **Construction Cost:** | $99 million |
| **Project Status:** | August 2017 |
| **Scope of Services:** | Drawing Review<br>On-site QA/QC and Reporting<br>Building Envelope Commissioning Plan and Specifications<br>Infrared Roof Survey<br>Commissioning of the Building Envelope, including:<br>Mock-up Testing per ASTM E330, E283, E331<br>Air Infiltration Testing per ASTM E783<br>Static Pressure of Water Infiltration Testing per ASTM E1105<br>Diagnostic Nozzle Water Testing per AAMA 501.2 |

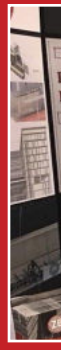
THIS FACILITY REPLACED A NUMBER OF OLDER UNIVERSITY BUILDINGS & LEASE SPACES, RESULTING IN REDUCED MAINTENANCE & OPERATING EXPENSES

In order to consolidate The University of Texas System operations from five antiquated buildings into one efficient location, the 19-story Replacement Office Building (ROB) and parking garage was conceptualized for downtown Austin. This facility replaced a number of older university buildings and lease spaces, resulting in reduced maintenance and operating expenses. This created Class A offices for use by the UT System with three floors of shell space to be leased to non-UT System entities. Studies conducted by the university indicate the move will yield a total estimated net savings of more than $125 million over 30 years.

As the Building Envelope Commissioning (BECx) Agent for the project, Zero/Six prepared the BECx specifications, plan and testing requirements to support the basis of design, owner requirements, and energy efficiency goals. Zero/Six conducted an extensive document review to identify deficiencies in systems integration and establish performance criteria for envelope assemblies; laboratory and field testing requirements were then developed to verify installation and functionality for an airtight and watertight enclosure upon completion. During the construction process, our inspectors conducted regular site visits to verify as-built systems were installed in accordance with the design intent, while resolving any field issues to ensure an air and water-tight envelope is achieved. Commissioning activities included functional performance testing, chamber tests and roof uplift testing in accordance with ASTM standards, which allowed for timely correction during construction. After project completion, Zero/Six performed an infrared survey at the Level 20 roof of the building to ensure the owner received a roofing assembly free of moisture intrusion.

## Site Visit

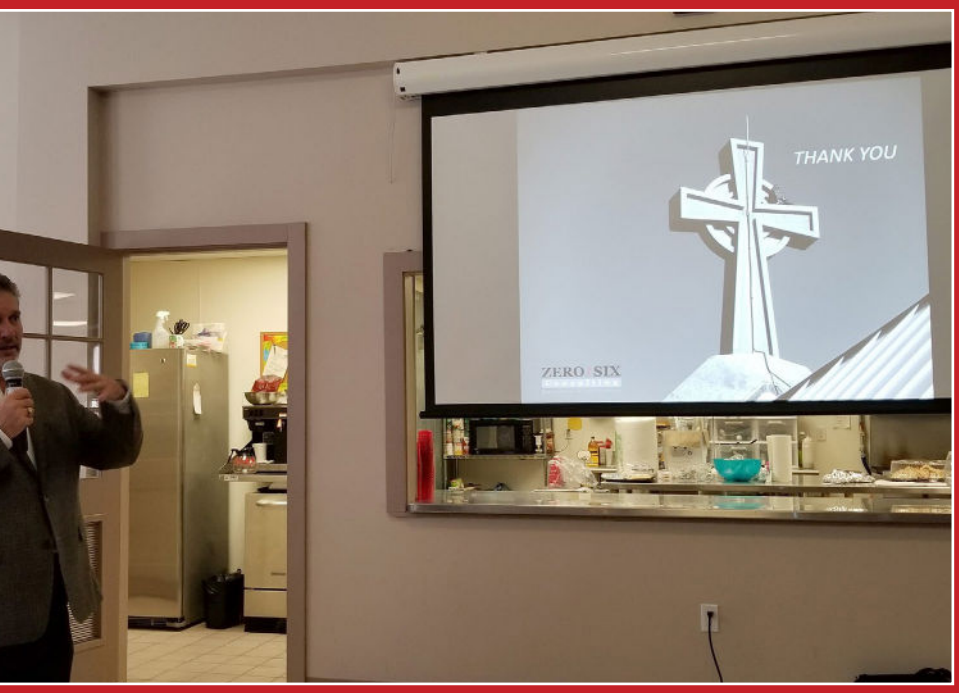
Our Assistant Project Manager, Eddie Solis, is at The University of Texas Rio Grande Valley's Academic Building in Brownsville, TX to verify as-built systems are installed in accordance with the design intent and to resolve any field issues to ensure an air and watertight envelope is achieved.



## Building Science

Forensic Supervisor Russell Hargett and Building Envelope Specialist Aaron Shaffner conducted a forensic investigation on a 13-story building in Houston to determine the source of reported water infiltration. The investigation included a rope access façade inspection, roof inspection, as well as diagnostic water testing per AAMA 501.2 at selected exterior transitions and glazing interfaces. Our team will issue a report that outlines investigation findings, testing procedures and results, observations, and recommendations for the best path forward in remediation.

# ZERO/SIX OUT&ABOUT




## ▲ Delivering Investigative Findings

Bill Coltzer recently presented Zero/Six Consulting's investigative findings and recommendations from our full building envelope evaluation to remediate moisture issues for the First Lutheran Church Galveston.

## ◄ Site Visit

Assistant Project Manager, Zach Johnson, was on-site at UTMB's League City Campus Hospital to perform an envelope installation progress inspection. The phase II expansion includes construction of a five-story South Tower—which will add 123,000 SF to the hospital and a seven-story parking garage with an attached 33,000 SF multi-use building and connecting bridge.

## Giving Back ►

The Zero/Six Consulting and Z6 Commissioning teams had a great time at the Roaring La Soirée hosted by Baptist Hospitals of Southeast Texas Foundation. Great event for a great cause...and a really cool client! Past Soirée galas have supported the creation of the Dauphin Women's Center, a makeover at the Julie and Ben Rogers Cancer Institute, and most recently to begin updating equipment for the Neonatal Intensive Care Unit.


## ◄ Career Fair

The Zero/Six team had a great time discussing future opportunities with students at the Texas A&M University Construction Science Career Fair.


# SAVE THE DATE

# RCI 2018

DISCOVER OUR TESTING CAPABILITIES, NEWEST INNOVATIONS, AND HANDS-ON DEMONSTRATIONS OF OUR BLOWER DOOR TEST, AS WELL AS PRESENTATIONS ON ELECTRONIC LEAK DETECTION AND ROOF UPLIFT

**LEARN MORE ABOUT Z6 COMMISSIONING**

Come see Z6 Commissioning at RCI's 33rd International Convention & Trade Show in Houston, Texas from March 22-27! Stop by our **Booth 221** to learn how Z6 can work with you to provide building envelope performance assurance and discover our testing capabilities, newest innovations, and hands-on demonstrations of our Blower Door test, as well as presentations on Electronic Leak Detection and Roof Uplift.

**ABOUT THE CONVENTION**

This convention is the premier event for building envelope consultants who specialize in design, investigation, repair, and management of roofing exterior wall and waterproofing systems with an opportunity for attendees to earn a full year's worth of continuing education credit! This six-day conference will bring together over 130 exhibitors and 1,300 attendees, featuring over 25 hours of educational seminars, live product demonstrations, and a two-day trade show.

For more information or to register for this event, click here to visit the RCI 33rd International Convention & Trade Show website.

We're looking forward to seeing you in Houston!

# STOP BY BOOTH 221

**EARN CEHs FOR ATTENDING THE RCI TRADE SHOW!**

Attendees will earn 2.0 CEHs for spending up to four hours on the trade show floor. Attendees who spend more than four hours at the trade show will receive 3.0 CEHs

**EVENT INFORMATION**

| | |
|---|---|
| Convention Dates | March 22-27, 2018 |
| Trade Show Exhibit Dates | Saturday, March 24<br>3:15 PM - 7:15 PM<br><br>Sunday, March 25<br>8:45 AM - 12:00 PM |
| Trade Show Floor Plan | Click Here |
| Location | George R. Brown Convention Center<br>1001 Avenida De Las Americas<br>Houston, TX |

REGISTER NOW

# HAVE A LOOK INTO YOUR FUTURE...

# JOIN OUR ZERO/SIX TEAM

At Zero/Six Consulting, we're always on the lookout for fresh insight, creative minds and bold talent, at all experience levels and specialties, to work on unique projects in a wide variety of markets from design through project completion. Our corporate culture supports career advancement in an energetic, collaborative environment where innovation thrives, ideas come to fruition and employees experience a good work/life balance. We offer competitive pay, benefits, team building activities, continued education and more! Discover your career with Zero/Six!

OUR CORPORATE CULTURE SUPPORTS CAREER ADVANCEMENT IN AN ENERGETIC ENVIRONMENT WHERE INNOVATION THRIVES

## CURRENT OPPORTUNITIES

### ARCHITECTURAL DRAFTSMAN – GALVESTON, TX

**CANDIDATE MUST HAVE THE FOLLOWING SKILL REQUIREMENTS:**

- Produce design and construction documents, as directed.
- CAD, BIM and Revit as assigned.
- Communicate an understanding of task assignments and expectations.
- Explore alternate design approaches as directed by Project Architect/Design Architect.
- An understanding of building systems, codes, and construction methods.
- Meticulous attention to detail.
- Excellent problem solving skills.
- Current knowledge of drafting standards.
- Proficiency in drafting software (Revit and BIM).
- Work requires professional written and verbal communication and interpersonal skills.
- Ability to travel on occasion to project work sites to provide CAD support in the field, or for data retrieval and verification.

**REQUIRED EDUCATION:**

- Bachelor's Degree in Architecture, Civil Engineering, Architectural Engineering or Construction Science preferred.
- An Associate Degree in Construction Technology, Drafting Technology or Computer-Aided Design and Drafting with experience will be considered.

**COMPENSATION:** Base salary is commensurate with experience.

**JOB TYPE:** Full-time

### LEAD / TECHNICAL ARCHITECT – GALVESTON, TX

**JOB DESCRIPTION:** Zero/Six Consulting, LLC has a position available for a Lead/Technical Architect meeting the following criteria:

**CANDIDATE MUST HAVE THE FOLLOWING SKILL REQUIREMENTS:**

- Five to ten years' experience in the preparation of technical drawings related to the exterior building envelope.
- Construction experience related to the exterior building envelope (not tenant build-out experience).
- Currently licensed in the State of Texas (licensure in other Gulf Coast states is a plus).
- Proficiency in AutoCAD and Microsoft Office Suite applications, including MS Word, Excel, Publisher, and PowerPoint. Must be willing/capable to become proficient in AutoCAD 3D and BIM related software such as REVIT.
- Team player with above average communication skills and a dispute resolution mindset.
- Must be equally comfortable at job site and boardroom settings.
- Physically fit and without fear of heights (appropriate training will be provided).

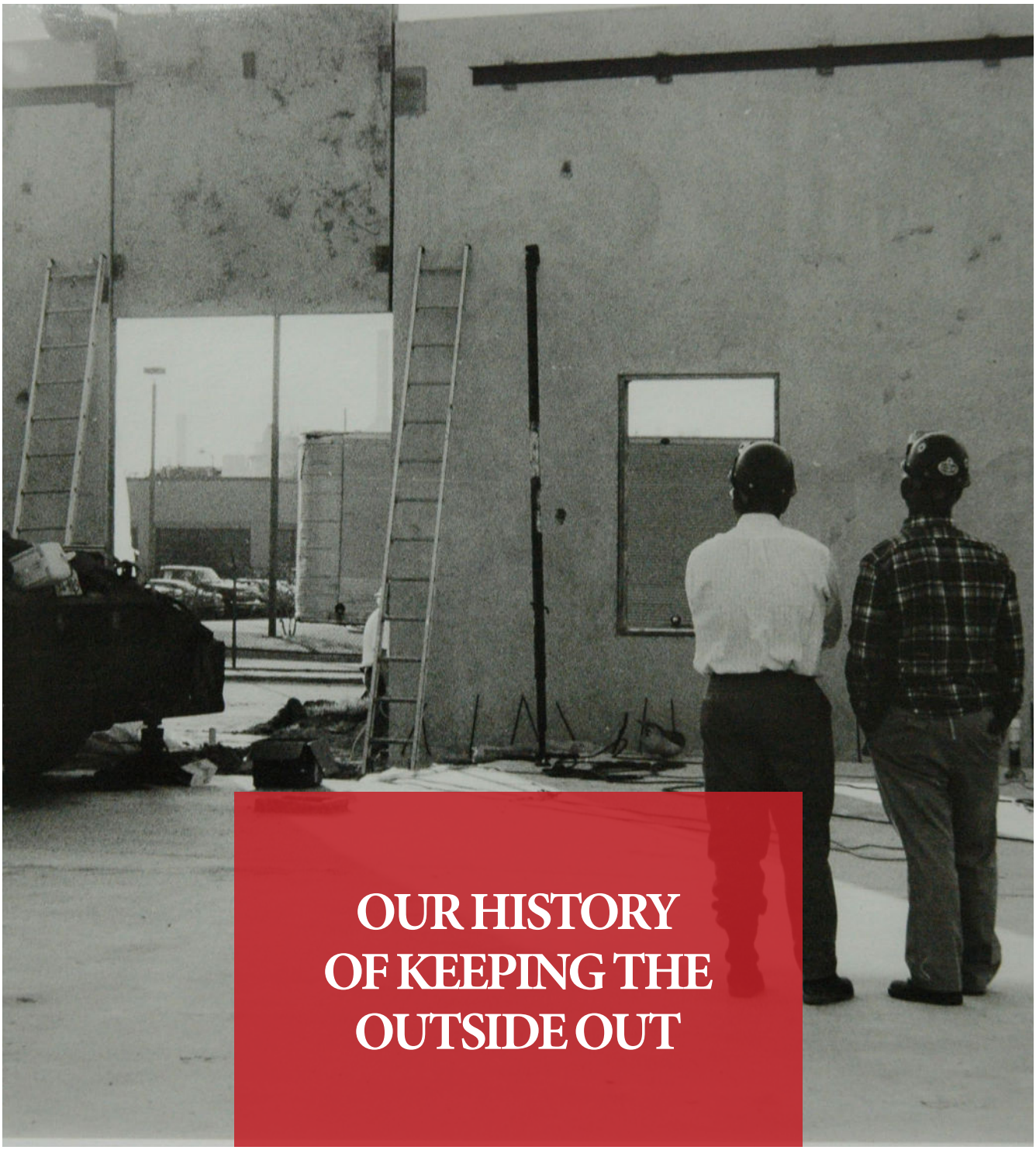
**REQUIRED EDUCATION:** Bachelor's or Master's degree

**COMPENSATION:** Base salary is commensurate with experience and licensure.

**JOB TYPE:** Full-time

**Zero/Six Consulting, LLC. is an Equal Opportunity Employer**

APPLY NOW



# OUR HISTORY OF KEEPING THE OUTSIDE OUT

Thank you for reading our newsletter!

For more information, visit www.z6consulting.com!