STRUCTURAL ENGINEERING



Structural Engenuity

DALLAS HOUSTON AUSTIN www.age-se.com 214.520.7202

AG&E Structural Engenuity Firm Profile

Twelve Years in business

3 Offices in Dallas, Houston, and Austin, Texas Firm Certifications include HUB + MBE + DBE + SBE

AG&E Structural Engenuity is a nationally recognized, full service structural engineering consulting firm founded in Dallas in 2004. We provide sustainable structural engineering design, forensic assessments, dynamic analytics, and laser scanning for all types of projects utilizing the latest design techniques, computer applications, and proven engineering concepts. AG&E-SE derives structural solutions based on efficiency, economic feasibility, and support of a project's architectural intent and expression. Our wide range of market sectors includes industrial, mission critical, education, research, municipal, healthcare, commercial, retail, and transportation.

Our approach is based on unprecedented success in various areas of structural engineering. We are genuine about providing superior service to our clients. Attention to detail and a quality product are the heart of our quality service. Our quality assurance procedures continue to evolve through our commitment to service. We address key concerns at every milestone through construction completion. Our team has developed our expertise in Building Information Modeling (BIM) and design, and stays ahead of current trends in structural engineering.

We are a minority owned business (MBE), a small business enterprise (SBE), disadvantaged business enterprise (DBE), and certified as a Historically Underutilized Business (HUB) in the State of Texas.

Firm Registrations

Florida

Georgia

Idaho

Indiana

Illinois

Kansas

Iowa

Alabama Alaska Arizona Arkansas California Colorado Connecticut

- Kentucky Louisiana Maryland Massachusetts Michigan Minnesota Mississippi
- Missouri Montana Nebraska Nevada New Jersey New Mexico North Carolina
- Ohio Oklahoma Oregon Pennsylvania South Carolina South Dakota Tennessee
- Texas Utah Virginia Washington West Virginia Wisconsin Wyoming

Principals



Sanjay Agrawal PE, SE



Randy Karl Hagens AIA, PE, LEED AP



Mike Hubbard PE



Daniel Grant PE, LEED AP



Project Bluegrass

Confidential Fortune 50 Company New Data Centers Louisville, Kentucky

> Size 200,000 square feet

Construction Cost \$40 million

Design Completed 2009

Construction Start 2009

Construction Completed 2011

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge





The Project Bluegrass represents a 200,000 square foot data center program in Louisville, Kentucky to house a corporation's main data processing facilities. The two identical sites were completed on a staggered 14-month schedule and 80,000 square foot of raised floor. The design team maximized the owner's budget on the project with an efficient layout system that ultimately minimized de-rating requirements in a challenging thermal environment.



Cyrus One

Cyrus One New Data Center Carrollton, Texas

> Organization Non-Profit

Size 670,000 square feet

Construction Cost \$400+ Million

Construction Completed 2014

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge



This project is a 670,000 square-foot data center in Carrollton, Texas for Cyrus One. It is one of the largest facilities in the state and one of the most energy-efficient in the United States. The modular scale is large enough to hold four football fields or 15 space shuttles. The data center campus at full build will deliver 400,000 square feet of raised-floor data center space and approximately 60,000 square feet of Class A office space. It is designed to meet LEED Silver certification.

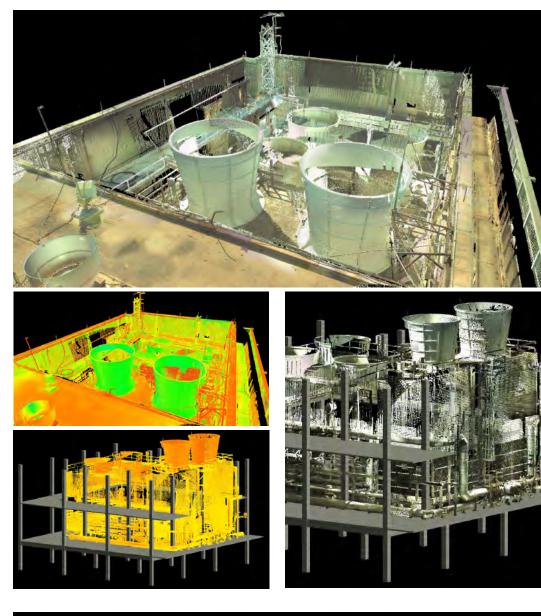




Lidar + BIM

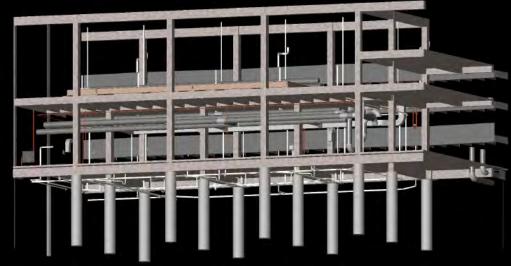
Sheraton Dallas Hotel Cooling Towers Replacement Dallas, Texas

AG&E Structural Engenuity obtained measurements using laser field scanning around the cooling towers and at the structure below. Then AG&E-SE performed a preliminary structural analysis of the existing framing in order to determine the feasibility of replacing the existing cooling towers with new units. No drawings were available, and as a result the analysis was based on the information obtained at the site. The analysis and report by AG&E provided Sheraton with the steps required to support the new cooling towers.



Toyota North American Headquarters Central Utility Plant Plano, Texas

AG&E is providing structural engineering design for the threestory central plant for the new Toyota campus. The structure supports generators, boilers, chillers, rooftop cooling towers, and numerous heavy chilled water and steam pipes.

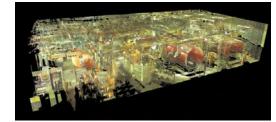


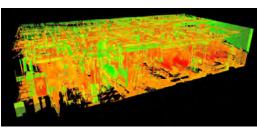


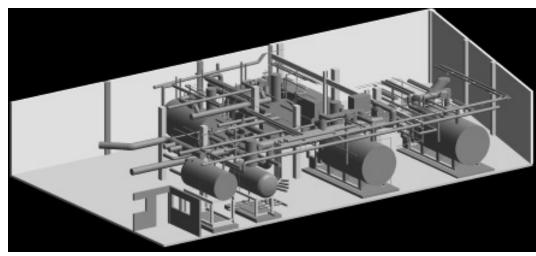
LIDAR + BIM

Children's Medical Center Boiler Plant LiDAR + 3D Modeling Dallas, Texas

AG&E performed laser scanning and prepared a detailed 3D model for use in the design of boiler valve access platforms. The 40-year old plant has had multiple systems added over its life, and AG&E captured all these components in its Revit model.

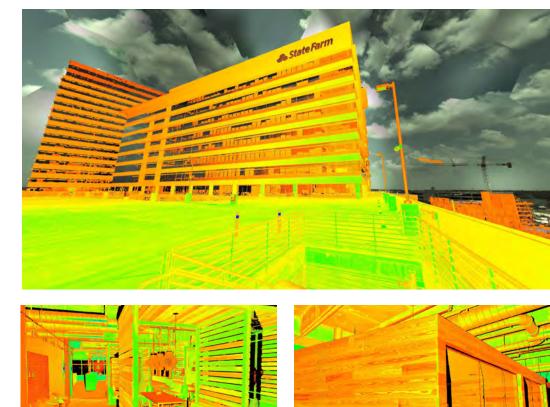






State Farm Dallas Hub CityLine Development Field Measurement Verification Plano, Texas

Used 3D laser scanning to measure the interior square footage of the 21-story, 15-story and 13-story buildings in order to provide verification that the space matched the terms of the lease.





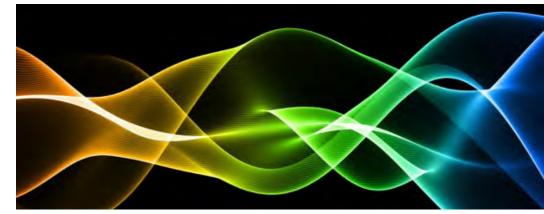
Structural Engenuity

Vibration Testing + Analysis

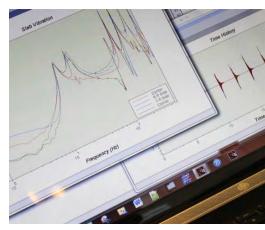
AG&E Structural Engenuity's experienced technical staff provide a complete range of traditional consulting structural engineering services spanning from concept studies to contract documents as well as detailed vibration measurement & analysis.

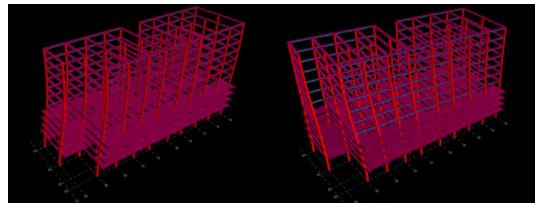
Our expertise in structural dynamics sets us apart from other firms and includes on-site vibration measurement, advanced dynamics analyses, and design of vibration mitigation systems.

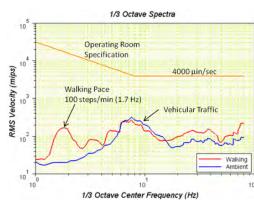
We are a structural *and* vibration consulting engineering firm, which means our vibration assessment and solutions are efficiently integrated into our structural designs ensuring minimum cost and maximum effectiveness, with none of the coordination headaches that come with managing multiple consultants.

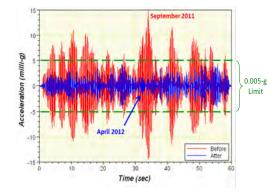














Texas A&M University - Corpus Christi

Texas A&M University System New School of Business Corpus Christi, Texas

> Construction Cost \$19 Million

Construction Completed 2011

Services Provided Structural Engineering

> Personnel Mike Hubbard, PE Principal in Charge





The College of Business at Texas A&M University-Corpus Christi integrates carefully into the campus providing a unique identity for the business school. The project includes classrooms, computer labs, executive education, business incubators, and faculty and administrative offices. The building's curved eastern façade embraces the adjacent Lee Plaza and enhances this existing amenity by providing definition to the space. The primary entry space for the project has been placed on axis with Lee Plaza, while the entries on each side reinforce the geometry of the plaza and create the opportunity to extend its axis through the heart of the new building and out to future Campus development to the west. Because the campus is located on the Gulf Coast, the threat of hurricanes is prevalent. Building orientation and selection of materials that are resistant to both wind and salt are also important design considerations.



Education

Kathlyn Joy Gilliam Collegiate Academy

Dallas ISD New Collegiate Academy Performing Arts Dallas, Texas

Size 110, 000 square feet

Construction Cost \$21.5 Million

Design Completed 2010

Construction Start 2010

Construction Completed 2011

Services Provided Structural Engineering Construction Administration

Reference Vandana Nayak AIA, LEED AP Project Manager SHW Group 5717 Legacy Dr #250

> Plano, Texas 75024 (214) 473-2400 vnayak@shwgroup.com





Dallas ISD's Kathlyn Joy Gilliam Collegiate Academy is an early college high school specifically tailored to prepare primarily first generation college students for academic success in college and beyond. The advanced high school focuses on college readiness and is located on the grounds of the University of North Texas at Dallas in southern Dallas, Texas.

AG&E Structural Engenuity designed the 110,000 square-foot facility as a series of academic and social spaces centered around a common area, giving the facility the feel of a multiple-building campus, similar to a college, while keeping the students in a secure environment. Instead of traditional "home rooms," faculty offices are located in a "perch," which is a large, cubic space suspended on the second floor from which faculty can view the various academic spaces.

The facility provides varied academic and social experiences for 9th-10th and 11th-12th grade students. Higher grade levels are housed on the first floor, allowing for more freedom and unstructured time. The lower grade levels are on the second floor, providing a more structured, controlled environment and a more formal learning environment and closer proximity to teachers. Multiple spaces for informal learning are incorporated throughout the building to assert the importance of planning unstructured time.

Education

Jesse Owens Memorial Athletic Complex





Jesse Owens Memorial Complex is a multi-sport complex that was built in 2005 for use by Dallas ISD middle and high schools. With a seating capacity of 12,000 at the stadium and 7,500 at the field house, these two facilities are among the largest of their kind in the area and routinely host playoffs for a number of different sports. Each of the modern facilities contains a video board for scoring and replays, and areas for concession. John Kincaide Stadium has a 2-level press box with a large open area and several rooms. Ellis Davis Field House contains multiple locker rooms and a meeting room that can seat 90 people. This complex primarily hosts football, basketball, soccer, track and field, and volleyball events, but is capable to host several other sports as well as other activities including concerts.

Education

Dallas ISD New Athletic Complex Dallas, Texas

Size

12,000 Seat Stadium 7,500 Seat Fieldhouse

> Construction Cost \$29 Million

Construction Completed 2005

Services Provided Structural Engineering

> Personnel Mike Hubbard, PE Principal in Charge



Vernon Newsom Stadium and Natatorium



The stadium is centered in the heart of the District and features a split, two-level Press Box, and a spacious, mid-level concourse that provides a means of entrance and egress from any of the four flanking ticket booths. The spectator grandstands for both Home and Visitors are designed with a slight skew on both ends that give the facility a "bowl effect" for maximum viewing angles for each fan. Additionally, the grandstand seating structure is constructed with three different, yet slight, rise dimensions, again giving each spectator a closer, more intimate seat for viewing.

The playing field is situated in a north/south direction slightly angled to the west to take advantage of the prevailing winds and sun angles for participants, and is surfaced with the latest state-of-the-art artificial turf with fully inlaid yard lines and markings.

The grounds are modestly landscaped and controlled by a series of ornamental and chain link fences. The office complex is approximately 10,000 square feet and also accommodates a large community center that is utilized by the entire district for specialized functions. Both Home and Visitor sides have the use of two full-sized locker rooms that can be subdivided for large soccer tournaments as well as football events and have accommodating showers and dressing areas.

The stadium is anchored by the highest of 'high-tech' scoreboard/message centers in the state of Texas. Modestly referred to as the Jumbotron, it stands over 40-feet tall with a 15-by-20-feet message center viewing screen that enables teams to show school spirit animations, local cable feeds and instant replay. The District partnered with a Methodist Hospital in a venture that included portions of the cost and advertising associated with the Jumbotron. The relationship is evident each time patrons arrive at the stadium as it is aptly named for this joint venture.





Mansfield ISD New Stadium and Natatorium Mansfield, Texas

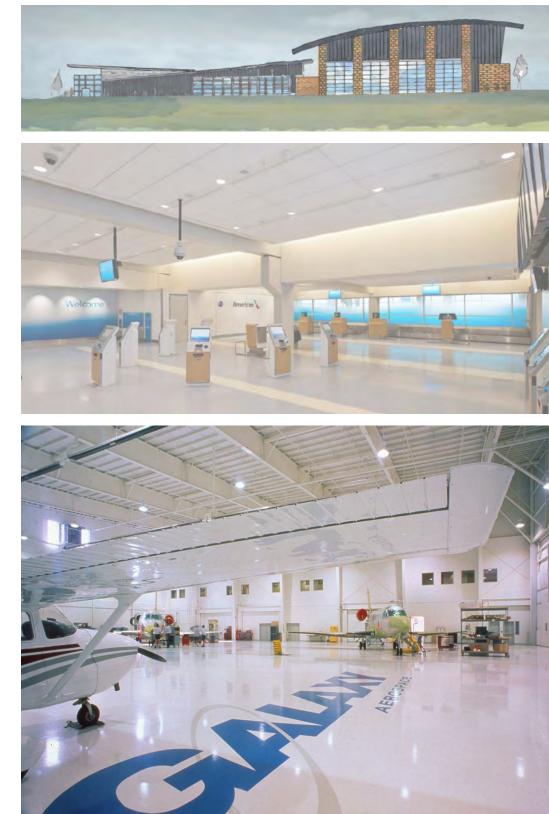
> Construction Cost \$19 Million

Construction Completed 2006

Services Provided Structural Engineering

> Personnel Mike Hubbard, PE Principal in Charge

Aviation



Lawton-Fort Sill Regional Airport Lawton, Oklahoma Snow Removal Equipment Building Aircraft Rescue and Fire Fighting Station *(currently in design)*

> Killeen-Fort Hood Regional Airport Killeen, Texas Airport Terminal Boarding Bridge Replacement *(currently in design)*

Alliance Airport-Galaxy Aerospace Facility Fort Worth, Texas *(currently in design)*

DFW International Airport Terminal A Fort Worth, Texas American Airlines Admiral's Club Renovation TRIP Connector Revised Bridge and Demolition Package DART Station Retaining Walls DFW HQ Study

American Airlines/Alliance Airport Fort Worth, Texas Maintenance Base Property Condition Assessment

> Cigna - Helipad Hartford, Connecticut

New Enterprise Car Rental Facility DFW Airport Fort Worth, Texas

Alamo/National Site Expansion DFW Airport Fort Worth, Texas





New Parkland Hospital



AG&E Structural Engenuity is the prime structural engineer for the new \$740 million Parkland hospital. Design began in 2009 encompassing a 1.7 million square foot, 17-story main hospital building with 862 patient rooms.

The hospital is designed to be visitor and staff-friendly, with clear pathways, multi-level parking, private patient rooms, and a wellness park accessible through the hospital. Some of the signature structural features of the building were selected by specific programming needs of the hospital. The hospital and the attached Women & Infants Specialty Health incorporate evidence-based design. This project is designed to meet LEED Silver Certification.

Parkland Health Hospital System New Replacement Hospital Dallas, Texas

Size 2.1 million square feet

Construction Cost \$740 Million

Design Completed Fall 2011

Construction Start Spring 2010

Construction Completed 2014

Services Provided Structural Engineering Construction Administration

> Personnel Sanjay Agrawal, PE, SE Principal in Charge

Reference

Penny Busch Senior Program Manager Healthcare Facility Department at Parkland Hospital 2222 Medical District Drive Cityville Office Building Dallas, Texas 75235 (214) 590-9664 penny.busch@phhs.org





Gaston Avenue MOB at Baylor

Baylor Health/Med Providers Medical Office Building Dallas, Texas

> Size 750,000 square feet

Construction Cost \$52 Million

Design Completed 2015

Construction Start 2015

Construction Completed Estimated August 2016

Services Provided Structural Engineering Construction Administration

> Personnel Sanjay Agrawal, PE, SE Principal in Charge



This project is a new medical office building for Baylor Health. This 12-story, 750,000 square-foot building will consist of 175,000 square feet of medical office and six levels of above grade parking. It will also include a pharmacy, optometry, physical therapy, radiology and a sleep center. MedProvider will be the anchor tenant occupying the top two floors. The total construction is estimated at \$52 Million.

3417 GASTON





UT Southwestern Medical Center Dallas

UT Southwestern Medical Center South Campus North Campus West Campus St. Paul Medical Center Dallas, Texas

Scope Small Projects Rotation List

Duration of Relationship +30 years

Services Provided Structural Engineering Construction Administration Vibration Testing Forensic Analysis Garage Repairs

References UT Southwestern Medical Center Kirby Vahle Vice President of Facilities Management (214) 648-2400



Mike Hubbard, Principal, has been working on the University of Texas Southwestern Medical Center (UTSWMC) campus for over 30 years. He significantly participated in the structural design and was the engineer of record for the North Campus Expansion Phases 1 through 4, Biomedical Research Building (building Y), Spraque Clinical Science and Research Building, and the Oncology Building on the North Campus.

During the last ten years Mike Hubbard has also completed over 150 smaller type projects on the campus including various structural assessments, repairs, additions, renovations and modifications. These projects have included almost every facility on the campus including all of the parking garages. Mike Hubbard and AG&E Structural Engenuity have consistently been UTSWMC's engineer of preference for projects with short time lines or needing specialized forensic analysis.





OASIS Hospital





The 96,000 square-foot Orthopedic and Spine inpatient surgical hospital consists of 64 private rooms, 4 intensive care units (ICU), 8 operating rooms (OR), 9 preoperational rooms, 15 post anesthesia care units (PACU), and Radiology. It is also equipped with a Central Plant and 1000KW EPS. The full-service specialty hospital is outfitted with a full kitchen with cafeteria, coffee bar, terrazzo flooring, two-story lobby with full glass curtain-wall, and stone and metal panels.





Southwest Orthopedic and Spine New Hospital Phoenix, Arizona

> Size 96,000 square feet

> Construction Cost \$16 Million

> Design Completed 2009

Construction Start 2010

Construction Completed 2012

Personnel Sanjay Agrawal, PE, SE Principal in Charge

Reference David Tooley Principal Ascension Group Architects 817-226-1917 dtooley@ascensiongroup.biz

Toyota Headquarters

Toyota New Headquarters Plano, Texas

Developer KDC Development

Approximate Size +2 million square feet of office 2.6 million square feet of garage 200,000 square feet of technology 30,000 square foot Central Utility Plant

Construction Cost

\$350 Million Total Parking Structure \$110 Million Technology Building \$30 Million

Status

Under Construction

Construction Start 2015

Construction Completed Estimated 2016

Services Provided Structural Engineering for Parking Garage Technology Building Central Utility Plant

Personnel

Sanjay Agrawal, PE, SE Principal in Charge Bryan Haverhals, PE Project Manager

Structural Engenuity

Architect CORGAN



AG&E Structural Engenuity, along with another local engineering firm, recently began design of the new \$350 million corporate campus for automotive giant Toyota. The plans for the 100-acre corporate campus include a data center, a massive eightbuilding office complex with a grand entrance off Headquarters Drive, as well as four technology buildings to the west of the campus.

In order to meet Toyota's minority participation requirements for tax incentives by the state, the project was divided between two firms. As the local minority partner, AG&E Structural Engenuity is providing structural design on the 7,200 space parking garage, the technology buildings, and the central utility plant. The second firm is designing the remaining office buildings. This entire campus is being designed and constructed to meet LEED Platinum certification.

Specialty



Kubota Tractor Corporation Headquarters



Kubota Tractor Corporation New U.S. Headquarters

Grapevine, Texas

Size

Three-Story Office Building Two-Story Research & Development Facility Three-Story Parking Garage

Personnel

Sanjay Agrawal, PE, SE Principal in Charge

> Architect CORGAN



Kubota's new corporate headquarters campus is a 25-acre project in Grapevine, Texas. The project consists of a three-story, 125,000 square-foot office building, a two-story, 68,000 square-foot research and development facility, and a three-story, 106,000 square-foot parking garage. The campus will house more than 400 workers, and the location provides the opportunity for further expansion.



Specialty

Maxim Dallas

Maxim Integrated Office Building Expansion Farmers Branch, Texas

Size 139,000 square feet

Construction Cost \$22 Million

Design Completed 2010

Construction Start December 2010

Construction Completed 2012

Services Provided Structural Engineering Construction

Personnel Sanjay Agrawal, PE, SE Principal in Charge

> Reference Mary Hart CORGAN





Maxim Integrated invested more than \$22 million to build a research and development facility in Farmers Branch, Texas. Maxim expanded their campus with the addition of a three-story, 139,000 square foot, ground-up tilt wall office space. The project also includes an open office area with space for more than 500 workstations and two-story atrium lobbies. The project is seeking LEED Silver certification.





Maxim World Headquarters

Maxim Integrated New World Headquarters San Jose, California

Size 425,000 square feet

Construction Cost \$33 Million

Design Completed 2010

Construction Start 2010

Construction Completed 2012

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge

> Architect CORGAN







Maxim Integrated converted an existing campus into its new world headquarters. The project included four buildings and totaled 425,000 square feet.

In 2012, the company moved from 12 disparate buildings into this centralized, modern, and energy-efficient campus. As one of Maxim's LEED-compliant sites, the buildings incorporate sustainable features such as a centralized chilled and hot-water system for heating and cooling to reduce energy consumption. The campus also features a cafe with seasonal, organic, and locally sourced food, a workout facility, a 1.1 acre open courtyard, electric vehicle charging stations, an event center with seating capacity for 400 people, an IQ Zone, a video production studio, and special areas for hosting clients.

The project is certified LEED GOLD.





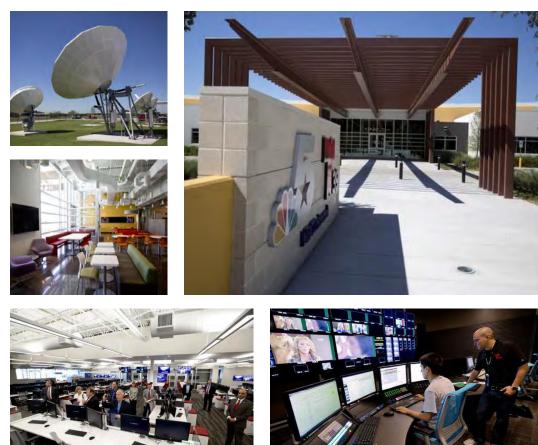
NBC 5 Studios

NBC 5 Studios Ft. Worth New Television Studio Fort Worth, Texas

> Size 75,000 square feet

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge



The 75,000-square-foot building combines two NBC 5 Studios facilities. The vast new newsroom has 108 workstations, each equipped with three computer monitors where writers, editors and producers for NBC 5 and KXTX/Telemundo 39, which broadcasts in Spanish, will gather the news daily. Adjoining the newsroom is a 1,000-square-foot Media Operations Center where news staffers will control and see images from more than 500 sources on monitors. NBC 5 and Telemundo each have 2,600-square-foot sets across a hallway from each other. From the lobby, visitors can look beyond two sets of glass doors directly into the newsroom, the core of the facility.

Specialty



Fossil Headquarters





Designed by one of the top architecture firms in the country, the new Fossil headquarters building in Richardson, Texas is an energetic place for the fashion giant to call home. Rising out of the shell of the former Blue Cross Blue Shield of Texas headquarters, the Fossil HQ measures in at approximately 535,000 square feet. In keeping with the brand identity of the company, the "vintage modern" styling of the space is revealed in the use of materials like raw concrete, exposed steel, reclaimed wood and exposed brick.

Employees are also given a number of amenities like a modern fitness center, cafeteria, and on-campus-use bicycles. The cafeteria was given a diner-feel to fit in with vintage atmosphere. And the bikes are used to quickly get from place to place on campus when necessary.

Fossil was looking for a collaborative environment; the ground floor of the office complex includes a library/lounge area where employees can gather. The addition of 68 conference rooms ensure that employees have private areas for meetings or work. Private offices on each floor are clustered in the center of the building, freeing up the perimeter for more light.



Organization KDC

Size 535,000 square feet

Construction Cost \$80 Million

Design Completed 2009

Construction Start 2010

Construction Completed 2011

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge

Reference Mary Hart CORGAN





CUNA Mutual Group

KDC CUNA Mutual Group

New Office Building, Customer Operations, Call Center Fort Worth, Texas

> Size 108,000 square feet

Construction Cost \$18 Million

Design Completed 2006

Construction Completed 2007

Services Provided Structural Engineering Construction Administration

> Delivery Method Fast Track

Construction Type Tilt Wall







This 108,000 square-foot, build-to-suit customer operations center was completed in just eight months. Located at 4950 Amon Carter Boulevard in the Campus at CentrePort in Fort Worth, the new facility broke ground in August 2007 and features the latest in technology. The facility houses CUNA Mutual's customer service operations for the collateral protection insurance product it provides to more than 4,300 credit unions, and the LoanLink Center, a lending contact center. CUNA Mutual moved employees into the new building with the capacity to accommodate 800 employees. The facility includes a state of the art 24 hour call center with back up power and energy efficient features.





1900 Cedar Springs | Miro

1900 Cedar Springs New Residential Tower Dallas, Texas

> Organization GenCAP

Size

Six-Story Parking Garage Ten-Story Residential Space

> Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge



1900 Cedar Springs is a boutique residential multi-family project within the amenityrich environment of Uptown Dallas - the urban center of Dallas, Texas. Ideally located at the corner of Harwood Street and Cedar Springs Road, the building will boast superb access and premier views of the spectacular Dallas and Uptown skyline.

Our engineers are working with award winning architects GFF, the building offers ten floors of high-end condominium space sitting atop a six-story parking structure. The building's unique design allows for unexpected outdoor patio areas, floor-to-ceiling glass, contemporary interior and exterior finishes, and a rooftop deck.



Park 4200





Park 4200 is a six-story apartment project built over a three-story parking garage. Located in Dallas, Park 4200 has over 99,000 square feet of interior floor space. The three-level parking structure is built of reinforced, cast in place concrete with all residential unit levels constructed with light frame, cold formed steel.



Specialty

Park 4200 New Residential Apartments Dallas, Texas

Size

99,000 square feet Three Stories Structured Parking Six Stories Residential

> Construction Cost \$20 Million

> Design Completed 2008

Construction Start 2008

Construction Completed 2009

Services Provided Structural Engineering

Personnel Sanjay Agrawal, PE, SE Principal in Charge

Reference Throckmorton, L.P. 12750 Merit Drive # 1175 Dallas, Texas 75251

Lake Vista 7

Myers & Crow Company Lake Vista 7 Office Center Two Story Office Building Dallas, Texas

Size 240,000 square feet

Construction Cost \$30 Million

Design Completed 2007

Construction Completed 2008

Services Provided Structural Engineering Construction Administration

> Delivery Method Design Assist

Construction Type Tilt Wall







Lake Vista 7 is designed as a LEED-Silver certified building. The building boasts two, two-story entry atriums, Italian porcelain and granite tile entry, natural wood paneling, and grand staircases to facilitate inter-floor traffic. The bright, open floor plans with 10-foot ceiling heights maximize natural light.

The architecture was meticulously designed to appeal to image-conscious companies. Extensive regional/native landscaping surrounds the building.



Specialty

Bridges

DFW Terminal Renewal and Improvement Program Irving, Texas Five Bridges Three Underpasses Temporary Steel Connector Bridge

Marshall Ridge Bridge Keller, Texas Stream Crossing Bridge and Culvert

> Cooper Creek South Bridge and Heritage Trace Culvert Fort Worth, Texas Two New Bridges Crossing Over Stream

Old Decatur Road Bridge Fort Worth, Texas New Bridge Crossing Over Stream

Windsong Ranch Stream Crossing Bridge Proper, Texas New Bridge Crossing Over Stream (*currently in design*)

> Lebanon Road Bridge Frisco, Texas Concrete Framed Bridge Three Lanes of Traffic Pedestrian Walkway









Specialty