

The 57-story Elysee luxury residential tower in Miami received top-to-bottom materials testing, special inspections and cable-elongation monitoring services from GFA International, Inc.



CONSTRUCTION ON A FIRM FOOTING

New, expanded *Universal Engineering Sciences, LLC*
builds by acquisition

by Ralph Fuller

Before towering skyscrapers can reach into the clouds, companies like Florida-based Universal Engineering Sciences, Inc. (Universal) and GFA International, Inc. (GFA) make certain that they can reach down into the earth—and stay there. Their geotechnical engineering expertise is key to analyzing the ground beneath construction projects great and small and designing the foundations that keep them stable and intact.

For 56 years, Universal had been a family-owned company, growing from its headquarters in Orlando and building a large presence in Florida and beyond. Over a period of 32 years, Delray Beach-based GFA had developed its own solid presence, with additional offices in Miami, Tampa, Fort Myers, Clewiston and Port St. Lucie.

In January, the two companies began a yearlong process of merging into a single, larger organization. Their goal is to fully implement the combination by the end of 2020, at which point the merged company will be known as *Universal Engineering Sciences, LLC*.

"Universal and GFA were friendly competitors for a long time," says Mark C. Israel, who currently serves as President of Universal Engineering Sciences, Inc. and will be CEO of Universal Engineering Sciences, LLC. "We provided many of the same services, and we shared a lot of the same areas of expertise, goals and values. The time just seemed right to join together."

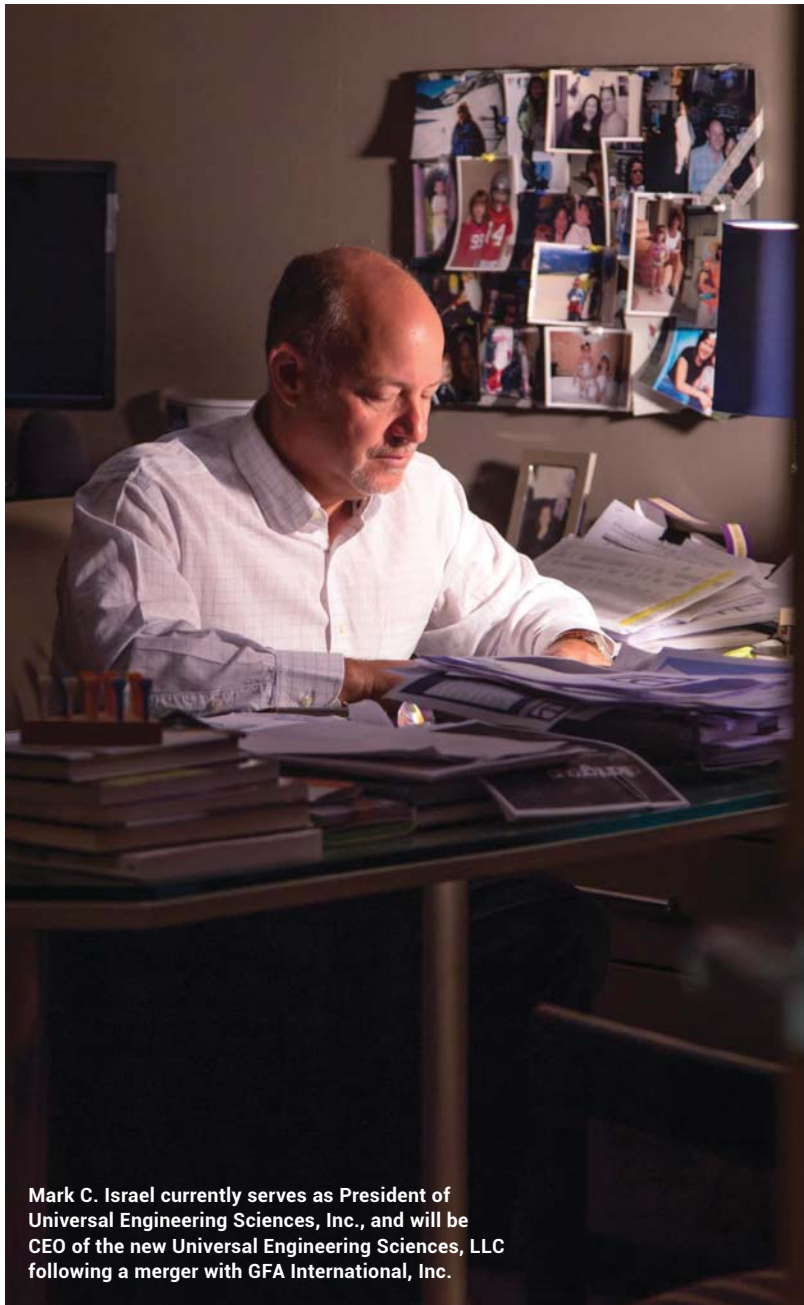
And to grow still more. In May, the new, expanded Universal looked well outside the Southeast and announced the acquisition of NOVA Geotechnical & Inspection Services, LLC (NOVA Geotech), with locations in Las Vegas and Reno, Nevada, and in Irvine, California. In July, the growing Universal organization added Contour Engineering, LLC (Contour), a geotechnical engineering company with offices across Georgia, Alabama and Florida.

"It's a gradual marriage," Mark says. "We're operating for the present as the 'Universal Engineering Sciences Family of Companies,' but our hope is to bring all the companies completely under the Universal banner by the end of the year."

The series of combinations brings together Universal's 950 employees and GFA's 250, Contour's 150 and NOVA Geotech's 150. The result is a 1,500-staff organization with a presence in eight states, including Florida, Alabama, Georgia, North Carolina, Virginia, Maryland, Nevada and California.

FAMILY-OWNED, AND A LONG-STANDING PARTNERSHIP

Both Universal and GFA have long histories of stable ownership. Universal was founded by Seymour "Sy" Israel in 1964. As a family-owned operation, the company grew over the next half-century to include branches in about 20 locations and \$96 million in annual revenue. Mark, Sy's son, assumed the role of President in 2001, but Sy has remained involved in the company.



Mark C. Israel currently serves as President of Universal Engineering Sciences, Inc., and will be CEO of the new Universal Engineering Sciences, LLC following a merger with GFA International, Inc.

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GFA was established in 1988 by two partners, Frank Frione and Fred Kaub, who served for the following three decades as CEO and President, respectively. In that time, the company established a presence throughout South Florida.

For the new Universal organization, Sy will serve as Chairman of the Board while Frank and Fred serve as Managing Partners. One reason the merger has proceeded slowly is that Universal and GFA overlap in a number of areas. Both have large offices in Miami and redundant branches in other locations. The present site count is 33, but that includes the doubles. Where they exist, the approach has been to transfer work and staff among them as they proceed to combine staffs.

“When we see something one group does better than the other, we say ‘OK, we’ll do it that way,’ ” Mark says. Since Contour and NOVA Geotech have presences largely outside the core Universal and GFA territories, the redundancy isn’t as pronounced. But the process of integrating them into the greater organization is also underway.

STABILITY, DURABILITY AND SONIC DRILLING

Broadly put, geotechnical engineering involves working to analyze the ground underlying a proposed construction project—such as a skyscraper, stadium, dam, tunnel or bridge—and designing the infrastructure that will ensure the project’s stability and durability.

The first part of the process might bring into play such measures as auger borings to collect core samples



UNIVERSAL
ENGINEERING SCIENCES

Frank Frione (left) and Fred Kaub, who co-founded GFA International, Inc., will serve as Managing Partners of Universal Engineering Sciences, LLC.

of underlying soil and rock; imaging of underlying layers with ground-penetrating radar; slope stability analysis; permeability tests; seismic monitoring; chemical and mechanical analysis in the laboratory; and myriad other techniques.

With measurements and analyses in hand, the engineers then work to construct designs to ensure the project's success. Solutions could include options like modifying the soil to improve stability or developing structural designs for slurry walls, deep pilings and foundations. If an area is contaminated, a soil or water remediation plan may be developed. If vibration is likely to be an issue, Universal can provide real-time monitoring for advanced warning of any need for potential mitigation measures like isolation trenches.

In addition to direct push and conventional drilling, the firm also provides sonic drilling services, a relatively new exploration technique that uses high-frequency sonic energy to create a liquefying effect that significantly loosens the subsurface material it encounters. Used in a wide variety of drilling applications, it's two to three times faster than conventional drilling, delivers continuous core samples and reduces soil and water waste by up to 80%.

HIGH ABOVE AND DEEP BELOW

Clients of the now-merged companies have included scores of cities, counties and institutions in Florida alone, as varied as Seminole State College of Florida, St. Johns River Water Management District, Canaveral Port Authority, Brevard County, City of Fort Myers, Universal Studios Florida and Palm Beach International Airport.

The team members' expertise has been essential to projects as different as: tall buildings along Florida's coastal skyline; the high-speed rail line connecting Miami and Orlando; the Port of Miami Tunnel, running far below the Biscayne Bay shipping channel; and Exploria Stadium, the home of Major League Soccer's Orlando City Soccer Club. The companies have worked extensively with the U.S. Army Corps of Engineers on the Comprehensive Everglades Restoration Plan, including renovations to the 143-mile-long Herbert Hoover Dike that holds Lake Okeechobee back from the Everglades.

"One of the most interesting projects I've worked on in some time has been the performing arts complex in Orlando," Mark says. The Dr. Phillips Center for the Performing Arts encompasses more than 300,000 square



Universal Engineering Services, Inc. and GFA International, Inc. have both provided a range of services to the U.S. Army Corps of Engineers for rehabilitation of the 143-mile-long Herbert Hoover Dike in South Florida.

INSPECTIONS, CODES AND FRED FLINTSTONE STUFF

Geotechnical engineering is front and center in the Universal companies' work, but their capabilities extend to other areas, from structural inspections to code compliance reviews. With strong industrial health and safety programs in place, the Universal companies have responded to the COVID-19 pandemic with planning and training to assist client organizations in dealing with the disease's challenges.

Expertise in environmental testing and consulting would seem a natural extension of their services, considering their proclivities for sampling soils. Analytical services range from general property condition assessments to specifics like hazardous waste and water testing. Action plans can focus on closing and removing underground storage tanks, remediating contaminated soils and water and ongoing well monitoring.

Construction materials testing is a specialty that Mark calls "Fred Flintstone stuff," principally because a major part of it is taking

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Mark C. Israel

feet of space. It houses two grand performance halls, a community theater, rehearsal halls, educational programming space and an outdoor plaza with performance space.

"What made it special from our point of view was that it required a 31-foot excavation for a basement in an area with a 6-foot water table," he says. "The pressure from the water was immense and in designing the foundation we had to make sure that, first, during construction the building would stay down in the face of the water pressure. Second, it's a very heavy building and we had to make sure it wouldn't settle after it was built." The solution included soil modifications prior to construction,

piling lengths adjusted to match predicted settlement, design of an underground stormwater vault and design of helical pilings to shore up a cantilevered roof.



Team spirit was on display at GFA International, Inc.'s Olympic-themed picnic in West Palm Beach, FL, in 2019.

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construction material like concrete and crushing it to see how well it meets industry standards for strength and durability. Aggregates, asphalts, masonry and mortars are among the substances subject to technical testing; but so are floor flatness, moisture barriers and roof fasteners.

A relatively new niche in the industry is code compliance review—that is, inspecting construction projects for their adherence to state and local standards for plumbing, electrical and other standards. "A building can be inspected for more than a dozen elements," Mark says. "It's a new trend and a growing part of our business."

COMMITTED TO QUALITY OF LIFE

"Professionally," Mark says, "we're proud that the work we do benefits so many people. Projects to restore the Everglades are obvious examples. But the sort of infrastructure projects we work on—community centers, high-speed rail, tunnels and bridges, for example—also contribute immensely to the quality of life for all of us."

But that commitment exists on a personal level, also. "We're equally proud," he adds, "that we as the Universal companies are able to support organizations and charities dedicated to helping others. Our employees enthusiastically take part in this support, both through financial contributions and as community members volunteering their time."

Causes supported have been as varied as Ronald McDonald House Charities, Habitat for Humanity, Boys & Girls Clubs of America, the ALS Foundation for Life, Heart2Heart Outreach of South Florida, St. Jude Children's Research Hospital and Fort Lauderdale's Jack & Jill Children's Center. 🐾



GFA International, Inc. provided geotechnical engineering services below ground, materials testing, and special and threshold inspections for The Main Las Olas, a mixed-use office, residential and retail complex in downtown Fort Lauderdale, FL.

Freelance writer Ralph Fuller has more than 30 years' experience explaining topics as diverse as rare tropical diseases, alternative fuels, highway safety technologies and the fishes and critters on coral reefs.