Cape Design Engineering Co.

RED LINES

Company Newsletter - Winter 2019

Preparing for the Next Era of Flight

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Inside this edition of:

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The Executive Message

By Inga Young

When I purchased Cape Design Engineering in March of 2019, and brought it under the umbrella of my parent company 8-koi, I immediately reached out to my friend and colleague Dean Rosenquist and brought him in as Chief Operating Officer.

Together we put a vision together that will build on CDE's stellar reputation, growing the company into the next decade and beyond. Our vision is simple: to provide agile and full-spectrum solutions with a human touch by means of CDE's already diverse and talented employees, and then adding to that base as growth occurs.

Four core values were isolated and enacted:

- Passion: We will be driven by an essential need and desire to satisfy the needs of our colleagues and customers.
- Excellence: Our commitment is not just to meet, but to exceed expectations.
- Dependability: Through relentless perseverance, our goal is to achieve enduring and lasting outcomes.
- Thoughtfulness: It is not all about us. Consideration is always there for alternatives, with an open-minded willingness to embrace other ideas, all while having empathy for our clients, putting ourselves in their shoes.

Having purpose, cause and passion are what drives me. I want to be recognized as a better employer and better than a standard contractor.

I have been impressed with Dean's diverse background and the successes he has had. Dean started his career in the Air Force, where he became a pilot. He retired after 20 years and went to work for Craig Technologies as the Director of Human Resources before being promoted to Chief Operating Officer. After 10 years there, helping Carol Craig build her company, Dean joined Comprehensive Health Services in Cape Canaveral as the Senior Vice President of Human Resources, spending almost three years there.

"I've taken small businesses and helped make them big businesses, and I've taken big businesses and helped make them bigger," Dean says. "I know what works and what doesn't work."

During his time at Craig Technologies the company went from 100 to 500 employees, and with Comprehensive Health Services the company went from 800 employees to 2,600.

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Getting to know our Vice President

Victor Diaz had been carrying the title of Cape Design Engineering's Vice President of Engineering since 2018, though it was never something etched on the glass at his office door. The title, and all that responsibilities that it entails, finally became official when Inga Young and 8-koi purchased CDE in March of 2019. Victor now manages all the engineering departments. It's a big responsibility.

Before CDE's sale, company co-founder Lou Mized held the certificate of authorization, which meant that anything that needed a signature—from proposals to contracts and all things in between—were signed by Lou. Now Victor assumes that duty.

"My primary role is making sure we get all the work done and that we meet the client's needs on the engineering side and deliver a good product," Victor says. "So, from that standpoint, nothing has changed. It's what I've been doing, I just have the official title now."

With Lou and fellow company co-founder Kannan Rengarajan now with CDE as consultants, Victor is third in the chain of command, behind Inga and new COO Dean Rosenquist. This expanded role means Victor will oversee personnel and marketing on the engineering side.

Mr. Victor Diaz, P.E. became CDE's Vice President of engineering and handles all day to day management responsibilities.

Originally from Puerto Rico, Victor, now 51, received his Bachelor of Science in electrical Engineering in 1991 from the University of Puerto Rico at Mayagüez. Through the years, he has worked for a variety of firms—Atkins North America, Matern Professional Engineers, Inc., TLC Engineering for Architecture, Clark Nexsen, BPS Engineering, Enrique Ruiz and Associates, and, of course, CDE—doing so on two different occasions for a combine 5½ years with the company. Through the years, and at all those employment stops, Victor has learned a lot. One main thing he learned is that he enjoys working for a smaller and more personable company like CDE.

"When I came back here in February of 2016, I left TLC, which is a huge engineering company," he says. "When I was with CDE the first time, from January of 2013 to August of 2014, I liked the fact that it was a small, family-oriented company. At TLC, about 95% of the revenue is working with architects. You're always a sub-consultant, always working under a architects. Here at CDE, we are the prime most of the time, working directly with the client."

It suits his personality and skillset better.

"I like being directly involved," Victor says. "I like meeting new people, different owners and users, and hearing their stories and what their needs are, what challenges they're facing. I enjoy problem solving."

As a supervisor, Victor prides himself on being an active listener, gathering information and thinking things through before making a decision. "I'm not the type of person who likes to react quickly," he says. "I think it's important to absorb and listen and make a measured decision. I like to be positive, too. I like being a cheerleader for what our personnel are doing for our clients."

Victor and his wife Catherine recently became empty nesters—their son David is in college in London, and their daughter Sofia is in college in Madrid. Not wanting to move from Orlando when their children were in school, Victor and his wife recently moved to Suntree. ■■■

Regarding Inga...

Some people reach a destination and it's a straight line, and then there are people who zigzag as if they were traveling a winding river, following the current to see where life takes them.

Inga Young saw the former in her sister, who knew she wanted to get a bachelor's degree in accounting, then a master's degree in tax accounting, then a law degree, and then, after nine straight years of schooling, practice tax law and eventually have one child, which she predetermined would be a son.

"And she did all of that, even having one child … and it was a son," Inga says. "I don't know how she accomplished that part, but everything else she knew exactly what she wanted to do, and she did it."

As Inga recounts the beeline path her older and only sibling took, she is sitting in her new corner office at Cape Design Engineering, the company she purchased in March of 2019.

"That wasn't me," she says with a smile.

When Inga graduated from the University of Florida with an accounting degree in 1991, she had no idea where her life or career would take her. "After graduation, my sister told me, 'Don't stay in school and get other degrees. Go out in the real world and figure out what excites you.'" So she did, journeying on the ride of her life, a ride that 28 years later, at age 50, has led Inga Young to ownership of 8-koi, which now encompasses four companies, the most recent of which is CDE.

Initially Inga married and became a homemaker. But neither the marriage nor the mindset of just being a homemaker lasted. Inga comes from a family of intelligent overachievers. There is her sister, Ann Black, now a high-powered attorney in Miami. And then there are her parents, Rebecca and Eddie Young, who emigrated from China in the 1950s. Inga's father became an electrical engineer and her mother a senior scientist for NASA.

Eventually, in 1996, she got a temp job at Northrop Grumman, working in accounting for $10 an hour. She wanted a full-time job, but Northrop Grumman would not hire her, the head of accounting telling her she was not qualified. It was still at a time when paper timesheets were the norm and because handwriting isn't always easy to decipher, it wasn't uncommon for the billing of contractors to sometimes be held in suspense.

Inga, however, learned how to database mine, and in doing so figured out how to correct $2 million of labor held in suspense. It essentially was uncollected moneys for Northrop Grumman. "The employees had been paid, but Northrop Grumman was unable to bill the customer," Inga says. "So it was $2 million for the company that had accumulated and was being held in suspense that was now able to be collected."

One day in 1997, while at the Melbourne Square Mall food court, Inga ran into an acquaintance who told her about a company across the street that was developing GPS for the military, and they were hiring. She gave them her résumé and two weeks later that company, Exigent International, hired her to be a staff financial analyst monitoring programs and finances. She went beyond that, however, quickly learning accounting systems, which she used to implement a new timekeeping and accounting system.

The company was later sold to Harris Corporation, and Inga moved on, taking a job as Controller and Director of Business Operations for Confluent RF Systems, Inc., a company that specialized in assisting the government in drug interdiction.

A funny thing happened, though. The company was sold to Northrop Grumman. And Inga was now making more money than Northrop Grumman's head of accounting who eight years earlier, when she was a temp, had told her she was not qualified for a full-time job there.

That was in 2006, and Inga decided to accept a job with Arctic Slope Regional Corporation (ASRC), taking on the title of Accounting and Finance Supervisor. Inga was now closing in on 35, an age when a person's path starts to straighten out. But the river of her life

course and career was still winding. But didn't she, at 35, have an idea where it was heading? She smiles. "No, not really," she says, before adding, "I still had to get beaten up many more times."

What she did know is that her job at ASRC was not exciting her. "I was a cog in the wheel of a big company and I couldn't see doing that forever. I like to think outside the box, solving problems, and there were no problems to solve, no challenges."

So she left. What followed was a two-year stint (2005-2007) as a Product Line Cost Manager and then eight months where she worked in general accounting at SI Government Solutions, before that company was sold to Raytheon.

It was about this time when it started to occur to Inga that what she was doing for companies as an employee—first with Confluent RF Systems and then with SI Government Solutions—she could do the same for herself owning her own company. The work she was doing in the background was helping companies to put their best foot forward in the foreground.

So she decided to break out on her own and become a consultant. On August 8, 2008—or 8/8/08—she started her own company and called it 8-koi. The number 8 is significant in Chinese culture, with the shape of the numeral 8 representing the symbol for yin and yang, while the koi fish is known in Chinese culture as a symbol of hard work, tenacity and prosperity.

One of Inga's early clients was Cape Design Engineering, back when the company was based in Cape Canaveral. Another early client was Melbourne-based Onyxware, which was later purchased by Endgame. Once again, now with Onyxware, Inga saw that she helped another company become attractive enough to be sold at a financial windfall.

PHOTOS - Top: Inga with her beloved dogs Trixie and Artie. Bottom: Inga's 8-koi, Inc. was recently voted one of the Florida companies to Watch.

"That's when 8-koi started to pursue its own federal government contracts," Inga says. "I figured if I could help three companies do it, why couldn't my company do it?"

With that mindset, she navigated 8-koi down the winding river from a consulting business that she operated out of her home into three distinct companies:

- A construction company that does new design/build and renovation, along with technology integration and engineering and architectural support.

- A healthcare company that provides training, staffing and program management.

- A training and technical services company that provides staffing, program management and quality assurance.

There was a time when Inga's goal was that 8-koi have eight separate companies. But when she purchased CDE earlier this year, she began thinking that half of eight—four companies—might be enough. Though she is single, life can be busy. She enjoys Pokemon Go and also has two beloved dogs, Trixie and Artie. They are Cotons de Tulear, a rare breed here in the United States. In fact, the only time Inga has ever been to China was this past May, when she took Trixie to Shanghai for the 2019 World Dog Show competition. Trixie won the Title World Champion.

As Inga contemplates her passion for her work and her love for dogs, she pauses and with a twinkle in her eye says, "I'm kind of okay with four companies. But I think maybe the next division will be canine or dog related, maybe becoming a premier provider for military dogs."

And the river keeps flowing. ▪▪▪

Preparing for the Next Era

It's hard to believe that the last time NASA had a manned space flight from Kennedy Space Center was July 8, 2011, when the last space shuttle left Launch Pad 39. That will change in the next few years with the Orion Spacecraft, which will have the ability to not only return humans to the moon, but to outer space destinations farther than humans have ever gone before.

As NASA works toward that goal, CDE was proud to work with them through Space Florida, as part of AECOM Team on Space Launch Complex-46 (SLC-46) on the Lightning Protection System (LPS), the Launch Mount (LM), the Ground Umbilical Structure (GUS) and the Mobile Access Structure (MAS). SLC-46 also needed to be brought up to speed for possible commercial launches.

Right now, NASA is going through its Ascent Abort-2 (AA-2) testing phase of the mission. As its name implies, this requires extensive testing to ensure that the Launch Mount and adjoining facilities can support Orion spacecraft missions.

One of the first things CDE did was design the LPS towers at SLC-46. As is well-known, the Space Coast area of Florida is one of the top areas for lightning strikes in the United States. Also well-known is the fact that lightning will strike at the highest point and then travel a path of least resistance. This especially becomes a concern when a multimillionaire spacecraft is sitting on a launch pad.

It was determined that SLC-46 needed two LPS towers with a catenary wires connecting them, and each with a ground wire. Not only did the LPS towers need to be high enough to ensure that lightning would strike it instead of the spacecraft—in this case, 185-feet high—it also needed a special cylinder atop it to prevent flashover should there be a lightning strike. In this case, it was decided that a 36-foot cylinder made of an insulated material known as Fiber Reinforced Plastic (FRP) would provide the necessary protection against flashover. Like two giant candlesticks, the cylinders now sit atop of the LPS towers.

Because of the various work and support needed for a spacecraft, lightning protection also needed to be provided for other structures and hardware, such as cranes that would be used to load rockets, spacecraft and hardware.

Meeting the lightning protection concerns was only part of what went into the LPS towers. Engineering was also needed to determine its precise location in relation to the spacecraft. It needed to be close enough to prevent lightning strikes to it and any ancillary structures, but also far enough away to take into account the maximum drift of the rocket during launches. And then was additional engineering to ensure that the structure could

withstand hurricane wind loads, thermal loads and the blast pressure produced at liftoffs.

Two other structures at SLC-46 needed special attention—the Ground Umbilical Structure (GUS) and the Mobile Access Structure (MAS).

The GUS affixes next to the Launch Mount with tubing and piping carrying wiring and cable that communicates vital information from rocket and spacecraft back to the launch center. CDE designed the foundation for GUS. Critical to this design was making sure that the GUS is stable enough to hold the structure in place so that it doesn't fly away during a launch.

As for the MAS, CDE performed the analysis to predict how much drift and stress levels occur during hurricanes. This means that should there be a hurricane, or even operational winds or high winds, CDE determined the lateral drift. The computed drift was then used to evaluate and ensure that the MAS would not come in contact and potentially damage the spacecraft. After we did the analysis, we presented our findings in a report to Space Florida, who then presented it to NASA.

Last, and certainly not least, was the foundation of everything—i.e. the Launch Mount. Given its age, the LM needed renovations and refurbishing. CDE performed a finite element analysis and an advanced finite element analysis. In order to create redundancy that would prevent a catastrophic failure, CDE performed a single-point failure analysis. The goal, which was achieved, was to ensure stability of the Launch Mount should there be a single-point failure—essentially, the Launch Mount will not collapse under the weight of a spacecraft and rocket even if partial connection of one of the legs were gone.

Proof-loading the LM structure at 125% of capacity was performed, with CDE reviewing the procedure and the results.

In addition to testing every welding point on the LM, the entire structure needed a fresh coating of specialized material that can withstand the heat and blast pressure from a rocket launch.

The initial design work on SLC-46 began in 2016 and it was finished in the spring of 2019, when Ivey's Construction completed the work. We look forward to seeing Space Florida's success with its mission and NASA's return to manned launches from Kennedy Space Center. When that does occur, we will take a measure of pride in knowing that we had a hand in the safe ascent of the Orion and other spacecraft, and should the need ever occur, the safe abort of astronauts aboard those spacecraft. ■■■

PHOTOS PAGE 5 Top: The Orion Ascent Abort 2 Mission Crest; Bottom: The Launch Mount sitting at SLC-46; PAGE 6: A view wide angle view of SLC-46 just after construction was completed. The AA2 Mission was launched successfully shortly after.

Revitalizing the King Center

Ever since the Maxwell C. King Center for the Performing Arts opened in 1988, it has been our county's focal point for cultural, educational and community events, bringing in acts both big and small, and in the process putting Melbourne on the map. So anytime CDE is called on to do work at the King Center we feel as though we are helping contribute to both our community and the arts, and we view that as an honor.

During 2017-18, CDE prepared documents to secure the King Center a $500,000 grant for renovations from the state of Florida.

The piping and equipment in the Performing Arts Center were over 30 years old and in poor condition, especially considering it was the initial hardware put in when the building was constructed. So it was long overdue for renovations, with the added task of doing so while not disrupting the venue's scheduled events.

This was no small task. The Performing Arts Center is a 107,600-square-foot building that is served by 11 air handling units. The building is essentially divided into three zones—the King Center, the backstage area, and practice/recital rooms. The building is served by chilled water/hot water (CHW/HW) air handlers and Variable Air Volume (VAV) boxes control the space conditions through regulating air flow. Tertiary pumps in the building draw water from the central chilled and hot water loop and provide cooling/heating.

CDE performed a detailed study on the existing conditions of the various systems, including equipment reliability. We then prioritized what was needed in order to renovate the mechanical systems to ensure patrons comfort.

CDE performed the renovation design for the 30-year old mechanical, electrical, and building control automation systems.

Through the years, the original HVAC system had received only minor upgrades and renovations. Some of the various challenges, especially given the age of the hardware and equipment, were:

- The existing control systems were pneumatic and antiquated, which meant that getting parts to maintain these systems was becoming increasingly difficult and problematic.

- The VAV box controls did not maintain any proper control. This meant that there was simultaneous cooling and heating without the boxes reaching minimum air flow, which wasted significant energy use.

- The chilled and hot water piping had failed in several places, and the problems related to that were increasingly becoming untenable.

- Numerous pinholes that had developed over the years were repeatedly patched, which weakened the system.

Essentially, all the equipment and piping had reached end of life. Reliability was dwindling and random failure increasing. Of particular concern was the hydronic distribution system. If not replaced the Performing Arts Center ran the risk of a catastrophic failure in any part of the building, which would result in temporary flooding, leading to significant recovery time for the reinstallation of damaged walls and flooring.

CDE completed Phase 1 in October, 2019. This involved replacing the air handler and control system, as well as associated controls, for the main auditorium and stage area. We also designed a complete replacement for the existing chilled and hot water piping so that all single point failure points were eliminated. Our goal was to design a state-of-the-art, cost-effective piping systems within the available space, all while ensuring minimal downtime—and this is what we achieved.

All in all, the planning and phasing of the work, along with the coordination with the contractors, successfully completed this project ahead of schedule and well under budget!

CDE is now onto the second phase of the project, which will result in lobby modifications to provide a modern look for the entrance of the facility. ■■■

Updating the Trident Wharf

Understandably, whatever goes on with the Trident missile is top secret, as well as with the submarines and support ships that use its Cape Canaveral site as a docking point. What wasn't a secret is that all the piping for potable water, deionized water, offload sewage and oily waste, as well as the pier-side services for compressed air and fire protection water, was long overdue to be replaced and upgraded.

CDE was tasked with a design/build to do all that work, and as coincidence would have it, we partnered with 8-koi construction to perform all the work before 8-koi purchased CDE earlier this year. It was another excellent example of how well the two companies worked together before they became one.

"Most of the piping was older than 20 years old," said Mark Lueders, 8-koi's director of construction operations. "So all of it needed to be replaced."

One of the first challenges arrived when the pricing was done according to specifications, and it was determined that the project was over budget. So in order to bring it within budget, CDE value engineered the design and construction, arriving at the solution to use HDPE piping for the underground sewer and oily waste. HDPE is a type of flexible plastic pipe often used to replace aging steel or concrete pipelines. Because of its high level of impermeability and its strong molecular bond, it is being used more and more for underground pipelines.

"HDPE piping is not affected by corrosion or the products they are carrying," Lueders explained. "They're never going to rust and they're never going to break. Plus, because they can be heat bonded, the installation is a lot more cost-effective. When you're connecting piping, they melt into place, and that's especially effective when you need to angle the piping."

PHOTOS: Top - Given the highly corrosive nature of the Wharf new piping had to be installed. This is the finished fire protection riser. Bottom - Replacement of all corroded cast iron piping was done on the wharf face utilizing stainless steel utility connection risers and valve.

As with any successful design/build, this project required a lot of coordination between those designing and those building. With piping, there are always going to be unforeseen challenges that only get revealed during excavation.

"CDE and 8-koi collaborated aggressively to resolve all of those unforeseen problems," Lueders said. "With projects like this, the final design isn't determined until you get mobilized on the site and complete the excavation of the existing piping."

When HDPE piping wasn't used, then old reliable ductile iron piping was mostly employed, in this case for potable water, oily waste, sewer and fire protection piping. Stainless steel was used for low pressure air and demineralized water.

There was one change order. Once it was determined that the parking lot was going to be cut into, it was decided to fix some of the big leaks that had occurred over time from the conference room's gravity sewer system.

"When we got in there, we realized that instead of tearing up an extra portion of the parking lot we could reroute some of the piping and replace the other piping," said Trevor Baumann, who was 8-koi's superintendent on the project. "That required just getting smart and figuring out a way. CDE was really good at providing construction support and answering questions—answering RFIs. Everything went well from that regard." ■■■

Employee Spotlight

They key to any business is having an excellent support staff. CDE believes that our success is a largely related to our dedicated and hard-working team members. While you may know them on the surface, we want to help you to get to know them even more. Take a moment to get to know one of our newest team members.

Joshua Smith, P.E. - For as long as he can remember there was never any doubt in Joshua Smith's mind that he wanted to devote his working life to some area of building things. As he got older, he toggled between becoming a structural engineer and an architect, ultimately deciding that he wanted to be immersed "in the nitty-gritty of building things and seeing how they held up."

To that end, Joshua, 30, got a bachelor's degree and then a master's degree in civil engineering from the University of Florida. But like a guy who likes to build things, Joshua built his career in various ways en route to becoming a structural engineer and a recent hire at Cape Design Engineering as a professional engineer.

The youngest of three boys growing up in Merritt Island, Joshua gravitated toward hobbies and activities that involved building things—Legos, K'nex and even using playing cards to build elaborate structures.

Mr. Joshua Smith, P.E.

"I remember once, when I was a kid, we were on vacation in Atlantic City," he says. "While everyone else was outside doing stuff, I spent the two weeks inside essentially building a three-story building with a garage, all out of playing cards."

Add to this the fact that his father owned a local construction company (Smith Development and Construction, Inc.) that he and his brothers often worked for, and the future almost seemed predetermined. In fact, while attending Eastern Florida State College from 2007-09 Joshua worked two jobs—as a line cook at the Merritt Island Applebee's, and also as a general laborer for his father's construction company.

One way Joshua wanted to build his career is to get some real world, hands-on experience before returning to school to get his master's degree. So after earning his bachelor's degree from UF in 2013, Joshua went to work for Jones Edmunds & Associates in Titusville, where he had already interned at while living and going to school in Gainesville, Florida. Combined with his internship, Joshua was with the engineering firm from 2011-16.

"When I graduated with my bachelor's degree, I wanted to get out and use the information I learned," he says. "I wanted to learn what I didn't know and then circle back for my master's degree. This way I could apply and connect what I would be learning to what I had experienced in the field."

One of the cool things he did during his master's program was work with a team on a project funded by the Florida Department of Transportation. The project entailed studying traffic signal mast arms through experimental testing of scale models in a wind tunnel to determine if there are aerodynamic shielding effects between the traffic signals and the mast arms. The results could be used to add more signals on existing mast arms for increased traffic safety.

"What we did really made a difference," he says, "and ultimately it will make its way into code."

Joshua now hopes to make a difference as a structural engineer working for CDE back in his hometown. It's nice, too, that his wife Sydney is a local girl, having grown up in Rockledge, and who graduated in December with an MBA from UF. They celebrated their eighth wedding anniversary in November.

Joshua finds the type of government work that CDE takes on exciting.

"I like working on government contracts because you get into things you don't get into in residential designs," he says. "There are more challenges and problem solving. With the government, the work has to be done at a higher level, and that's who I naturally am. It doesn't matter if it's a residential house, a condo or picking up space flight hardware, I am going to do the work at a high level. On the residential side, I'm not cost-effective. But on the government side, I fit."

And then there is the talent he is surrounded with at CDE, especially company co-founder Lou Mized.

"It was obvious to me during the interview that Lou is a really smart guy," he says. "He isn't just good at what he does; he's extremely good. So now I get to work with a guy who has 30-years-plus experience doing what I want to do. So getting hired here has really worked out great for me." ■■■

MacDill AFB Renovations

Renovating and replacing HVAC systems is usually straightforward—except when it's not.

CDE had a challenging, six-month project at Tampa's MacDill Air Force Base, which was completed in February of 2019. What was unique about this project is that it was at the Navy Operational Support Center at MacDill AFB, where men and women in the reserves come in on weekends and also for their yearly two week training. Obviously, this means that the number of personnel using the facility fluctuates greatly. So the need to have an HVAC system that accommodates both extremes, and does so cost-effectively, was critical.

All of this needed to be taken into consideration when CDE was commissioned to replace the controls on the HVAC system and make selective upgrades to the air handlers. In addition, we replaced the split Air Conditioning system that serviced the executive officer's office.

"They didn't have the budget for a full design/build," said Mark Lueders, who was the director of construction operations on the project. "CDE did a full assessment that led to the recommendations that they approved for implementing the necessary upgrades."

The main task was replacing and reprogramming the entire HVAC control system and upgrading both of the main air handlers.

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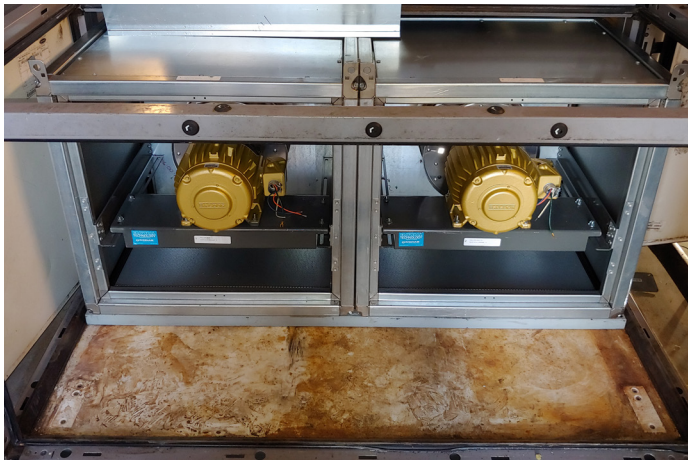
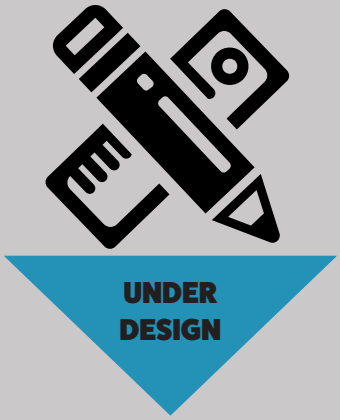


***PHOTOS: Top** - A picture of the newly renovated chilled water air handler. **Bottom** - New VFD controlled fan wall retrofitted to existing air handlers which will provide additional energy efficiency, greater control, and greater reliability.*

The Project Board

It's been a very busy year here at CDE. We thought that we would share a little infographic about our new projects, projects underway, and those that have recently been completed. Of course, this isn't all that CDE has done this year, but these are the most recent happenings at our offices.

- Energy Conservation Measures (IGA) at all campuses of Eastern Florida State College for FPL Energy Services
- Electrical Design for SRS and RIS Buildings at CCAFS for ULA
- Peer and constructability review of the mechanical at Building TC-117, Palm Beach State College Lake Worth Campus
- Foundation Design for Appleby Building at USCG Station St. Petersburg for ICM Contractors
- Lighting Design for Gulf Stream Aviation Hangar with FPL Energy Services



- Energy Conservation Measures (IGA) at various Buildings/Areas of Kennedy Space Center for FPL Energy Services
- Energy Conservation Measures (IGA) at DEA Lab Building in Miami for FPL Energy Services
- Repair Utilities and Replace Exterior Finishes at the Morrell Operations Center of CCAFS
- Astronaut High School new Welding Lab for Brevard Public Schools
- Astronaut High School renovations at various buildings for Brevard Public Schools

- UCF Wayne Densch Facility Sports Complex Expansion Design
- Replace switchgear at MAB-1 Kings Bay
- Power Plant #3 Substation refurbishment, NS Guantanamo for Islands Mechanical
- King Center Auditorium Lobby and Entry Renovation at EFSC Melbourne Campus
- LOX Building Renovations, NOTU, CCAFS
- Repair Various Roofs Payload Facility, Kennedy Space Center for NASA
- Villamar Substation at N.S. Guantanamo for Selah Group/IMC

- CCAFS Trident Wharf Mechanical Utilities Replacement
- AECOM SLC-46 Orion Support projects
- New Student Union, Melbourne Campus of Eastern Florida State College
- Cocoa High School new Building #34 for Brevard Public Schools
- Cocoa High School renovation of Building #18 for Brevard Public Schools
- Hangars N, I, J, Y, and H re-roof at CCAFS for Hamilton Roofing, Inc.

Cape Design Engineering Co. would like to thank all of its clients and partners for their continued patronage! We look forward to another great year working with all of you as we accomplish great things!

Continued from MacDill AFB...

In the process of doing this, CDE also needed to replace all the single scroll cage supply fans with fan walls. Finally, the upgraded air handlers would have built in air flow redundancy, so that no one single failure—i.e. the bearings on the scroll cage, belt wear, motor wear—could eliminate air flow.

We focused on two separate elements—replacing the Direct Digital Control (DDC) and all the HVAC in the building. An important part of the renovation work performed on the main air handlers was ensuring their reliability. We went from a single constant volume belt driven fan in the air handlers to the aforementioned fan wall system. Multiple direct driven fans, each with its own dedicated motor, results in built-in redundancy. The new direct drive fans had no belts that were a constant failure point in past operations. All of this means that if one of the fans fails, the mechanisms are now in place to increase the speed of the other fan to get close to the desired airflow output.

Finally, as a component of the previously mentioned mechanisms, we used Variable Frequency Drives (VFDs). The old fan motors worked at one speed—they were either on or off. But now, controlled by the VFD, if the output demand is less, the system can operate at a lower speed, thus drawing less current/energy.

Another plus with new controls is that a lot of the existing dampers were not functioning properly. With the new controls, we were able to ensure that the facility could be operated in regular occupied mode and setback mode. Basically, this means that when the facility is not fully occupied, it can operate with less energy draw, which means consuming less electricity and saving considerable energy costs. However, when the men and women in the reserves are there for training, the controls can then go into occupied mode, with the ability to program all of this seamlessly into the new control system interface. ■■■

Noteworthy News

There is always something going on at CDE and here is where you can find information regarding the latest happenings, both big and small.

- CDE was acquired by 8-koi, Inc. in March of 2019. While there has been some changes, we want to convey to all of our clients and friends that CDE isn't going away and the quality service and personal touch you've come to expect will be maintained.

- Volusia County Schools has awarded two new continuing services contracts to provide electrical and structural engineering services.

- Brevard Public Schools has recently awarded two new continuing services contracts to provide MEP and structural engineering services. CDE is proud to be working with Brevard Public Schools once again.

- Victor Benziger, Sami Mized, Trevor Baumann, and Lutfi Mized recently participated in the 6th Annual Eastern Florida State College Golf Scholarship Classic. CDE is proud to remain a long-term supporter to our friends at Eastern Florida State College.

The CDE/8-koi foursome tee'd off in support of helping to provide financial assistance to individuals seeking higher educational opportunities - a proud CDE tradition. From left to right: Victor Benziger, Sami Mized, Trevor Baumann, and Lutfi Mized.

Continued from Executive Message...

"You don't want to take the engine out of a good running machine, and CDE is a good running machine," Dean says. "We feel we have some high-octane gas to add to that. Part of that is we are now a Small Business 8(a) and an Economically Disadvantaged Women Owned Small Business (EDWOSB)."

Dean, 54, likes to live by a personal principle of Four Ps—People, Programs, Processes and Pipeline:

- "People are always first. We believe that if we take care of our people, the rest should take care of itself. In turn, we want people who have the desire to meet our ultimate vision with the growth and direction we want to take CDE."

- "With Programs we know that understanding contracts is vital, because we can then better support our employees and better support our customers. If we do things the right way, then we will have a better capture rate, keeping the customers we already have."

- "Since we are a small organization, we must have the Processes in place so that everything is repeatable. And when everything is repeatable, it makes growth easier."

- "All of this should lead to a healthy Pipeline, which is the lifeblood of any organization. If we don't expand our customer base with a robust pipeline, we will no longer exist. Conversely, with a robust pipeline comes growth, and that in turn leads to more opportunities for more people."

To sum up, Dean added, "We are excited about where CDE has been and where it can go in the future as a wholly owned subsidiary of 8-koi. We see the potential for exciting growth, and that is our focus."

I am excited to have Dean as our COO and I look forward to working with him, our employees, our colleagues and our customers as we embrace what we know is going to be an exciting future for CDE. ■■■

8-KOI COMPANY

CDE

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