F&S Leadership Transition

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A Big Operation in the Cold

Cause and effect: What started with a water pressure failure led to a loss of electric power—but where? Then, when the location was found, Facilities & Services professionals were ankle-deep in new, cold challenges.

During a mid-afternoon shift on a frigid Sunday, F&S Utilities & Energy Services (UES) professionals observed a loss of pressure in the Campus Chilled Water System. The system typically operates at 50 pounds per square inch (psi) or more, in less than 30 minutes dropped down to 0 psi.

Moments earlier, across campus at the Roger Adams Laboratory, just east of the Main Quad, a transformer failed, causing a total electricity outage in the building, and, even more challenging, a burst chilled water coil was also found. More than 3-feet of water would collect in the basement before pumping began. The temperature outside was 5 degrees at 5 p.m.

Immediately, the F&S customer relations & communications team and service office were alerted to get out a message about chilled water pressure to the campus community encouraging building and facility managers to check critical systems. F&S staff also reached out directly to building contacts, as well.

Thanks to a full-court press by F&S, the source of the failure was found within two hours. Help started right away.

Approximately 120 people from F&S took part in the cleanup and repairs, representing shops that include electricians, plumbers, sheet metal, laborers, machinists, pipefitters, steam distribution, high voltage electricians, water station, elevator shop, refrigeration mechanics, operating engineers, temperature control, ironworkers, DDC electricians, energy management services, service office, transportation, building service workers, utilities administration, utilities chilled water plant, utilities distribution, and utilities pipefitters. All worked together in subfreezing temperatures overnight and into the following days to get the facility back to typical operations.

“Our organization’s response to this event was amazing, and they’d all tell you they were just doing their jobs,” said Rob Roman, UES director. “The integrity and perseverance these professionals showed helped us come together and accomplish an important goal on an emergency-level timeline.”

When urgent incidents occur on campus, general information and work updates will also be made available at the new F&S “Alerts” page, https://fs.illinois.edu/request/alerts.

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~ Rob Roman, Utilities & Energy Services director

iStores Shopping Cart Update

More than ever, customers use online shopping to get what they want or need. The same can be said for professional purchasing on the U of I campus.

F&S Stores & Receiving acts as the official website for university supplies purchasing, allowing building managers to buy paper, office materials, and other business goods.

iStores, available through the my FS Portal (my.fs.illinois.edu), recently underwent a user experience overhaul, featuring a new mobile-friendly design that makes it easier to find supplies, track orders, manage shopping cart items, and check out. Enhanced search functionality also offers a categorized drop-down menu to more efficiently navigate the site and look for a variety of items.

~ Dr. Ehab Kamarah, interim executive director of F&S, director of Capital Programs

“I will continue to foster relationships with leaders across campus to accomplish strategic goals and make new connections with our staff and the rest of campus.”

On May 28, Mike DeLorenzo, senior associate chancellor for administration and operations announced the appointment of Dr. Ehab Kamarah, director of capital programs, as the interim F&S executive director on June 11 until a national search has concluded.

Dr. Kamarah has been with the university since 2020, overseeing approximately $600M in capital improvements on campus in that time. He possesses extensive experience in managing construction project teams of architects, engineers, planners, and project managers to deliver major capital and renewal projects in the complex and challenging secondary and post-secondary education sector.

Throughout his career, Dr. Kamarah has established a proven record of successfully completing large, state-of-the-art projects under tight schedules, on time and on budget, to the satisfaction of stakeholders. Before his time with the U of I, Dr. Kamarah was the director of Facilities Development and Engineering Services at York University, the third-largest university in Canada.

“I would like to thank Dr. Attalla for his service to University of Illinois and wish him the best in his new endeavor. It is an honor to serve as an Interim executive director and I’m fully committed to support the F&S team to stay highly productive, responsive, and reliable service provider during this time of transition,” said Dr. Kamarah. “I’m confident that our team will continue to do what they do best: work on the front lines every day to ensure the health, safety, and success of all university students, faculty, staff, and community members.”

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What It Takes to Be a Champion

The University of Illinois Urbana-Champaign, according to the U of I Master Plan, measures more than a whopping 8,000 acres of land in the Master Plan Area. On that land grows too many trees to count… or so you thought.

F&S helps count and maintain all 16,534 trees on U of I grounds. All are viewable through the U of I’s “TreeKeeper” database: https://illinoisedu.treekeepersoftware.com/index.cfm?deviceWidth=1280.

That includes more than one “State Champion” tree – meaning it is the largest of its species in Illinois. “These trees, and all of them on campus, are valuable and a privilege to take care of,” said Brent Lewis, F&S landscape architect. “Having champions on campus shows the ability of our grounds professionals to carefully tend to their needs over many decades of time, ultimately allowing them to grow into the great specimens that we often take for granted.”

The Carolina Silverbell in the backyard of the President’s House is the latest state champion tree on campus, joining the yellowwood found in the green space north of Lincoln Avenue Residence Hall, which attained champion status on Arbor Day 2019.

In April, UIUC experts and students visited and measured the tree, confirming its status as the largest tree of its kind in the state.

“The two multi-stemmed specimens behind the President’s House are the two largest specimens of this species I’ve personally seen. Granted, I don’t come across this species very often,” said Jay Hayek, extension forestry specialist with the department of natural sciences and environmental sciences. “Carolina Silverbell is considered a state-listed endangered species here in Illinois. Its natural range is limited to just two southern Illinois counties: Massac and Pulaski. It’s not that Carolina silverbell is necessarily so ‘rare,’ it’s just that this species is simply at the extreme edge of its natural range by extending ever so slightly into the southern tip of Illinois. Even in its more natural habitat, this species is relatively uncommon.”

Since 2015, Illinois has been recognized as a Tree Campus USA, meaning the colleges and universities that most effectively manage their campus trees in an academic atmosphere. The F&S executive director charges the Campus Tree Advisory Committee, a multi-disciplinary and multi-agency outreach effort to plan forestry efforts. The Illinois Tree Campus plan is available at http://go.fs.illinois.edu/treecampus. All aid in the effort to promote healthy trees on campus and engagement with students, faculty, staff, and community members in the spirit of conservation.

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~ Brent Lewis, F&S landscape architect
When the COVID-19 pandemic response started in March 2020, hammers stopped hammering and construction came to a standstill for some time. But once health and safety measures were taken into place, F&S Capital Programs had plenty to tackle.

The university decided to suspend construction activities for certain capital improvement, small construction, and energy conservation projects. Now, a summer full of construction again hits the Illinois campus.

More than 55 construction projects worth approximately $340M are being constructed during the summer months. See this map for some notable projects, some of which may be done by the time you read this!

**Sidney Lu Mechanical Engineering Building**
The newly-named building is nearing substantial completion and features an addition of more than 28,000 square feet, while 66,000 square feet was renovated. Before the printing of this issue, construction was 85 percent complete. Construction completion could come by the time you read this! Terrazzo flooring was installed throughout the first floor; new lighting has gone up, and wood grille ceilings and sound baffles are in, too. Parking lots and entrances are also being improved. The building will feature new instructional labs, maker spaces, community spaces, and active-learning classrooms.

**Siebel Center for Design**
The building has reached the point of “substantial completion,” which as it sounds, means construction is almost done. Just a small group of contractors go on-site to finish out “punch list” items. Almost every room is ready for occupants, and outside landscaping has been installed. Important controls and sensors for the heating system still need to be formally verified. In the end, this 60,000 square foot center will provide program space and serve as the Design Thinking headquarters that brings together individuals from all disciplines, cultures, and realities.

**Susan and Clint Atkins Baseball Training Center**
The Susan and Clint Atkins Baseball Training Center will host training, social, and clubhouse space across 26,000 square feet, including a full-size infield for the Fighting Illini baseball team.

**Rex and Alice A. Martin Softball Training Center**
The new Rex and Alice A. Martin Softball Training Center will provide a premier indoor performance and development facility for Fighting Illini softball student-athletes. The 13,000 square foot facility will include practice, storage, and social space, in addition to parking.

**Krannert Center for the Performing Arts**
Elevator upgrades are expected by the fall semester. These will be primarily mechanical upgrades, but building occupants and visitors will notice cosmetic and accessibility upgrades, as well. The “conceptualization” phase for the Colwell Playhouse accessibility upgrades is complete. Upgrades will provide increased accessibility to greater portions of the Playhouse and include a new elevator to provide access to a new cross-aisle. The cross-aisle will provide new accessible seating mid-way from the stage, as well as new and convenient access points to seating throughout the center of the Playhouse. The extensive construction phase in the Playhouse will begin in 2022 and is slated for completion in 2023.

**Multiple Buildings – Emergency Masonry Reconstruction (3)**
The projects will remove and completely reconstruct existing masonry chimneys and fire walls at Noyes Laboratory of Chemistry, Edward R. Madigan Laboratory, and Wohler’s Hall. The inactive chimneys will be removed and capped at the roof level. Any associated equipment will also be removed from flat roof areas with membrane roofs replaced. These repairs were identified as part of the F&S Deferred Maintenance Program.
Big Plans Ahead

The planning documents below each connect to objectives from the F&S Strategic Plan: Foundations for the Future.

Energy

The F&S Energy Management Plan addresses the most important customer need of production-scale energy supply and demand: reliability. When a researcher turns on high-energy tools; or a staff member flips a light switch on; or a student charges their smartphone; or the user needs to be sure their energy needs will be met. Heating, cooling, and electricity all need to be ubiquitous, with no worries for downtime. The utilities service delivery reaches the entire campus community, with annual campus energy usage at approximately 3 trillion BTUs. Abbott Power Plant’s capabilities shine, in terms of the breadth and depth of energy services offered to campus. First, Abbott is a Combined Heat and Power (CHP) system, offering fuel flexibility thanks to a diverse collection, including coal, fuel oil, and gas. It provides all of the heat and half of the electricity to campus. Off-site solar energy, chilled water plants, and new geothermal systems all contribute, too. With Abbott’s capabilities joining an underground distribution system, the UI of campus is able to weather any tangible or economic change. Clean energy production now supports approximately 12 percent of Illinois’ annual electricity demand.

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Transportation

The Urbana campus is big – so big, it takes up miles of roads, pedestrian walkways, and bike lanes traipsing across Champaign and Urbana. How does F&S enhance the experience of getting around for students, faculty, staff, and visitors? The F&S FY21-FY26 Transportation Demand Management (TDM) Plan addresses just that. The document prioritizes safety, location, traffic volume, condition, and alignment with other campus-wide plans and projects. Strategies will be used to expand and enhance all transportation options, which will contribute to a reduction in single-occupancy vehicle usage.

The TDM strives to ensure effective asset maintenance, reduce single-occupancy vehicle usage, foster bicycle-friendly activities, transition to green vehicle fleets, integrate electric vehicle charging stations, and strengthen commuter options on campus. New campus roads fully support all forms of transportation, through better bike and bus lanes, and updated pedestrian walkways, a goal of “complete streets.” One action being taken is F&S partnering with University Parking to define and implement a commuter program to encourage faculty and staff traveling to campus each day to leave their car behind. The official bus system, the University of Illinois campus shuttle system, the U of I shuttle system, the UI shuttle system, is in a good position to provide critical life and safety resources if ever a major outage occurred. By operating as a “micro-grid” or in “Island Mode,” the UI campus would be in a good position to provide critical life and safety resources if ever a major outage occurred. By operating as a “micro-grid” or in “Island Mode,” the UI campus would be in a good position to provide critical life and safety resources if ever a major outage occurred.

Other themes within transportation on campus include more partnerships and promotion of bicycle usage, registration, and storage; a plan for more electric vehicle charging infrastructure; and research collaborations, including one in which bio-oil (from organic waste like food or yard waste) helps bind asphalt.

Space

The F&S Space Management Plan 2021 – 2030 documents how space is used on campus. F&S works with the Office of the Provost and other campus units and committees to manage and improve the use of space on campus, which occupies over 23 million gross square feet of facilities in more than 750 owned and leased buildings. Properly managing the space is essential, as more than 57,000 people enrolled or employed by the university live and learn on campus. Additionally, the plan notes that “people enrolled or employed on campus has been steadily increasing since 2000, growing by over 4% from 2017 to 2018 alone.”

Over the past decade, balancing campus growth and sustainability goals of the Net Zero Space Growth policy, part of the Illinois Climate Action Plan (iCAP), has required an innovative approach to analyzing campus density and opportunities for greater square footage efficiency. In-depth planning and procedures have included renovating existing space, improving utilization of existing space, and increasing the ability to share space and resources between units and across campus. The modest change to the campus footprint in recent years, despite additional enrollment, demonstrates the value of these actions. With enormous capital investments required to build, operate, and maintain our campus infrastructure, space is a critical asset that must be managed effectively to ensure the continued success of our university,” the plan reads. Net Zero Space Growth is essential to the university achieving strategic goals and is a crucial challenge of the ongoing project planning efforts in F&S Capital Programs.

“Make no little plans; they have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency.”

~ Daniel Burnham, legendary architect: Plan of Chicago, 1892 World’s Columbian Exposition

Assets

Did you know Illinois has the highest percentage of Pre-World War II academic buildings in the Big Ten? This, of course, provides students, faculty, and staff with a sense of history, place, and uncommon beauty while considering the campus. On the other hand, older buildings require more and detailed maintenance in order to satisfy up-to-date code compliance and hit notable programmatic needs for students, faculty, and staff. Additionally, design that fits with the pre-war era of the building’s birth is important to maintain a cohesive architectural look for the campus. Assets are managed through different funding sources, including the Academic Facilities Maintenance Fund Assessment (AFMFA), an ongoing fee assessed each semester to students, and the Deferred Maintenance Program.

The F&S Asset Management Plan 2021-2025 illustrates the number of aging facilities, provides a definition of the Facility Condition Index, reviews how deferred maintenance has been tracked historically, and illustrates current funding strategies for addressing asset management at Illinois for the next 5 years, it reads. The university plans to renew aging infrastructure through programs like the Academic Facilities Maintenance Fund Assessment, means to ensure building renovations are done to deferred maintenance projects.
From Good Intentions to Energy Generation

By Colleen Ruhter, Safety and Compliance

Did you know just 60-70 percent of food in the United States is actually eaten? The other part is wasted – either during production, distribution, preparation (peeling, chopping), or is simply not eaten by the consumer.

At Illinois’ six main dining facilities, over 3,500 pounds of food waste per day is generated (from loss during preparation and what is not eaten by the consumer). That’s over 1 million pounds per year, enough to fill a 2,500-square-foot house, with 8-foot high ceilings.

What can be done with all that waste? Most households just throw it in the trash. In 2013, University Housing, responsible for the dining halls, chose to try to do the same, just on a larger scale. Food digester systems were purchased and installed at each dining hall. Food digesters use microbes to “eat” the organic waste, producing grey water which goes to the sewer. Previous to the digesters, food waste was sent to the landfill.

Sending food to UCSD isn’t all that bad for traditional homes, but the highly-concentrated waste from Housing was not environmentally friendly. The waste was actually about 10 times stronger than normal sewage, which required significantly more resources to treat and clean and could potentially result in regular fines. UCSD met with university leadership to recommend a change in digesters in order to maintain environmental and fiscal responsibilities.

Housing led the way to make a change in operations, so they collaborated with F&S Utilities & Energy Services, Operations, Maintenance & Alterations, and environmental compliance. The committee researched various food waste options, including composting, pulpers, and grinder systems used for anaerobic digestion.

The team researched other options, including Grind2Energy systems. These operate similarly to an industrial garbage disposal. However, it uses significantly less water than the digester system, up to 90-95 percent less. Additionally, it does not send the waste directly to the sanitary sewer. The food waste is pumped into a 5000-6000 gallon tank located on the outside of the building it serves. A tanker truck empties the waste and takes it to the local sanitary district. The industrial-strength waste is processed in an anaerobic digester, where it undergoes treatment without oxygen. The methane produced is collected and used to generate electricity at the treatment plant.

This change in technology means Housing food waste is no longer discharged to the sanitary sewer system, avoiding the $1.5 million permit fee (plus any potential fines). Moreover, the significant reduction in water use helps the university meet the overall sustainability goals outlined in the Illinois Climate Action Plan (iCAP). An additional feature of the Grind2Energy system is an easy-to-use online and real-time dashboard for monitoring usage, with data available for food waste, water usage, peak usage, and monitoring the tank level for hauling. The university hopes real-time data will help further reduce the overall food waste generated on campus.

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Shop Spotlight: Elevator Mechanics

Students aren’t the only ones on campus passing tests. Consider: the elevator.

F&S elevator mechanics ensure safe operation, maintain each component, and make repairs when necessary. Plus, of course, they are dispatched when an elevator is stuck with passengers aboard in any of 184 buildings with elevators on campus.

Two primary styles of elevator populate campus, one the “hydraulic,” the other called “traction.” Essentially, the hydraulic style, uses a piston from below the elevator car to push up, and release oil from the system to lower. Traction, usually used on high-rises, uses a counterweight to pull people up and release them down.

The elevator system is composed of many moving parts, all needing yearly inspection, like the one pictured here being reviewed by Ryan Perry.

Each elevator’s system, including doors and the emergency call box, must be inspected once per year. Given the 360 cars, dumbwaiters, and chairlifts on campus, just about one must be tested every day of the year. That’s a pretty consequential “final” almost every day!

“A lot of people don’t understand the amount of testing we do yearly to comply with state laws and regulations and codes,” said Vince Schaub, elevator shop foreperson. “In order to get our certificate of operation, we have to do them yearly and involves a third-party state inspector who witnesses all the testing. That’s something we do yearly on all 360 units we take care of. We’re always testing. That’s the usually the biggest part of our job.”