

GROUP



- p.4 opportunities
- p.7 markets
- p.8 markets **Market Report:**
- p.10 trends **3D Printing:**
- p.12 trends Vision 2025
- p.14 opportunities
- p.16 trends
- р.19 **маккетs**
- р.20 маккетѕ
- p.22 Syska Hennessy: In the World

CONNECTIONS: [kuh-nek-shuh nz]

- 1. the act or state of joining, linking, or uniting
- 2. the state of establishing communication, making contact
- 3. creating a link or bond: an electrical connection



p.2 Message from our Co-Presidents

Designing for Life: The Evolution of High-Rise Fire and Safety Codes

A Towering Achievement in Healthcare Design: Danbury Hospital New Patient Tower, Danbury, CT

Southeast United States

The Future of Design-Build is Now

Shaping the Future: Evolving the AEC Industry Workforce

Coming Up A Winner: Design-Build Provides an Opportunity for Collaboration and Design Excellence

Generating a Last Minute Addition: Telx NYC3 Data Center, New York, NY

A Data Center With Vision: CPS Energy's control/data center in San Antonio

TRANSFORMATION: [trans-fer-mey-shuh n]

noun: transformation; a thorough or dramatic change.

"The industry has undergone a radical transformation"

synonyms: change, reshaping, metamorphosis, sea change, revolution; physics: the induced or spontaneous change of one element into another by a nuclear process

Connecting with our Co-Presidents

When new ideas and technologies are applied to solve existing societal and environmental challenges, transformation has an opportunity to take hold and create positive change, improving lives in a very tangible way.

It takes collaborative talent to bring about the creative fusion necessary to drive change and impact our industry across the globe; if you can envision it, you can create it. Given the resources at hand and the tools that are available here and now, it has never been more important for us to design to the future and to create environments that are sustainable and maintainable over the long term.Hospital design that provides 35% energy savings, data centers with LEED Platinum certification, projects that allow for scalability over time as missions expand and resources grow. These stories are all examples of our clients' corporate responsibility and culture of accountability, applying creative use of existing and emerging technology to solve current and future challenges.

Take, for example, 3D printing as applied to the design and construction of buildings.

We are seeing exciting new applications for enhanced 3D printing technology, recently developed in Asia, being used on projects located and funded in the Middle East. In fact, we are currently involved in creating prototype systems that will bring these new types of buildings to life.

The potential impact is enormous; it can allow us to rapidly deploy shelter, clinics, classrooms and commercial structures to parts of the world with an urgent need but relatively minimal construction equipment to create long-term shelters or to address urgent housing and support needs in the wake of natural and man-made disasters.

These kinds of creative approaches serve dual purposes; they address societal need and create new opportunities to support environmental viability and ecological vitality, while strengthening the economic bottom line.

On an organizational level, they help define a culture of creative and entrepreneurial endeavors that are client-focused, committed to excellence and forward looking. We spent 2015 exploring who we are, what we do and most importantly where we want to go. We share some initial thoughts about this in our Vision 2025 journey....a journey we look to walk with each of you.

Leadership in our industry belongs to those organizations that create a vision: a vision supportive of research and development, that monitors socio-economic trends across the local and global scale, and encourages creativity and social responsibility. All leading the way to fresh approaches which will transform the built environment and impact all of our clients.

Cyrus J. Izzo, PE Co-President (left)

Gary A. Brennen, PE Co-President (right)



CONNECTIONS



The Evolution of High-Rise Fire and Safety Codes

While high-rise buildings provide many economic and social benefits, these buildings have garnered considerable attention over the past decade due to a series of tragic fire events causing dramatic loss of life and property. Beyond the buildings' residents themselves, multiple stakeholdersincluding governments, authorities having jurisdiction, labor groups, design professionals, owners, and fire prevention and safety agenciesare also affected by these unfortunate events and have a vested interest in improving safety standards.





hen it comes to fire and life safety, high-rise buildings present several unique challenges not found in low-rise buildings: longer egress times, evacuation/inbuilding relocation or defend-in-place strategies, fire department accessibility, smoke movement, and fire control. Several major high-rise fires in the past decade have demonstrated the complexities of dealing with these incidents and the potential for major disaster due to the failure of one or more components of the building's fire protection or structural systems. These incidents also demonstrate the necessity of properly maintained and functioning fire protection systems, including automatic sprinklers, which could have minimized the damage and the number of fatalities.

Upward development, as well as the events of September 11th, have demonstrated the very real need to move away from the antiquated building codes and standards of 1968 and earlier. New York City is a great example of how a government can take the lead in setting new standards in fire and life safety. Adoption of New York City Local Law 26 of 2004 revolutionized the way that the city evaluated high-rise buildings with respect to life safety and property preservation. The city also committed to a three-year code revision cycle to incorporate new technologies and methods of construction in life safety; the current New York City Building Code is an amended version of the 2009 International Building Code (2009 I-Codes).



The outdated safety standard allowing a building to be "deemed to satisfy" safety requirement can be dangerous-and increasing numbers of governing bodies are reacting by adopting updated codes and standards. We are moving into an era where tall and complex buildings must be risk-assessed as part of the design process so that the appropriateness of the code application can be truly elevated. Proper application of these codes and standards by design professionals, as well as enforcement by the local AHJ, will lead to a safe and secure future for all high-rise buildings—and their occupants.

Fire and life safety lessons to be learned from super tall towers

The stakes are high in tall towers when it comes to fire and life safety protection, and there is a reason why. Today, highrise buildings experience less fire incident damage than other building types. Over the past 10 years, engineering focus has been on adopting codes, standards, and best practice procedures that rise well above the requirement "deemed to satisfy."

Effective fire and life safety in tall towers relies on more than the design of active and passive fire protection systems, however; in order to apply the code appropriately, a risk assessment must be performed early on in the design process. Overseeing the installation process, scenario planning, and training procedures are crucial to safety during the entire life cycle of the building.

The single strategy with the greatest historical impact in minimizing the risk to tenants has been a commitment to careful operations and maintenance

of the automatic sprinkler systems, and that focus must be maintained over the building's life cycle.



High-rise buildings have lower percentages of fires with flame damage beyond the room of origin, providing further evidence of impact from fire protection

systems and features:



A Towering Achievement in Healthcare Design: Danbury Hospital New Patient Tower, Danbury, CT



Danbury Hospital, a regional medical center and university teaching hospital located in Danbury, Connecticut, had been struggling to keep up with the increased demand on its emergency department. For several years, emergency department personnel had been serving upwards of 70,000 patients per year in a facility designed to handle 40,000. When combined with the expected rise in aging patients due to the baby boomer generation and the recent healthcare trend towards providing more patient-centered care, the hospital leadership team knew something had to be done.

Danbury Hospital New Patient Tower and

Expansion became the clear Emergency Department, Danbury, CT solution. After the hospital's Board of Directors approved the construction of the new Danbury Hospital Patient Tower and Emergency Department, the largest expansion in the organization's history, healthcare specialists at Syska Hennessy were brought in to provide MEP Engineering services and high-performance-based design solutions. Syska Hennessy also interfaced with the architect and construction teams on this collaborative project.

The design engineers developed creative solutions to meet the hospital's specific goals of providing patient-centered care, decreasing energy consumption, and increasing its capacity to serve and treat a growing patient population. Unique engineering design features for the hospital included an enhanced filtration for air handling units located near the hospital's helipad, an energy-efficient radiant floor heating and cooling system for the lobby entrance, and an entrance snow-melting system. In addition, state-of-the-art energy recovery and clean air systems were installed in the new ER and new patient rooms, including multiple lighting controls, smart thermostat design for cooling/heating systems, and an ease of maintenance that supports infection control.

Completed in June 2014, after three years of construction, Syska Hennessy's innovations resulted in a design that is 36% more energy efficient when compared to baseline models for similar healthcare facilities. The new patient tower and emergency department now rivals some of the top medical facilities in the country, earning Danbury Hospital an Engineering Excellence Gold Award from the American Council of Engineering Companies (ACEC New York).

"...Syska Hennessy's innovations resulted in a design that is 36% more energy efficient when compared to baseline models for similar healthcare facilities."

MARKET REPORT:

The Southeast region of the U.S. is a hot market, due in part to economic expansion, abundant skilled labor, and the relatively low cost of doing business; all of these factors have converged to generate fresh opportunities in the design and construction sector. Major corporations like Daimler and Google are migrating operational divisions into the region, signaling growth in headquarters, office building, and missioncritical projects.

00

ot all activity is centered around new construction. As the market matures, upgrades and adaptive reuse strategies help asset managers keep pace with demand. Existing facilities are being revitalized and operational performance fine-tuned with the evolution of commissioning services that support every type of building scenario, from LEED commissioning in new facilities, to retro or re-commissioning of existing ones.

In the data and control-center market, many assets have reached their capacity, with aging information-transport systems or underleveraged performance capacity. A great percentage of data center projects are now centered on upgrading and adapting existing facilities to meet increased demand, with enterprise and wholesale colocation projects leading new construction space.

Healthcare is another rich environment for business opportunities in the southeast. Health systems are evolving second- and third-generation digital platforms to attract and serve a more consumer-oriented patient base. With the Affordable Care Act effect, there are new tools and incentives in place, providing unprecedented access to medical records, online interface with medical professionals, and healthcare diagnostic and treatment options available remotely.

"While the southeast region has not seen healthcare projects develop as rapidly as other regions, such as the west or northeast, pressure is mounting to invest funds that are currently available, and substantial growth is anticipated in the near future. We are confident enough that we are growing our healthcare practice in anticipation of acceleration in the region," stated Jim Regan, Senior Principal.

Aspiring consultants who are able to blend services into unique sets of tailored client offerings will be best positioned to capitalize on these opportunities. For example, healthcare expertise, understanding of critical systems, and the ability to leverage information and communication technology specific to the healthcare market allows a health system to retool existing assets and make

informed investments to position them for future developments. This future will bring new financial models, shifting treatment protocol, and adjusting when and how existing outpatient facilities, diagnostic facilities, and ambulatory care centers will be used.

Another market sector that is really heating up in the southeast is higher education and the wave of influence that will have in the region. With an exceptional population of colleges and universities, the demand for new and adaptive reuse of campus facilities is robust. More and more students are flocking to the southeast, and staying after graduation to enter a growing employment market, as demonstrated by the region boasting seven of the fastest-growing cities in the United States.

communities."



That growing population will drive demand for additional mixed-use, aviation, sports, and hospitality projects. And with the trend toward urbanization, many of these projects will be carved into the fabrics of cities and surrounding regions. "We have a strong presence in the region," stated Chris Walsh, PE, Principal. "In order to serve our clients and contribute to this renaissance of the southeast, we have to be in all of these great cities, being available and helping to bring change about. It is not just about working on great projects, it's about shaping the future of our homes and our

3D PRINTING: THE FUTURE OF DESIGN-BUILD IS NOW

he ability to bring three-dimensional (3D) design into the physical realm by up-scaling printing technology is a game-changer for the design and construction industry. "Three-dimensional printing of buildings and building components is no longer something to be found only in science fiction literature," says Robert Bolin, PE, LEED Fellow, ASHRAE HBDP, Senior Principal and Director of High Performance. "We are seeing the creation of a variety of printing materials that range from reinforced concrete to fiberglass gypsum and reinforced plastic, allowing for production of full-size building modular components, fixtures, furnishings, and even some equipment."

3D printing brings a host of benefits to the designbuild world, including faster speed to occupation, enhanced quality control, and options ranging from minimal utility connections to off-grid locations. And the ability to apply modular fabrication and generate specific equipment onsite means that building in challenging locations suddenly becomes easier and less expensive.

Charbel Farrah, PE, Senior Principal, has been using 3D printing in a recent residential prototype project. "With modular component prototypes already

existing, field adaption and utility connection can happen on an accelerated schedule," he notes. "Of course, systems routing and access for maintenance and renovation have to be carefully planned for and installed carefully."

When it comes to 3D printing, the design-build industry has just begun seeing the tip of the iceberg, and the implications are exciting. 3D-printed buildings and components offer more opportunities to accelerate project schedule, reduce project costs, maintain the quality of the finished product, and enhance sustainability through use of local recycled materials for production materials. In turn, all of these new applications should create local jobs, as it becomes necessary to print buildings directly on a project's site.



Rendering courtesy of design partners WinSun Global Windtow Partners, Gensler, and Thornton Tomasetti



Cheaper, better, more sustainable, RAPIP, and jobs-producing: 3D printing is revolutionizing the design-build industry in all the categories that matter.



Vision 2025

ransformation is more than an aspiration it is a necessity. With the accelerated trends that we see in the architecture, engineering, and construction industry, there is a compelling reason to look far out into the future and create a vision to guide us. We did exactly that, and we call it Vision 2025.

There are many "disruptors" in our immediate future, and we mean disruptors in a positive sense. Each of these disrupting trends could potentially create seismic change for us and for our clients: advances in technology and communication, shifting demographics and globalization, alternative delivery methods and project financing sources, and the imperative to design for a sustainable future.

We embraced the challenges and opportunities these present for our firm and for our clients. 2015 was a year of exploration for us, as we gathered together for a series of thoughtful conversations about the future, sharing research, listening to our clients, and envisioning how we can meet their needs in the years to come. It was a clear choice that we made to honor our legacy of commitment, collaboration, innovation, and integrity—while mapping an exhilarating future of engagement like never before.

We aspire to be a firm that owns our responsibility as stewards of our environment, and that elevates our commitment to social responsibility in our local and global communities to a corporate imperative. Our designs speak for themselves as clear indicators of our passion for great design and solutions that serve both our clients and our planet.

We are excited as we embark on this journey. The future will evolve in response to things yet unseen, but we are certain that the journey will continue to transform us here at Syska Hennessy Group.

Vision 2025. For us, it's a clear choice.



Shaping the Future: **Evolving the AEC Industry Workforce**

In an increasingly competitive job market, it's important to remember that candidates, like employers, have requirements when it comes to the job search. To provide a sense of the recruiting landscape, Syska Hennessy's talent acquisition and retention specialists, Alison Knowles and Carla Valencia, talked with Assad Tabatabaie and Greg Collins, who represent the firm's constituencies in Engineering Development Training and the Syska Employee Network of Support and Education, respectively.

1. Today's students will be tomorrow's leaders. How does the firm recruit and appeal to candidates at the college/entry-level?

- **CARLA** Young talent is valuable to a corporate culture—they bring fresh ideas and renewed energy. Something we like to do, which has been very successful, is to host information sessions at different colleges with a small group of students interested in the firm. We bring along alumni from those colleges currently employed with us to share their experiences and answer any questions the students have. Our college #jobfair tour is always very successful and we communicate via Instagram to connect with potential candidates before and after our visits. We keep our online presence up-to-date and tie it in with the city and school we are visiting.

2. Experienced employees can contribute to a collaborative learning environment, which often leads to innovation. What are some ways the firm engages mid-senior-level candidates?

ALISON On the recruiting side, we keep an extensive database of referrals, and stay in personal contact with them. We track them through postings and video clips on LinkedIn and our specific recruiting "Careers" page. We also share our Connections magazine, which provides updates on new projects, initiatives, and other news. We like to make each candidate's experience a positive one, whether they eventually work with the firm or not; each action reflects on us as a brand.

> We also offer a work-sharing program for our team members, where they can spend time in other regional offices to create a sense of unity between locations, and get a glimpse of different work environments.

GREG There is also a dynamic Syska Employee Network of Support and Education (SENSE) program aimed at providing professional development, technical assistance, and social engagement opportunities for our team members who fall within two and twelve years of experience. Those of us who lead it are

elected by our peers every year, and charged with setting priorities and engaging with the firm's leaders across all locations, practice areas, and services.

Now in its second year, the SENSE community has become a force in its own right-influential, engaging with our leaders, and helping to shape our SENSE community experience at Syska. We are really proud of our collaboration with KaTO, a non-profit design studio that we work with to help design—and construction management students create and actually construct schools in communities that don't have any. We just sent two SENSE team members to Costa Rica for two weeks to work on a school in the Playa Gigante village.

3. How do employees at the entry-level compare to those in the mid-seniorlevel in terms of wants and needs?

- **CARLA** We find that candidates right out of college or in their late twenties and early thirties are looking for companies with integrity. They seek a company culture that places a premium on internal and external volunteer opportunities-for example, our firm works with the ACE Mentor Program-to really make a difference in the community. They also appreciate our global reach and the chance to work with our international offices and in markets nationwide. On the other hand, mid/senior-level candidates are searching most for a strong brand identity, with impressive project scope.
- **ASSAD** Our Engineer Development Training (EDT) program demonstrates very clearly the investment our firm makes in bringing together our newest graduates and providing them with world-class training and exposure to the best we have to offer. We have an annual retreat, get to know one another, spend time with our global practice leaders; those days are full of work and fun. Trainees graduate with a lot of information, and we keep that two-year training going until they graduate into our SENSE program. It is really gratifying to see the EDT graduates who own their progress, step into influential roles, not just in our program but beyond, to the firm at large. You would be amazed if you knew how many of our current leaders began years ago in our training program.

4. Employees work closely with the firm's clients. How does Syska Hennessy pay homage to clients' needs when searching for new talent?

ALISON Our firm has 16 offices globally, some of which specialize in a particular sector. When we are sourcing senior-level supervisors, we emphasize that candidates must have the skills needed to best service our clients' needs. And of course they must also be licensed professional engineers. But beyond that, we are looking for individuals who make our client's needs paramount and who demonstrate the cultural values that we as a firm celebrate: integrity, quality, collaboration, and innovation. If we are going to live those values, our senior supervisors have to make them real on a day-to-day basis.

• ollaboration, accountability and optimization • are just some of the advantages the designbuild method has over conventional project delivery.

Moving from the west coast to the east coast, from the public sector to the private sector, the designbuild method has brought about a revolution in the way buildings are built over the last 20 years.

In light of a recovering economy, more building owners have chosen this method in an effort to select their design teams based on employing the most features at the lowest possible cost. Now, public-private partnerships—known as "P3" are enabling greater private sector participation in the delivery and financing of design-build projects as well.

"For the last two decades, the design-build market has grown from a General Services Administration initiative as it applied to data centers, aviation, government office buildings, and courthouses, to one that spans market sectors, with the prime driver being this notion of design excellence in integrating architecture with engineering," says Robert Bolin, PE, LEED Fellow, ASHRAE HBDP, Senior Principal.

2005



EPA REGION 8, DENVER, CO

- Located on brownfield remediated site.
- · Access to public transportation.
- "Green" vegetated roof
- Water use reduced 49% via low use fixtures.
- HVAC&R systems HCFC · Building envelope design and Halon free. for greater energy savings.
- 100% of regulated load · Efficient lighting with supplied by renewable daylighting design power. implemented.
- IAQ plan developed and Underfloor air distribution in use today. **OPUS** Northwest
- Temperature and humidity Zimmer Gunsel Frasca



LONG BEACH, CA

 Energy simulation and computational fluid dynamics modeling

 LEED Gold certification Sophisticated lighting control technologies and daylight harvesting,

 Low water-use plumbing systems

 High-efficiency mechanical systems such as displacement ventilation, dedicated outdoor air systems

Coming Up a Winner

Design-build provides an opportunity for collaboration and design excellence



HAWAII CONVENTION CENTER, HONOLULU, HI

programmed for reduced

Motion sensor activated

lighting in intermittent-use

(variable frequency drives)

to adjust motor speed to

areas lowers energy cost.

managed using VFDs

load demand.

non-active periods.

lighting and cooling during

 Convention center roof Non-public areas are sail feature captures Hawaiian trade winds for air circulation and heat venting, reducing energy

consumption

- Building management system controls lighting and Heavy equipment is air conditioning in response to occupancy loads.
- Smaller jockey chiller with lower capacity provides alternate efficient cooling LMN Architects, Wimberly when reduced load is Allison Tong & Goo, Nordic PCL feasible, saving energy. Construction
- · Lighting retrofitted with efficient lamps and configuration.

2005

SANTA MONICA LIBRARY, SANTA MONICA, CA

- LEED Gold rating.
- 200,000 gallon storm water cistern which recycles rainwater before releasing it into the city's storm drains.
- Grav water landscape irrigation
- Water efficient plumbing.
- Underfloor air distribution system improves cooling. air quality, and increases usable space. Morley Builders (contractor);
- Davlighting analysis allowed the library to take advantage of natural light in reading areas.

- No CEC or HCEC-based refrigerants in the heating and cooling system.
- Carbon monoxide levels are monitored in the underground parking structure to optimize ventilation while saving
- energy 10KW roof-mounted



Moore Ruble Yudell (architect)

monitoring system permits

building zones to maintain

· 35.7% savings between the

budget and design cases in

comparison with ASHRAE

control of individual

thermal comfort.

901-1999

16

Lessons learned:

a timeline of

design-build

evolution

Delivering the best value

One of the hallmarks of the design-build process is the opportunity it presents to create high-level collaboration across the building team. This collaboration determines the u inique formula foi each project, required to achieve owner's goals in quality, schedule, and budge

Meeting two or three times, the design team transforms an RFP into a concrete best-value offe Often through the use of building performance modeling, there is a greater opportunity to achieve higher levels of energy, water, and materials sustainability; life cycle cost analysis; and more. With the contractor sitting at the table, the team shares the fiscal responsibility for the total sum of all parts of the project. Ultimately, the best value emerges.

"The building-performance aspect of the designexcellence process has the ability to take earlymodel data as a live model throughout the design and construction process and then use it for validation post-construction, and potentially for alternatives to renovation later on in the building's life—a true cradle-to-cradle analysis," says Bolin.



GOVERNOR GEORGE DEUKMEJIAN COURTHOUSE,

(DOAS) and a heat recovery chiller plant.

- Passive (structured cabling) and active (network) equipment to provide an optimal level of performance. This reduced costs in support of multiple integrated and converged network systems for court reporting, voice, data, wireless, audio-visual, building automation system and security systems
- Building envelope design for greater energy savings.
- Guaranteed building energy costs included in innovative P3 agreement

SH Group Partners: Long Beach Judicial Partners (P3 Developer):

Clark Construction (contractor); AECOM (architect)

Design-build evolution

Like all delivery methods, the design-build process has its own risks and challenges. For one, it requires an in-depth effort that costs staff hours for all firms, regardless of the ultimate outcome. Additionally, firms like Syska Hennessy and its partners are typically executing the high-level engineering in design-build projects, while the behind-the-scenes detailed production is often shifted to sub-contractors, which creates an opportunity for unwelcome substitutions. Ultimately, the end goal to build the best facility for the best value possible is shared by all—from the owners to the architects, engineers, and contractors.

"This evolution to design-build project delivery demonstrates the need to design not only for excellence, but also to account for cost estimates and real fiscal limitations," said Co-President Gary Brennen, PE, LEED AP. "We have learned that excellence and budget adherence are simultaneously attainable. Design excellence in architecture, engineering and construction is always the objective and the deliverable of Syska Hennessy Group and its partners."

.designers will to the end of a information for better

2015



BENJAMIN P. GROGAN AND JERRY L. DOVE FEDERAL BUILDING

- GSA Design Excellence Program for the Design/ Build project
- The project is currently pursuing two sustainability awards:
- LEED Platinum for Core & Shell
- LEED Gold for Commercial Interiors
- Roof-top solar panels on the parking garage with a 1-megawatt electricity generating capacity nearly 19% of the building's energy usage
- The campus employs several sustainable strategies to meet the 2030 "net zero" objectives of reduced energy and resource consumption, use of high performance materials and onsite harvesting of renewable

energy sources

- Continuous owneroccupant-builder-designer team engagement throughout the project lifecycle reduced the overall carbon footprint by 25% from the original scope.
- Gensler (architect) Hensel Phelps Construction Company



60

LA FEDERAL COURTHOUSE, LOS ANGELES, CA

- GSA Design Excellence Program for the Design/Build project
- Pursuing LEED Platinum.
- Building envelope will feature a high-performance faceted curtain wall facade Radiant heat reduction though
- building envelope strategies. Daylighting strategies
- supplementing lighting efficiency.

- Energy performance and cost modeling.
- Computational Fluid Dynamics
- modeling. SH Group Partners: Clark
- (architect)
- Construction (contractor) Skidmore Owings Merrill

Generating a Last Minute Addition: Telx NYC3 Data Center, New York, NY



Allotting sufficient time to complete each component is critical to any complex MEP design project, but situations often arise that require last minute "elbow grease" to bring projects over the finish line. That was the case for Telx's flagship New York data center project NYC3.

Commissioned by Syska Hennessy Group, designed by Highland Associates, and built by Henegan Construction in late 2014, the Telx mission-critical facility is the company's third in Manhattan. Occupying an entire floor at 32 Avenue of the Americas in New York's Tribeca neighborhood, the data center was designed with state-of-the-art MEP systems and future expansion in mind. But one critical component-two backup generators-proved to be a challenge for the team to test and commission, as plans to secure approval for the location and permitting of the generators kept being adjusted.

Different plans were developed to use base-building generators, temporary generators, and permanent generators. The plans meant that the project was ready to react to any scenario that was put into action, but the focus was never lifted from getting the final installation in place before turnover of the facility.

With just three days left before the project's final delivery date, a decision was made to implement the permanent generators commissioning plan, which included interconnection with much of the critical distribution and monitoring systems. That required an around-the-clock effort during the project's critical final days to complete the installation and commissioning and finish the extra levels of paperwork required for the final generators' approvals and functionality. In the end, the project was delivered on time with critical power and cooling 100% commissioned and operational.

In addition to serving as a powerful showcase of project teamwork, the data center completion underscored the value of planning multiple well-engineered commissioning plans to react to any situation the client and construction team is capable of implementing, according to Michael Falkenstern, CEA, CxAP, LEED BD+C, and Associate Partner. "For the Telx data center, we provided a strategic team that reacted to a fluid situation and delivered an outstanding product in the 11th hour, showing our capability of working closely with our design and construction partners throughout the process" said Falkenstern.

CONNECTIONS

A Data Center With Vision:

CPS Energy's control/data center in San Antonio



CPS Energy Tier III/IV Mission Critical Control and Data Center, San Antonio, TX 📤

CPS Energy, San Antonio's utility provider, set out to create a flagship missioncritical facility of its own, a control center worthy of "Silicon Hills," the area's technology hub. This new facility had to do it all: provide the reliability and redundancy to address the needs of today and serve as backup for two additional control/data centers, while also being flexible enough to handle the next 20 years.

But CPS wanted even more. Calling their vision "Project ECHO," CPS made the pre-design charette a creative collaborative process, pulling together a team of engineers, architects, constructors, and building users. As a first step, Project ECHO team members developed four guiding principles which would set the tone for the entire project: Silicon Realities, Carbon Creature Comforts, Good Neighbor, and Responsible Corporate Image. These were not esoteric suggestions; rather, they became the foundation for the basis of design documents, and every benchmark deliverable was measured against how well it met the requirements of those principles.

Silicon Realities

This principle stands for reliability, maintainability, functionality, flexibility, and a robust system structure. The team created a full mockup that included a back-of-rack cooling solution, overhead busways, cable tray, and lighting for CPS Energy end users to directly experience how the new systems and infrastructure would function, allowing them to provide input on component accessibility in and around the row of cabinets. The mockup allowed for

troubleshooting issues before they arose, both in the construction and post occupancy, lowering the number of RFI questions and submittals, and allowing the operations team to develop familiarity with their facility before they walked in the door. The delivered facility has built-in flexibility to accommodate expansion under a Phase II build-out, with the ability to support additional equipment while preserving the operational functions during subsequent construction efforts.

Carbon Creature Comforts

The second principle represents consistency, survivability, daylighting, and a softened security experience. With a focus on functionality and supporting the end user, the design team modeled the control environment based on 3D software, fine-tuning the model to accommodate the number of people in the space, their sight lines and ergonomic support, equipment performance parameters, and employee experience in the space. CPS was particularly interested in balancing proscribed government space separation requirements against employee adjacency needs for optimal communication and collaboration among the user constituencies.

Good Neighbor

Being a good neighbor calls for a focus on public perception, stewardship, and the building's appearance and landscaping. With the new facility located in the middle of a community of single-family homes, it was essential to site heavy equipment and service areas with their attending noise behind a buffer zone and to front the street access with a café and courtyard in a park-like setting.

Responsible Corporate Image

The final principle stands for sustainability, marketability, demonstrability, xeriscaping, and display of energy conservation. LEED Gold certification was the aspiration for Project ECHO. Achieving that goal required creative collaboration and careful modeling of system layouts and unique approaches to laminar rack cooling, along with a unique "room neutral" strategy to neutralize cooling loads. Based on initial results, CPS is already realizing 13% energy savings over the ASHRAE baseline and IT virtualization savings of ~39%.

For this project to meet the visionary Guiding Principles of CPS Energy, collaboration was paramount. From the predesign charette through the turnover process, creating a reliable, redundant, scalable, and flexible facility was possible because of the active participation, commitment, and creative skills of all of the Project ECHO team members.

"For CPS Energy, this data center was the perfect integration of owner, designer, and builder. Project ECHO is the tangible result of the best teamwork on the planet."



Syska Hennessy: In the World



Expansion in the Research Triangle

Known as the Research Triangle and anchored by three major universities, the Raleigh-Durham area of North Carolina has long been a leader in the fields of high-tech and scientific research. Supported by higher education institutions and a growing and highly educated population, the area has seen significant growth over the past two decades, including a surge of high-tech firms and scientific facilities moving to the area. Responding to the market growth, Syska Hennessy launched a dedicated Raleigh office to offer on-the-ground support to clients based in the area.

"More and more, the Triangle market is a major part of strategic growth conversations with national and global clients," says Associate Partner Todd Pagliarulo, who oversees the new Raleigh office. "Businesses looking to expand need the sophisticated guidance and engineering know-how that Syska Hennessy is known for and we look forward to helping them achieve their goals."

The New Jersey Office Gets a Cutting-Edge Facility

Syska Hennessy's New Jersey office gets a new location, and a state-of-the-art facility to match. Located in the town of Hamilton, the 5,600 SF space is arranged around an open office plan, allowing for better team and client collaboration. Equipped with standing workstations and the most upto-date technology, the new office space reflects the firm's commitment to openness, connectivity, and forward-thinking design.

The move comes at the perfect time for the New Jersey office, which has seen expansion in its number of projects in the local market. "This is an exciting time for our office as we have seen our project work accelerate over recent years," says site leader and principal, John Bilotta. "Our new location and workspace will enhance the level of service we provide even further."



Todd Pagliarulo, Associate Partner at Syska



New Jersey office, in Hamilton, NJ



KaTO team members designing school for Playa Gigante, Costa Rica community.

Creating Exceptional Environments, One School at a Time

As part of its commitment to global citizenship, Syska Hennessy recently teamed up with KaTO, a design studio dedicated to creating schools in developing countries, to build a school in Playa Gigante, a village in Costa Rica. Two employees, Kari Bean and Will Kelly, were sponsored by the firm to travel to Costa Rica and help lead the two-week project. Overseeing a construction project in a Costa Rican village with a team of eight college student interns was quite a change from Syska Hennessy's typical largescale projects, and the team faced hardships that inspired both creative solutions and group bonding.

"We were disconnected from the outside world with limited phone service, no air conditioning, close and humid living quarters, limited electricity, and long walks to get everywhere," says project manager Kari Bean. "Soon, none of those things mattered, and we grew an appreciation for water, bug spray, sunscreen, cold showers, new friends, and the beauty that surrounded us."

Bean and Kelly were inspired by both the cheerful, hardworking attitudes of their young team, and the kindness and appreciation of the villagers. "The college students involved with KaTO worked so hard for this trip," notes Will Kelly. In Bean's words, the entire team "became a family by the end of the trip, and each person's skills were vital to the success of the project."

"The village was incredibly grateful for our time and effort that we poured into the project," says Kelly. "I didn't think that leaving the community would have been so difficult, but after spending almost two weeks with them, it definitely was. We are eager to see the completed project!" Community

Awards

New York Office Wins Industry Impact Award

The New York office was the proud recipient of the Industry Impact Award at the 2015 New York Construction Awards, sponsored by Anchin. The award honors industry leaders in construction, design, and development who have had a transformational effect on the New York Metropolitan area. Mark Yakren, PE, Senior Principal at Syska Hennessy, spoke passionately about the firm's relationship with the City and with the design-build community as he stepped up to receive the award. "It is great to be in front of so many colleagues and to receive an award for the work we love," he said.

The award was particularly special for the New York office, as Syska Hennessy Group was founded in New York City in 1928 and the city is still home to the firm's global headquarters. "We love to work with all of our colleagues here, who are the best talent in the world," said Yakren. "With our group here, and with people around the city, we've helped to shape the skyline of this great city, creating opportunities for people who live here, people who work here, and people who call their businesses' home New York City."



Mark Yakren, Senior Principal at Syska, posing with Tomas Rossant, Design Partner at Ennead Architects.

Expansion

San Diego Office Expands to Meet **Sustainability Demands**

In response to an accelerating market especially in the sustainability sector-the San Diego office added five new engineers to its already robust team of 20.

Sean Marcel, PE, Associate Partner, made a cross-country move from the firm's New York headquarters to help lead project management development. "We have an aggressive roadmap in place to continue to increase our project work and grow the San Diego office," Marcel says.



San Diego EDT members Desiree Robinson, Chad Buckallew and Jonathan Moore attended the national EDT retreat in Los Angeles

Sharbel El-Haber, LEED AP BD+C, is also new to the team. As a senior mechanical professional with two decades of experience

in building systems and energy efficiency engineering, El-Haber looks forward to bringing his knowledge of environmentally friendly design to the team's sustainability practice.

The San Diego expansion is rounded out by the addition of Chad Buckallew, Desiree Robinson, and Jonathan Moore, recent graduates of the Engineer Development Training (EDT) program. EDT is a two-year training course for engineering graduates that teaches technical aspects and industryspecific business practices, with mentoring from senior engineers.

"One of the core competencies of the San Diego office is the ability to identify and nurture exceptional talent," says Senior Principal, John Passanante, PE, RCDD, site leader for the San Diego office," and we've done that with the addition of our new engineering professionals."



Connections

A global leader in specialized consulting, engineering, and commissioning services, Syska Hennessy Group is always looking for new ways to foster connections. Between projects and engineers. Between the public and private sectors. Between our peers, our community, our employees, and the rest of the world. From concept to construction, no one builds connections like Syska Hennessy Group.

Block & Anchin

Editor: Mary Moore

Syska Hennessy Group provides specialized consulting, engineering, and commissioning services for clients worldwide. Using a high-performance approach, combined with a global portfolio of project experience, we are able to help drive your business's success in a challenging economy. With a staff of over 500 located in 16 locations around the world, we provide a local presence with regional knowledge.

Photo credits: COVER IMAGE ©STOCKSY; CONTENTS PAGE ©iStockphoto/Thinkstock; PAGE 2-3 Cyrus Izzo & Gary Brennen ©Sarah M Golonka; PAGE 4-5 ©iStockphoto/ Thinkstock; PAGE 6-7 Danbury © John Giammatteo; PAGE 8-9 ©iStockphoto/Thinkstock; PAGE 10-11 Courtesy of Winsun Global, Windtower Partners, Gensler, Thornton Tomasetti; PAGE 12-13 © STOCKSY; PAGE 14-15 ©iStockphoto/Thinkstock; PAGE 16-17 ©iStockphoto/ Thinkstock, Hawaii Convention Center, photo by Vernon Brown is licensed under CC BY 2.0, Santa Monica Library (©John Linden) Photo: John Linden, EPA Region 8 Headquarters (©Robert Canfield); PAGE 18 Gov. George Deukmejian Courthouse image courtesy of AECOM, Benjamin P. Grogan and Jerry L. Dove Federal Building courtesy of GSA, LA Federal Courthouse ©Skidmore, Owings & Merrill LLP, 2013. All rights reserved; PAGE 19 ©iStockphoto/Thinkstock; PAGE 20 Project ECHO photo courtesy of CPS Energy; PAGE 22-23 Hamilton NJ Office Photos ©2015 Katherine Marks Photography, KaTO photos Courtesy of KaTO; PAGE 24-25 EDT Members Markus Yakren & Tomas Rossant Courtesy of ©Sarah M Golonka, Anchin Award Photo Courtesy of Anchin,

Contributors: Kari Bean, John Bilotta, Rob Bolin, James Carrigan, Nancy Cheuveret, Lindsay Church, Greg Collins, Alex Engelman, Michael Falkenstern, Lisa Gonzalez, Devin Grasty, Will Kelly, Alison Knowles, Lauren Mehmedovic, Marissa Miller, Brittany Miron, Todd Pagliarulo, John Passanante, Bob Stickney, Assad Tabatabaie, Mike Terrigno, Mike Thoresen, Carla Valencia, Chris Walsh, Mark Yakren, Mindi Zissman

Design: Hinge, www.hingemarketing.com



Atlanta 678.401.0200

Cambridge 617.577.9900

Charlotte

704.373.1533 **Chicago** 312.588.3560 Jacksonville 904.987.2082 Los Angeles 310.312.0200

972.470.0704

Dallas

New Jersey 609.378.0235 New York 212.921.2300

Raleigh 919.987.2045

Richmond 804.553.7011

San Diego 858.244.0360 **San Francisco** 415.288.9060

Washington , D.C. 703.383.9383 Dubai Internet City

+971 (4) 3692534

syska.com

Shanghai 8621 3366 6103



