

CASE STUDY

BICSI Corporate Headquarters: Project Refresh

BACKGROUND

BICSI is a global professional association supporting the advancement of the information and communications technology (ICT) community. With representation in nearly 100 countries, all operations are managed out of their World Headquarters and Learning Academy in Tampa, Florida. Recently, this 35,000 square foot facility, which was built in 1997, went through a major renovation. Bringing their technology up-to-date resulted in a complete overhaul of the cabling infrastructure to transform their old data and phone network into a truly integrated intelligent building, maximizing energy efficiency and the productivity of occupants.



Mighty Mo® 20

The new infrastructure was designed to include a redundant multimode fiber backbone with OM3 between the two telecommunication rooms (TR) and attached to the WAN through OS2 single-mode



PowerWise™ cable

fiber optic cable. The horizontal solution, mainly a Category 6A-based system, would include all new cable, connectivity and pathways to provide data and power (PoE) to the diverse applications to create a converged network. These IP applications include a high-bandwidth data communications system, VoIP, wireless access points, access control, security cameras, LED lighting, digital displays, interactive monitors, a distributed antenna system (DAS), and sound masking.

The first step was to remove all of the existing cabling and connectivity, which included Legrand Data Infrastructure cable management racks, patch panels, cords and connectivity to the Category 3 (voice) backbone and Category 5 (data) horizontal cabling, as well as miles of unused dark OM1 fiber (62.5 micron) to the desk. "It was quite a challenge to re-

move a 900-pair Category 3 feed cable by using a chain hoist to pull it out of the 4" conduit," commented Kirt Kiester, owner of K-Tech Solutions (Brandon, FL), the Legrand certified installer whose team handled the structured cabling installation for the renovation.

"Since Legrand products have played a key role in the infrastructure at the BICSI headquarters from the beginning with the Legrand Ortronics connectivity solutions, we wanted to make sure that their current expansive suite of network and AV solutions was a major part of this reconstruction and part of BICSI's future," stated Ed Donelan, RCDD, NTS, ESS, with Telecom Infrastructure Corporation, BICSI past president who was the Project Refresh Lead and Chief ICT Designer. He was also part of the original BICSI installation team 22 years ago.

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CHALLENGES

In addition to Ed Donelan, the project working group was comprised of a team of BICSI volunteer members, including additional past presidents - Russ Oliver, RCDD, DCDC, NTS, ESS, OSP, RTPM as co-leader for the Refresh Project and responsible for AV design and implementation, Brian Hansen, RCDD, NTS, CSI, who wrote the specifications (following Division 27) and was also the quality and system compliance expert, and Brian Ensign, RCDD, NTS, OSP, RTPM, CSI, who secured the vendor donations. Together with two BICSI staff members, Betty Eckebrecht and Bernie Currie, this team was tasked with putting together the entire reconstruction plan from the design specifications through commissioning stages to be completed in less than one year and with a very tight budget.

Their goal was to make sure that renovation would include the transformation from an outdated facility to a totally integrated intelligent building that demonstrated long term cost reductions with lower heating

and cooling bills, improved occupant comfort and productivity, and safer and more reliable systems. The BICSI Headquarters would be approximately 20,000 square feet for the 60 staff areas and 15,000 square feet for the learning academy and associated spaces. The key to the success of the building would be dependent on the components selected and installed to advance BICSI into modernization and allow for technological growth for the next 20 years. In addition, this remodel project had to be completed without disrupting existing daily business, so a detailed construction plan, including timely delivery and installation of all components and a systematic cutover was vital.

The construction project was divided into two phases. Phase 1 included building out the backbone connecting the two telecom rooms – one main TR (MTR) and secondary (TR) -- and then providing the office spaces with the upgraded network connectivity. The office areas consisted of modular furniture, hard-walled offices, conference rooms, huddle spaces, a large café/lounge, a warehouse and a handful of individual privacy phone/meeting rooms. Applications included delivering 1 Gb/s data for computers and PoE for VoIP phones, PoE lighting and sound masking.

Phase 2 included the BICSI Learning Academy, which was formerly located within the office spaces but is now an entirely separate facility with its own entrance and lobby, four classrooms (two of which include infrastructure cabling bays for hands-on learning for installers and technicians), and a cafe. The Learning Academy required additional AV for training applications such as interactive cameras, digital displays and a sound system.

LEGRAND DATA INFRASTRUCTURE SOLUTIONS

Network Cabling Solutions

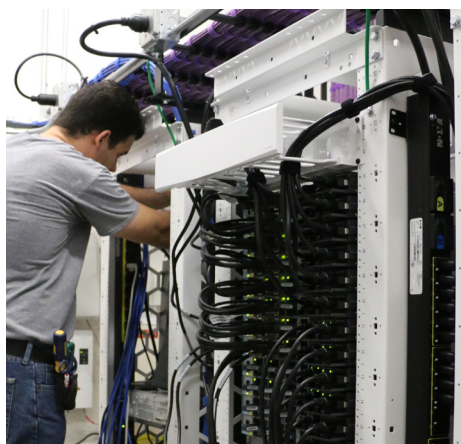
"Legrand was one of the first companies to step up and immediately put together a bill of materials required for the structured cabling to include the cable management equipment in the TRs, as well as connectivity for both data and power to all the work areas," noted Donelan.

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TELECOM INFRASTRUCTURE CORPORATION

"They definitely jumped on board at the onset, which was critical to get this project moving and on target," added Oliver, who also manages Snowbirds Strategic Advisors.

Kathy Overton with CTI, Legrand's manufacturer's rep in the Tampa area, worked with the BICSI project team and with K-Tech Solutions to coordinate all the ordering and delivery of the Legrand Data Infrastructure solutions to Graybar, the local distributor.



Ladder Rack

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"With the great relationship between Kathy, Legrand, and the team at Graybar including Ed Duda, Dave Saylor and Carolee Vazquez, the products were stored at the local Graybar stocking warehouse and delivered on a just-in-time basis – all on their own time and dime," explained Kiester. Kiester was one of the cable installers when the BICSI headquarters was originally built as he worked for Associated Network Solutions, the original contractor. "I've always been a big fan of Legrand Ortronics and it's a testament to Legrand, since BICSI has undergone a lot of changes through the years and Ortronics has played a part, and now continue under Legrand," he added. "I am even more impressed after experiencing the synchronized coordination with the Legrand teams," he added.

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— KIESTER,
ASSOCIATED NETWORK SOLUTIONS

For the two TRs, including the glass-walled MTR, Legrand provided seven top-of-the-line white 4-post Mighty Mo® 20 racks with vertical doors and cages to house the Cisco switches and servers, the passive

patching equipment and all cross-connection cables. "The white equipment in the TRs looks very clean and also stands out in dark closets," Kiester further clarified. Legrand's white product offering have elevated levels of light reflectivity for increased visibility and enables lower light-intensity requirements in the facility. "My project manager, Bob Bishop, also commented on the ease of the rack assembly, as well as the open honeycomb side panels and vertical frames allowing better airflow for the equipment and the cables," Keister added.



Glass-walled MTR Telecommunication rooms filled with seven 4-post Mighty Mo 20 racks and LX cabinets donated by Legrand

"Most of the rack space was dedicated for rich copper contents because of all the IP applications," explained Donelan. "In fact, one rack in each TR was dedicated to the PoE and LED lighting equipment," he commented. Molex was the LED lighting manufacturer and the Superior Essex PowerWise™ cable was pulled from the Legrand Ortronics Tech Choice patch panels in the TR to the gateways, located in the ceiling. From there factory-terminated PowerWise patch cords from Legrand connected the Molex drivers and lights.



Angled Patch Panels

In addition to the Mighty Mo cable management rack system, other connectivity and pathway products for the TRs from Legrand included:

- TechChoice™ 48-port Category 6A angled and flat patch panels
- TechChoice™ Category 6A Keystone modular jacks
- TechChoice™ 24-port shielded Category 6A angled patch panels
- Clarity™ Category 6A unshielded and shielded patch cords in many different lengths
- 18" wide ladder racks and associated hardware and brackets

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For the over 100 work area terminations, Legrand supplied jacks, faceplates, bezels, and patch cords to the devices. “The horizontal cabling was riser cable since it was in a non-plenum environment with ducted return which directly connected to all the outlets, both in the modular furniture and into faceplates in other locations,” described Donelan. “Legrand provided a unique and impressive solution for the modular furniture, which included 2-port surface mount boxes that not only protects the bend radius of the Category 6A cable, but is designed to exit the patch cords from the top of the box versus the front. By running the patch cords directly up perpendicular to the floor, the cords are protected from being kicked by the users or even destroyed by the cleaning service with their vacuums,” Donelan further explained.



Clarity Patch Cords

*The work area solutions from Legrand included:

- TechChoice™ Category 6A Keystone modular jacks with lacing cap termination
- TechChoice™ 48-port 2-port Keystone wall faceplates (white)
- TechChoice™ 48-port Blank Keystone modules (white)
- TechChoice™ 48-port 2-port surface mount boxes (white)
- TechChoice™ 48-port Furniture outlet bezels
- 4-port flush floor plates (white)
- Clarity™ Category 6A unshielded and shielded patch cords

AV Solutions

In addition to the video monitors and smart TVs for the conference rooms and cafes to provide video conferencing and interactive displays, the Learning Academy facility was designed with the latest state-of-the-art AV equipment to enhance the student learning experience. “BICSI provides world-class training for the industry and the Learning Academy sorely needed to reflect this by elevating the quality of instruction through a showcase of equipment rooms, flexible workstations*, lecture capture and live streaming capabilities through ceiling-mounted 4K laser projectors and document cameras with an upgraded sound system,” noted Donelan.

Most of all the AV installation was included in Phase 2. “Even with most of the products donated from the generous BICSI sponsors in Phase 1, we came up short when we needed high-quality AV products, particularly for the Learning Academy,” stated Oliver, who led the AV design and installation. “This stopgap almost halted Project Refresh at that point, until Legrand stepped in,” he added. “We knew that Legrand was becoming a serious player in AV, especially when we visited their comprehensive exhibit at the InfoComm show, but we did not know of all their recent acquisitions until Brian Ensign, vice president of marketing for Superior Essex, who was the point man for all donations for Project Refresh, put us in contact with Legrand’s Rich LaPak,” explained Oliver.

**If your high performance building project or integrated intelligent building overhaul is pursuing LEED, these product families have product transparency documentation available in the form of EPDs or PEPs that can help your project earn credit towards certification.*

<https://www.legrand.us/aboutus/sustainability/high-performance-buildings/leed-with-legrand.aspx>

**Seeking to improve employee productivity in your building or pursuing WELL certification?*

Today, high performance design includes optimized lighting conditions, flexible and ergonomic work spaces, aesthetically pleasing surroundings, and the availability of spaces that encourage movement and healthier lifestyle choices. Legrand manufactures many products that are specially equipped to meet this demand. When approached strategically, a building’s power, light, data, and A/V infrastructure can contribute to occupant comfort and productivity while jointly achieving other operational goals.

<https://www.legrand.us/aboutus/sustainability/high-performance-buildings/well-with-legrand.aspx>

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*Learning Academy facility
Da-Lite Advantage Projection ScreenChief projector mounts*

"We were at the 11th hour and Rich, like all the other extremely supportive and responsive individuals involved from Legrand, got the ball rolling and literally saved more than just the 'day' as he provided first-class AV products," he adds.

Legrand's AV division includes many commercial AV brands now under the Legrand umbrella. Last year Legrand launched a Commercial AV go-to-market strategy to better serve their commercial integrators. By adding leading products from manufacturers such as C2G, Middle Atlantic, Chief, Vaddio and Da-Lite, Legrand becomes the "one-stop shop" for all commercial AV solutions. "We believe in supporting our industry and the standards for best practices. Our AV brands take pride in manufacturing best-in-class products providing an amazing AV experience. Working with BICSI on this project was a pleasure and an honor," stated Rich LaPak, CTS, DSCE, Regional Solutions & Consultants Manager at Legrand | AV.

Legrand's material checklist of AV product donations included:

- Chief® projector mounts, including pole and drop tile mounts
- Chief® display wall mounts
- Vaddio® ceiling mount pole/shelf
- Vaddio® ceiling cameras
- Da-Lite® Advantage projection screens
- Assorted lengths of C2G HDMI cables
- Middle Atlantic® BGR Series Rack Enclosure
- Middle Atlantic® extension drawer
- Middle Atlantic® vertical & horizontal power, copper bus bar and power splitters
- Middle Atlantic® vertical and horizontal lacing bars
- Middle Atlantic® rack fan
- And all assorted hardware

SUMMARY

The BICSI Project Refresh was a demonstration of industry-wide collaboration and support. "We were able to get the project done under budget and on time due to many generous donations and technical support, especially from one of the industry leaders -- Legrand," affirmed Oliver.

"Legrand has been an active supporter of the BICSI association from its inception. In addition to their innovative products that have changed the industry, Legrand continues to support BICSI with educational contributions, which includes Legrand representation on committees, speakers at Conferences and development of industry standards and training materials for its members," added Donelan.

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The BICSI World Headquarters now showcases the breadth and quality of Legrand data, power and AV products, as well as demonstrating the efficiency of an intelligent building, and in doing so optimizes energy efficiency and the productivity of occupants. As ICT moves forward in the advancement of connecting many building applications onto a converged network, BICSI will be leading by example through their own infrastructure and in doing so, Legrand continues to be key a change maker in this industry.