THE FUTURE IS ON®

LEVITON®

CrossTalk

Your Source for Industry News & Insight

Connecting Smart Buildings
for Health and Wellness

Study after study shows a correlation between healthy work environments and less sick leave, higher productivity, and greater overall employee satisfaction. For these reasons, healthy building applications have become an integral part of today's smart building initiatives.

Building owners are continuing to make changes to workspaces that incorporate health and wellness initiatives — not only as a response to the Covid-19 pandemic, but as part of an ongoing long-term strategy to improve efficiencies, safety, and employee well-being. A 2021 survey of 400 firms in the U.S. and Canada by Johnson Controls found nearly 60% planned to invest more in healthy building initiatives. These initiatives include clean air efforts and facility systems for remote monitoring, safe access, and building automation.

Smart building technology like sensors, controls, and lighting are key to enabling a healthy building. Let's take a look at a few key solutions for improving health and wellness.

LEVITON **POLL**

Which category rating cabling do you install for wireless networks?

CAT **6A** 73%
24% CAT **6**
3% CAT **5e**

From a March 2022 survey of 200+ network professionals.
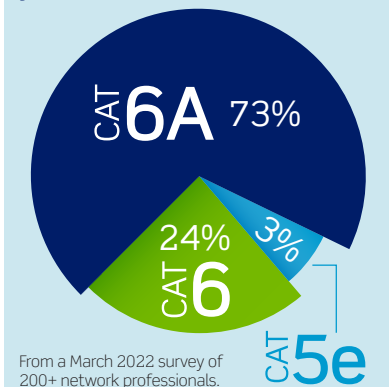
UPCOMING **EVENTS**

Cisco Live
June 13–16 | Las Vegas, NV

BICSI Fall Conference & Exhibition
September 25–29 | Las Vegas, NV

UPCOMING **WEBINAR**

The Data Center Multiverse:
Diverging Network Migration Paths
Tuesday, June 21, 2022
10:00 – 11:00 a.m. PT

Smoother Cable Pulls
Simpler Installations
FLX-1™ Technology

When pulling network cable, installers and integrators must often deal with cable memory, where the cable takes the form of the reels or boxes it was packaged in. This can make the cable more difficult to pull and install. In some cases, cables are prone to kinking, which can lead to permanent stress marks and notable deformations of the cable jacket.

To help installers, Leviton engineers developed **FLX-1, an advanced polymer technology built into the cable jacket** of select Berk-Tek plenum cables that improves flexibility, making cables easier to bend, less likely to kink, and less susceptible to installation stress.

Healthy Building Solutions

Occupancy

Occupancy sensors can measure flow of people and alleviate congested areas, or pinpoint areas that require more regular cleaning. Occupancy technology can also improve energy efficiency by controlling unused areas of a building — an increasingly important priority for office buildings with new work-from-home or hybrid workforce policies.

Occupancy analytics may leverage everything from passive infrared sensors to recognize there are people in a room, to Bluetooth low energy (LE) sensors that can actually count the number of people present. These solutions can monitor occupancy trends over time or create alerts in the case of overcrowding.

HVAC Controls

One of the biggest areas of focus for a healthy building is ventilation. It is important to remember that 87% of our time is spent in enclosed buildings, and numerous studies have found that poor ventilation rates directly lead to more instances of sick leave and absenteeism among building occupants. The National Oceanic and Atmospheric Administration estimates that poor air quality results in at least $150 billion in illness-related costs and lost productivity every year in the U.S. alone. On the flipside, people in well-ventilated offices have double the cognitive function of those in offices with average levels of pollutants, according to a 2015 study by the Harvard School of Public Health.

HVAC controls can monitor air pressure to optimize airflow. They can also ensure there is no ingress of outside air to a specific area that is not filtered or controlled. In addition, humidity and temperature controls can optimize the environment for employees and improve productivity.

Intelligent Lighting

Lighting sensors can be programmed to adjust light levels depending on the time of day or use daylight harvesting to dim areas receiving sufficient natural light. This not only saves energy but has been shown to improve occupant comfort. Similarly, shade controls are also an intelligent solution that lets in more or less light through windows for a healthier working environment and better climate control.

Smart Monitoring of Air Quality

Indoor air quality sensors are being used to monitor CO_2 concentration as well as levels of volatile organic compounds (VOCs). Some gases from paints or chemicals used in factories can be carcinogenic to humans, and monitoring VOCs has become an important function in factory facilities.

Disinfectant Technology

Automated disinfectant technology has been introduced that uses ultraviolet light to disinfect surfaces of bacteria or germs. These UV light irradiation systems require areas to be unoccupied, and often work with a building's occupancy sensors to only activate when no one is in the area. While once targeted mainly for healthcare facilities, interest in UV disinfectant technology has expanded to other types of buildings environments as a result of the pandemic. In HVAC ducting, UV lighting or "fogging" disinfectant systems can be used to combat air borne illnesses.
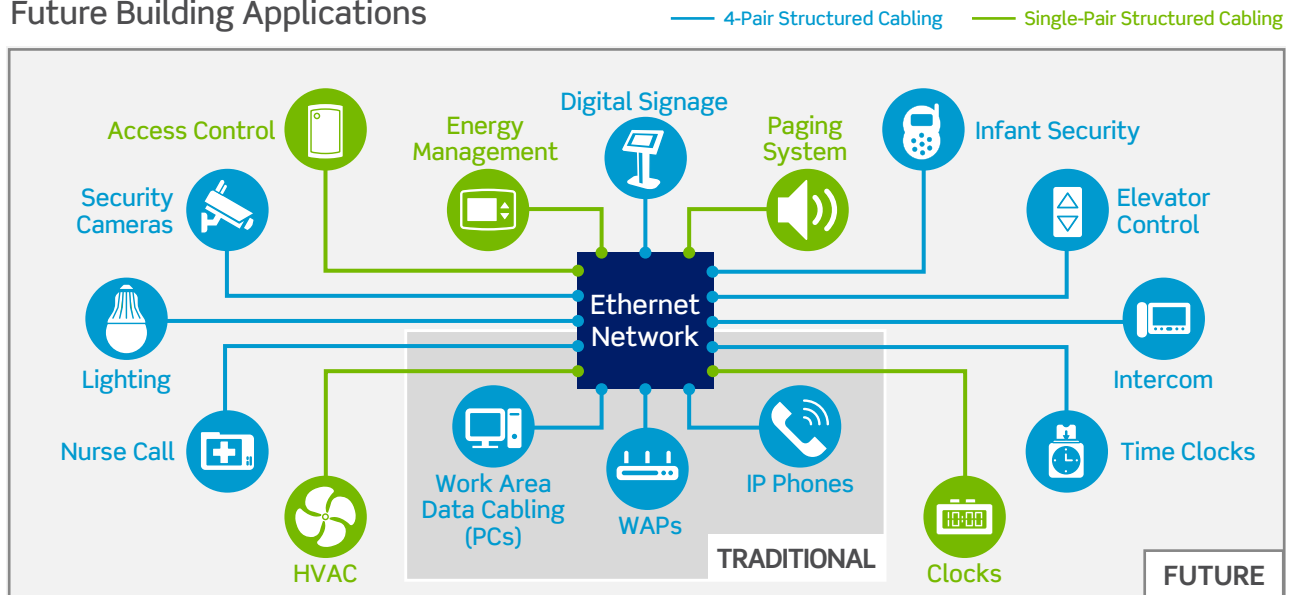
Connectivity for Smart and Healthy Buildings

Connectivity is an essential part of a smart building: No intelligent system can be controlled or optimized without the right connectivity in place, as it is critical for delivering all the information from data input devices to the actuators, switches, system controls, and system software.

Today, 4-pair Ethernet cable is ubiquitous in traditional enterprise networks for Voice over IP phones, wireless access points, and desktop computers. It will continue to be used in the future to connect smart and healthy building technologies, and many of the core applications that connect to the LAN. While 4-pair Ethernet can be found in some building management systems today, historically many of these systems have relied on non-Ethernet protocols such as RS485, Fieldbus, or BACnet. These protocols may be replaced by Ethernet in the future with the introduction of single-pair Ethernet (SPE).

SPE is still in the developmental stage, but it shows potential for use with building automation and IoT devices that require lower data rates. It is likely that SPE cabling will not replace existing 4-pair Ethernet based devices for applications such as Wireless Access Points or IP cameras but will provide supplemental Ethernet-based connections to systems and devices that were previously proprietary or stand-alone. Similarly, it will create a much easier and cost-effective integration of Fieldbus building automation devices, which currently require proprietary gateways and proprietary cabling systems.

Future Building Applications

— 4-Pair Structured Cabling   — Single-Pair Structured Cabling

Access Control
Security Cameras
Energy Management
Digital Signage
Paging System
Infant Security
Elevator Control

Lighting
Ethernet Network
Intercom

Nurse Call
Work Area Data Cabling (PCs)
WAPs
IP Phones
Time Clocks

HVAC
TRADITIONAL
Clocks
FUTURE

Get Guidance

With so many considerations, network cabling specification and technical experts are more important than ever when undertaking infrastructure upgrades. They can provide guidance on the right network designs, intelligent building standards, and appropriate cabling and connectivity for specific PoE enabled smart devices.

Learn more about this topic in the Leviton White Paper **Networked for Wellness**.

Smoother Cable Pull and Simpler Installations with FLX-1™ Technology

At Leviton's R&D facility in New Holland, PA, engineers tested several Berk-Tek cable designs using the FLX-1 technology alongside several competitive cables in a live environment, replicating real world installation. Berk-Tek cables with FLX-1 Technology excelled in every category among plenum LAN category cables, with superior flexibility at room and cold temperatures, reduced stress whitening and reduced recoil memory.
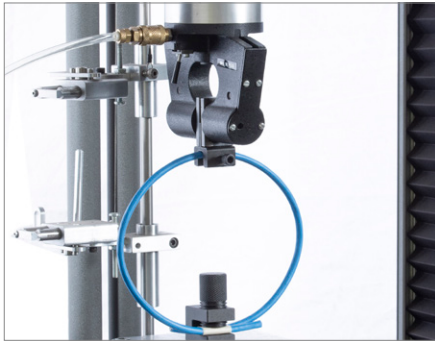
Flex Loop Test measures compression resistance and flexibility
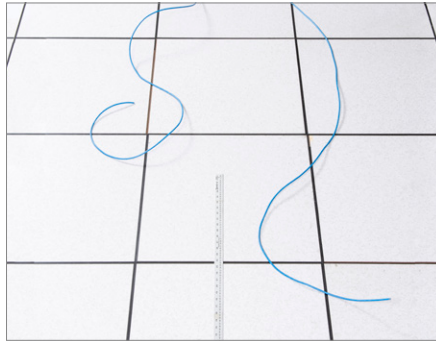
Cable Recoil Test

The choice of jacketing material used in data cable is critical to guarantee ease of handling and installation. Berk-Tek cable with FLX-1 Technology is the best in its category with very good flexibility and limited stress marking when subjected to bending. FLX-1 significantly improves cable flexibility to reduce kinking and payout issues, allowing for smoother cable pulls. This translates into a faster, easier, and more efficient installation experience.

FLX-1 Technology is available with these Berk-Tek cables:

- LANmark™-SST Cat 6A UTP Plenum Cable
- LM-RDT™ Cat 6A UTP Plenum Cable
- LANmark-1000 Cat 6 UTP Plenum Cable

Learn more at **Leviton.com/FLX-1**.

The Leviton OneReach™ PoE Extender System won a platinum award in the Network Support Solutions category of *Security Today's* 2022 GOVIES. These awards honor outstanding government security products. The OneReach System supports remote devices with power and data at distances far beyond traditional limitations. **Learn more at Leviton.com**.

NEWS YOU CAN USE

COMPANY

Two Leviton employees were awarded with the Distinguished Career Award by the Wire & Cable Manufacturers' Alliance (WCMA) in April. **Eric Lawrence**, senior director of engineering at Leviton Network Solutions, and **Randy Mortensen**, senior vice president of global sales and marketing for Leviton, received this prestigious award recognizing key leaders and technical contributors who make sure our industry is delivering the best products to the market.
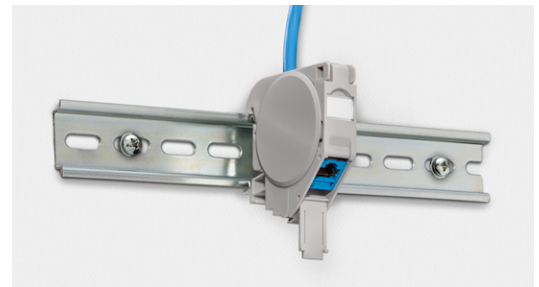

Eric Lawrence

Randy Mortensen

PRODUCT

The new **Universal QuickPort® DIN Rail Module** is an economical and compact option for deploying QuickPort data jacks and adapters in industrial cabinets and telecommunication rooms. This single-port space saving solution increases flexibility, eases network deployment, and reduces space required in telecommunications rooms. The module is sold in paper-based and fully recyclable packaging to reduce job site and landfill waste.

YESTERDAY'S NEWS

2002 – 20 years ago, 10 Gigabit Ethernet Fiber for LAN was introduced in IEEE 802.3ae-2002. It took just four years for 10 GbE speeds to reach the market after 1 GbE introduced in 1998.
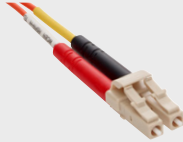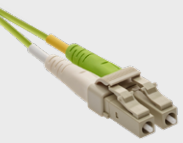
Recognizing Fiber Type By Color

Color-coding is a big help when identifying individual fibers, cable, and connectors.
For example, cable jacket color typically defines the fiber type, and can differ based on mode and performance level. These colors are typically chosen by industry standards bodies. The chart below designates fiber types for multimode and single-mode.
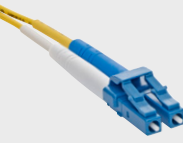
- OM1 cable jackets are orange, but some legacy OM1 cable for military applications may be slate (gray) in color.

- As shown in the table to the right, you may encounter two colors for OM4. Industry standards specified OM4 as aqua — the same color as OM3. Many manufacturers came up with their own designation color of erika violet (known as heather violet in Europe) to avoid confusion when OM3 and OM4 fiber cabling is used in the same environment.

- Identifying single-mode is easier, as there are less generations of fiber to identify. However, you may encounter green single-mode connectors that designate Angled Physical Contact (APC), where the endface is polished at an eight-degree angle.

Learn more about fiber cabling and connectivity in our **Data Center Interactive Handbook**.

Cable Type	Jacket Color	Connector / Adapter Color	Example
OM1	Orange	Beige	
OM3	Aqua	Aqua	
OM4	Aqua	Aqua	
OM4	Heather Violet	Heather Violet	
OM5	Lime Green	Beige	
OS1 / OS2	Yellow	Blue	
OS1a / OS2 (APC)	Yellow	Green	

New! Leviton LM-600 Cat 6 Dual-Rated Cable

Leviton has introduced a new Cat 6 cable with dual-listed CMR and LSZH (Low Smoke Zero Halogen) jacket ratings. Designed and manufactured at our carbon neutral Leviton facility in the UK, Leviton LM-600 is **designed to improve routing in challenging or dense environments, with a small diameter at 0.228"** and a cross-filler that absorbs stress and strain during installation.

The cable is a good fit for use with VoIP, security cameras, building access control, and PoE devices. The dual listed jacket includes CMR for installation in all riser rated pathways, plus the use of halogen free materials ensure less harmful materials are released into the air in the event of a fire.

Leviton LM-600 cable is available in 1,000 foot REELEX® boxes in blue or white jacket colors. For information about the LM-600 please contact your local **Leviton sales representative**.

TECH TIPS

Use Color-Coding to Improve Network ID

Color-coding is an effective method for network identification. It helps reduce errors during moves, adds, or changes, and can also add character when used to match corporate or school colors. Leviton offers a range of color-coding options, including new Patch Cord Color Clips. The clips attach to Leviton Cat 6A patch cord boots without impacting patching density and can be used with Leviton Atlas-X1® jack icons to provide an additional option for network identification.

- Patch Cord Color Clips are available in four colors and accept Atlas-X1 Icons
- Clips attach to Leviton Cat 6A patch cords with a compact plug and boot design (H6A10, 6AS10, 6ASP0)
- Icons are available in 13 colors, with markings for Voice, Data, and AV
- Atlas-X1 jacks are available in 13 colors and accept Atlas-X1 Icons

Learn more about your **color coding options**.

ASK THE EXPERTS

Wi-Fi 6 vs. 6E

Q: What are the main differences between Wi-Fi 6 and Wi-Fi 6E?

A: The main difference between the two is an additional frequency band of 6 GHz available with Wi-Fi 6E. Wi-Fi 6 is the latest 802.11ax standard and operates in the 2.4 GHz and 5 GHz bands, and Wi-Fi 6E adds 6 GHz for improved speed and capacity. Learn more about Wi-Fi 6E in our **recent webinar**.

Questions? Comments? Ideas?

We want to hear from you! Email: crosstalk@leviton.com