CABLING FOR THE FUTURE

Inn◆vate

THE SIEMON COMPANY NEWSLETTER I DECEMBER 2013

The Siemon Company 110th Anniversary

Technology Leadership:

Siemon Celebrates 110 Year Anniversary P04

New Webinar Series:
Siemon Kicks Off New
Educational Webinar Series P16

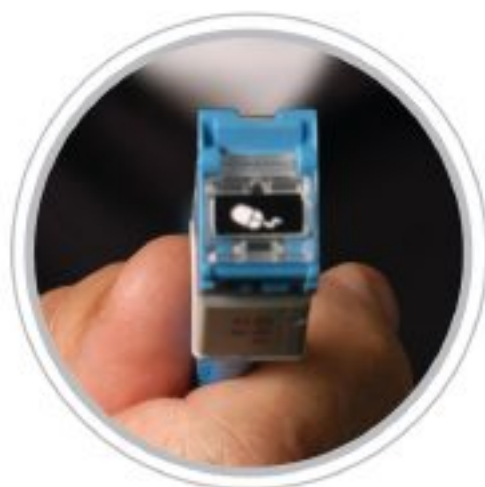# SIEMON™ DESIGNED

Z-MAX®

TO BE THE FASTEST-TERMINATING CATEGORY 6A OUTLET ON THE MARKET

▶▶ *Brandon made it even faster!*

Brandon Beckman is a technician with **i2 Solutions**, a Siemon Certified Installer℠ in Naples, FL. He is also one of the current record holders for the fastest Z-MAX 6A terminations ever!

If you want to see just how fast a Z-MAX 6A termination can be, check out the record breaking videos at **www.siemon.com/zmax/challenge/winners**

While you're there, you can find out Z-MAX's innovative, user-friendly design can help you and your company deliver high-performance Category 6A and Category 6 cabling solutions faster and more profitably than you ever thought possible.

WWW.SIEMON.COM

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Siemon's Network Infrastructure Blog

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Siemon celebrates 110 year anniversary

Siemon this year celebrates 110 years of technology leadership. Founded in 1903 in Connecticut on the strength of founder Carl F. Siemon's hardened plastic compounds and pioneering telecommunications technologies, the company has reached new heights through its ongoing product innovation and commitment to delivering superior service. And when many network connectivity providers have transitioned to overseas manufacturing operations, Siemon has kept the roots of its manufacturing excellence right here at home.

Located in Watertown, Connecticut, Siemon's Global Manufacturing Headquarters was among the first manufacturers of its kind to achieve ISO:9001 and ISO:14001 certification, underscoring the company's commitment to product quality and environmental stewardship.

The U.S. facility's advanced metal stamping, tooling, injection molding and sheet metal forming capabilities create the components that feed its highly-automated assembly operation. That, combined with an industry-leading R&D lab and engineering team that utilizes cutting-edge technologies such as 3D printing for rapid prototyping, allows the company to take their products from new ideas to finished goods, right onsite. Siemon manufactures a broad range of fiber and copper network connectivity and cable management products under their strict quality standards and process controls - a capability that produces the highest product quality, performance and consistency.

Siemon has a local presence in 38 countries, including a global network of certified installers, distributors and logistic centers servicing customers in over 100 countries, all backed by a worldwide team of technical and sales support experts In recent years, the company has reinforced its emphasis on supporting channel partners and customers with new capabilities and services such as dedicated inside sales representatives; the Standards Informant website to deliver up-to-date information on industry standards; and the online Contractor Pitstop resource, which provides news and information focused on helping Siemon's contractor partners grow their businesses.

As part of its commitment to industry advancement, Siemon remains actively involved with industry associations and standards organizations around the world, including key leadership roles in TIA, ISO/IEC and IEEE. Siemon has also succeeded in enhancing value-added services through complementary partnerships and proactive marketing relationships, including becoming a Cisco Technology Developer Partner and Tier 1 IBM Business Partner.

After 110 years, Siemon's unique family culture, product innovation, U.S. manufacturing

and commitment to continuous improvement remain stronger than ever. The company's latest copper and fiber innovations offer key performance and installation differentiators for the Data Center, LAN and Intelligent Building alike.

Following are just some of Siemon's product development milestones:

- Z-MAX® 6A shielded and UTP solution with the highest category 6A/class EA margins and fastest termination time

- TERA® fully-shielded solution that offers the highest twisted-pair copper cabling performance available

- Pre-terminated MTP Fiber Plug and Play assemblies for 10, 40 and 100Gbs applications

- BladePatch® LC fiber jumpers that revolutionize high-density patching with a patented push-pull boot design

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MAX TurboTool

Siemon has launched the MAX® TurboTool™, developed specifically for contractors and cabling professionals to significantly reduce termination time for Siemon category 5e and 6 UTP MAX outlets.

Unlike traditional single conductor punch-down tools, the new MAX TurboTool simultaneously seats and cuts all eight cable conductors, allowing a four-pair MAX UTP outlet to be terminated in a single action for increased productivity and reduced hand fatigue.

Siemon has focused its cabling expertize into Research and Development aimed at creating innovative and efficient installation tools allowing our certified installers to optimize your project installation.

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The Fastest, Highest Performing Terminations

Compared to all other RJ-45 products on the market today the Z-MAX® termination process embraces the principle that simpler is better. By establishing straight forward steps that eliminate potential errors, Siemon has been able to set a new benchmark for UTP and shielded category 6A outlet termination speed and consistency.

While speed is vital, it is also essential for the quality of the system that the installer can terminate with ease and consistency. The Z-MAX outlet was designed with the mind set that installers shouldn't have to spend too much time reading the instructions to get the job done. The intuitive design of the Z-MAX outlet optimizes each step of the termination process to eliminate errors that lead to delays and rework.

Why Z-MAX Ensures the Highest Performance... Every time

1. Zero-Cross™ termination module accelerates wire placement and lacing

2. Intuitive design optimizes each step to eliminate errors that lead to delays and rework

XLR8 Fiber Optic Solution

Unsurpassed Termination Speed - Perform more high-performance fiber terminations in less time

Ultra-Simple, User-Friendly Process - Less craft-intensive than epoxy polish, fusion and traditional mechanical splice systems, allowing less experienced technicians to deliver fiber terminations

Single-Step Termination – XLR8 tool combines splice activation and crimp into one step, eliminating fiber movement to ensure splice integrity

Foolproof Endface Protection – Connector dust cap remains in place throughout termination, protecting performance-critical connector endface.

s... Every Time

3. Rapid Z-TOOL™-based termination eliminates variability that can degrade performance

4. Easy wiring verification via color-coding on two surfaces

5. UTP and shielded outlets terminate in exactly the same way

Siemon opens data center demonstration suite

Siemon has opened a data center training and demonstration suite for its clients. The specialist facility takes over the top floor of the manufacturer's UK headquarters in Chertsey, on the outskirts of London, and will be the venue for a calendar of events and training programmes.

Equipped to showcase the latest data center infrastructure, the demonstration suite houses Siemon's complete 'ecosystem'. Central to this are the innovative VersaPOD™ cabinets with ultra-high-density, space optimizing, zero-U patching and cable management. Complementing this cabinet's air flow enhancing design, various cooling approaches are illustrated, including cold aisle containment, chimney air ducts and the latest IcePack™ liquid heat exchanger.

Read More

Siemon Introduces New RouteIT Cable Managers for High Density Cabling Systems

Siemon is pleased to announce the release of the new feature-packed RouteIT™ Vertical and Horizontal Cable Management Solution specifically designed to manage the challenges of today's high volume, high density cabling systems in telecommunications spaces and data centers.

Available in single and double sided vertical managers in a full complement of widths, and in horizontal managers with either 4 or 6-inch (101.6 or 152.3mm) management fingers, the versatile RouteIT cable managers provide a system solution for readily routing and protecting both horizontal cables and patch cords. The high capacity, field replaceable fingers can easily accommodate more than 48 category 6A cables to work seamlessly with high density patch panels and today's high density blade switches while offering a finger radius that prevents deformation of cable.

Ideal for use with Siemon's innovative VersaPOD® 4-post rack and RS series racks, the vertical RouteIT cable managers feature full length, dual hinge doors that protect and conceal cabling, a single finger latch operation for quick,

easy access from both sides and a high quality appearance. The double sided vertical manager has matching front and rear fingers and doors, and adjustable divider brackets offer flexibility to accommodate capacity where it's needed-at the front for patch cords or at the rear for horizontal cables. Available in 1, 2 and 4U sizes, the RouteIT Horizontal Cable Managers also feature removable dual hinge covers for easy access, and an optional extended width cover is available for use with Siemon's RS Series racks to conceal extended depth channels.

"As part of our commitment to offer a comprehensive line of cable management systems, we introduced the new RouteIT Vertical and Horizontal Cable Managers to specifically address high density cabling systems in a variety of telecommunications spaces,"

Dave Valentukonis, Cabling Support Systems Business Unit Manager for Siemon

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UNDERSTANDING
TOP OF RACK VS. STRUCTURED CABLING

"As data centers become more complex, cabling system design and topology become critical."

KEY ADVANTAGES OF STRUCTURED CABLING VS. TOP OF RACK

- Significantly lower capital investment for equipment, power supplies, uplinks and NICs.
- Increased port utilisation with a substantially reduced number of unused ports.
- Reduced maintenance costs due to reduced number of switches.
- Overall reduced power consumption, maximising server density and green initiatives.
- Lower cabinet-level heat loads and potential hot spots.
- Improved distances, interoperability, cost and ability to support multiple generations of equipment.
- Easy MACs and slack management in the cabinet.
- Better security, design and equipment placement.

All information below is based on an actual 39 cabinet data center, dual network, redundant power supplies, 14 servers per cabinet and four uplinks per switch.
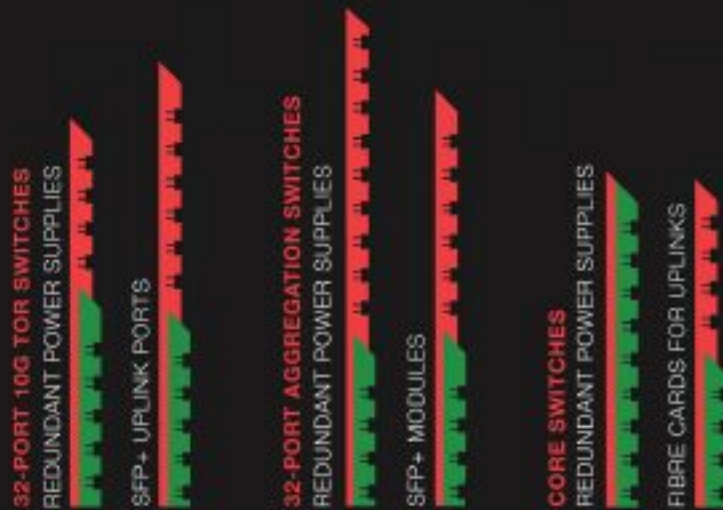
EQUIPMENT & MANTAINENCE COSTS

- $4,227,000.00
- $2,075,000.00
- $2,152,000.00

■ TOP OF RACK
■ STRUCTURED CABLING
■ SAVINGS

SWITCH PORT UTILIZATION

78 X 32 - PORT 10G TOR SWITCHES

95 X 32 - PORT 10G TOR SWITCHES

10 X 32 - PORT AGGREGATION SWITCHES

5 X 32 - PORT AGGREGATION SWITCHES

4 X FIBRE CARDS FOR CORE UPLINKS

2 X FIBER CARDS FOR CORE UPLINKS

TOP OF RACK

STRUCTURED CABLING

USED ■ | ■ USED
UNUSED ■ | ■ UNUSED

ST

POWER CONSUMPTION

- **TOP OF RACK**
- **STRUCTURED CABLING**

32-PORT 10G TOR SWITCHES
REDUNDANT POWER SUPPLIES
SFP+ UPLINK PORTS

32-PORT AGGREGATION SWITCHES
REDUNDANT POWER SUPPLIES
SFP+ MODULES

CORE SWITCHES
REDUNDANT POWER SUPPLIES
FIBRE CARDS FOR UPLINKS

"As computing needs increased, new equipment and connections were needed. Point-to-point connections resulted in cabling chaos with associated complexity and cost.

MANAGEABILITY & FLEXIBILITY

STRUCTURED CABLING 👍

FLEXIBLE & EASY
TO MANAGE
PATCHING FIELD

TOP OF RACK 👎

INFLEXIBLE
POINT-TO-POINT
CONNECTORS

COOLING CONCERNS

According to the **Uptime Institute**, the **failure rate** for equipment placed in the **top third of the rack** is **three times greater** than that of equipment located in the lower two thirds.

CONCLUSION

A standards-based **structured cabling system** provides the **best functionality** by facilitating flexibility and interoperability, better **port utilization**, significantly **lower equipment** and **maintenance costs**, reduced **power consumption**, the ability to **avoid hotspots**.

READ MORE

Discover The Advantages of Using Siemon Shielded Cabling Systems To Power Remote Network Devices

Remote powering applications utilize the copper balanced twisted-pair DC cabling infrastructure to deliver dc power to IP-enabled devices. The popularity of this technology and the interest in expanding its capabilities is staggering.

Download White Paper and View Recorded Webinar

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CONNECTING THE WORLD TO A HIGHER STANDARD

Network Middle East Great Cable Debate

Is Cat 6A cable testing needed?

Network Middle East held the debut edition of the Network Middle East Cable Debate, featuring six top global experts instructed cabling, who debated three top cabling issues at the Marina Yacht Club in Dubai.

The first topic under debate was whether Cat 6A cables need to be tested for alien crosstalk in the field. It is widely recognized that field testing of AXT is time consuming and can be inconsistent. Several of the cabling standards state that Class EA, F and FA Channels is 'met by design' if certain coupling attenuation requirements are met. This would suggest field testing is not required, however, the panelists had differing views.

What cabling will support 40GbE?

Global experts discussed what cable types are most suited to 40GbE and whether this technology is data center centric or if it can be used in buildings.

The Network Middle East Cable Debate topic two looked at what type of cabling is best suited to support 40GbE in the data center environment. Since 40GbE is not yet available, this debate looked at what the global cable standards bodies are considering to support 40GbE in the future and what type of cabling is likely to make the most sense.

Cabling in the data center of the future

While switch manufacturers are pushing for ToR data center architecture, cabling manufacturers agree that EoR is the more efficient way forward.

There is a trend today towards virtualization and servers being used to support multiple applications. With the traditional three tier hierarchy, if I need to integrate a computing server with a storage server, I have to patch through three tiers of switch architecture to allow the computing server to connect to the storage server.

VALERIE MAGUIRE Director of standards and technology, Siemon.

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Siemon Expands Global Accounts Team

Two well-known industry professionals have joined the manufacturer; Harry Bargus and Stephen Edwards, targeted to work with end user clients and the channel that serves them. Joining the Siemon EMEA team, they will be working with their colleagues in the Americas and Asia Pacific to support projects around the world.

Stephen Edwards cites Siemon's flat structure, family ownership and technical expertize as key factors in his decision to join the manufacturer. "Having a rapid route to the directors and technical experts makes for much faster response times on the most complex subjects," he said. "Siemon has very high standards and the calibre of the people employed across all its territories makes for smooth and successful project delivery."

When not busy in the IT market, Harry is consumed by his love of sport and Manchester United in particular. Meanwhile Stephen pursues his interest in photography and travel. Married with children, they explain that much of their time outside of corporate life is devoted to their families.

Harry Bargus joins Siemon as strategic accounts manager for EMEA and will be supported by projects co-ordinator Stephen Edwards. They have over 40 years industry experience between them, having originally joined the cabling market in 1989 and 1997 respectively. Harry was previously a corporate sales manager, managing global accounts, having previously set up distribution channels and an end-user focused sales team. Stephen worked with Harry as a project manager, originally working as a network manager.

His career notably began with the Ministry of Defence, working as an engineer on the Trident programme before switching to IT and retraining in network installation.

According to Harry Bargus, his move to Siemon was prompted by the manufacturer's customer focus; "Siemon has a strong reputation for the quality of its products and systems and is also known for prioritizing the customer," he explained. "This ethos matches my own belief in support, service and delivery. With truly global coverage, unmatched technical investment and a personal standard of service, Siemon offers long term customer value – a fact consistently relied upon by our major clients."

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Siemon Kicks Off New Educational Webinar Series

Siemon are happy to announce a new webinar series that will cover a broad range of educational topics, from copper and fiber structured cabling and optimized data center design, to converged networks, intelligent infrastructure management and everything in between.

With more than 100 million PoE-enabled ports purchased annually, a new 4-pair IEEE 802.3 PoE application on the horizon, and advanced standards-based technology ready to deliver up to 100 watts of power - enough to power a television - delivering data center power over twisted-pair cabling has revolutionized the look and feel of the IT world. Based on a new white paper, the first educational webinar focussed on the effects of the rising number and variety of devices supported by PoE and the need for proper selection of network cabling to eliminate the risk of damaging connectors and generating heat within cable bundles that can contribute to failures and downtime. It will include discussion of the advantages that qualified shielded category 6A and category 7A cabling systems provide when deploying remote power technology, as well as an overview of relevant standards' requirements, demonstration of power arcing effects and an update on the emerging IEEE PoE application.

"Our new free webinar series is designed to provide up-to-date information in a flexible and convenient format,"

David Wall, Global integrated marketing manager at Siemon

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New from the Siemon Blog

Improve Your Data Center Efficiency in a Snap – Free Blanking Panel Sample for Cabling Professionals

Siemon Toolless Blanking Panels help improve thermal efficiency by preventing the re-circulation of hot air through vacant rack-mount spaces within enclosures. By isolating the front of the cabinet, these panels keep cold air directed at the equipment where it is needed.

- Durable, lightweight panels Cost effective solution for data centers
- Snaps quickly into place without requiring tools
- Fits cabinets and racks with square mounting rail holes
- Easy to remove when space is ready to be used
- 1U height for maximum flexibility

75°C Rated Shielded Category 6A and 7A Solid Cables from Siemon

We are pleased to announce that all Siemon solid shielded category 6A and 7A cables sold worldwide are qualified for mechanical reliability in high temperature environments up to 75° C.

This is one of the many benefits of Siemon shielded cabling – learn more in the Shielded Copper Cabling Learning Center. This higher temperature rating is especially critical for support of the IEEE 802.3 PoE Plus (Type 2) application that exhibit a temperature rise within bundled cable configurations. For cabling infrastructure expected to support power delivery to data terminal equipment, the practice recommended by industry standards is to not install 60° C rated cables in environments above 50° C.

Data Center 3.0?

Google, IBM, Nvidia, Mellanox and Tyan work together on a new faster and more highly integrated Data Center Environment. Could this be a game changer?

Google alongside IBM, Mellanox Technologies, Nvidia and Tyan Computer are set to form a development group to improve datacentre technology. The alliance called the "OpenPOWER Consortium," an open development alliance based on IBM's POWER microprocessor architecture.

The Consortium intends to build advanced server, networking, storage and GPU-acceleration technology aimed at delivering more choice, control and flexibility to developers of next-generation, hyperscale and cloud datacentres.

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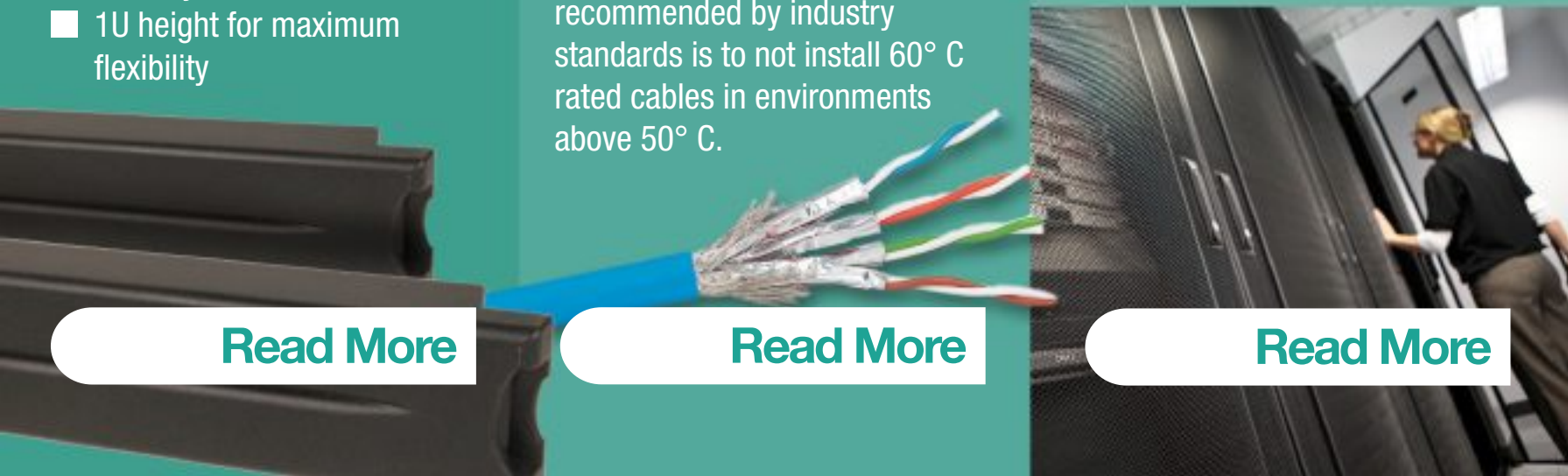
Light It Up:
Optical Fiber Transmission, Media, and Applications

It may be surprising to learn that the idea of using light waves to transmit voice signals is well over a century old. In fact, Alexander Graham Bell's "photophone" invention used a narrow beam of sunlight focused on a thin mirror that vibrated when hit by human sound waves to transmit voice signals over distances up to 700 feet in 1880!

The foundation for modern techniques of transmitting light energy was set in the 1960's when ruby lasers were first demonstrated and in the 1970's when workers at Corning Glass Works produced the first optical fiber with signal losses less than 20 dB/km. Since then, tremendous strides have been made in the refinement of semiconductor laser and light emitting diode light sources, as well as the optical fiber cables and components used to support the transmission of light energy.

While optical fiber cabling expertize is commonly thought to fall within the domain of service providers, it can not be overlooked that optical fiber cabling plays an important role in supporting customer-owned telecommunications infrastructures as well. Beyond supporting long-length runs installed between buildings or points in a customer-owned campus environment (commonly referred to as "outside plant cabling"), it's interesting to note that, on average, 20% of the cabling installed in the enterprise and 40% of the cabling installed in the data center (particularly between storage devices) is optical fiber cabling. While balanced twisted-pair copper cabling may still be the media of choice due to familiarity, perceived ease-of-termination compared to optical connections, and significantly lower equipment costs, the following benefits are compelling reasons to consider optical fiber cabling in your IT infrastructure:

- Extended distance support beyond the balanced twisted-pair limit of 100 meters
- Smaller media (e.g. two category 6A cables occupy the same space as one 216 fiber cable)
- Lighter media (e.g. 108 category 6A cables weighing 1,000 pounds or one 216-fiber cable weighing 40 pounds can be used to support 108 channels that are 200 feet long)
- Significantly higher port density in the telecommunications closet and line card density in the data center (up to 1,728 in a 4U housing)
- Smaller pathways required for fiber
- Improved air flow due to less cable damming
- Media robustness; optical fiber cabling can withstand double the pull tension of balanced twisted-pair cabling (50 lbf versus 25 lbf)
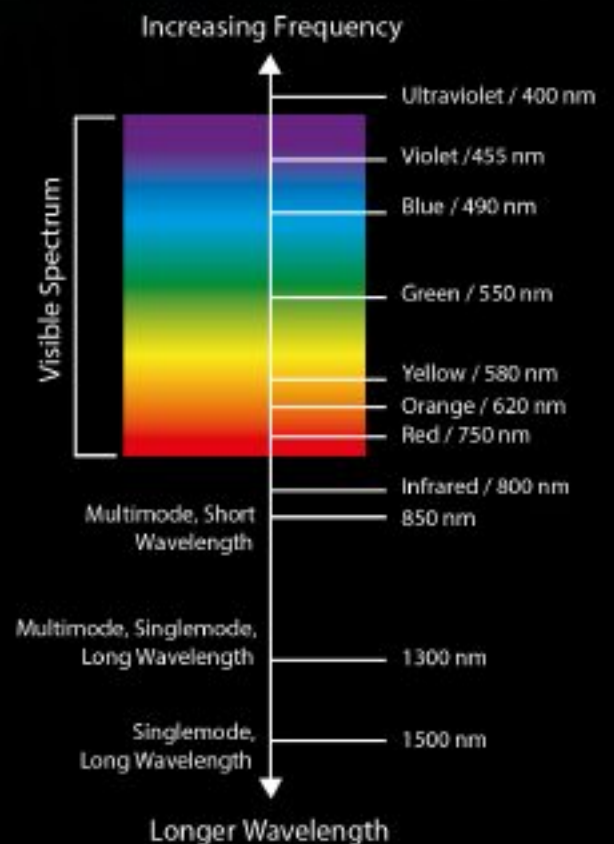- Reduced equipment power consumption and cooling costs

- Centralized optical cabling may be used when deploying centralized equipment in the horizontal to eliminate the need for an optical cross connect
- Support of passive optical LAN (POL) solutions
- Immune to electromagnetic and radio frequency interference (EMI/RFI)
- Immune to lightning strikes

Signal Transmission over Optical Fiber Cabling:

Optical communication is the transmission of photon (or light) energy through a low-loss waveguide whose function is to propagate the light signals over long distances. In telecommunications systems, the source of the photon energy may be a light emitting or a semiconductor laser diode, whose function is to produce light energy at a single wavelength. By turning the light source on and off quickly, streams of ones and zeros can be transmitted to form a digital communica- tions channel. LED and laser light sources vary considerably with respect to their cost, transmit speed, and physical properties.

The wavelength of the optical light source describes the frequency of the transmitted light wave (the longer the wave-length, the lower the frequency of the light wave) and has been selected to best match the transmission properties of recognized optical fiber types. A helpful analogy is to think of "wavelength" as the color of the light signal that is being transmitted.

Increasing Frequency

Ultraviolet / 400 nm
Violet / 455 nm
Blue / 490 nm
Green / 550 nm
Yellow / 580 nm
Orange / 620 nm
Red / 750 nm
Infrared / 800 nm

Visible Spectrum

Multimode, Short Wavelength — 850 nm
Multimode, Singlemode, Long Wavelength — 1300 nm
Singlemode, Long Wavelength — 1500 nm

Longer Wavelength

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St. Louis Art Museum

Category 6A and Category 7A cabling the St. Louis Art Museum for today and

Over the past 125 years, SLAM has acquired collections that place it among the ten most comprehensive art museums in the country. With more than half a million visitors each year viewing works from distinguished artists like Martisse, Van Gogh, Picasso, Monet and Gauguin, SLAM had outgrown its main building that was originally constructed for the 1904 World's Fair. SLAM's expansion includes a new 224,000-square-foot East Building that increases the museum's public space by more than 30 percent, expanded education facilities in the South Building, 300 additional parking spaces and a new fully accessible entrance.

Forest Park in the heart of St. Louis has hosted its share of events throughout its 137-year history, including the 1904 World's Fair and Summer Olympics. Now home to a variety of attractions like the St. Louis Zoo, Science Center and Missouri History Museum, this 1,371-acre public space recently hosted another event--the privately funded $130-million expansion of the iconic St. Louis Art Museum (SLAM).

Designed in keeping with the original 1904 structured by the independent firm Arup (www.arup.com), the expansion project also includes extensive improvements to the entire museum that address existing infrastructure deficiencies, including the network cabling

m
equip
d the future.

infrastructure. While few can see the relationship between classic works of art and state-of-the-art networking, Jason Stockmann, SLAM's director of information technology, knew he needed the right cabling infrastructure solution to support the museum's technology objectives.

A new specification

When it came to designing the cabling infrastructure for the museum, Stockmann and the design engineering firm of William Tao & Associates (www.wmtao.com) felt the original Category 5e specification with a maximum 1-Gbit/sec transmission rate was a very "watered down" version of what would be required to support the museum's objective of a converged Internet Protocol (IP) network.

"While we never tell our clients what to use, if they are considering a technology that is on the way out, or if the applications being

The data center connecting the museum's 26 telecommunications rooms uses these RazorCore 50-micron lazer optimized trunk cables, as part of Siemon's Plug and Play system.

considered call for something else, we work with the client to suggest the right technology for their needs," says Janis Christopher, RCDD, telecommunications project engineer with William Tao & Associates. The firm also designed the lighting, audio/visual, sound, security, building-automation, fire-protection and plumbing systems for the project and provided Leadership in Energy and Environmental Design (LEED) design and management services. In addition to voice and data, the museum wanted to deploy IP-based security, audio/visual, video, lighting, environmental controls, adjustable shades and parking-garage security with complete remote-control capabilities.

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"From identifying the appropriate solutions right down to the face plates and the training, working with Siemon was seamless. But cabling isn't just cabling–the people behind it make the difference, and Siemon definitely made a difference."

Jason Stockmann, Director of Information Technology, St. Louis Art Museum