



SEDGWICK COUNTY, KANSAS
DIVISION OF FINANCE
PURCHASING DEPARTMENT
525 N. Main, Suite 823 ~ Wichita, KS 67203
Phone: 316 660-7255 Fax: 316 383-7055

<http://www.sedgwickcounty.org/finance/purchasing.asp>

REQUEST FOR BID
#16-0014
DARK FIBER INSTALLATION

February 4, 2016

Sedgwick County, Kansas (hereinafter referred to as "County") is seeking a firm to provide, install, terminate and test dark fiber from the datacenter located at 510 N Main to 271 W 3rd. If your firm is interested in submitting a response, please do so in accordance with the instructions contained within the attached Request for Bid.

Sincerely,

A handwritten signature in cursive script that reads "Kimberly Evans".

Kim Evans
Purchasing Agent

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I. Purpose

Sedgwick County, located in south-central Kansas, is one of the most populous of Kansas' 105 counties with a population estimated at more than 508,000 persons. It is the sixteenth largest in area, with 1,008 square miles, and reportedly has the second highest per capita wealth among Kansas' counties. Organizationally, the County is a Commission/Manager entity, employs nearly 2,800 persons, and hosts or provides a full range of municipal services, e.g. – public safety, public works, criminal justice, recreation, entertainment, cultural, human/social, and education.

Sedgwick County is seeking a firm to provide, install, terminate and test dark fiber from 510 N Main to 271 W 3rd, Wichita, KS 67203.

II. Submittals

Carefully review this Request for Bid. It provides specific technical information necessary to aid participating firms in formulating a thorough response. Should you elect to participate, submit one (1) original **AND** one (1) electronic copy (PDF/Word supplied on a flash drive) of the entire document with any supplementary materials to:

Kimberly Evans
Sedgwick County Purchasing Department
525 N. Main, Suite 823
Wichita, KS 67203

SUBMITTALS are due **NO LATER THAN 1:45 p.m. CST, TUESDAY, February 23rd, 2016**. Responses must be sealed and marked on the lower left-hand corner with the firm name and address, bid number, and bid due date. Late or incomplete responses will not be accepted and will not receive consideration for final award.

Bid responses will be acknowledged and read into record at bid opening which will occur at 2:00 p.m. CST, on the due date.

III. Scope of Work

- 48 strands of fiber (24 single mode, 24 multi mode) to be ran from 510 N Main, 2nd floor datacenter to 271 W 3rd, Wichita, KS 67203 4th floor datacenter.
- Terminated with LC connectors
- Labeled
- Tested-test results to be provided to Sedgwick County.
- Work **MUST** comply with all building code, laws and ordinances.
- Project to be complete and accepted by county staff **no later than June 1, 2016**.

Attachment A to this document includes specific guidelines and standards that successful bidders must comply with.

IV. Sedgwick County's Responsibility

- Provide information, as legally allowed, in possession of the County, which relates to the County's requirements or which is relevant to this project.
- Designate a person to act as the County Contract Manager with respect to the work to be performed under this contract.

V. Bid Terms

A. Questions and Contact Information

Any questions regarding this document must be submitted in writing to Kim Evans at Kimberly.J.Evans@sedgwick.gov by 5:00 p.m. CST Wednesday, February 10, 2016. Any questions of a substantive nature will be answered in written form as an addendum and posted on the purchasing website at www.sedgwickcounty.org/finance/purchasing.asp, under view current RFQs and RFPs; to the right of the RFP number by 5:00 p.m. CST Tuesday, February 16, 2016. Firms are responsible for checking the website and acknowledging any addendums on their bid response form.

B. Minimum Qualifications

This section lists the criteria to be considered in evaluating the ability of firms interested in providing the service(s) and/or product(s) specified in this Request for Bid. Firms must meet or exceed these qualifications to be considered for award. Bids submitted must reflect in detail their inclusion as well as the degree to which they can be provided. Any exceptions to the requirements listed should be clearly detailed in proposer’s response.

Bidders shall:

1. Have proper certification(s) or license(s) for the services/product specified in this document.
2. Ensure that project work meets all local, state and federal laws, regulations and ordinances.
3. Have the capacity to acquire all required permits, bonds, escrows or insurances.
4. Provide appropriate project supervision and quality control procedures.
5. Have appropriate material, equipment and labor to perform job safely and efficiently. *All costs associated with meeting this requirement will be the sole responsibility of the vendor.*

C. Selection Criteria

An award will be made to the lowest responsible and responsive bidder.

D. Request for Bid Timeline

The following dates are provided for information purposes and are subject to change without notice. Contact the Purchasing Department at (316) 660-7255 to confirm any and all dates.

Distribution of Request for Bid to interested parties	February 4, 2016
Clarification, Information and Questions submitted in writing by 5:00 p.m. CST	February 10, 2016
Addendum Issued	February 16, 2016
Sealed Bid due before 1:45pm CST	February 23, 2016
Evaluation Period	February 24-March 2, 2016
Board of Bids and Contracts Recommendation	March 3, 2016
Board of County Commission Award	March 9, 2016

E. Contract Period and Payment Terms

A contractual period will begin following Board of County Commissioners (BoCC) approval of the successful firm(s) and continue until project has been completed and approved by both parties.

Either party may cancel its obligations herein upon thirty-day (30) prior written notice to the other party. It is understood that funding may cease or be reduced at any time, and in the event that adequate funds are not available to meet the obligations hereunder, either party reserves the right to terminate this agreement upon thirty (30) days prior written notice to the other. Payment will be remitted following receipt of monthly detailed invoice.

Payment and Invoice Provisions

http://www.sedgwickcounty.org/purchasing/payment_and_invoice_provisions.pdf

F. Insurance Requirements

Worker’s Compensation:	
Applicable State Statutory Employer’s Liability	
Employer’s Liability Insurance:	\$100,000.00
Contractor’s Liability Insurance:	
Form of insurance shall be by a Commercial General Liability and include Automobile comprehensive/liability	
Bodily Injury:	
Each Occurrence	\$500,000.00
Aggregate	\$500,000.00
Property Damage:	
Each Occurrence	\$500,000.00
Aggregate	\$500,000.00

Personal Injury:	
Each Person Aggregate	\$500,000.00
General Aggregate	\$500,000.00
Automobile Liability-Owned, Non-owned and Hired	
Bodily Injury Each Person	\$500,000.00
Bodily Injury Each Occurrence	\$500,000.00
Professional Liability	\$500,000.00

Liability insurance coverage indicated below must be considered as primary and not as excess insurance. Contractor shall furnish a certificate evidencing such coverage, with County listed as an additional insured, except for professional liability, workers' compensation and employer's liability. Certificate shall be provided with bid/proposal submittals. Certificate shall remain in force during the duration of the project/services and will not be canceled, reduced, modified, limited, or restricted until thirty (30) days after County receives written notice of such change. All insurance must be with an insurance company with a minimum BEST rating of A-VIII and licensed to do business in the State of Kansas. It is the responsibility of Contractor to require that any and all approved subcontractors meet the minimum insurance requirements. Contractor shall obtain the above referenced certificate(s) of insurance, and in accordance with this Agreement, provide copies of such certificates to County.

G. [Indemnification](#)

To the fullest extent of the law, the provider, its subcontractor, agents, servants, officers or employees shall indemnify and hold harmless Sedgwick County, including, but not limited to, its elected and appointed officials, officers, employees and agents, from any and all claims brought by any person or entity whatsoever, arising from any act, error, or omission of the provider during the provider's performance of the agreement or any other agreements of the provider entered into by reason thereof. The provider shall indemnify and defend Sedgwick County, including, but not limited to, its elected and appointed officials, officers, employees and agents, with respect to any claim arising, or alleged to have arisen from negligence, and/or willful, wanton or reckless acts or omissions of the provider, its subcontractor, agents, servants, officers, or employees and any and all losses or liabilities resulting from any such claims, including, but not limited to, damage awards, costs and reasonable attorney's fees. This indemnification shall not be affected by any other portions of the agreement relating to insurance requirements. The provider agrees that it will procure and keep in force at all times at its own expense insurance in accordance with these specifications.

H. [Confidential Matters and Data Ownership](#)

The successful proposer agrees all data, records and information, which the proposer, its agents and employees, which is the subject of this bid, obtain access, remains at all times exclusively the property of Sedgwick County. The successful proposer agrees all such data, records, plans and information constitutes at all times proprietary information of Sedgwick County. The successful proposer agrees that it will not disclose, provide, or make available any of such proprietary information in any form to any person or entity. In addition, the successful proposer agrees it will not use any names or addresses contained in such data, records, plans and information for the purpose of selling or offering for sale any property or service to any person or entity who resides at any address in such data. In addition, the successful proposer agrees it will not sell, give or otherwise make available to any person or entity any names or addresses contained in or derived from such data, records and information for the purpose of allowing such person to sell or offer for sale any property or service to any person or entity named in such data. Successful proposer agrees it will take all reasonable steps and the same protective precautions to protect Sedgwick County's proprietary information from disclosure to third parties as with successful proposer's own proprietary and confidential information. Proposer agrees that all data, regardless of form that is generated as a result of this Request for Bid is the property of Sedgwick County.

I. [Bid Conditions](#)

[Request for Bid Conditions](#)

VI. Required Response Content

Bid response should include the following:

1. Lump sum project cost, including material and labor.
2. Any exclusions clearly delineated.

END OF SECTION

VII. Response Form

REQUEST FOR BID

#16-0014

DARK FIBER INSTALLATION

The undersigned, on behalf of the Bidder, certifies that: (1) this offer is made without previous understanding, agreement or connection with any person, firm, or corporation submitting a bid on the same project; (2) is in all respects fair and without collusion or fraud; (3) the person whose signature appears below is legally empowered to bind the firm in whose name the bidder is entered; (4) they have read the complete Request for Bid and understands all provisions; (5) if accepted by the County, this bid is guaranteed as written and amended and will be implemented as stated; and (6) mistakes in writing of the submitted bid will be their responsibility.

NAME _____

DBA/SAME _____

CONTACT _____

ADDRESS _____ CITY/STATE _____ ZIP _____

PHONE _____ FAX _____ HOURS _____

STATE OF INCORPORATION or ORGANIZATION _____

COMPANY WEBSITE ADDRESS _____ E-MAIL _____

NUMBER OF LOCATIONS _____ NUMBER OF PERSONS EMPLOYED _____

TYPE OF ORGANIZATION: Public Corporation _____ Private Corporation _____ Sole Proprietorship _____

LLC _____ LLP _____ Not For Profit Corporation _____ Partnership _____ Other (Describe): _____

BUSINESS MODEL: Small Business _____ Manufacturer _____ Distributor _____ Retail _____

Dealer _____ Other (Describe): _____

____ Not Minority/Caucasian (00) publicly traded companies and nonprofits are in this category

____ African American (05) ____ Asian Pacific (10) ____ Subcontinent Asian (15) ____ Hispanic (20) ____

Native American (25) ____ Other (30) - Please specify ____ Not Minority/Caucasian – Woman Owned (50) ____

African American – Woman Owned (55) ____ Asian Pacific – Woman Owned (60) ____ Subcontinent Asian – Woman

Owned (65) ____ Hispanic – Woman Owned (70) ____ Native American – Woman Owned (75)

____ Other – Woman Owned (80)

ARE YOU REGISTERED TO DO BUSINESS IN THE STATE OF KS: _____ Yes _____ No

(Please see item 24 in the Request for Bid Terms and Conditions)

ACKNOWLEDGE RECEIPT OF ADDENDA: All addendum(s) are posted to our RFQ/RFP web page and it is the vendor's responsibility to check and confirm all addendum(s) related to this document by going to www.sedgwickcounty.org/finance/purchasing.asp.

NO. _____, DATED _____; NO. _____, DATED _____; NO. _____, DATED _____

- Yes, I would like to be on the emergency vendor list.
- No, I would not like to be on the emergency vendor list.

After Hours Phone #: _____ Emergency Contact Name: _____

After Hours Fax #: _____

In submitting a response to this document, vendor acknowledges acceptance of all sections of the entire document and has clearly delineated and detailed any exceptions.

Signature _____ Title _____

Print Name _____ Dated _____

SEDGWICK COUNTY

Product and Installation Specifications for Building Data Communication Cabling

August 2015

1. OVERVIEW

This document is the specification for the installation of Structured Cabling Systems at Sedgwick County. The data part is suitable for the provision of high speed Ethernet communications for individual buildings. The principle use of this practice is for the construction of new building, major renovations, or additions to cable plant.

1.1 General Scope

The practice basically follows the relevant EIA, TIA, CSA standards and architectures for commercial buildings. As such, it is focused on the facilities required within a building not the inter-building facilities that are required to ensure a comprehensive County wide network. For specifications of telecommunications rooms see the County document "Communications Infrastructure Specifications, Standards and Practices "and for conduit sizes see the EIA/TIA 569B standard.

The practice aims to ensure a cabling system that will give a predictable, consistent and flexible subsystem with a substantial lifetime for the applications that Sedgwick County needs. It specifies Cat 6 cable for the horizontal UTP copper systems. The formerly specified Cat5e cable has been replaced by Cat6 cable. This practice specifies which OEMs can be used. Recommended OEMs include, but are not limited to, Belden, Commscope, Panduit and Leviton. It will be noted that for telecommunications rooms, there is single vendor approach for the piece parts such as racks, power distribution units and cable management subsystems. This is done for consistency to make it easier for technicians to service and expand the facilities in those rooms.

1.1.1 This document specifies the requirements for the installation of all horizontal UTP cabling and all copper/fiber backbone cabling to support voice and data applications in a new or renovated space. It should be noted that Category 6 cabling is specified in the vertical riser in addition to fiber.

1.1.2 The cabling contractor shall supply and install a complete telecommunications cabling system based on a physical star wiring topology that is designed in accordance with practices recommended by the Building Industry Services International (BICSI) organization. Furthermore, the cabling contractor shall include all communication outlets, terminating hardware and selected connectivity devices as outlined in this specification.

1.1.3 It is the responsibility of the cabling contractor to report any errors and/or omissions in this specification with their bids.

1.2 Inquiries Bidders who find discrepancies or omissions in this specification, or who have any doubt as to the meaning or intent of any part of this specification, shall direct their questions or other inquiries by email or facsimile to the Manager, Network Implementation, I+TS/ Enterprise Infrastructure Solutions of Sedgwick County.

2. PRODUCT AND INSTALLATION STANDARDS

2.1 The equipment, material and installation shall conform to the latest version of the applicable codes, standards and regulations of authorities having jurisdiction.

2.2 All components supplied and/or installed will support current applications and any future application introduced by recognized standards or user forums that use EIA/TIA 568 component and link/channel specifications for cabling.

CONTINUED ON NEXT PAGE

2.3 The specifications detailed in this document are accompanied by EIA/TIA and/or CSA requirements both for product and installation practices. The following are communications standards documents that must be adhered to:

Standard	Title
ANSI/TIA-568-C.0	Generic Telecommunications Cabling for Customer Premises
ANSI/TIA-568-C.1	Commercial Building Telecommunications Cabling Standard
ANSI/TIA-568-C.2	Balanced Twisted-Pair Telecommunication Cabling and Components Standard
ANSI//TIA-568-C.3	Optical Fiber Cabling Components Standard
ANSI/EIA/TIA-569-A	Commercial Building Standard for Telecommunications Pathways and Spaces
ANSI/EIA/TIA-606(A)	Administration Standard for the Telecommunications Infrastructure of Commercial Buildings Product and Installation Specifications for Building Data Communication Cabling 5
ANSI/EIA/TIA-607(A)	Commercial Building Grounding and Bonding Requirements for Telecommunications
ANSI/EIA/TIA-598	Color Coding of Fiber Optic Cables
ANSI/EIA/TIA-455	Test Procedures For Fiber Optics, Cables and Transistors
ANSI/EIA/TIA-604-3	FOCIS 3 Fiber Optic Connector Intermatability Standard
ANSI/ICEA S-83-596	Fiber Optic Premises Distribution Cable
ANSI/ICEA S-83-640	Fiber Optic Outside Plant Communications Cable
ANSI/NECA/BICSI-568	Standard for Installing Commercial Building Telecommunications Cabling

3. PRODUCT SPECIFICATIONS

3.1 General Conditions

3.1.1 This document specifies that the horizontal structured cabling system shall be a single manufacturer end-to-end solution. Recommended manufacturers include, but are not limited to, Panduit TX 6000™ System, Belden IBDN 2400 System, Commscope Gigaspeed XL, and Hubbell NEXTSPEED Cat.6 AMP Connect solution. See appendices for examples of vendor product list and part numbers. It is recommended to consult vendors on current product offerings. Product and Installation Specifications For Building Data Communication Cabling 6.

3.1.2 The Cat 6 end-to-end system solution shall meet or exceed 250MHz in the channel. Third party test results shall be required such as ETL test results. In house manufacturer test results are not acceptable.

3.1.3 Products installed must meet or exceed all local, provincial and federal building, fire, health, safety and electrical codes.

3.1.4 The cabling contractor is responsible for complete storage, handling, delivery, and installation of all materials used in the performance of the work.

3.1.5 The cabling contractor is responsible for keeping the workplace clean, safe and free from debris at all times. All debris must be removed from the site on a daily basis. The costs for cleaning are the responsibility of the cabling contractor.

3.2 Cabling Support Structure

3.2.1 The cabling contractor is to supply and install cable support system and any other miscellaneous hardware required for supporting all horizontal cabling where conduit or cable tray has not been provided. All horizontal cabling must be supported at 48" to 60" intervals.

3.2.2 Where required by local codes all cabling shall be installed in metallic EMT conduit.

3.3 Communications Cabling Category 6 Horizontal Data Cable

3.3.1 The horizontal data cabling shall be solid copper, blue unshielded twisted pair (UTP), 4- pair, 23 AWG, CMP rated (FT6) or CMR rated (FT4), Category 6 cable as applicable. Acceptable examples of cables are Panduit TX 6000TM System, Belden IBDN 2400 System, Commscope Gigaspeed XL, or Hubbel NEXTSPEED Cat6 AMP Connect solution.

3.3.2 The cable shall be tested and characterized to 350 MHz and have a positive PSACR above 250 MHz. It shall also be UL listed.

3.3.3 The jacket shall be printed with a 1000' to 0' marking system and/or 333 meters to 0 meters system.

3.4 Work Area Outlet Solutions Category 6 Modular Jacks

3.4.1 Horizontal UTP Category 6 data cabling to be terminated at the workstation shall be terminated with modular 8 position, 8 wire RJ45 connector. Recommended OEMs include, but are not limited to Panduit, Belden, Commscope or Hubbell. Modules are to be wired as per T568A. Modular data jacks shall be blue in color except when used for wireless applications in which case they shall be orange in color.

3.4.2 The approved horizontal UTP Category 6 voice cabling to be terminated at the workstation shall be terminated with modular 8 position, 8 wire RJ45 connector. Recommended OEMs include, but are not limited to Panduit, Belden, Commscope or Hubbell. Modules are to be wired as per T568B. Modular voice jacks shall be blue in color.

3.4.3 Modular jacks must meet FCC Part 68 Subpart F; contacts are to be plated with 50 micro inches of gold.

3.4.4 Modular jack contacts shall have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance as per the IEC60603-7 specification.

3.4.5 Jack termination shall utilize a paired termination sequence. Maintain untwist to a maximum of ½ inch during termination. Leave one (1) foot or thirty (30) centimeters of cable slack in the ceiling above each work area outlet location. If the cable is installed in conduit leave one (1) foot or thirty (30) centimeters of cable slack in the closest pull box and or cable tray.

Work Area Patch Cords

3.4.6 Patch cords shall be stranded Category 6 and meet or exceed FCC Part 68 and IEC 60603-7 specifications. The plug shall have contacts plated with 50 micro inches of gold for improved durability and have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance.

3.4.7 The patch cord shall be blue in color and shall be ten (10) feet or three (3) meters in length except when used for wireless applications in which case they shall be orange in color and shall be no more than seven (7) feet or two (2) meters in length.

3.4.8 Patch cords shall be manufacturer assembled and verified. Some of recommended manufacturers are Panduit, Belden, Commscope, and Hubbell. Flush Mounted Faceplates

3.4.9 The horizontal UTP cabling shall be terminated at the workstation on a flush mounted wall plate. Each faceplate shall be 4 or 6 ports on a single gang to allow for future growth. All unused ports will have blank modules installed.

3.4.10 Faceplates shall be UL listed and CSA Certified. Furniture Faceplates

3.4.11 Horizontal UTP cabling terminated at the workstation in systems furniture shall use a four-port faceplate. All unused ports shall be filled in with blank inserts.

3.5 Telecommunications room termination solutions

Horizontal Data Cable Terminations

3.5.1 All data Cat 6 horizontal UTP cabling shall be terminated on RJ45 modular jacks and connected to modular rack mount patch panels. The modular patch panels shall be mounted in a standard 19" rack.

3.5.2 Modular patch panels shall be 24 or 48 port modular panels and shall be black in color. RJ45 modular jacks shall be used to connect to modular patch panels.

3.5.3 Leave ten (10) feet and or three (3) meters of slack in the telecommunications room to allow for future rack relocation if required. Do not store the slack in bundled loops. Cable slack should be stored in an extended loop or in figure eight.

Telecom Room Patch Cords

3.5.5 Patch cords shall be stranded Category 6 and meet or exceed FCC Part 68 and IEC 60603-7 specifications. The plug shall have contacts plated with 50 micro inches of gold Product and Installation Specifications For Building Data Communication Cabling 9 for improved durability and have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance.

3.5.6 Data patch cords shall be blue in color and shall be seven (7) feet and or two (2) meters in length unless otherwise specified.

3.5.7 Approved patch cords shall be manufacturer assembled, tested and verified. Some of recommended manufacturers are Panduit, Belden, Commscope or Hubbell.

Fiber Optic Backbone Cabling – Singlemode

3.5.9 The approved intra-building singlemode fiber optic backbone cables shall be 9/125um OS2 and constructed with Corning optical fiber. Indoor cables shall be tight buffered with CMP (FT6) or CMR (FT4) where applicable. If needed, outdoor cables shall be loose tube CMR (FT4) outdoor rated fiber optic cable. Recommended manufacturers are Panduit, Belden, Commscope, Corning, and Hubbell.

3.5.10 The approved intra-building singlemode fiber optic backbone cables from the Building Entrance Facility (BEF) to the Telecommunications Room (TR) shall be a minimum twelve (12) strand cable unless otherwise specified by Sedgwick County.

3.5.11 Cable to be formed into groups of 12 fibers. Groups and individual fibers shall be identified in accordance with ANSI/EIA/TIA-598-A

3.5.12 Fiber optic cable groups shall be assembled to form a single compact core and covered by a protective sheath. The sheath shall consist of an overall jacket and one or more layers of dielectric material applied over the core. Fiber Optic Connectors

3.5.13 The fiber optic connectors must be field installable connectors. The connectors shall be LC style UPC for both inter-building backbone cables and intra-building backbone cables. All connectors are to meet ANSI/EIA/TIA and IEC standards for repeatability.

3.5.14 The connector shall be capable of terminating on either 900 micron tight-buffered cable, 3.0 mm jacketed fibers or 250 micron loose tube fibers. The connector shall also have a zirconia ceramic ferrule for both multimode and singlemode connectors and must have a locking feature to the coupler.

3.5.15 The connector shall provide a strain relief mechanism for installation on a single fiber. The fiber within the body of the connector shall be isolated mechanically from cable tension bending and twisting as per ANSI/TIA-568-C.3.

Fiber Optic Patch Panels

3.5.16 The fiber optic patch panel shall be rack mountable in a 19" rack and black in color. The panels shall comply with ANSI/TIA-568-C.3 (connecting hardware section).

Recommended manufacturers include, but are not limited to Panduit, Belden, Commscope, Corning and Hubbell.

3.5.17 The fiber optic patch panel shall have a slide out shelf or swing out drawer for access to the fiber terminations, adapter panels for patching.

3.5.18 The fiber optic patch panel shall provide for bend radius control and use a strain relief to accommodate the fiber optic cables.

3.5.19 The fiber optic patch panel shall be capable of terminating tight buffered and loose tube multimode or singlemode fiber optic cables.

Fiber Optic Patch Cords

3.5.20 Dual fiber optic patch cords are to be singlemode 9/125um. Connector types on ends of patch cords to be determined by Sedgwick County.

3.5.21 Patch cords to be factory assembled and verified. Fiber patch cords shall comply with ANSI/TIA-568-C.3

3.5.22 The color of the singlemode patch cords will be yellow. The length of the patch cords will be ten (10) feet or three (3) meters unless otherwise specified. Recommended manufacturers include, but are not limited to, Panduit, Belden, Commscope, Corning and Hubbell.

3.6 Rack and Cable Management System

Telecommunication Racks

3.6.1 Telecommunication racks shall be 19", floor mounted, black in color, accommodate a minimum of 45 rack unit space, and have anchor holes in the base. Each rack shall be equipped with one (1) duplex outlet on a dedicated 15 A, 120 V, isolated ground circuit. Panduit CMR series rack part number 19X84S is an example of a recommended manufacturer.

3.6.2 All telecommunications racks are to be fitted with one (1) black 10 outlet horizontal, rack mount, power strip.

3.6.3 All racks are to be equipped with a Telecommunications rack ground bar, example Panduit TRGB19.

3.6.4 The color of the rack and accessories shall be black.

Vertical Cable Management

3.6.5 A six inch (6") vertical cable manager is to be provided on each side of the 19" inch rack, except where racks are ganged together. Panduit patch runner PRVF6 (vertical manager), PRD6 (door) or equivalents shall be used.

3.6.6 Where racks are ganged together utilize an eight inch (8") PRVF8 (vertical manager), PRD8 (door) or equivalents between the racks. Depending on the number of horizontal drops where racks are ganged together the twelve inch (12") PRVF12 (vertical manager), PRD12 (door) or equivalent shall be used.

3.6.7 The vertical cable manager shall have a metal door that hinges open from the right or left.

3.6.8 The vertical cable manager shall have bend radius control built into the manager so as patch cables transition into the manager they are not resting on a sharp edge.

Horizontal Cable Management

3.6.9 One (1) horizontal cable manager per copper patch panel is to be provided. Managers are to be 1U for 24 port patch panel or 2U for 48 port patch panel.

3.6.10 The horizontal cable manager door shall hinge up or down, must have bend radius control built into the slots for patching and transitioning into the vertical managers and must have retaining clips.

3.6.11 The color of the horizontal cable manager shall be black. Panduit PatchLink series, WMPFSE, WMPHF2E is an example of an acceptable product.

3.7 Raceway Solutions

3.7.1 All single channel or multi-channel Raceway solutions and accessories installed shall be Panduit, Wiremold, or equivalent.

3.7.2 All Raceway shall be installed to the recommended practices of the manufacturer and all applicable electrical codes. All accessories shall have bend radius control built in for communications cabling as per the ANSI/EIA/TIA 569 –A standard.

3.8 Grounding and Bonding

3.8.1 The grounding and bonding of the telecommunications system shall meet all local, provincial and national codes and bylaws.

3.8.2 All grounding and bonding shall be installed as per ANSI/EIA/TIA 607(A)

3.8.3 A separate ground should be established for the telecommunications system. Where this is not possible the telecommunications system ground shall be tied into the building/electrical ground.

3.8.4 A communications ground that is continuous and permanent through all telecommunication rooms must be established.

3.8.5 All racks and cabinets must be grounded to the telecommunications grounding system using 6 AWG green insulated stranded copper ground wire. All racks are to be equipped with Panduit TRGB19 telecommunications rack ground bars or equivalent.

3.9 Miscellaneous

Test Equipment

3.9.1 The cabling contractor is to use the Fluke DTX series scanner or equivalent with the latest version of firmware to test the UTP cabling system. All optical fiber shall be tested with a light source meter. (Details in the testing section of this document.)

Spiral Wrap

3.9.2 Cables running from system furniture feed points to the system furniture shall be neatly wrapped with Panduit T50R-C series spiral wrap and or PW series Pan Wrap or equivalent. Cabling contractor to size the spiral wrap accordingly.

Fire Stopping

3.9.3 The cabling contractor must supply and install all required fire stopping materials to reestablish the integrity of any and all fire-rated architectural structures and assemblies they have worked on. Mechanical systems consisting of standard conduit, sleeves, cored holes and all horizontal and backbone pathways that penetrate fire-rated barriers shall be fire stopped. The cabling contractor must install an approved fire-stop material recommended by CSA, ULC or UL in accordance with all applicable codes. Intumescent putties and or cementitious materials with a minimum three (3) hour rating shall be used.

4. INSTALLATION

The approved contractors that have been chosen to participate in this bid shall be a certified installer. The contractor shall have a minimum of five (5) years industry experience and have been trained in the proper installation practices as per ANSI/TIA- 568-C. All contractors shall have manufacturer trained technicians with a minimum of two (2) years installation experience.

4.1 General Conditions

4.1.1 The approved cables and components must be installed and terminated in accordance with the ANSI/TIA-568-C standard. Particular attention must be given to maintaining the integrity of the pair twists, bend radius and ensuring proper distance is kept from fluorescent light fixtures, electrical cables or any other source of EMI.

4.1.2 Leave ten (10) feet and or three (3) meters of slack in the telecommunications room to allow for future rack relocation if required. Do not store the slack in bundled loops. Store cable slack in an extended loop or a figure eight. Leave one (1) foot of cable slack in the ceiling above each work area outlet location.

4.1.3 The maximum horizontal cable length is not to exceed 90 meters or 295 feet. If the 90 meters or 295 feet constraint cannot be met, the cabling contractor is to notify Sedgwick County.

4.1.4 All plywood backboard(s) are to be supplied and installed by the contractor unless otherwise noted. All plywood backboards shall be fire retardant.

4.1.5 All cables and pathways such as conduits, cable tray or other systems used for communication cable distribution to be run parallel or perpendicular to building lines.

4.1.6 To minimize any possibilities of disruption, maintain the minimum clearances from electrical and heat sources when routing cables.

4.1.7 Any deviation from the cable routing, outlet and equipment locations shown on drawings must be approved by the consultant and documented on as-built drawings.

4.1.8 Avoid scraping, denting, or otherwise damaging cables, before, during or after installation. The cabling contractor, without any additional compensation, shall replace damaged cables.

4.1.9 Bush, ream and remove any sharp projections on all conduits prior to installation of communications cables.

4.2 Horizontal Cable Distribution

4.2.1 The cabling contractor is to supply Panduit Tak-Ty cable ties or equivalent and any other miscellaneous hardware required to support horizontal cabling where conduit or cable tray has not been provided.

4.2.2 Pull all cables in a continuous run. No cable splices will be permitted.

4.2.3 Leave one (1) foot or thirty (30) centimeters of cable slack in the ceiling above each work area outlet location. If the cable is installed in conduit leave one (1) foot or thirty (30) centimeters of cable slack in the closest pull box and or cable tray.

4.2.4 When bundling cables, comply with manufacturer's recommended bundling practices for installation. Ensure that excess pressure is not placed on the cable at any point that may result in the compression or deformation of the cable jacket and internal pair/conductor geometry.

4.2.5 Provide blank filler plates for all unused modular jack positions on faceplates.

4.3 Horizontal Cabling

4.3.1 Supply and install horizontal cabling as detailed on communications cabling layout drawings.

4.3.2 A typical station cable drop consists of a combination of one (1) horizontal voice and one (1) horizontal data cable unless otherwise noted on the drawings and or otherwise specified.

4.3.3 All horizontal data and voice cabling will originate from the telecommunication room out to the designated workstation location in a star topology.

4.4 Rack and Cable Management System

4.4.1 All 19" racks and brackets are to be located as shown on communications cabling layout drawings.

4.4.2 All racks are to be anchored securely to the floor.

4.4.3 All racks, patch panels, cabinets, metal raceways and data equipment are to be grounded to building ground bus bars using Panduit Network Grounding Systems product or equivalent.

4.5 Fire Stopping

4.5.1 Fire stopping requirements must include prevention of fire from passing through a barrier. These seals are required to maintain safety and security within the clients' premises.

4.5.2 The cabling contractor must re-establish the integrity of any and all fire-rated architectural structures and assemblies they have worked on.

4.6 Labeling

4.6.1 All labels shall be Panduit Identification or equivalent Products for voice and data structure cabling systems.

4.6.2 Cable labels shall be of self-laminating vinyl construction with a white printing area and a clear tail that self laminates the printed area when wrapped around a cable. The clear area should be of sufficient length to wrap around the cable at least one and one-half times and be installed within 2” of the termination point of the cable, patch cord or pigtail.

4.6.3 All adhesive cable labels shall meet the legibility, defacement, and adhesion requirements specified in UL 969 (Ref. D-16). In addition the labels shall meet the general exposure requirements in UL 969 for indoor use.

4.6.4 All cable labels shall be compliant with the TIA/EIA-606(A) Section 6.2.2 Cable Labeling, Section 6.2.4 Termination Hardware Labeling, and Section 6.2.6 Termination Position Labeling.

4.6.5 All patch panel and BIX/110 block labels are to be mechanically printed and are to follow the guidelines in CSA-T528-93 for Color Coding of Termination Fields.

4.6.6 Label all cabling in accordance with CSA-528 specifications. One label should be attached to the front of the workstation faceplate, one to the front of the patch panel, and one at each end of the cable.

4.6.7 All labels must be mechanically printed. Hand written labels are not permitted.

4.6.8 All intra-building and inter-building backbone cables for voice and data shall be labeled. Labeling shall include destination (building) to and from at each end.

4.6.9 The horizontal cables shall be labeled in the format D-floor#-room#-cable#. The per room cable numbers shall be sequential beginning at 1.

Example: D03-038-2 represents a second data cable to room 038 of the third floor. Example: D11-099-5 represents a fifth data cable to room 099 of the 11th floor.

4.7 Testing

4.7.1 The cabling contractor is to use the Fluke DTX series or equivalent with the latest version of firmware to test the UTP cabling system. A light source and power meter will be used to for all fiber optic cables. The cabling contractor must ensure that all cabling is tested in accordance to the proposed specifications of the category installed.

4.7.2 Upon completion of testing by the cabling contractor, a Sedgwick County representative may choose to witness up to 10% of the cables being tested.

4.7.3 All deficiencies must be corrected before the Project Manager will provide a certificate to release the holdback on the project.

4.7.4 Category 6 field test parameters shall be. Testing of all 4 pairs is to include but not be limited to the following:

- 1) Wire Map
- 2) Insertion Loss
- 3) Equal Level Far End Cross Talk (ELFEXT)
- 4) Power sum equal level far end cross talk (PSELFEXT)
- 5) Delay Skew
- 6) Power sum attenuation to crosstalk ratio (PSACR)
- 7) Near end cross talk (NEXT)
- 8) Propagation Delay
- 9) Cable length
- 10) Power sum near end cross talk (PSNEXT)
- 11) Return Loss

4.7.5 A tester with the most recent version of its software and firmware must perform all tests in accordance to ANSI/EIA/TIA TSB-67. The nominal velocity of propagation (NVP) must be set specific to each cable manufacturer before testing. Portable testers to be calibrated on a minimum annual basis. Fluke DTX or equivalent shall be used.

4.7.6 Test patch cords for the tester must be designed and approved for testing by the manufacturer. Field assembled patch cords are not acceptable.

4.7.7 Test each strand of fiber with a Power Meter / Light Source combination operating at wavelengths of 850 nm and 1300 nm for multimode fibers and 1310 nm and 1550 nm for single mode fibers. Perform these tests in both directions. These tests shall be completed after cable installation, splicing and connectors are installed. Provide test results in soft copy to the Sedgwick County representative for the project.

4.7.8 All cable faults must be corrected. Splicing of any cables will not be permitted, for any reason, unless prior authorization is received in writing by Sedgwick County.

5. DOCUMENTATION

5.1 “As built” drawings

The cabling contractor is required to provide as-built drawings of the cable installation. This shall include the pathway of the cables from the telecommunications rooms to the workstation. The as-built drawings shall also include all additional cabling installed during the project. The cabling contractor shall provide the as-built drawings to Sedgwick County within 7 business days of the completion of the project.

5.2 Cable test results

The cabling contractor shall provide all test results in hard and soft copy to Sedgwick County. The electronically supplied test results shall be in the proper tester format. Test results shall include all voice and data horizontal cables and all voice and data backbone cables. The hard copy report shall indicate for each cable, when it was tested successfully and the signature of the technician that performed the test. The entire report must be signed by an authorized person for the cabling contractor at the end of the project.

6. WARRANTY

The cabling contractor must provide the owner with a 20 year product warranty and a minimum one (1) year labor warranty.