

SHELBY COUNTY BOARD OF EDUCATION
PROCUREMENT SERVICES

160 S. Hollywood Street, Room 126 □ Memphis, Tennessee 38112-4892 □ Phone (901) 416-5376

(This proposal will not be accepted electronically or by facsimile. All proposals must be mailed or delivered to the above address.)

REQUEST FOR PROPOSAL

(NOT AN ORDER)

Please submit proposals on the item(s) listed below. The right is reserved to reject any or all Proposals. If substitutions are offered, give full particulars. The Proposal must be submitted no later than **November 7, 2025 @ 1:00 PM CST.**

The Shelby County Board of Education reserves the right to accept or reject any or all proposals, or any part thereof, and to waive any minor informalities and/or technicalities that are deemed to be in the best interest of the Shelby County Board of Education. Successful Vendors shall be paid only when delivery is complete. *For the *appropriate purchases*, all material data safety data sheets (MSDA) must accompany all shipments covered under Tennessee Hazardous Chemical Right to Know Law- Tennessee Public Chapter #417- House Bill #731.

REQUEST FOR PROPOSAL

Network Structured Cabling System Services – Non Erate

Proposals **MUST** be received by Memphis-Shelby County Schools (“MSCS” or “District”) by the due date and time set forth above.

During the solicitation process Vendors are not permitted to contact the Board and project Owner regarding the posted solicitation. Failure to adhere to this requirement may subject the respondent to immediate disqualification.

Questions or requests for clarification of technical issues and terms pertaining to this RFP must be submitted in writing via e-mail to washingtonap@scsk12.org, and received by SCBE no later than **October 30, 2025 @ 11:00 AM/CST.**

ISSUED BY: Ashley P. Washington, Academic Sourcing Manager RFP 110725AW

We propose to furnish the item(s) and/or services outlined in the proposal at prices quoted and guarantee safe delivery **F.O.B. delivered** and as specified. Proposals are submitted with a declaration that no Shelby County Board of Education Member or employee has a financial or beneficial interest in this transaction.

NAME OF FIRM

PHONE

FAX#

ADDRESS

CITY

STATE

ZIP CODE

E-MAIL ADDRESS

AUTHORIZED REPRESENTATIVE NAME

☐ CHECK HERE IF YOU ARE A SMALL BUSINESS ENTERPRISE

☐ CHECK HERE IF YOUR COMPANY QUALIFIES AS A LOCAL VENDOR

PLEASE NOTE: Per the Memphis-Shelby County Schools Local Preference Purchasing Board Policy 2011, local preference purchasing means giving preference to businesses located within Shelby County, Tennessee where local vendors must have a physical address located within the limits of Shelby County for at least six (6) months prior to the bid or proposal opening date. A Post Office Box is not acceptable.

☐ CHECK HERE IF YOU ATTACHED A COPY OF A VALID SHELBY COUNTY BUSINESS LICENSE.

“Shelby County Board of Education does not discriminate in its Programs or employment on the basis of race, color, religion, national origin, handicap/disability, sex or age.”

TABLE OF CONTENTS

PART I: SCOPE OF WORK.....	3
1.0 BACKGROUND	3
2.0 SCOPE OF SERVICES	3
3.0 NON-EXCLUSIVE.....	3
4.0 NOTICE OF INTENT TO AWARD.....	3
 PART II: GENERAL TERMS AND CONDITION.....	4
1.0 STATEMENT OF CONFIDENTIALITY	4
2.0 TERM OF AGREEMENT	4
3.0 PRE-PROPOSAL MEETING	4
4.0 QUESTIONS AND INQUIRIES.....	4
5.0 POINT OF CONTACT TECHNICAL CONTACT.....	5
6.0 CONTRACT OFFICER/SCBE SUPERVISION.....	5
7.0 CONTRACT TYPE.....	5
8.0 PAYMENT TERMS	5
9.0 RFP REVISIONS	5
10.0 SUBMISSION DEADLINE.....	6
11.0 PROPOSAL OPENING.....	6
12.0 DURATION OF OFFER	6
13.0 INSURANCE	6
14.0 LIQUIDATED DAMAGES.....	6
15.0 CRIMINAL BACKGROUND CHECK/PHOTO IDENTIFICATION BADGE	6
16.0 COMPLIANCE WITH LAWS.....	7
17.0 LEGAL COMPLIANCE.....	7
18.0 BONDING.....	8
19.0 TERMS AND CONDITIONS	8
 PART III: PROPOSAL FORMAT.....	9
1.0 GENERAL FORMAT	9
2.0 PROPOSAL FORMAT	9
 PART IV: EVALUATION AND SELECTION PROCEDURE.....	12
1.0 EVALUATION COMMITTEE.....	12
2.0 EVALUATION PROCESS.....	12
3.0 EVALUATION CRITERIA.....	13
 PART V: SCOPE OF SERVICES (DETAILS).....	14
 PART VI: APPENDICES	
APPENDIX A – TERMS AND CONDITIONS	
APPENDIX B – ADDENDA ACKNOWLEDGEMENT	
APPENDIX C – REFERENCES	
APPENDIX D – NON-COLLUSION CERTIFICATE	
APPENDIX E – DEBARMENT AFFIDAVIT	
APPENDIX F – ANTI-BRIBERY AFFIDAVIT	
APPENDIX G – CERTIFICATE OF INSURANCE COVERAGE	
APPENDIX H – POLICY 2011 LOCAL PREFERENCE PURCHASING	
APPENDIX I – PRICING SCHEDULE (SEE PRICING ON PROCUREMENT WEBSITE)	
APPENDIX J – NON-BOYCOTT OF ISRAEL CERTIFICATION	
APPENDIX K – IRAN DIVESTMENT ACT CERTIFICATION	
APPENDIX L – CETIFICATION REGARDING LOBBYING	

PART I: SCOPE OF WORK

1.0 BACKGROUND

Shelby County Board of Education (SCBE) is the legal name of the Memphis-Shelby County Schools (MSCS) district. MSCS is Tennessee's largest public school district and is among the 25 largest public-school districts in the United States. MSCS serves approximately 110,000 students in 207 schools. We employ more than 6,200 teachers and 6,000 support personnel to serve our unique student population while offering programming and services to fit the needs of all our students.

Memphis-Shelby County Schools has created a data-driven culture that serves as the backdrop for strategic decision-making and informed solution-based decisions. The information gleaned from data, research-based strategies, and performance outcomes provides our district with amazing opportunities to offer high-quality educational options to every student.

The MSCS mission is to prepare all students for success in learning, leadership, and life through three strategic initiatives. The initiatives are:

1. Strengthen Early Literacy (K-2) and Continuing Literacy (3-12)
2. Recruit, Retain, Immerse, and Entrench
3. Relevant, Rigorous, and Equitable Academics

2.0 SCOPE OF SERVICES

SCBE requests proposals for **Network Structured Cabling System Services – Non Erate**. The specifications are contained in the Request for Proposal. Responses submitted must meet or exceed all requirements. Proposals that do not meet or exceed all requirements will be considered non-responsive. All exceptions must be noted.

3.0 NON-EXCLUSIVE

The intent of this contract is to provide SCBE with an expedited means of procuring supplies and/or services. This contract is for the convenience of SCBE and is considered to be a "Non-Exclusive" use contract. SCBE does not guarantee any usage. SCBE will not be held to purchase any particular Brand, in any groups, prices or discount ranges, but reserves the right to purchase any item/items listed in the price schedule.

4.0 NOTICE OF INTENT TO AWARD

A Notice of Intent to Award is written notification that a vendor has been selected for a contract award. This letter is not a guarantee of award. The Board of Education reserves the right to reject or accept the recommendation submitted. If the Board accepts and approves the recommendation, an executed agreement will be submitted to the successful supplier. If the Board rejects the recommendation, MSCS shall rescind the Notice of Intent to Award.

PART II: GENERAL TERMS AND CONDITIONS

1.0 STATEMENT OF CONFIDENTIALITY

It is understood and agreed that all information pertinent to this solicitation may contain trade secrets, which are confidential and proprietary. The selected vendor agrees not to disclose or knowingly use any confidential or proprietary information of SCBE and/or third-party participant.

2.0 TERM OF AGREEMENT

The anticipated term of this contract is an initial **one (1) year term with the option to renew for two (2) additional one (1) year terms.**

- A. SCBE expects all vendors to provide year over year cost reduction recommendations.
- B. Price decreases are acceptable at any time, need not be verifiable, and are required should the vendor/producer/processor/manufacture experience a decrease in costs associated with the execution of the contract.
- C. Price adjustments from the vendor/producer/processor/manufacture for any/all items may be considered at renewal, if applicable noted in the RFP document. The request is subject to approval by the Contracting Officer. The request must be submitted in writing at least ninety (90) days prior to the renewal term and shall be accompanied by supporting documentation.
- D. Should the awarded vendor, at any time during the life of the contract, sell materials of similar quality to another customer, or advertise special discounts or sales, at a price below those quoted within the contract, the lowest discounted prices shall be offered to Memphis-Shelby County Schools.

3.0 PRE-PROPOSAL MEETING (N/A)

4.0 QUESTIONS AND INQUIRIES

No interpretation of the meaning of the specifications or other documents will be made to any Supplier orally. Questions shall be submitted in writing to the Point of Contact (see Part II, § 5.0). To be given consideration, the questions must be received **NO LATER THAN October 30, 2025 @ 11:00 a.m. CST**. Questions that are deemed to be substantive in nature will be responded to in the form of an addendum and posted on SCBE website www.scsk12.org/procurement/bids and Newspaper. Please do not submit questions in PDF format.

RFP Schedule

RFP Post	October 24, 2025
Questions Due	October 30, 2025 @ 11:00 am CST
Q&A Post on Website	October 31, 2025 by End Of Day
RFP Due Date/Time	November 7, 2025 @ 1:00 pm CST

5.0 POINT OF CONTACT

Ashley P. Washington, Academic Sourcing Manager
Procurement Office
washingtonap@scsk12.org

6.0 CONTRACT FACILITATOR /SCBE SUPERVISION

The Vendor's performance will be under the technical direction of the Buyer/Requesting Department/Project Manager who will be responsible for ensuring vendor's compliance with the requirements of this contract to include managing the daily activities of the contract, providing technical guidance to the contract, and overall project scheduling and coordination. The vendor shall be accountable to the end users on all matters relating to the scope of services.

7.0 CONTRACT TYPE

The contract resulting from this solicitation will be a price contract based on the scope of services.

8.0 PAYMENT TERMS

The Vendor shall submit an invoice detailing the services provided and the actual costs incurred. Payment shall be in accordance with line-item price on the Purchase Order and made within 30 days after the date on the invoice.

SCBE reserves the right to reduce or withhold contract payment in the event the Vendor does not provide the Department with all required deliverables within the timeframe specified in the contract or in the event that the Vendor otherwise materially breaches the terms and conditions of the contract.

9.0 RFP REVISIONS

Should it become necessary to revise any part of this RFP, addenda will be posted on SCBE's Procurement Office website @ <http://www.scsk12.org/procurement/bids>. All addenda, amendments or changes issued shall be deemed received by Vendor provided they are posted to SCBE Procurement Office website. Failure of any Vendor to receive or acknowledge receipt of such addenda or interpretation shall not relieve any Vendor from any obligations under this RFP as amended by all addenda. All addenda so issued shall become part of the award.

10.0 SUBMISSION DEADLINE

In order to be eligible for consideration, proposals must be received at the Procurement Office no later than **November 7, 2025 @ 1:00 PM CST**. Vendors mailing proposals shall allow sufficient carrier delivery time to ensure timely receipt of their proposal to the Procurement Office. After the submission deadline, no matter what the reason, proposals will be returned unopened. Delivery to SCBE' mailroom, lobby, etc. shall not constitute delivery. **The Procurement Office is located at 160 S. Hollywood Street, Room 126, Memphis, TN 38112. Proposal responses delivered to any other location shall not constitute delivery to the Procurement Services Office.**

11.0 PROPOSAL OPENING

RFP Proposals are not opened publicly, but in the presence of at least two Purchasing Office employees. Once the proposals are opened, the Buyer will prepare a document that summarizes the proposals received. This document will be available for inspection no later than 20 days after opening and prior to Notice of Award letter is issued.

12.0 DURATION OF OFFER

A proposal submitted in response to this solicitation is binding upon the Vendor and is considered irrevocable for a minimum of **120 days** following the closing date for receipt of initial proposals or the closing date for receipt of a best and final offer, if applicable.

13.0 INSURANCE

All Vendors shall complete and sign the attached Certificate of Insurance with their proposal per the attached insurance requirement form (See Appendix G).

14.0 LIQUIDATED DAMAGES

In the event the Awarded Respondent(s) fails to deliver the goods or services of the contract in accordance with the specifications, SCBE reserves the right to purchase the goods/services on the open market in sufficient quantities to assure the continued operation of SCBE. All additional expenses incurred by SCBE as a result of such purchases will be deducted from the moneys owed or moneys which may become due.

15.0 CRIMINAL BACKGROUND CHECK/PHOTO IDENTIFICATION BADGE

In accordance with TN Code Ann. 49-5-413, unless explicitly excluded by statute; and pursuant to Memphis-Shelby County Schools' requirements, Vendors (persons, corporations or other entities) whose employee(s), subvendor(s), or representative(s) will come in contact or close proximity to MSCS students during the course of business, must require their employee(s), subvendor(s), or representative(s) to supply a fingerprint sample and submit to a criminal history check through the Tennessee Bureau of Investigation (TBI), and they will issue them a greenlight letter. Once they receive the greenlight letter, an appointment should be made with Memphis-Shelby County Schools ID Department. A copy of the greenlight letter, along with \$30.00 (exact change or company check), will be required to obtain a MSCS Vendor ID Badge. A MSCS Vendor ID Badge is required before permitting the person to have contact with the children or entering school grounds.

The cost of fingerprinting, conducting the criminal records check, and obtaining a Memphis-Shelby County School's identification badge will be the sole responsibility of the Vendor for each of the Vendor's employee(s), subvendor(s), or representative(s). Vendors doing business with MSCS are required to renew their badges annually. The Memphis-Shelby County School's identification badge shall be worn at all times by each of the Vendor's employee(s), subvendor(s), or representative(s) at shirt pocket height while on Memphis-Shelby County Schools' property. For more information regarding of fingerprinting, conducting the criminal records check, and obtaining a Memphis-Shelby County School's identification badge, please contact 901-416-5318.

MSCS further reserves the right to audit the criminal history background records of any Vendor employee(s), subvendor(s) or representative(s) having contact with MSCS students. Audits may be conducted on a quarterly basis with 48 hours' prior notice. It is the Vendors responsibility to ensure records are current and made available upon request to MSCS. Failure to provide MSCS access to current criminal history checks upon request could lead to Vendor debarment.

16.0 COMPLIANCE WITH LAWS

Vendors shall comply with all federal, state, and local laws, statutes, ordinances, rules, and regulations applicable to the services to be rendered under this Contract. Vendors violation of any of these laws, statutes, ordinances, rules or regulations constitutes a breach of this Contract and entitles SCBE to terminate this Contract immediately upon delivery of written notice of termination to Vendor.

17.0 LEGAL COMPLIANCE

- A. Vendor shall comply in all respect with Federal, State and Local Regulations, including laws regarding eligibility to work in the United States. The provisions of this Contract shall be governed by the laws of Tennessee. Any disputes, legal cases or other controversies shall be pursued in Tennessee Courts consistent with and subject to Tennessee State Law. Additionally, if applicable, all materials, supplies, equipment, or services supplied, as a result of this Contract shall comply with the applicable U.S. and Tennessee Occupational Safety and Health Act Standards.
- B. Specifically, vendor shall comply with all applicable laws and regulations relating to the employment of aliens, such failure, shall constitute a material breach of contract. It is a mandatory requirement of this contract that employees of vendor and vendor's subcontractors are screened through the Federal Government's E-Verify system, found at www.dhs.gov/E-Verify . This is a "no fee" service.

17.1 EPA COMPLIANCE

Materials, supplies, equipment, or services shall comply in all respects with the Federal Noise Control Act of 1972, where applicable.

18.0 BONDING (N/A)

19.0 TERMS AND CONDITIONS

Any contract entered into in connection with this solicitation shall be subject to these General Terms and Conditions except as otherwise modified herein.

It shall be the Vendor's sole responsibility to insure they are compliant with all applicable federal, state, and city laws, rules, ordinances, statutes, etc., that may impact this contract. SCBE shall bear no responsibility for monitoring the Vendor's compliance with said legal requirements. If the Vendor fails to maintain legal compliance, SCBE may find said Vendor in default.

In the event of conflict between the General Terms and Conditions and any part or portion of the Special Conditions (Appendix A), these General Conditions shall take precedence.

In the event of conflict between this solicitation any of the General Terms and Conditions proposed by any Vendor or incorporated in any acknowledgement of contract awarded to the successful Vendor, then, and in such event, the terms and conditions stated herein shall take precedence unless modified in writing by the Procurement Director.

PART III: PROPOSAL FORMAT

1.0 GENERAL FORMAT

- A. Vendors shall submit the following: Each submission should include as indicated below.

The proposal must include **One (1) original (labeled), four (4) copies, and 1 (one) USB** in a sealed envelope clearly labeled as indicated in B below. An electronic version of the proposal shall also be submitted with the original. The electronic media must be a USB and shall bear a label on the outside containing the RFP number and name, as well as the name of the Vendor.

- B. The outside of each package shall, in addition, be labeled with the following:

1. The Vendor's name and business address.
2. The due date/time for receipt of proposals.
3. The Title of the RFP and RFP number

2.0 PROPOSAL FORMAT

The proposal must include a table of contents and all pages in the proposal must be numbered, consecutively from beginning to end and separated by tabs as described below:

TAB A. TRANSMITTAL LETTER

The proposal is to be accompanied by a brief transmittal letter prepared on the Vendor's letterhead and signed by an individual who is authorized to commit the Vendor to the services and requirements in the RFP and proposal. This transmittal letter shall include:

1. The name, title, address, telephone number, and electronic mail address of the person authorized to bind the Vendor to the contract, who will receive all official notices concerning this RFP.
2. The Vendor's Federal Tax Identification Number or Social Security Number.
3. A brief statement illustrating that the Vendor understands the work to be done, the commitment to perform the work within the time period, and a statement of why the firm believes it is best qualified to perform the engagement.
4. A statement that the proposal is a firm and irrevocable offer for a period of one-hundred twenty (120) days.
5. Acknowledgement of all Addenda to this RFP

TAB B. TABLE OF CONTENTS

TAB C. EXPERIENCE AND CAPABILITIES

Vendor shall provide information on past and current experience with rendering services similar in size and scope to those in this RFP. This description shall include:

1. Summary of the services offered including the number of years the Vendor provided these services; the number of clients and geographic locations the Vendor currently serves, etc. and has served; and if a past customer, why the Vendor is no longer providing services;
2. Organizational chart of the Vendor showing the major components of the unit(s) that will be performing the requirements of this contract; where the management of this contract will fall within the organization; and what resources will be available to support this contract in primary, secondary and back-up roles
3. The names of all key personnel who will perform work under this contract. Include each individual's resume. Include work history, educational background and indicate the proposed role/function of each individual.
4. At least **three (3)** recent references from customers who are capable of documenting the following: a) the Vendor's ability to manage similar contracts, b) the quality and breadth of services provided by the Vendor under similar contracts (See Appendix C). If Memphis-Shelby County Schools is a client or has been a client of the Respondent for the services outlined in the RFP, MSCS reserves the right to be a reference, if not listed.

TAB D. FISCAL INTEGRITY/FINANCIAL STATEMENTS

1. The Vendor shall include in its proposal, completed audited financial statements including the auditor's notes, for its **last three (3) years**. If the Vendor has not had its financial statements audited by an independent accounting firm, the Vendor must submit such un-audited financial statements as it has. Some acceptable methods include but are not limited to one or more of the following:
 - a. Recently audited (or best available) financial statements
 - b. Dunn and Bradstreet Rating
 - c. Standard and Poor's Rating
 - d. Lines of credit
 - e. Evidence of a successful financial track record
 - f. Evidence of adequate working capital
2. Vendor shall identify any claims during the past five (5) years and provide information on any pending litigation, lawsuits etc. The failure to provide

accurate information may be determined to be a material breach of any future agreement or contract with SCBE.

TAB E. TECHNICAL RESPONSE TO RFP SCOPE OF SERVICES

The Vendor shall address each major requirement of Part V (Scope of Services) (separated by tabs if substantial)

TAB F. FORMS

1. Bid Bond (If Applicable)
2. Special Terms & Conditions for RFP'S (Appendix A)
3. Addenda Acknowledgement Form (Appendix B)
4. References (Appendix C)
5. Completed Non-Collusion Certificate (Notarized) (Appendix D)
6. Completed Debarment Affidavit (Notarized) (Appendix E)
7. Completed Anti-Bribery Affidavit (Notarized) (Appendix F)
8. Certificate of Insurance Coverage (Appendix G)
9. 2011 Local Preference Purchasing (Appendix H)
10. Compensation/Pricing Schedule (Appendix I).
11. Complete State of Tennessee Non-Boycott of Israel Certification (Appendix J)
12. Complete State of Tennessee Iran Divestment Act Certification (Appendix K)
13. Complete Certification Regarding Lobbying (Appendix L)

TAB G. Pricing Schedule (Compensation Schedule)

TAB H. ELECTRONIC MEDIA (INCLUDE WITH SUBMISSION)

Failure to provide any of the requested information or documents in this solicitation may render the proposal non-responsive.

PART IV: EVALUATION AND SELECTION PROCEDURE

1.0 EVALUATION COMMITTEE

Evaluation of the proposals will be performed by a committee established for that purpose and will be based on the criteria set forth below. The contract resulting from this RFP will be awarded to the Vendor whose proposal is the most advantageous to SCBE, considering technical factors and other factors set forth herein.

2.0 EVALUATION PROCESS

- A. The committee will evaluate each proposal using the evaluation criteria set forth below. As part of this evaluation, the Committee may hold discussions with all qualified Vendors. Discussions may be conducted via teleconference or may take the form of questions to be answered by the Vendors and conducted by mail, E-mail, or facsimile transmission at the discretion of SCBE. During the evaluation process, the committee may request technical assistance from any source.
- C. The Evaluation Committee may reject in whole or in part any and all proposals, waive minor irregularities, and conduct discussions with all responsible Vendors in any manner deemed necessary to serve the best interests of SCBE.
- D. If applicable, SCBE Policy 2011 Local Preference Purchasing will be applied accordingly. Please see Appendix H for policy details.
- E. Vendors may be asked to make an oral presentation to the Evaluation Committee. The purpose of the oral presentation is to provide an opportunity for the Vendor to clarify its proposal submission and substantiate proposal representation. If an oral presentation is requested, the oral presentation is a part of the evaluation.
- F. If it is determined to be in the best interest of SCBE, SCBE may invite Vendors to make final revisions to their technical and/or financial proposals through submission of a Best and Final Offer.
- G. The Committee will recommend the vendor whose overall proposal provides the most advantageous offer to SCBE considering all RFP requirements, based on evaluation factors set forth in this RFP.

3.0 EVALUATION CRITERIA

The Evaluation committee will evaluate proposals using the following criteria. The committee shall determine which proposals have the basic requirements of the RFP and shall have the authority to determine whether any deviation from the requirements of the RFP is substantial in nature. The committee may reject in whole or in part any and all proposals and waive minor irregularities.

- A. Approach to satisfying requirements
- B. Vendor's experience and capabilities/references
- C. Fiscal Integrity/Financial Stability

Evaluation Criteria	Major
	Weights
Experience and Qualifications	35%
RFP Requirements	15%
Cost	40%
References	5%
Financial Stability	5%
Total	100%

PART V: SCOPE OF SERVICES (DETAILS)

1.0 THE SERVICES

SCBE hereby solicits submissions of written Proposals, on a competitive basis, from qualified Respondents to provide for SCBE the services described herein, all in accordance with the terms and conditions detailed herein. The services sought by SCBE will require the Respondent to provide the services as set forth:

Memphis-Shelby County Schools is the largest school system in the State of Tennessee and among the largest in the nation serving more than 70,000 students. Memphis-Shelby County Schools (MSCS) employs over 10,000 people, including over 5,000 teachers, making it the second largest employer in the City of Memphis. Services rendered by this RFP will be managed and utilized by The Department of Network Cabling and Electronics of the Division of Facilities Planning and Management along with the Information Technology Department of MSCS. The Network Cabling & Electronics Department (NCE) provides engineering, project management, and design services for over 150 Memphis-Shelby County Schools and operating facilities throughout the greater Memphis and Mid-South Area.

The MSCS cabling network systems environment defined by the following:

- There are approximately 400 (MDF/IDF) telecommunication equipment closets throughout the district. Most locations have a 24-strand fiber optic cable between each closet with over 10,000 subsequent fiber connections the fiber optical cabling of these telecommunication closets are in need of upgrading.
- The district houses approximately over 6,000 classrooms and over 138 libraries
- Each classroom has approximately six (6) network cable installations, and each library has approximately ten (10) network cable installations; with over 35,000 supervised network installations and connections throughout the district.
- Out of this vast network cable installation system there are over 7,500-network cable installations used for telephone, and/or fax services. At various times schools and various departments, submit requests that need attention from sources other than those on staff at MSCS.
- Through the years the district annually has over 100 wiring and cabling installation projects per year along with several other major and special projects requested which a low voltage-cabling vendor can support.
- The MSCS employee, school and customer base work requests can total over 200 for network Ethernet computer, telephone, fax and or fiber optic drop repair requests each year, including requests concerning maintenance and installations for all types of low-voltage cabling and electrical wiring for electronic and electrical equipment which also can be supported by a low voltage cabling vendor.

SCOPE OF SERVICES

B.1 Request for Proposal. Memphis Shelby County Schools (MSCS) is seeking proposals from qualified Respondent(s) or Service Providers to provide **Network Structured Cabling System Services as described in the RFP**. The services sought by the MSCS will require the Respondent or Service Provider to offer services listed (but not limited to) the description of work and terms of performance below.

The successful respondent will be awarded all services pertaining to network cabling projects described within the specifications of this complete document. **The Memphis Shelby County Schools (MSCS)** will submit name and information of the successful respondent(s) selected from this RFP to the schools and libraries division (SLD) of the Universal Services Administration Corporation (USAC) as the sole network - cabling contractor who will perform services for network cabling projects requested by MSCS.

B.2 SERVICE DETAILS

B.2.1 Description of Work and Terms of Performance (Overview of Work). The MSCS maintains point-to-point connectivity via voice, data, and fiber optics for local and wide area networks, at several points throughout MSCS locations. These locations include data computer stations, telecommunications, Security, video and emergency services public safety installations, such as Police and Fire stations and intercom systems. The immediate response to any structured cabling system interruption is critical. In addition, many locations present a variety of configuration requirements which will be included in the services expected of the successful respondent(s). Each Respondent or Service Provider must list and describe their company's ability to meet the requirements within the RFP. Memphis-Shelby County Schools estimates that the primary service Provider(s) or vendor(s) selected has the potential of providing an average of 2,500 network cabling drops per year.

B.2.2 Contractor Supplied Materials. The Service Provider must provide **services and materials necessary for the appropriate installation** of local and wide area structured network cabling, which will support interconnections of telecommunications, data and video transmissions between varied buildings, equipment rooms and cabling systems.

B.2.3 Consultation. The Service Provider must provide **consultation and estimates (at no cost)** prior to performing work. The successful respondent will make "no cost" consultation site survey visits to assist with design, engineering, and evaluations, resulting in cost estimates before projects are approved by the **National Electrical Code (NCE)** project managers and budget control managers. MSCS has the right to accept or reject the estimate for a particular project.

B.2.4 Wiring for Specialized Circuits. The Service Provider must provide service and materials for electrical wiring for specialized circuits pertaining to isolated grounding, surge protection, and dedicated electrical power for adequate operations of equipment and computers throughout the Memphis Shelby County Schools (MSCS).

B.2.5 Repair and Maintenance of Specialized Circuits. The Service Provider must be able to provide repair and adequate maintenance of the specialized systems aforementioned including but not limited to all structured cabling systems network data and voice systems, fiber optical networks, and telecommunications, video and security cabling systems.

Voice, video, and security cabling work eligible, MSCS will be responsible for the total funding of these types of projects and or requests it offers to the service provider(s) to perform.

B.2.6 Contractor Supplied Material - Product Certification.

B.2.6.A The Service Provider(s) must have and maintain a continual certification by the **"CommScope Systimax Solution, or Panduit Full Channel Solution product manufacturing company, or equivalent** in all aspects of design, installation, and testing of the products described herein.

B.2.6.B Trade Names and Alternatives For convenience in designation on the plans or in the specifications, certain articles or materials to be incorporated in the work may be designated under a trade name or in the name of a manufacturer.

If material, process or article offered by service provider(s) is not, an opinion of the MSCS District, substantially equal or better in every respect to that specified, then service provider shall furnish material, process or article specified. Burden of proof as to equality of any material, process or article shall rest with service provider. Without such documentation, the District cannot accept the argument on functionality "equivalent" or better based on cost alone. Products must be compatible with existing systems. **Service Provider shall submit request together with substantiating data for substitution of any "or equal" item within the sealed bid packet at the closing of bids. Provision authorizing submission of "or equal" justification data shall not, in any way, authorize an extension of time for performance of this contract. All "or equal" components must not void and must be supported by corresponding manufacturer warranties of new and existing systems.**

B.2.7 Expertise and Technical Capabilities. BICSI Registered Communications Distribution Designer. Whether or not the vendor is "CommScope Systimax or Panduit Solution or equivalent certified. The Service provider shall have and prove to employ one or more full-time BICSI Certified RCDD employees and two or more full-time BICSI Certified Installers within Shelby County and qualified staff for service out of normal business hours who are qualified to provide technical support for equipment and services purchased under the contract. The certified Service Provider must have one, preferably two, **RCDD (Registered Communications Distribution Designers)** on full time staff with ability to assist with site surveys, consultations etc.

B.2.9 Electrical Installation Consulting - Master Electrician. The Service Provider shall have the ability to assist with site surveys, consultations, etc. and an adequate amount of licensed electricians on staff with the ability to assist with site surveys, consultations, electrical installations, etc. The RCDD and the Master Electrician of the selected Service Provider shall be required to make site survey visits to assist with design, engineering and evaluations resulting in cost estimates before projects are approved by NCE project managers and budget control managers at no charge to the SCS.

B.2.10 Cabling and Wiring Standards and Regulations. The Service Provider shall provide services and materials in **compliance with all standards and regulations set forth by any nationally authorized governmental cabling and wiring governing agency** such as Building Industry Consulting Services International (BICSI), Electronic Industry Alliance (EIA), Telecommunications Industry Association (TIA), by Underwriters Laboratory (UL), No instructions given in the contract documents shall be construed as an authorization to violate any codes, ordinance, and regulation or law.

B.2.11 Electrical and Fire Codes. The Service Provider shall provide services in **compliance with the National Electrical Code (NEC), National Fire Protection Association (NFPA), and all federal, state, and local codes, ordinances, regulations and laws** applicable to the work to be done considered as minimum requirements that shall be installed in excess thereof. No instructions given in the contract documents shall be construed as an authorization to violate any codes, ordinance, and regulation or law.

B.2.12 Warranty Coverage - The service Provider should provide a statement that they will warranty all work for 1 (one) year to include parts and labor. Additionally, all network cabling projects requires a twenty (20) year manufacturer's warranty of the "full channel solution". Service Providers shall demonstrate that they are certified to cover and perform all services related to the 20-year warranty for both newly installed cabling as well as to perform warranty-related work on all of MSCS's existing cabling by "CommScope Systimax Solution " or Panduit Full Channel Solution **or equivalent** .

B.2.13 Timeliness of Work. The Service Provider must **supply the Memphis-Shelby County Schools (MSCS) with timely information, data, site surveys, as built drawings, and any changes pertaining to all individual MSCS projects.**

B.2.14 Quality of Work. The Service Provider **must provide services and materials in a workmanship like manner and moreover in compliance with all standards and regulations set forth by all nationally, and local governmental authorized cabling and wiring governing agencies and all stipulations set forth in installations specifications of MSCS.**

B.4 PRODUCT AND SERVICE FUNCTIONALITY

B.4.1 Contractor Supplied Material- Product Certification - The service provider shall have and maintain a continual certification by the "CommScope Systimax Solution product. Alternatively, Panduit Full Channel Solution Manufacturing Company **or equivalent** in all aspects of design, installation, and testing of the products described herein. The current and future infrastructure of MSCS is a "full" "CommScope Systimax Solution end to end full channel network.

B.4.2 Warranty Coverage - The service provider shall provide warranty on all work for 1 year including parts and labor.

B.4.3 Business Licenses - Respondents must be able to provide the name and information of any and all licenses and certifications locally and nationally pertaining to the "services" required in this document such as: BICSI certifications, Electrical Licenses, State Licenses Business Licenses, BBB memberships, etc. Give the names, titles and information concerning persons on staff approved by the authorities for holding various licenses and certifications such as RCDD, Master Electrical License, cable installers, etc.

B.4.4 Permits and Fees - The successful Proposer will be responsible for obtaining and furnishing any/all permits with local and/or state codes enforcement agencies and the payment of required fees to complete all aspects of any project whether low-voltage cabling or electrical of all work performed. Copies of permits and final inspections approved by the authorities having jurisdiction shall be furnished to the owner's representative at the preconstruction meeting.

B.4.5 Product Installation Satisfaction Capabilities - Each Respondent or Service Provider **must list and describe** their company's ability and commitment to meet the following requirements:

B.4.5.A Provide services and materials necessary for the appropriate installation of network cabling.

B.4.5.B Provide consultation and estimates on each location (at no cost)

B.4.5.C Provide Service Provider service and materials for electrical wiring

B.4.5.D Provide services and materials in compliance with all standards and regulations set forth by any Nationally- advertised, authorized, governmental cabling and wiring governing agency

B.4.5.E Detailed description of the company's staffing

B.4.5.F Commitment to holding unit pricing submitted for the full amount of years during contract

The Service Provider should have qualified staff for service out of normal business hours and who are qualified to provide technical support for equipment and services purchased under a contract. MSCS prefers that a service provider has two employees with this certification; however, only one is mandatory. Respondent shall present documentation proving that it has full-time, certified BICSI Certified Installer employee(s) within Shelby County.

B.4.6 Electrical Installation Consulting-Master Electrician - The Provider shall have a Master Electrician licensed in the State of Tennessee on staff with the ability to assist with site surveys, consultations, etc. and an adequate number of licensed electricians in order to make electrical installations. The Registered Communications Distribution Designer (RCDD) and the Master Electrician of the selected service Provider shall be required to make site survey visits to assist with design, engineering, and evaluations, resulting in cost estimates before NCE Project managers and budget control managers at no charge assign projects to MSCS.

B.4.7 Response to Service Requests -The immediate response to any structured cabling system interruption is critical. In addition, many locations present a variety of configuration requirements which will be included in the services expected of the selected Respondent or Service Provider. Each Respondent or Service Provider in their proposal must list and describe their company's ability and commitment to meet the following requirements: The service Provider shall provide response to any normal service **request from MSCS within 24 hours**; The service **Provider shall provide response to any emergency service request from MSCS within (5) five hours.**

B.4.8 Full Service Location- MSCS prefers a Service Provider to have a number of locations of facilities and offices. However, it is essential that the successful provider of this contract possesses a home office with fully- functional service administrative capabilities, technical and fleet capabilities within a 100-mile radius of the MSCS Administration Building (Shelby County).

B.4.9 Services Offered - MSCS prefers a vendor who is capable of supporting a wide range of installation and maintenance services as it pertains to low-voltage cabling such as security, intercom and fire alarm cabling and electrical wiring such as circuit feeds and extensions and

installations of panels and transformers. Respondents shall provide a full, detailed description listing these services offered by the company.

B.5 Material Guarantee

The wiring Service Provider shall guarantee in writing within the proposal that all installations including Category Cables and fiber optic cabling and components installed will meet or exceed specifications (including installation) of TIA/EIA-568-B.1, 568-B.2, 568-B.3 and 569.

B.5.A Including updated standards TIA-942-A Telecommunications Infrastructure Standard for Data Center, IEEE 802.3ba (Media Access Control Parameters for 40 Gbps and 100 Gbps Operation), ANSI/BICSI-00-2009,

B.5.B ANSI/TIA-568-C.0 (Generic Telecommunication), ANSI/TIA-568-C.1 (Commercial Building Telecommunication),

B.5.C ANSI/TIA, 568-C.2 (Balanced Twisted-Pair Telecommunications Cabling and Components Standard), ANSI/TIA, 568-C.3 (Optical Fiber Cabling Components)

B.5.D ANSI/TIA-596-D (Telecommunications Pathways and Spaces)

B.5.E ANSI/TIA-606-B (Administration Standard for Telecommunication Infrastructure)

B.5.F ANSI/TIA-607-C (Generic Telecommunications Bonding and Grounding (Earthing) for Customers Premises)

B.5.G ANSI/TIA-862-A (Building Automation Systems Cabling Standard)

B.5.H ANSI/TIA-942-A (Telecommunications Infrastructure Standard for Data Centers)

B.5.I ANSI/TIA-1005-A (Telecommunications Infrastructure Standard for Industrial Premises)

B.5.J ANSI/TIA-1179 (Healthcare Facility Telecommunications Infrastructure Standard) ISO/IEC 11801 Generic Cabling for Customer Premises)

B.5.K IEEE 802.3af (Power over Ethernet (POE) Standard)

B.5.L IEEE802 3at (Power over Ethernet (Plus) Standard)

B.5.M IEEE802.3an (Physical Layer and Management Parameters for 10Gbps Operation Type 10GBASE-T)

B.5.N IEEE802.3ba (Media Access Control Parameters, Physical Layers and Management Parameters for 40 Gbps and 100 Gbps Operation)

B.5.O IEEE 802.11 (Wireless Standard)

B.6 Service Provider

B.6.1 The Service Providers shall submit the following documents with the proposal:

B.6.1.A A Letter of Approval from the manufacturer indicating completion of pre-qualification requirements.

B.6.1.B Training certificates for design, engineering and installation of the proposed products, for the relevant staff involved in the design and installation of this project.

B.6.2 Guaranteed Pricing - The Service Provider shall hold unit pricing submitted for the full amount of years during contract. No variations or additional expenses will be allowed during the contract.

B.6.3 Point of Contact - The Service Provider shall be the sole point of contact with regard to completion of all services provided and contractual matters, including the performance of warranty services and the payment of any and all charges resulting from contract obligations. Upon contract award, the selected Service Provider will designate an account manager who will serve as the point of contact for the MSCS upon the contract award.

B.6.4 Response to Service Requests - The immediate response to any structured cabling system interruption is critical. In addition, many locations present a variety of configuration requirements which will be included in the services expected of the selected Respondent or Service Provider. Each Respondent or Service Provider must list and describe their company's ability and commitment to meet the following requirements:

B.6.4.A The Service Provider must provide a response to any routine service request for support from the MSCS **within 24 hours**.

B.6.4.B In the case of an emergency service call, the Service Provider must provide verbal response within two (2) hours of the request and provide actual physical service support, that is, provide a technician on site of the emergency request, within five (5) hours of the emergency request for support.

B.6.5 Network Cabling Services - The Service Provider shall provide installations, alterations, site surveys, price estimates and maintenance for the appropriate installation of local and wide area structured network cabling, which will support interconnections of telecommunications, data, voice, fiber optic, video, Security and cabling transmissions between all MSCS varied building facilities. Respondents must remember that voice, video and security cabling are within the scope of work.

B.6.6 Electrical Wiring Services and Materials - The Service Provider shall provide service and materials for electrical wiring for specialized circuits pertaining to isolated grounding, surge protection, and dedicated electrical power. Any respondent to this RFP must show the ability to repair and provide adequate maintenance of all specialized systems mentioned in this RFP. Respondents must remember that electrical wiring is eligible.

B.6.7 Systems Maintenance and Repair - The Service Provider shall repair and provide adequate maintenance of all the specialized systems mentioned within the total contents of this RFP.

B.6.8 Individual Itemized Billing - The Service Provider shall provide individual itemized billing for all services and support services to be performed by full time resource(s) at no additional cost.

B.6.9 Timeliness of Work - The Service Provider shall provide timely information, data, decisions, approvals, and resolve issues to the MSCS Network Cabling and Wiring Design (NCE) department.

B.6.10 Service Location - MSCS prefers that the Service Provider shall have a fully functional local office within a 100 mile radius of the MSCS Administration Building.

B.6.11 Quality of Work - The Service Provider must complete all work in a workmanship like manner in accordance with standards and practices, local codes, codes and ordinances, applicable statutes, and in accordance with manufacturer's recommendations, where applicable.

B.6.12 Contracting with Multiple Vendors - MSCS reserves the right to itemize and award separate contracts for all network cabling installations, equipment, service, and maintenance. Although MSCS prefers to contract with a single Service Provider for cabling installations, equipment, service, and maintenance during the term of this contract, MSCS will contract with one or more vendors to install local and wide area network cabling if necessary.

B.6.12.A MSCS also reserves the right to award contracts to multiple vendors, if necessary, to obtain the desired coverage for all work. MSCS also reserves the right to solicit individual bids on certain larger projects. MSCS will consider multiple bids from the same vendor.

B.6.13 Changes to Work - The Service Provider must provide any changes to a project's original description to MSCS/NCE in a built drawing showing changes and proper documentation for approval.

B.6.13.A Provide individual itemized billing for services and support services, to be performed by full resource(s).

B.6.13.B Provide full time resource(s) to perform all services to be reported and contracted separately.

B.6.13.C Provide cost per location for Schools. Provide a format that reflects cost per location for any schools for the MSCS Network Cabling and Electronics.

B.6.13.D Provide detailed service activity reports per billing period that document eligible services performances per service location. Provide a format that reflects cost per location for percent schools for network cabling and wiring.

B.6.13.E Provide diagnostic, upkeep and configuration change services eligible all cabling systems.

B.6.13.F Provide and assist with design, engineering, and project estimates to (NCE) for all cabling projects without charge to the Memphis Shelby County Board of Education.

B.7 General Cabling Requirements and Installation Requirements

B.7.1 Cable Pathway

Extension of all data and voice cables shall be within raceway, conduit, cable tray or other designated cable delivery system provided and installed by the Service. Provider where conceal in walls and exposed above ceilings in plenum spaces. All structured cabling installed in the MSCS locations will be **plenum rated** unless otherwise requested.

B.7.2 Hardware

Required hardware includes, but is not limited to, termination blocks, fastening devices, data outlets, voice outlets, connectors and all required accessories to comply with this scope of services.

B.8 Special Requirements for Cable Routing and Installation

All communications cabling used throughout this project shall comply with the requirements as outlined in the National Electric Code (NEC) Articles 725, 760, 770, and 800 and the appropriate local codes. All balanced twisted pair cabling shall bear CMP (Plenum Rated), CM/CMR (Riser Rated) and/or appropriate markings for the environment in which they are installed. All fiber optic cabling shall bear OFNP (Plenum Rated), OFNR (Riser Rated) and/or appropriate markings for the environment in which they are installed.

B.8.1 Complete and Timely Installation

The Service Provider will be solely responsible for complete and timely installation of all proposed cables and connectors. On jobs with 12 or fewer connections required at that location, the Service Provider must complete the job within three (3) business days of the MSCS request. MSCS reserves the right to bid out any jobs as separate projects; those jobs must be timed with the MSCS notification and agreement.

B.8.2 Concealed/Exposed

All cable shall be concealed in the drop ceiling and walls when possible. Exposed cable that is not above drop ceiling shall be installed in EMT conduit raceway unless approved by a MSCS IT representative. The Service Provider **shall not share pathways** or J hooks with other Crafts. Therefore, the Service Provider must provide a pathway/raceway including sleeves for individual projects.

B.8.3 Sites Left Clean

The Service Provider will complete the installation by leaving the site "broom clean." On outside plant work, the Service Provider will make all necessary repairs to any uprooted asphalt or grass where required.

B.8.4 Cable Testing

Before the work is approved for payment, the Service Provider will test all of the cables. All Category 6 and Category 6a cables must be tested with a Fluke DTX 1800 Cable Analyzer or approved equal. The cables must pass all Category 6 and Category 6a parameters as outlined in the ANSI/EIA/TIA 568-B.1 Standard. The Service Provider must provide test results in both hard copy and soft copy form downloaded from tester to PDF file. On jobs consisting of greater than 12 cable runs or projects involving new construction, the Service Provider must also provide two (2) copies of as built drawings of each floor's layout to the Information Systems Project Manager or his or her designee. Before the work is approved for payment, the Service Provider will test all of the cables. All Category 6 and Category 6a cables must be tested with a Fluke DTX 1800 Cable Analyzer or approved equal. The cables must pass all Category 6 and Category 6a parameters as outlined in.

B.8.5 Fiber Optic Testing

Upon completion of each fiber optic installation, the Service Provider must test all multimode fiber at both the 850nm and 1300nm wavelengths and all single-mode fiber at 1310nm and 1550nm wavelengths with a power meter. All test results must be submitted in both hard and soft copy form along with two (2) copies of as built drawings of the fiber optic cabling layout. Attenuation should be less than 2dB per strand unless the lengths of fiber will allow a greater loss according to the ANSI/EIA/TIA 568-B.1, 526-7 and 526-14 standards. Any fiber loss greater than 2dB must be approved by the SCS or repaired.

B.8.6 Cable Labeling

Upon completion of each network installation, the Service Provider will label cables on both ends with a machine-generated label using a corresponding numbering scheme (both ends

must have the same number). All labeling must conform to **DATA/VOICE NOMENCLATURE as seen in this document and approved by MSCS NCE department.**

B.8.7 Cover or Trim Mold, Core Boring, Etc.

Some jobs may require a cover or trim mold, and core boring such as firewalls.

B.8.8 Additions, Moves, and Changes

Additions, moves, and changes may be ordered, as needed, for the duration of this agreement, via the Service Provider contact person and referenced with a work order number or Request for Capital Expenditure (RCE) number. The Service Provider is expected to coordinate changes with current voice and data providers and any other MSCS parties, as needed.

B.8.9 Wireless Access Point Installation

Some Category 6 or 6a cable runs will be part of a wireless network installation. The Service Provider will be asked to provide the labor costs to physically mount MSCS-provided wireless access points in addition to installing the cable for their connectivity.

B.8.10 Fire Stopping

Sealing of openings between floors, through rated fire and smoke walls, existing or created by the Service Provider for cable pass through shall be the responsibility of the contractor. Sealing material and application of this material shall be accomplished in such a manner, which is acceptable to the local fire and building authorities having jurisdiction over this work. Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the contractor's work. Any openings created by or for the Service Provider and left unused shall also be sealed as part of this work.

B.9 DATA/VOICE CABLE GUIDELINES

B.9.1 All installations shall comply with all items listed in this document. All exceptions to this document will be included in an RFP specific to each job being bid on.

B.9.2 All installations should be consistent with the philosophy of developing a structured cabling system for the MSCS. Detail guidelines of installations set forth by the Network Cabling and Electronics Department of MSCS (Specifications available for projects).

B.9.3 All installations should meet or exceed all local, regional, state and national health, building, and electrical codes, regulations and laws.

B.9.4 All installations are to be clearly labeled at the jack and patch panel ends consistent with the MSCS current numbering scheme.

B.9.5 All cables should be parallel and/or perpendicular to normal building structure.

B.9.6 All overhead cable runs should make use of appropriate cable hangers. They must be fastened to the building structure. Installation of supports such as J hooks shall be in accordance with Standards 3ft and then 4 ft. apart. No supports can be used on ceiling grid wires or ceiling straps.

B.9.7 Absolutely **NO** nylon "zip" ties or similar shall be used on any cables for cable support. Velcro type material must be installed for appearance and workmanship only at minimum of 10ft. apart.

B.9.8 Detailed documentation of each completed job must state the location of each cable run/drop and all applicable test/certification results for that run. Cable certification results should be supplied to MSCS electronically, preferably on USB drives – hard copies are optional.

B.10 DATA / VOICE JACKS (NO SUBSTITUTION)

All data and voice jacks shall be RJ45 style using the four pair **T568A wiring scheme**.

B.11 FACEPLATES (NO SUBSTITUTION)

All faceplate connections shall use the 110 style Giga Speed, eight position data jacks.

B.12 DUST COVER / BLANKS (NO SUBSTITUTION)

Furnish and install dust covers/ blanks in all data/voice jacks in offices and classrooms where needed.

B.13 PATCH CABLES (NO SUBSTITUTION)

Service Provider is responsible for furnishing all Cat.6 / 6a or fiber optic patch cables associated with the Data/Voice portion of each project associated with this RFP.

B.14 WALL PENETRATION

B.14.1 All penetrations of hallways and fire - rated walls shall be fireproofed with a UL-approved, fire-stop material

B.14.2 Cement or fireproofing that sets up hard shall be used around the outside of the conduit at all wall penetration.

B.14.3 Moldable fireproofing shall be used inside of the conduit nipples.

B.15 DATA/VOICE NOMENCLATURE

B.15.1 Identify all items of equipment installed on the project. Each **faceplate cover**, all **cable ends** and **patch panels** shall be labeled with the cable type, room number, data / telephone cable number, and wire distribution rack, using a Kroy Dura-Type 200 label marker or approved equal. Patch panels shall be marked to match the data / telephone cable number.

B.15.2 Properly identify all wire distribution racks with black plastic plates with 1/4" white engraved lettering on the face of each, permanently attached with two tapped screws. Example: MDF or IDF#1.

B.15.3. A label with the term Cat.6 shall be applied in the center of the Giga Speed patch panel. Each port in the six port modules shall be labeled to match the data / telephone cable numbers.

B.15.4.A Example of room labeling:

B.15.4.A.1 Room #301-#1-MDF

B.15.4.A.2 Room #301-#2-MDF

B.15.4.B Example of how to follow existing cable numbering sequences already established in rooms.

B.15.4.B.1 Room #301-#6-MDF (This is the last existing cable for room #301 in the patch panel.)

B.15.4.B.2 Room #301-7-MDF (This is the first new cable for room #301 added to the patch panel.)

B.15.4.C Example of how to label administration areas that are not assigned room numbers, but use the abbreviation for “office”.

B.15.4.C.1 Off. -#4-IDF#3

B.15.4.C2 Off. -#5-IDF#3

B.15.4.D Example of how to follow existing cable numbering sequences already established in administration areas.

B.15.4.D.1 Off. -#6-IDF#3 (This is the last existing cable in office area in the patch panel.)

B.15.4.D.2 Off. -#7-IDF#3 (This is the first new cable added to office area in the patch panel.)

B.16 COMPUTER CABLING

Schedule all installation of computer cabling to interfere as little as possible with school’s normal operation. Existing computers will be moved by school personnel and shall not be moved by Service Provider.

B.17 CABLE GRADES

All cable installed on interior of the building not enclosed by a metal conduit pathway shall be plenum rated, unless approved by a MSCS IT representative.

B.18 CABLE SUPPORT

Existing or new (“J” hook) pathways used in this project must support the standards of Cat.6 cabling. If new pathways are needed, use “J” hooks only.

B.18.1 Support the new “J” hooks from the building structure. Alternate three foot and four foot “J” hook spacing throughout new pathway installation. Do not use equal spacing of “J” hooks, or exceed the four-foot spacing on new pathway installations. **The use of plastic anchors to support “J” hooks, straps or any type of support is strictly prohibited.** No ceiling grid J-hooks will be allowed.

B.19 CABLE TERMINATION

Insulation Displacement Contact (IDC) shall be the method of terminating the Cat.6 data jacks.

B.20 CABLE BEND RADII

All cable shall comply with the TIA specifications TSB40; cable bend radii shall not be less than eight times the cable diameter. This requirement translates to a minimum bend of 2 inches.

B.21 CABLE TESTING

The Service Provider shall test all cables using the latest versions of Fluke meters including but limited to , Model 4000, 4100, or 4300, DTX 1800 and then submit performance verification in **soft copy format to the MSCS Network Cabling and Electronics Department facilities Maintenance Division. All UTP cables shall meet performance standards for Cat.6 cable and the SCS NCE and IT standards of more than two db. Headroom on cables. This includes CCTP CAT.6 cable. All cables shall pass equivalency standards of Commscope Systimax or Panduit full channel solutions comparing to the highest standards set forth**

by BICSI. The successful service provider shall present documentation of these standards no matter what product that is approved to be installed.

B.22 CABLE INSTALLER / TESTER CERTIFICATION

Cabling Service Provider shall submit to MSCS proof that each installer and person testing cables has successfully completed a training class recognized by Building Industry Consulting Service International, (BICSI), for installing and testing Unshielded Twisted Pair (UTP) Cat.6 cable.

B.23 FIBER OPTIC CABLE REQUIREMENTS

B.23.1 Fiber optic cable shall be installed in rigid conduit outside of building, or messenger supported when aerial pathways are needed.

B.23.2 Fiber optic cable run above the drop ceiling shall be enclosed in Inner duct or armored fiber and supported up and off the ceiling, tiles supported from the building structure and marked with labels stating “**FIBER OPTIC CABLE**” every 20 feet.

B.23.3 Exposed fiber optic cable that is not above the drop ceiling shall be installed in EMT raceway unless approved by a MSCS IT representative.

B.23.4 Fiber optic cable installed between wire distributions racks shall be FDDI certified 50/125-micron multimode cable. All terminations shall be fusion type.

B.23.5 Fiber optic cable installed to portable buildings shall be six-strand indoor/outdoor fiber optic FDDI certified 50/125 micron multimode cable. Service Provider shall make up all six strands of fiber.

B.23.6 Fiber optic cable installed to portable buildings shall be installed in a manner to prevent loss of connectivity if any portable is removed from the site.

B.23.7 The SCS does not require 24-strand fiber optic cable to be installed in inner duct, but all other fiber optic cable specifications apply. The Shelby County Board of Education does require all fiber optic cable to be installed in inner duct.

B.23.8 All fiber optic connectors shall be of the “ST or LC” type, and or fusion type terminations only. Unless otherwise specified by NCE department Service. Provider must install factory polished connectors with pigtail fusion splices to the backbone or horizontal fiber stands. MSCS does not allow the use of any Field terminations methods (Anaerobic, crimp style or EZ crimp). Test results for all fusion splices must accompany all completed jobs before invoicing and or payment will be processed. With factory unless otherwise specified by the project manager.

B.23.8.A The Service Provider shall guarantee not more than a 2-db loss on any strand of any complete end-to-end installation. All terminations shall be fusion type.

B.23.8.B Rack mounted fiber optic patch panels shall be used in all wire closets in the top area of the rack space.

B.24 RACEWAYS AND FITTINGS

B.24.1 ELECTRICAL METALLIC TUBING (EMT)

B.24.1.A EMT shall be used only in dry locations within the confines of the building's walls. Dry location shall be as defined in the 2005 NEC.

B.24.1.B EMT shall be used for feeders and branch circuits in the above-approved areas.

B.24.1.C EMT, 9' A.F.F., shall be supported securely each 10 linear feet and within 18" of each outlet box, junction box, cabinet and fitting

B.24.1.D Exposed 1" EMT and smaller, below 9' A.F.F., shall be supported securely with two hole straps each 5 linear feet and within 18" of each outlet box, junction box, cabinet and fitting.

B.24.1.E Minimum size of EMT shall be ½" for electrical ¾ inch for Data cabling.

B.24.1.F Fittings shall be steel, setscrew type. No malleable and/or die cast types all allowed.

B.24.1.G Service Provider must install include up to 20' of ¾" EMT and box for stub-ups. This includes all steel type fittings and 3 – 2 hole straps per stub-up. (Minimum strap every 3 ft.).

B.24.2 GALVANIZED RIGID CONDUIT (GRC)

B.24.2.A GRC shall be used in all runs on the exterior of the building.

B.24.2.B Compression type, rigid fittings, in place of "Erickson" type may be used on the exterior of the building. Set screw type, rigid fittings may not be used in any situation.

B.24.2.C Exposed 1" and smaller GRC, on exterior walls below 9' A.F.F., shall be supported securely with 2 whole straps each 5 linear feet and within 18" of each outlet box, junction box, cabinet and fitting.

B.24.2.D Minimum size of GRC shall be ½"

B.24.3 FLEXIBLE METAL CONDUIT

Liquid tight flexible metal conduit shall be used in the following locations:

B.24.3.A Flexible raceways exposed to intermittent or continuous moisture.

B.24.3.B The termination of line and load feeders to all transformers.

B.24.3.C Use of Flexible Nonmetallic Conduit is not allowed.

B.24.3.D Metal-Clad cable, type MC is not allowed.

B.25 CONDUCTOR REQUIREMENTS

B.25.1 Provide 98percentage conductivity copper conductors with 600-volt insulation. No aluminum conductors will be allowed. #12 AWG shall be the minimum size conductor. #10 AWG and larger shall be stranded. All insulation shall be THHN or THWN as required by the NEC due to the location.

B.25.2 All conductors shall be UL approved and made in the United States of America.

B.25.3 All power and lighting conductors shall be color coded as indicated below:

120/208 Volt 277/480 Volt

Phase A- Black Brown

Phase B- Red Orange

Phase C- Blue Yellow

Neutral White Gray

Ground Green

ISO-Ground Green/Orange Stripe Green/Orange Stripe

Use factory color-coded conductors where commercially available.

If not available, use black conductors and band with colored tape.

B.25.4 Use pulling compound to pull all feeders.

B.25.5 Install pull boxes in feeders over 200' in length. Install pull boxes in branch circuits over 100' in length. A loop of slack shall be left in each pull box to permit at least one spliced joint to be remade in case of a fault. Install feeder conductors, under 200' in length, in continuous spans from origin to termination without splices where possible.

B.25.6 Where splices or taps are necessary or required, they shall be made in outlet, pull or junction boxes. Install #10 AWG in lieu of #12 AWG for any branch circuit in excess of 100' to prevent excessive voltage drop. No neutral conductors shall be de - rated.

B.26 JUNCTION AND PULL BOXES

B.26.1 PULL BOXES

B.26.1.A All pull boxes shall be sized in accordance with the 2005 NEC.

B.26.1.B All pull boxes shall have solid tops, sides and bottoms. No factory knockouts, single or concentric, shall be allowed.

B.26.2 OUTLET AND JUNCTION BOXES

B.26.2.A Outlet and junction boxes shall be a minimum 4" square x 2 1/8" deep type. Unless otherwise specified.

B.26.3 PULL AND JUNCTION BOX SUPPORT

B.26.3.A All pull and junction boxes shall be mounted to the building structure or surface as in accordance with 2005 NEC. No box shall be supported by the conduits entering or leaving it.

B.26.3.B Locate each pull and junction box where it will be accessible in the finished project.

B.27 UNISTRUT CHANNEL

Unistrut channel shall be Unistrut P1000, 1-5/8" x 1-5/8", 12 gauge, painted channel or approved equal.

B.28 TRANSFORMER

B.28.1 The Service Provider shall furnish and install, as identified on the drawings, a dry-type transformer type (NL) or (NLP) as (K-rated) manufactured by the Square D Company or approved equal.

B.28.2 The transformer coils shall be of the continuous wound construction and shall be impregnated with no hygroscopic, thermosetting varnish. Transformers 15 KVA and larger shall have a minimum of 6-2.5 full capacity primary taps for 480 V primaries. Voltages and taps shall be designated on the transformer schedule.

B.28.3 Transformers are to be UL listed and labeled for (K-4) or (K-13), defined as the sum of fundamental and harmonic one (Pu) $^2h^2$ per UL 1561. Transformers evaluated by the ULK-Factor evaluation shall be listed for (115°C) or (80°C) average temperature rise only. Manufacturer's rating K-Factors with temperature rise of 150°C rise shall not be acceptable.

B.28.4 Factor rated transformers shall have an impedance range of 3% to 5%, and shall have a minimum reactance of 2% in order to prevent excessive neutral current when supplying loads with large amounts of third harmonic.

B.28.5 Three phase transformer secondary neutral terminals shall be sized for 200% of the secondary phase current.

B.30.6 The maximum temperature of the top of the enclosure shall not exceed 50°C rise above a 40°C ambient.

B.28.7 Transformers of 500KVA or smaller shall be listed by Underwriters Laboratory.

B.28.8 The Service Provider shall provide additional external vibration dampening and isolating means for mounting all transformers to floors, walls and building strut.

B.28.9 All newly installed transformers have copper windings

B.28.10 When transformer is mounted in from ceilings it must be approved by MSCS first before installation.

B.29 PANELBOARDS

B.29.1 Provide circuit breaker board type panelboards.

B.29.2 Panel boards shall be Square "D".

B.29.3 Provide panel boards of circuit breaker, dead-front safety type, UL labeled and meeting all applicable requirements of the National Electrical Manufacturers Association.

B.29.4 Provide panel boards with 75°C or higher rated (both main lugs and branch circuit lugs) suitable and UL approved for both aluminum and copper conductors.

B.29.5 Provide electrically isolated factory installed neutral bus.

B.29.5.A Provide separate, ground bus complete with lugs or connections on bar. Where noted provide an additional electrically isolated ground bar.

B.29.5.B Provide panelboards with distributed phase busing for: 120/208 volts 277/480 volts as noted. All bus to be tin-plated copper.

B.29.5.C Provide panel doors equipped with chrome-plated locks and catches, all keyed alike. Provide two keys for each lock. Provide fronts with adjustable indicating trim clamps. Provide a separate pad-lockable hasp and install all panels using 1/8 "zinc plated steel rivets.

B.29.5.D Provide bolt-on, thermal magnetic circuit breakers, inverse time delay and instantaneous circuit protection. Wiring connections shall be rated at 75°C or higher. Circuit breakers shall be calibrated to carry 100% rated current in a 40°C ambient and shall be self-derating in higher temperature environments to properly protect the conductor. Breakers to be quick-make, quick-break type with trip indication shown by handle position other than ON or OFF and with a common trip on all multi-pole breakers.

B.29.5.E The interrupting rate of the circuit breakers shall be at least equal to the available short circuit current at the line terminals of the circuit breaker and shall conform to UL listed integrated short circuit current rating specified for the panelboards and switchboards. Branch circuit breakers shall be 10,000 AIC rated for 240 VAC and lower potential, 14,000 AIC for 277 to 480 VAC potentials unless a higher AIC is noted otherwise. Series rating in accordance with UL is allowed to meet this requirement.

B.29.5.F Refer to drawings for numbers of branch circuits, their ratings, number of poles, arrangements, etc. Panel schedules indicate spaces where bus provisions are to be provided.

B.30 RECEPTACLES

B.30.1 GENERAL PURPOSE OUTLETS

B.30.1.A Hubbell or P&S, duplex, straight blade, specification grade, and side wired Ivory #5352I type or equal.

B.30.1.B COMPUTER OUTLETS (ISOLATED GROUND)

Hubbell or P&S, duplex, straight blade, specification grade, and side wired orange isolated ground #G5262 type or equal.

B.30.1.C COMPUTER OUTLETS (ISOLATED GROUND-SURGE SUPPRESSION)

Hubbell or P&S, duplex, straight blade, specification grade, side wired, orange isolated ground, surge suppression #IG5262OS type or equal.

B.30.1.D COMPUTER OUTLETS (NON - ISOLATED GROUND-SURGE SUPPRESSION)

Hubbell or P&S, duplex, straight blade, specification grade, side wired, blue, surge suppression #5262S type or equal.

B.30.1.E UNINTERRUPTIBLE POWER SUPPLY OUTLETS

Hubbell or P&S, single, locking type, specification grade, side wired, brown NEMA L5-30R type or equal.

B.31 SUPPORTS

All new conduit and cable systems shall be supported from and or attached to the building's structure. The Memphis Shelby County Schools does not recognize, nor will accept the suspended ceiling or its support wires as part of the building's structure.

B.32 TELEPOWER POLE AND ACCESSORIES

B.32.1 Tele power poles and accessories shall be:

B.32.1.A Wire mold – TP 304V

B.32.1.B Wire mold –TP30-B device bracket (Duplex Cover)

B.32.1.C Wire mold – TP30-L device bracket (TVSS Duplex Cover)

B.32.1.D CommScope Systimax Solution or **equivalent** - M106FR2 Modular mounting frame.

B.33 SURFACE RACEWAY AND ACCESSORIES

B.33.1 Panduit Full Channel Solution Surface raceway and accessories shall be:

B.33.1.A Pan Way TG-70

B.33.1.B Panduit Full Channel Solution device mounting bracket TG70DB-X

B.33.1.C Panduit Full Channel Solution entrance end fitting TG70EEIW

B.33.1.D CommScope Systimax Solution or **equivalent** - M106FR4 Modular mounting frame.

B.33.2 In suspended ceiling and raised floor areas where duct, cable trays or conduit are not available, the Service Provider shall bundle, in bundles of 50 or less, horizontal cabling with cable ties snug, but not deforming the cable geometry. Cable bundles shall be supported via "J" hooks attached to the existing building structure and framework at a maximum of five (5) foot intervals. Plenum rated cable ties shall be used in all appropriate areas. The Service Provider shall adhere to the manufacturer's requirements for bending radius and pulling tension of all data and voice cables. Cables shall not be attached to lift out ceiling grid supports or laid directly on the ceiling grid. Cables shall not be attached to or supported by fire sprinkler heads or delivery systems or any environmental sensor located in the ceiling air space.

B.34 CABLE REQUIREMENTS

Bidding companies shall provide pricing based on either "CommScope Systimax Solution or Panduit Full Channel Solution material **or equivalent**. Memphis Shelby County Schools estimates that the primary Service Provider or vendor selected has the potential of providing an average of over 1,000 network cabling drops per year.

B.35 NETWORK CABLING MATERIAL

The following are a list of general list materials that a service provider will use to support low voltage network cabling installations, renovations repairs also including fiber optical cabling in MSCS locations. The robust LAN and WAN networks of MSCS demand the highest grade of material to continue being a top-notch infrastructure.

Each respondent must provide information such as part numbers in their proposal with the highest-grade material offered by CommScope Systimax and Panduit full channel solution products or equivalent submitted in their proposal. Each respondent must provide information containing part numbers for associated material that of the highest grade as well. . This list is not exhaustive but an overview of some of the materials used in projects for MSCS:

<u>REQUESTED ITEM</u>	<u>TURN-KEY INSTALLED PARTS</u>	<u>TOTAL COST</u>
500' "CommScope Systimax	(12-fiber 50 micron OM4	

or equivalent, 12 Strand Indoor /Outdoor Plenum metal clad Cable	Multimode OFNP “plenum” Rated Distribution Cable) CommScope Systimax Solution fiber panel clear top cover, LIU’s, J-Hooks, and proper cable management	
1,000’ CommScope Systimax or equivalent, 12 Strand Indoor /Outdoor Plenum metal clad Cable	(12-fiber 50 micron OM4 Multimode OFNP “plenum” Rated Distribution Cable) "CommScope Systimax Solution fiber panel clear top cover, LIU’s, J hooks, and proper cable management	
1,500’ "CommScope Systimax or equivalent, 12 Strand Indoor /Outdoor Plenum metal clad Cable	(12-fiber 50 micron OM4 Multimode OFNP “plenum” Rated Distribution Cable) "CommScope Systimax Solution fiber panel clear top cover, LIU’s, J-Hooks, and proper cable management	
125’ “CommScope Systimax Solution or equivalent for all material, Plenum Cat.6 Giga Speed Cable (Orange) or Copper Cable, Enhanced Cat 6a, 4-Pair, 23 AWG, UTP, CMP, Blue, 1000ft/305m	24 port Patch Panels– unloaded – angled / 1’ cat 6a patch cables / J-Hooks / 1” conduit / LD10E18-A Panduit / Single gang surface mount box Almond / Faceplate, 2 or 4 Port, Single Gang, Ivory / 110 Giga Speed Data Jack Mini-Com Module, Cat 6a, UTP, 8pos. 8 wire, Universal, TP Style / M81–246 Blank Ivory	
225’ “CommScope Systimax Solution or equivalent for all material, Plenum Cat.6 Giga Speed Cable (Orange) or Copper Cable, Enhanced Cat 6a, 4-Pair, 23 AWG, UTP, CMP, Blue, 1000ft/305m	24 port Patch Panels– unloaded – angled / 1’ cat 6a patch cables / J-Hooks / 1” conduit / LD10E18-A Panduit / Single gang surface mount box Almond / Faceplate, 2 or 4 Port, Single Gang, Ivory / 110 Giga Speed Data Jack Mini-Com Module, Cat 6a, UTP, 8pos. 8 wire, Universal, TP Style / M81–246 Blank Ivory	
350’ “CommScope Systimax Solution or equivalent for all material, Plenum Cat.6 Giga Speed Cable (Orange) or Copper Cable, Enhanced Cat 6a, 4-Pair, 23 AWG, UTP, CMP, Blue, 1000ft/305m	24 port Patch Panels– unloaded – angled / 1’ cat 6a patch cables / J-Hooks / 1” conduit / LD10E18-A Panduit / Single gang surface mount box Almond / Faceplate, 2 or 4 Port, Single Gang, Ivory / 110 Giga Speed Data Jack	

	Mini-Com Module, Cat 6a, UTP, 8pos. 8 wire, Universal, TP Style / M81–246 Blank Ivory	
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B.36 SCOPE OF REQUEST FOR PROPOSAL

The bid shall include all necessary permits, work and material to complete the installation of Data, Voice, Security Cabling, Electrical Wiring, and Equipment as per these specifications, the 2005 National Electrical Code and the Memphis-Shelby County Electrical Code.

B.36.1 Channel Performance of Cabling

B.36.1.A The selected Provider shall guarantee the following Full Channel Performances for the services provided to the Shelby County Board of Education.

B.36.1.A.1 All balanced twisted pair cable and apparatus shall conform to the Category 6 / 6a component specifications and the installed channels shall comply with the Category 6/class a Channel Performance Specification.

B.36.1.A.2 The balanced twisted pair cable and apparatus channel performance shall be guaranteed up to the maximum 100 meters (328 feet) length, including up to six connection points.

B.36.1.A.3 The specifications for the 4 pair UTP Category 6 / 6a channel are divided into two primary groups based upon high performance and premium performance cable. The Category 6 /6a channel shall consist of all cable and components with up to six connections that comprise the full 100 meter (328 feet) length circuit from the Hub/Server/LAN Electronics port located in the Telecommunications Room or the main data administration location to the voice/data/video/imaging device port located at the User Work Station.

B.36.1.A.4 The premium performance Category 6 / 6a cable shall provide a guaranteed NEXT/PSNEXT margin of 8 dB over the Category 6 / 6a specifications

B.36.1.A.5 The Category 6 /6a, 4 pair UTP channel shall support emerging high-bandwidth applications, including 1 Gbps Ethernet, potentially 1.2 Gbps ATM and 2.4 Gbps ATM, IEEE 1394B S400, Multi-Tasked Split Screen Computing, Virtual Holographic Video Conferencing, Instant Access Telemedicine, 3D CAD/CAM Engineering, Internet-Intranet Communications/Commerce, as well as all 77 channels (550 MHz) of analog broad band video.

B.36.1.A.6 The Category 6 /6a cable and Category 6 channel components shall be manufactured by a single manufacturer. The manufacturer shall warrant the Category 6 /6a channel cable, components, and applications for a period of 20 years.

B.36.1.A.8 The Delay Skew on the 100 meter channel shall not exceed 30 ns.

B.36.1.A.9 The Category 6 or 6a cable and components shall be electrically backward compatible with existing Category 3, 5, and 5e.

B.36.1.A.10 The Category 6 or 6a components shall be engineered and manufactured to compensate for any compliant Category 3, 5 or 5e component crosstalk and shall provide at least Category 3, 5 or 5e performance in all of the customer's existing installed base of voice/data/video, based on the lowest category of component in the channel.

B.36.1.A.11 The Category 6 or 6a cable and components shall be physically compatible with existing installed base of equipment.

B.36.1.A.12 The Category 6 or 6a cable and components shall not require special cords, specialty tools or special installation requirements.

B.36.1.A.13 The guaranteed channel performance specifications of the Category 6 or 6a Channel described above with cable, cords, outlets manufactured by the same manufacturer and four (4) or six (6) connections for 100 meters shall be as shown in the following tables:

B.36.1.A.13.a Category 6a, 6-connection, (High Performance)

Guaranteed Channel Performance Specifications for 6-Connection High Performance Category 6 Systems

Frequency (MHz)	1	4	8	10	16	20	25	31.25	62.5	100	200	250
Insertion Loss (dB)	2.1	3.9	5.4	6.1	7.7	8.7	9.7	10.9	15.8	20.4	30.3	34.5
NEXT (dB)	69.0	67.0	62.2	60.6	57.2	55.6	54.0	52.4	47.4	43.9	38.8	37.1
ACR (dB)	66.9	63.2	56.7	54.5	49.5	47.0	44.3	41.5	31.6	23.5	8.5	2.6
PSNEXT (dB)	67.5	66.0	61.1	59.5	56.1	54.5	52.8	51.2	46.1	42.6	37.4	35.7
PSACR (dB)	65.4	62.1	55.7	53.4	48.4	45.8	43.1	40.3	30.3	22.1	7.1	1.2
ELFEXT (dB)	67.3	55.2	49.2	47.3	43.2	41.2	39.3	37.4	31.3	27.3	21.2	19.3
PSELFEXT (dB)	66.3	54.2	48.2	46.3	42.2	40.2	38.3	36.4	30.3	26.3	20.2	18.3
Return Loss (dB)	21.0	21.0	21.0	21.0	20.0	19.5	19.0	18.5	16.0	14.0	11.0	10.0
Delay (ns)	580	562	557	555	553	552	551	550	549	548	547	546
Delay Skew (ns)	30	30	30	30	30	30	30	30	30	30	30	30

Note: The table provides reference values only. All parameters comply with the governing equations given over the entire frequency range. All values and equations apply to worst-case channels utilizing four-pair High Performance series cables with full cross-connects, consolidation points and work area outlets (6 connectors in a channel) for any channel lengths up to 100 meters.

Category 6 channel, 6-connection, (High Performance)

Electrical Parameter

(1 - 250MHz)

Guaranteed Margins to draft Category 6 / Class E channel Specifications

Insertion Loss 4 %

NEXT 4 dB

PSNEXT 5.5 dB

ELFEXT 4 dB

PSELFEXT 6 dB

Return Loss 2 dB

B.36.1.A.13b Category 6 channel, 4-connection (High Performance)

Guaranteed Channel Performance Specifications for 4-Connection High Performance Category 6 Systems

Frequency (MHz)	1	4	8	10	16	20	25	31.25	62.5	100	200	250
Insertion Loss (dB)	2.0	3.8	5.4	6.0	7.6	8.6	9.6	10.8	15.6	20.2	30.0	34.1
NEXT (dB)	71.0	69.0	64.2	62.6	59.2	57.6	56.0	54.4	49.4	45.9	40.8	39.1
ACR (dB)	69.0	65.2	58.8	56.6	51.6	49.1	46.4	43.6	33.7	25.7	10.8	5.0
PSNEXT (dB)	69.5	68.0	63.1	61.5	58.1	56.5	54.8	53.2	48.1	44.6	39.4	37.7
PSACR (dB)	67.5	64.2	57.7	55.5	50.4	47.9	45.2	42.4	32.4	24.3	9.4	3.5
ELFEXT (dB)	69.3	57.2	51.2	49.3	45.2	43.2	41.3	39.4	33.3	29.3	23.2	21.3
PSELFEXT (dB)	68.3	56.2	50.2	48.3	44.2	42.2	40.3	38.4	32.3	28.3	22.2	20.3
Return Loss (dB)	23.0	23.0	23.0	23.0	22.0	21.5	21.0	20.5	18.0	16.0	13.0	12.0
Delay (ns)	580	562	557	555	553	552	551	550	549	548	547	546
Delay Skew (ns)	30	30	30	30	30	30	30	30	30	30	30	30

Note: The table provides reference values only. All parameters comply with the governing equations given below over the entire frequency range. All values and equations apply to worst case channels utilizing four-pair High Performance series cables with full cross-connects, consolidation points and work area outlets (4 connectors in a channel) for any channel lengths up to 100 meters.

Electrical Parameter
(1 - 250MHz)

Guaranteed Margins to draft Category 6 / Class E channel
Specifications

Insertion Loss 5 %
NEXT 6 dB
PSNEXT 7.5 dB
ELFEXT 6 dB
PSELFEXT 8 dB
Return Loss 4 dB

B.36.1.B 300 m Laser Optimized 50/125 m Multimode Guaranteed Channel Performance

B.36.1.B.1 The 50/125 m fiber channel shall support single-channel serial transmission, in both the building riser and campus backbones, to 10 gigabits per second (Gb/s) for a distance of 300 meters with up to 5 LC connections.

B.36.1.B.2 The 50/125 m fiber channel shall be backward compatible with legacy applications such as: Ethernet, Token Ring, FDDI, Fast Ethernet and ATM for in-building network distances) ensuring a smooth migration path from 10Mb/s to 10 GB/s using achievable technology.

B.36.1.B.3 The channel shall support 10 Gb/s short wavelength (850 nm) emerging technology applications using vertical cavity surface emitting lasers (VCSELs) and low bit rate LED applications for legacy systems.

B.36.1.B.4 The 50 m fiber shall be optimized to control differential mode delay (DMD) so that “pulse splitting” at 10 GB/s is eliminated.

B.36.1.B.5 The high performance fiber shall use the same termination and test procedures that are currently used for the existing industry's lower performance 50 m fiber. Fibers shall be manufactured with dual acrylate coating for maximum color retention and protection.

B.36.1.B.6 A single manufacturer shall manufacture the 50 m fiber cable, 50 m fiber connectors, 50 m patch cords and apparatus, which comprise the channel.

B.36.1.B.7 The 50 m fiber shall meet or exceed the following standards, as applicable, for OSP or Plenum cables: ICEA S-83-596, ISO/IEC-794, GR-409, TIA/EIA455, TIA/EIA492, TIA/EIA568-B, ANSI-FDDI, IEEE 802, UL 910, OFNP classification as described in the National Electric Code (NEC2), OFN-LS Low Smoke Cables, CSA Certified (OFN FT4/FT6) and approved component industry standards.

B.36.1.B.8 The manufacturer shall warrant the 10 GB/s channel's cable, components, and applications for a period of 20 years.

B.36.1.B.9 The 20-year warranty shall be a transferable warranty and include all labor to replace any defective components as well as the component replacement.

B.36.1.C 150 m 50/125 m Multimode Guaranteed Channel Performance

B.36.1.C.1 The 50/125 m fiber channel shall support single-channel serial transmission, in both the building riser and campus backbones, to 10 gigabits per second (Gb/s) for a distance of 150 meters with up to 6 LC connections.

B.36.1.C.2 The 50/125 m fiber channel shall be backward compatible with legacy applications such as: Ethernet, Token Ring, FDDI, Fast Ethernet and ATM for in-building network distances) ensuring a smooth migration path from 10Mb/s to 10 GB/s using achievable technology.

B.36.1.C.3 The channel shall support 10 Gb/s short wavelength (850 nm) emerging technology applications using vertical cavity surface emitting lasers (VCSELs) and low bit rate LED applications for legacy systems.

B.36.1.C.4 The 50 m fiber shall be optimized to control differential mode delay (DMD) so that "pulse splitting" or modal dispersion at 10 GB/s is eliminated.

B.36.1.C.5 The high performance fiber shall use the same termination and test procedures that are currently used for the existing industry's lower performance 50 m fiber. Fibers shall be manufactured with dual acrylate coating for maximum color retention and protection.

B.36.1.C.6 A single manufacturer shall manufacture the 50 m fiber cable, 50 m fiber connectors, 50 m patch cords and apparatus, which comprise the channel.

B.36.1.C.7 The 50 m fiber shall meet or exceed the following standards, as applicable, for OSP or Plenum cables: ICEA S-83-596, ISO/IEC-794, GR-409, TIA/EIA455, TIA/EIA492, TIA/EIA568-B, ANSI-FDDI, IEEE 802, UL 910, OFNP classification as described in the National Electric Code (NEC2), OFN-LS Low Smoke Cables, CSA Certified (OFN FT4/FT6) and approved component industry standards.

B.36.2 Outlets

B.36.2.A Outlet Locations

B.36.2.A.1 Unless otherwise noted on the floor plans or within this document, all voice and data wall outlets for 23/24 AWG balanced twisted pair cable shall be:

B.36.2.A.1.a 8-position/ 8-conductor modular outlets

B.36.2.A.1.b Insulation displacement

B.36.2.A.1.c Support Universal applications in a multi-Service Provider environment, accepting modular RJ-45 plugs.

B.36.2.A.1.d Provided with blank module inserts for all unused module locations. Jack module arrangement is shown on the drawings. Provide color coded inserts at each outlet, termination block and at patch panels as shown on the drawings.

B.36.2.A.1.e Mounted in one, two or three gang utility outlet boxes.

B.36.2.A.1.f Equipped with EIA/TIA-T568A and EIA/TIA-T568B universal wiring labels.

B.36.2.B Category 6 /6a Gigabit outlets

B.36.2.B.1 All Category 6 / 6a outlets shall meet or exceed Category 6 /6a transmission requirements for connecting hardware, as specified in TIA/EIA 568-B.2-1 Commercial Building Telecommunications Cabling Standard and ISO/IEC11801:2002 Second Edition.

B.36.2.B.2 The Category 6 /6a outlets shall be backward compatible with Category 5e, 5 and 3 cords and cables.

B.36.2.B.3 The Category 6 /6a outlets shall be of a universal design supporting T568 A & B wiring. The lead frame pins will consist 1.27 micron gold plating, over 2.54 micron nickel, over the base metal phosphorus bronze and will be rated for 200 re-terminations and 750 insertions.

B.36.2.B.4 The Category 6 /6a outlets shall be capable of being in a modular patching situation or as a modular telecommunication outlet (TO) supporting current 10BASE-T, Token Ring, 100 Mbps TP-PMD, 155 Mbps ATM, 622 Mbps ATM using parallel transmission schemes and evolving high-speed, high-bandwidth applications, including Ethernet, 1000BASE-T and 1.2 Gbps ATM.

B.36.2.B.5 The Category 6 / 6a outlets shall be capable of being installed at either a 45 or a 90 angle in the faceplate, frame, or surface-mounted box avoiding the need for special faceplates. Terminations will be rated at 200 with 750 insertions.

B.36.2.B.6 The Category 6 / 6a outlets shall have improved pair splitters and wider channel for enhanced conductor placement, and have a current rating of 1.5 Amps. The outlet shall also have a low-profile wire cap, which protects against contamination and secures the connection. Multicolored identification labels shall be available to assure accurate installation.

B.36.2.B.7 General Specifications:

B.36.2.B.7.a Meets or exceeds the mechanical, electrical, and clearance specifications in FCC Rules and Regulations, Part 68, Subpart F

B.36.2.B.7.b Meet or exceed the Category 6 / 6a requirements in ISO/IEC 11801, CENELEC EN50173, and TIA/EIA568B

B.36.2.B.7.c Certifications: UL Listed, CSA Certified and AUSTEL approved.

B.36.2.B.8 The Category 6 / 6a outlets shall meet the following Guaranteed Margin Performance and Physical Specifications:

B.36.2.B.8.a Guaranteed Margi Category 6a

Outlet

High Performance

Channel

Premium

Performance Channel

(4 Connections)

Typical Worst

Pair Margin*

Guaranteed

Margin**

Guaranteed

Margin**

Insertion Loss 26.9% 5.0% 7.5%

NEXT 5.4 dB 6.0 dB 7.0 dB

PSNEXT 4.7 dB 7.5 dB 8.5 dB

ELFEXT 10.5 dB 6.0 dB 8.0 dB

PSELFEXT 10.8 dB 8.0 dB 10.0 dB

Return Loss 8.0 dB 4.0 dB 4.0 dB

Frequency Range 1-250 MHz 1-250 MHz 1-250 MHz

*** Typical worst pair swept margin when measured with same manufacturer's Category 6a modular patch cord.**

****Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6a apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6a/Class E channel specifications.**

B.36.2.B.8.b Physical Specifications:

Dimensions 0.8 in (20 mm) W x 0.8 in (20 mm) H x 1.2 in (31 mm) D

Plastic High-impact, flame-retardant, UL rated 94V-0 thermoplastic

Connector Copper alloy, 100 micro-inch bright solder over 100 micro-inch nickel

Under plate

Outlet Wires Copper alloy, 50 micro-inch lubricated gold plating over 100 micro-inch nickel

Under plate

Operating Temperature 14°F to 140°F (-10°C to 60°)

Storage Temperature Range -40°F to 158°F (-40°C to 70°C)

Humidity 95% (noncondensing)

Nominal Solid Conductor Diameter: 0.025 to 0.020 in (22 to 24 AWG)

Nominal Stranded Conductor Diameter 0.64 to 0.51mm (22 to 24 AWG)

Plug Retention Force 30lb (133 N) minimum

Plug / Jack Contact Force 100 grams minimum per contact using FCC-8

Position telecommunication plug

Insertion Life 750 cycles minimum using FCC-8 position
Telecommunication plug

B.36.3 Cable

B.36.3.A Category 6a UTP, 4 Pair (High Performance)

B.36.3.A.1 The high performance Category 6a UTP cable shall be of the traditional round design with Mylar bisector tape.

B.36.3.A.2 The cable shall support Voice, Analog Baseband Video/Audio, Fax, Modem, Switched-56, T-1, SDN, RS-232, RS422, RS-485, 10BASE – T Ethernet, Token Ring, 100Mbps TP-PMD, 100BASE-T Ethernet, 155 Mbps ATM, AES/EBU Digital Audio, 270 Mbps Digital Video, 622 Mbps 64-CAP ATM and emerging high-bandwidth applications, including 1 Gbps Ethernet, gigabit ATM, IEEE 1394B S100 and S400, as well as all 77 channels (550 Mhz) of analog broadband video.

B.36.3.A.3 The cable jacket shall comply with Article 800 NEC for use as a plenum or non-plenum cable. The 4 pair UTP cable shall be UL and c (UL) Listed Type CMP (plenum) or CM (non-plenum).

B.36.3.A.4 Performance shall be characterized to 550 MHz to support high-bandwidth video applications

B.36.3.A.5 All Category 6a high performance cables shall the following specification:

B.36.3.A.5.a Specifications:

Plenum Rated

Weight 25.3 lb (1000 ft) 29 lb (1000 ft)

Jacket Thickness .022 in .020 in

Outside Diameter 0.232 in 0.22 in

Conductor Diameter .022 in .022 in

Insulation Type High density Polyethylene Fluorinated-Ethylene-Propylene

Jacket Material PVC Low Smoke PVC

Maximum Pulling Tension 25 lbs 25 lbs

Nom. Velocity of Propagation 0.69 0.72

Max DC Resistance 9.83 Ohms/100m 9.83 Ohms/100m

Mutual Capacitance @ 1 kHz 4.95 nF/100m 4.78 nF/100m

Operating Temperature -20 to 60° C -20 to 60° C

UL Type CMR & CMG CMP

B.36.3.A.6 The high performance Category 6a cable shall be specified to 550 MHz and shall meet the guaranteed swept margin as follows:

B.36.3.A.6.a Guaranteed Margin:

High

Performance

Cable

High

Performance

Channel

Premium

Performance
Channel
(4 Connections)
Typical Worst
Pair Margin*
Guaranteed
Margin**
Guaranteed
Margin**
Insertion Loss 3.0 % 5.0% 7.5%
NEXT 6.0 dB 6.0 dB 7.0 dB
PSNEXT 6.0 dB 7.5 dB 8.5 dB
ELFEXT 5.0 dB 6.0 dB 8.0 dB
PSELFEXT 5.0 dB 8.0 dB 10.0 dB
Return Loss 4.0 dB 4.0 dB 4.0 dB
Frequency Range 1-550 MHz 1-250 MHz 1-250 MHz

*** Typical worst pair swept margin.**

****Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the TIA/EIA Category 6/Class E channel specifications.**

B.36.3.B Category 6a UTP, 4 Pair (Premium Performance)

B.36.3.B.1 The premium performance Category 6a UTP cable shall be a fluted (cross separator) design.

B.36.3.B.2 The cable shall support Voice, Analog Baseband Video/Audio, Fax, Modem, Switched-56, T-1, ISDN, RS-232, RS422, RS-485, 10BASE – Ethernet, Token Ring, 100Mbps TP-PMD, 100BASE-T Ethernet, 155 Mbps ATM, AES/EBU Digital Audio, 270 Mbps Digital Video, 622 Mbps 64-CAP ATM and emerging high-bandwidth applications, including 1 Gbps Ethernet, IEEE 1394B S100 and S400, gigabit ATM, as well as all 77 channels (550 Mhz) of analog broadband video.

B.36.3.B.3 The premium performance Category 6a UTP cable shall provide **guaranteed margin (headroom)** of 10dB above TIA/EIA Category 6a standard NEXT and PS NEXT requirements; and shall provide positive ACR to 461 MHz

B.36.3.B.4 Cable jacket shall comply with Article 800 NEC for use as a plenum or non-plenum cable. The four pair UTP cable shall be UL and c (UL) Listed Type CMP (plenum).

B.36.3.B.5 All Category 6a premium performance cables shall meet the following specifications:

B.36.3.B.6.a Specifications:

Plenum

Weight 28.5lb (12.93kg) 32.7lb (14.38kg)

Jacket Thickness 0.020 in (0.50 mm) 0.017 in (0.43 mm)

Outside Diameter 0.25 in (6.4 mm) 0.23 in (6.1 mm)

Conductor Diameter 0.0225 in (0.57 mm) 0.0225 in (0.57 mm)

Insulation Type High-density Polyethylene Fluorinated-Ethylene-Propylene

Jacket Material PVC Low Smoke PVC

Maximum Pulling Tension 25 lbs. 25 lbs.

Nom. Velocity of Propagation 0.69 0.72
Max DC Resistance 9.83 Ohms/100m 9.83 Ohms/100m
Mutual Capacitance @ 1 kHz 4.95 nF/100m 4.78nF/100m
Operating Temperature -20° to 60° C -20° to 60° C
UL Type CMR & CMG CMP

B.36.3.B.7 The premium performance Category 6a cable shall be specified to 550 MHz and shall meet the guaranteed swept as follows:

B.36.3.B.7.a Guaranteed Margin:

High
Performance
Cable
High
Performance
Channel
Premium
Performance
Channel
(4 Connections)
Typical Worst
Pair Margin*
Guaranteed
Margin**
Guaranteed
Margin**
Insertion Loss 3.0 % 5.0% 7.5%
NEXT 6.0 dB 6.0 dB 7.0 dB
PSNEXT 6.0 dB 7.5 dB 8.5 dB
ELFEXT 5.0 dB 6.0 dB 8.0 dB
PSELFEXT 5.0 dB 8.0 dB 10.0 dB
Return Loss 4.0 dB 4.0 dB 4.0 dB
Frequency Range 1-550 MHz 1-250 MHz 1-250 MHz

*** Typical worst pair swept margin.**

****Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6a apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the TIA/EIA category 6a/Class E channel specifications.**

B.36.3.C Balanced twisted pair cable - Building Riser

B.36.3.C.1 Shielded or unshielded 24AWG multi-pair copper cables shall be used as the vertical riser cables. The cable shall support voice and data applications.

B.36.3.C.1.a Shielded

B.36.3.C.1.a.i The shielded no plenum cable shall consist of solid-copper conductors insulated with expanded polyethylene covered by a PVC skin, be conformance tested to meet TIA/EIA568-B for Category 3 cables, be UL and c (UL) Listed as CMR. The core shall be overlaid with a corrugated aluminum sheath, which is adhesively bonded to an outer jacket of PVC plastic to form an ALVYN sheath.

B.36.3.C.1.a.ii The PVC sheath shall have improved frictional properties, allowing it to be pulled through conduit without the use of lubricants.

B.36.3.C.1.a.iii The cable shall be available in 25, 50, 100, 150, 200, 300 pair counts.

B.36.3.C.1.a.iv UL and c (UL) Listed for Fire Safety

B.36.3.C.1.a.v ISO 9001 Certified Manufacturer

B.36.3.C.1.a.vi Balanced twisted pair riser cable shall meet or exceed the following electrical specifications listed below:

Electrical Specifications:

Average DC Resistance 26.5/1,000 ft (8.7/100m), maximum

Average DC Resistance Unbalance 1.7%, maximum

Mutual Capacitance @ 1 kHz 16 nF/1000 ft (5.25 nF/100 m), maximum

Capacitance Unbalance (pair to ground) 201pF/1,000 ft (65.94 pF/100m) maximum

Attenuation (dB/100 m [328 ft.] :

Frequency Attenuation (Max.)

1.00 MHz 2.3 dB

4.00 MHz 4.9 dB

10.00 MHz 8.5 dB

16.00 MHz 12 dB

Worst Pair Near-End Crosstalk (NEXT) dB/100 m [328 ft]:

Frequency Pair-To-Pair

NEXT (Max.)

1.0 MHz 13.8 dB

4.0 MHz 11.2 dB

10.0 MHz 10.2 dB

16.0 MHz 9.2 dB

B.36.3.C.1.b Non-shielded Plenum 25, 50 and 100 pair

B.36.3.C.1.b.i Non-shielded plenum cable shall consist of 24-AWG solid-copper conductors insulated with color coded PVC, 25 pair cable shall be UL Verified to TIA/EIA568-B for Category 3.

B.36.3.C.1.b.ii UL and c (UL) Listed for Fire Safety

B.36.3.C.1.b.iii ISO 9001 Certified Manufacturer

B.36.3.C.1.b.iv The non-shielded cable shall be available in 25, 50 and 100 pair. The balanced twisted pair cable shall meet or exceed the following electrical specifications listed below:

Electrical Specifications:

Maximum DC Resistance 28.6 /1,000 ft (9.4 /100m)

Maximum DC Resistance Unbalanced 5%

Maximum Capacitance Unbalanced (pair

To ground)
1,000 pF/1000 ft. (328 pF/m)
Mutual Capacitance @ 1 kHz 18 nF/1000 ft (5.9 nF/100 m), maximum

Attenuation (dB/100 m [328 ft.]):

Frequency Attenuation (Max.)

1.00 MHz 2.3 dB
4.00 MHz 4.9 dB
1
0.00 MHz 8.5 dB
16.00 MHz 12 dB

Worst Pair Near-End Crosstalk (NEXT) dB/100 m [328 ft]:

Frequency Pair-To-Pair NEXT (Max.)

1.0 MHz 13.8 dB
4.0 MHz 11.2 dB
10.0 MHz 10.2 dB
16.0 MHz 9.2 dB

B.36.3.C.1.c Non-shielded 200 and 300 pair

B.36.3.C.1.c.i 24 AWG twisted pair copper conductors individually insulated with various PVC compounds and sheathed with a PVDF outer jacket. For use in building backbone applications between the equipment room and the telecommunications rooms. Can be connected in the field or terminated on 110 Wiring Blocks.

B.36.3.C.1.c.ii The cables are compliant to TIA/EIA568-A Category 3 backbone cable specification. The cables support the following applications: Analog and digital voice, ISDN, IEEE 802.5 4 Mbps, IEEE 802.3 10BASE-T, 10Mbps ETHERNET, 100 VG-ANYLAN.

B.36.3.C.1.c.iii The cables are plenum rated for use in air handling ducts and spaces in accordance with Article 800 of the National Electrical Code (NEC). The cable is UL (USA) & c (ul) (Canada) listed type CMP/MPP for this application by passing UL 910 (Steiner Tunnel) test.

B.36.3.D Balanced twisted pair cable – Campus

B.36.3.D.1 Outside Plant Balanced twisted pair Cables

B.36.3.D.1.a All voice grade wire and cable placed in the outside environment shall be solid, twisted pair, and multi-conductor. The copper twisted pairs shall have a mutual capacitance at 1 kHz of 15.7 nF/1,000 ft. The cable shall be resistant to mechanical damage, lightning or damage from wildlife.

B.36.3.D.1.b The aerial air core cable shall be a self-supporting or lashed cable consisting of plastic -insulated solid conductors covered by a plastic core wrap and surrounded by an inner polyethylene jacket, a corrugated aluminum shield, a corrugated steel wrap and a bonded polyethylene jacket (PASP).

B.36.3.D.1.c The buried or underground cable shall have an aluminum steel polyethylene (ASP) sheath and a core of solid-copper conductors, dual insulated with foam skin and plastic, surrounded by filling compound.

B.36.3.D.1.d ISO 9001 Certified Manufacturer

B.36.3.D.1.e The multi-pair balanced twisted pair cables shall meet the following specifications:

Physical Specifications:

Gauge 24 AWG
Pair Size 25 to 1,800

Electrical Specifications:

DC Resistance 27.3/1000 ft (8.96/100m), maximum

Mutual Capacitance (@ 1 kHz) 15.7 nF/1000 ft (5.15 nF/100m) (25 pair), maximum
Impedance 100 (25 pair)

Buried/Underground Cable Attenuation (db/1,000 ft [305m]):

At 772 kHz 5.6 (25 pair), maximum
At 1.0 MHz 6.4 (25 pair), maximum

Aerial Cable Attenuation (dB/1,000 ft [305m]):

At 772 kHz 5.9 (25 pair), maximum
At 1.0 MHz 6.7 (25 pair), maximum

B.36.3.E Category 6a outside plant cable – 4 pair UTP

B.36.3.E.1 The Category 6a OSP Cable shall be used for very low count user locations that need an end-to-end solution for a campus link back to a telecommunications room.

B.36.3.E.2 The cable shall be used with the Category 6a Protector Unit specified under balanced twisted pair Cable Protection Units in this document.

B.36.3.E.3 The 23 gauge cable shall consist of polyethylene, insulated conductors, twisted into four pairs, stranded around a polyolefin center member, filled with a flooding compound and jacketed with a black polyethylene jacket.

B.36.3.E.4 The cable shall be fully compliant Category 6a requirements of TIA/EIA 568-B.2-1 and ISO/IEC 11801.

B.36.3.E.4.a Physical Specification:

Gauge 23 AWG
Weight 27 lbs. /1000 ft.
Cable Diameter 0.250 in.
Pair Count 4
Operating Temperature -40° to 158° F (-40° to 70° C)
Installation Temperature 32° to 140° F (-0° to 60° C)
Max Pulling Tension 50 lbs.

B.36.3.E.4.b Electrical Specification:

Nom. Velocity of Prop. (NVP) 0.62
Max. DC Resistance 8.16 Ω /100m
Max. DC Resistance Unbal 2.5%
Mut. Capacitance @ 1 kHz 5.2 nF/100m

B.36.3.E.4.c Minimum Electrical Specifications dB/328 ft. (dB/100M)

Frequency
 (MHz)/100m)
 (DB/100m)
 (DB/100m) (DB/

Insertion Loss
 (Db/100M)

NEXT
 (Db/100M)

PS-NEXT
 (Db/100M)

ELFEXT
 (Db/100M)

PS-ELFEXT
 (Db/100M)

RL
 (Db)

1	2.0	74.3	72.3	67.8	64.8	20.0
4	3.8	65.3	63.3	55.8	52.8	23.0
8	5.3	60.8	58.8	49.7	46.7	24.5
10	6.0	59.3	57.3	47.8	44.8	25.0
16	7.6	56.2	54.2	43.7	40.7	25.0
20	8.5	54.8	52.8	41.8	38.8	25.0
25	9.5	53.3	51.3	39.8	36.8	24.3
31.25	10.7	51.9	49.9	37.9	34.9	23.6
62.5	15.4	47.4	45.4	31.9	28.9	21.5
100	19.8	44.3	42.3	27.8	24.8	20.1
155	25.2	41.4	39.4	24.0	21.0	18.8
200	29.0	39.8	37.8	21.8	18.8	18.0
250	32.8	38.3	36.3	19.8	16.8	17.3

B.36.4 The high density Category 6 / 6a patch panel system

B.36.4.A The high density Category 6 / 6a patch panel system shall support emerging high bandwidth applications, including 1 Gbps Ethernet, potentially 1.2 Gbps ATM and 2.4 Gbps ATM, Multi-Tasked Split Screen Computing, Virtual Holographic Video Conferencing, Instant Access Telemedicine, 3D CAD/CAM Engineering, Internet-Intranet Communications/Commerce, as well as all 77 channels (550 MHz) of analog broad band video. The high density Category 6 / 6a patch panel system shall incorporate a lightweight structural foam back panel. The footprint of the back panel shall be same as traditional 110 system wall mounting hardware but shall be capable of 336 conductor pair terminations instead of the traditional 300 conductor pairs. The high density Category 6 / 6a patch panel system shall facilitate the stacking of 3 panels to create a vertical field capable of 1008 terminations of conductors versus the 900 terminations of traditional systems. The three (3) panel high vertical field shall allow installation of 252 4-pair patch cords.

B.36.4.B All high density category 6 / 6a patch panel system components shall snap together without the use of tools. In addition to a lightweight structural foam back panel, the system shall consist of the following:

B.36.4.B.1 High-Density Wiring Block

B.36.4.B.2 Back panels that shall hold twelve (12) snap-in 110 wiring blocks. The snap-in wiring blocks shall terminate up to 28 pairs per row versus 25 pairs per row in the traditional 110 wiring block. The high-density wiring blocks shall utilize traditional IDC conductor spacing to maintain the highest density per square foot of wall space in the telecommunications room.

B.36.4.B.3 The high-density wiring block shall allow the connection of seven (7) 4-pair patch cords per row versus six (6) for traditional 110 wiring blocks. One back panel with 12 high-density wiring blocks shall allow the connection of eighty-four (84) 4-pair patch cords versus seventy-two (72) for traditional 300 pair 110 patch panels.

B.36.4.B.4 Each high-density wiring block shall utilize a snap-on cover plate for cable termination protection and for labeling of the conductor pairs/cables

B.36.4.B.5 Distribution rings for vertical cable management shall snap into the sides of the structural foam back panel.

B.36.4.B.6 The manufacturer shall have a website available to the end-user for printing custom labels for the high-density wiring blocks.

B.36.5 Category 6 / 6a modular patch panels

B.36.5.A 24 and 48 port patch panels with 110 IDC connector terminations on rear

B.36.5.A.1 The panel shall have electrical performance guaranteed to meet or exceed TIA/EIA 568-B.2-1 Category 6 / 6a and ISO/IEC Category 6/Class E specifications.

B.36.5.A.2 The panel shall have vertical and horizontal cord organizers available as to improve patch cord management, in addition to having terminations managers to avoid inconsistent terminations.

B.36.5.A.3 The panel shall be available in 24-port and 48-port configurations, with universal A/B labeling and 110 connector terminations on rear of panel allowing for quick and easy installation of 22 to 24 AWG cable.

B.36.5.A.4 The panel shall have a black powder finish over high-strength steel.

B.36.5.A.5 The panel shall be equipped with a removable rear mounted cable management bar and front and rear labels.

B.36.5.A.6 The panel shall be UL listed, UL-C certified and ACA approved.

B.36.5.A.7 The panel shall support network line speeds in excess of 1 gigabit per second and be backward compatible with Category 5e and 5 cords and cables.

B.36.5.A.8 The Category 6a modular jack panels shall meet or exceed the Category 6/Class E standards requirements in ISO/IEC 11801, CENLEC EN 50173 and TIA/EIA and shall be UL Listed.

B.36.5.A.9 The panels shall be either wall or 19-inch rack mountable.

B.36.5.A.10 The panels shall meet the following minimum specifications:

Performance Specifications:

High

Performance

Premium

Performance

Category 6a

Patch Panel

Solution

Category 6a Channel

(4 Connectors)

Typical Worst Guaranteed

Pair Margin* Margin Margin****

Insertion Loss 64.3% 5.0% 7.5%

NEXT 6.6 dB 6.0 dB 7.0 dB

PSNEXT 7.3 dB 7.5 dB 8.5 dB

ELFEXT 6.4 dB 6.0 dB 8.0 dB

PSELFEXT 6.1 dB 8.0 dB 10.0 dB

Return Loss 6.6 dB 4.0 dB 4.0 dB

Frequency Range 1-250 MHz 1-250 MHz 1-250 MHz

* Typical worst pair swept margin when measured with a GS8E modular patch cord.

**Guaranteed margin must be valid at any frequency from 1-250 MHz for a certified channel

Comprising Solution. Values represent margin over the draft Category 6/Class E

Channel specifications.

Physical Specifications:

Dimensions (Width x Height x Depth)

24-Port Patch Panel 19.0 x 1.75 x 1.60 in (48.26 x 4.38 x 4.06 cm) - Universal A/B labeling

48-Port Patch Panel 19.0 x 3.50 x 1.60 in (48.26 x 8.83 x 4.06 cm) - Universal A/B labeling

Intra-bay organizer 20.0 x 3.50 x 4.50 in (50.8 x 8.89 x 11.43 cm) – Front Horizontal/Vertical Routing

Inter-bay organizer 19.0 x 3.50 x 3.75 in (48.26 x 8.89 x 9.53 cm) – Front Horizontal routing

Intra-bay organizer 19.0 x 1.72 x 4.60 in (48.30 x 4.38 x 11.70 cm) - Front & back routing

2U Wall Mount Bracket 19.0 x 3.50 x 3.59 in (48.30 x 8.89 x 12.70 cm)

4U Wall Mount Bracket 19.0 x 7.00 x 3.59 in (48.30 x 17.78 x 12.70 cm)

Operational Specifications:

Operating Temperature Range: 14°F to 140°F (-10°C to 60°C)

Storage Temperature Range: -40°F to 158°F (-40°C to 70°C)

Humidity: 95% (noncondensing)

Nominal Solid Conductor Diameter: 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)

Nominal Stranded Conductor Diameter: 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)

Insulation Size: 0.042 in (1.08 mm) (22 to 24 AWG) Maximum DOD

Insulation Types: All plastic insulates (including PVC, irradiated PVC, Polyethylene, Polypropylene,

PTF Polyurethane, Nylon, and FEP)

Insertion Life: 750 minimum insertions of an FCC 8-Position Telecommunications Plug

Front Panel: Black powder painted steel.

Plastic: High-impact, flame retardant, UL-rated 94V-0 thermoplastic

B.36.5.B 24 and 48 port patch panels with front patch cord retainer & rear cable retainer:

B.36.5.B.1 The Category 6 modular jack panels shall meet or exceed the proposed Category 6 standards requirements in ISO/IEC 11801, CENLEC EN 50173 and TIA/EIA and shall be UL Listed.

B.36.5.B.2 The modular jack panel shall utilize universal A/B wiring.

B.36.5.B.3 The jack panels shall be either wall or 19-inch rack mountable.

B.36.5.B.3.i Physical Specifications:

24 Port Patch Panel 19.0 x 3.50 x 1.25 in (48.26 x 8.90 x 3.20 cm) 2 Rack Unit

Universal A/B labeling

48 Port Patch Panel 19.0 x 5.25 x 1.25 in (48.26 x 13.34 x 3.20 cm) - 3 Rack Unit

Universal A/B labeling

Operating Temperature Range 14°F to 140°F (-10°C to 60°C)

Storage Temperature Range -40°F to 158°F (-40°C to 70°C)

Humidity 95% (noncondensing)

Nominal Solid Conductor Diameter 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)

Nominal Stranded Conductor Diameter 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)

Insulation Size 0.042 in (1.08 mm) (22 to 24 AWG) Maximum DOD

Insulation Types All plastic insulates (including PVC, irradiated PVC

Polyethylene, Polypropylene

PTF Polyurethane Nylon and FEP

Modular Jack Insertions 750 minimum insertions of an FCC 8-Position

Telecommunications Plug

Front Panel Black powder painted steel.

Modular Panels High-impact, flame retardant UL-rated 94V-0 thermoplastic

B.36.5.B.3.ii Guaranteed Margin:

Category 6a	
Patch Panel	
High	
Performance	
Channel	
Premium	
Performance	
Channel	
(4 Connections)	
Typical Worst	
Pair Margin*	
Guaranteed	
Margin**	
Guaranteed	
Margin**	
Insertion Loss	64.8% 5.0% 7.5%
NEXT	6.6 dB 6.0 dB 7.0 dB
PSNEXT	7.2 dB 7.5 dB 8.5 dB
ELFEXT	6.7 dB 6.0 dB 8.0 dB

PSELFEXT 6.4 dB 8.0 dB 10.0 dB
Return Loss 6.7 dB 4.0 dB 4.0 dB
Frequency Range 1-250 MHz 1-250 MHz 1-250 MHz

*** Typical worst pair swept margin when measured with same manufacturer's Category 6a patch cord.**

****Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6/Class E channel specifications.**

B.36.6 Balanced twisted pair patch cords

B.36.6.A Category 6a Patch Cords

B.36.6.A.1 All patch cords shall exceed TIA/EIA and ISO/IEC Category 6a specifications.

B.36.6.A.2 All patch cords shall be backward compatible with Category 5 and Category 5e systems.

B.36.6.A.3 The patch cords shall incorporate an anti-snag feature that provides maximum protection from snagging during moves and rearrangements.

B.36.6.A.4 Patch cords shall be UL listed, UL-C certified and AUSTEL approved.

B.36.6.A.5 Patch cords shall support network line speeds in excess of 1 gigabit per second.

B.36.6.A.6 Patch cords shall be available in stranded and solid conductor in lengths to 100 feet.

B.36.6.A.7 The Category 6a modular patch cord shall have guaranteed margin as follows:

B.36.6.A.7.i Guaranteed Margin:

Category 6a
Modular
Patch Cord
(4 Pair)
High
Performance
Channel
Premium
Performance
Channel
(4 Connections)
Typical Worst
Pair Margin*
Guaranteed
Margin**
Guaranteed
Margin**

Insertion Loss NA 5.0% 7.5%
NEXT 4.4 dB 6.0 dB 7.0 dB
PSNEXT NA 7.5 dB 8.5 dB
ELFEXT NA 6.0 dB 8.0 dB
PSELFEXT NA 8.0 dB 10.0 dB
Return Loss 5.9 dB 4.0 dB 4.0 dB
Frequency Range 1-250 MHz 1-250 MHz 1-250 MHz

*** Typical worst pair swept margin to TIA Patch cord specification when measured with same manufacturer's Category 6a telecommunications outlet.**

****Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6a apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6a specifications.**

B.36.7 Product warranty and application

B.36.7.A The Structured Connectivity Solutions Extended Product Warranty and Application Extended Product Warranty

The Extended Product Warranty covers all passive Registered Service Provider components (i.e., cable and connectivity components that make up the passive data and telecommunications signal transmission infrastructure). "Passive Components" are defined as Service Provider components that exhibit no gain or contribute no energy. The supplier warrants, from the original installation completion date, provided a registration certificate is issued by the supplier to the customer, the following:

B.36.7.A.1 That the Passive Components of Registered Service Provider will be free from manufacturing defects in material and workmanship under normal and proper use;

B.36.7.A.2 That all Passive Components in the Registered Service Provider meet or exceed the relevant component specification of the TIA 568-B series and ISO/IEC 11801: 2002 standards;

B.36.7.A.3 That the Registered Service Provider compliant links/channels will meet or exceed the applicable requirements of the TIA 568-B series, and ISO/IEC 11801: 2002 standards for cabling links/channel configurations specified in these standards;

B.36.7.A.4 That the Registered Service Provider compliant channels will additionally meet or exceed the Guaranteed Channel Performance in the Service Provider Performance Specifications in effect at the time of installation. Under the Extended Product Warranty, the supplier will (or will authorize an installer to) either repair or replace the defective Registered Service Provider product at the supplier's cost. The supplier will pay an installer for the cost of labor to repair or replace any such defective product on behalf of the supplier, provided, that such repair or replacement and associated labor costs receive the prior written approval of the supplier. If the supplier chooses to repair products, the supplier may use new or reconditioned replacement parts. If the supplier chooses to replace products, the supplier may replace such products with new products of the same or similar design. Any such repair or replacement will be warranted for the remainder of the original twenty-year warranty period.

B.36.17 Estimates of Individual Projects

The selected Provider will provide estimates for various individual projects to the Memphis Shelby County Board of Education at no charge. MSCS has the right to accept or reject the estimate for a particular project. That project can be offered to the secondary Service Provider or any Service Provider who meets the qualifications set forth in the RFP. The final decision to choose a Service Provider for any individual project is upon the discretion on MSCS. Any Respondent or Service Provider bidding on the RFP must be certified full channel solution product Provider.

B.37 Contractor-Supplies Material

Unless otherwise specified in these specifications, the contractor is to supply all materials required to complete the work. All materials are to be new and of top quality.

B.37.1 Identification and Location of Existing Underground Utilities and Services

It shall be the responsibility of the contractor to repair at no cost and to the satisfaction of MSCS all existing underground telephone, cable television, electric, gas, and water services, sewers, storm drains, electrical feeders, grounding rings, branch circuits, control wiring, fire alarms, clocks/bells, etc. in the path of specified and/or planned trenches, poles, pads, and fences damaged while providing services to MSCS.

B.37.2 Asbestos

The contractor shall avoid disturbing any asbestos or suspected asbestos-containing material. Each location and/or property has an asbestos plan, showing probable asbestos problem locations. The contractor must contact MSCS for this information. If the contractor encounters asbestos or suspects building materials containing asbestos, that are not shown on the asbestos plans, or if a method of installation to avoid asbestos areas cannot be determined, the contractor shall request guidance from the MSCS representative as how to proceed.

B.37.3 Demolition

All material demolished and salvaged, unless otherwise directed by the owner's representative, are to become the property of the contractor and will be removed from the site prior to job completion.

B.37.4 Protection of Existing Facilities

The contractor will be expected to protect all existing amenities currently incorporated into, or adjacent to, the facility, including shrubbery, sidewalks, etc. Any and all damage to the facility shall be the responsibility of the contractor and shall be restored by him at no additional expense to the owner. Damage to asbestos-containing material is included in this requirement and is to be abated/repared as required by current asbestos regulations. The contractor is advised that current regulations require all work on asbestos-containing materials be accomplished under the direction of the Asbestos Abatement Section. As soon as possible after any such damage occurs, and prior to any abatement or repairs, the owner's representative shall be notified. Costs to repair this damage will be the responsibility of the contractor.

B.37.5 Inspection and Testing

The owner may, at his discretion, engage the services of a testing laboratory to ensure that all materials and workmanship are in accordance with the plans and specification. The testing expense will revert to the contractor should the material or workmanship fail to comply with requirements.

B.37.6 Guarantee

The contractor shall guarantee all work against defects in workmanship and materials for a period of no less than one (1) year. This shall be a written guarantee, submitted on the

contractor's letterhead, covering all materials and assuring all replacements to be made at no expense to the owner.

B.37.7 Asbestos-Construction Materials

The contractor shall supply a written statement, on company letterhead, to the owner, stating that no asbestos-containing building materials were used in this work. Final payment will not be processed until this letter is received.

B.37.8 Final Acceptance

Completion shall be subject to a final inspection by the owner's representative. A submittal of "as built plans" is to be received within one (1) week of punch list completion. The evaluation process involves a thorough review of the proposals and selection of a Service Provider. The selected Service Provider will have performed well in all areas.

B.38 DEFINITIONS

B.38.A Structured Cabling System (the SCS): the SCS is defined as all required cabling including hardware, termination blocks, cross connect wire or cordage, patch panels, patch cords, telecommunication outlets, work area cords, UTP and fiber optic cable installed and configured to provide computer data and voice connectivity from each data or voice device to the network file server or voice network/switch designated as the service point of the local area network.

B.38.B Work Area Subsystem: The connection between the telecommunications outlet and the station equipment in the work area is provided by the Work Area Subsystem. It consists of cords, adapters, and other transmission electronics.

B.38.C Horizontal Subsystem: The Horizontal subsystem Provides connections from the horizontal cross connect to the Telecommunication Outlets (TOs) in the work areas. It consists of the horizontal transmission media, the associated connecting hardware terminating this media and TOs in the work area. Each floor of a building is served by its own Horizontal Subsystem.

B.38.D Riser Backbone: The Riser Backbone subsystem links the main cross connect (MC) in the equipment room to intermediate cross connects (IC) and horizontal cross connects in the telecommunications rooms (TR). It consists of the backbone transmission media between these locations and the associated connecting hardware terminating this media. It is normally installed in a star topology; with first-level backbone cables beginning at the main cross connect. If needed, second-level backbone cables begin at intermediate cross connects.

B.38.E Campus Backbone: A Campus Backbone is used when a distribution system encompasses more than one building. The components and cables that provide the link between buildings constitute the Campus Backbone. This subsystem includes the backbone transmission media, associated connecting hardware terminating this media, and electrical protection devices to mitigate harmful voltages when the media is exposed to lightning and/or power surges. It is normally a first-level backbone cable beginning at the main cross connect in the equipment room of the hub building and extending to the intermediate cross connect in the equipment room of a satellite building.

B.38.F Equipment Subsystem: The Equipment Subsystem consists of shared (common) electronic communications equipment in the equipment room, main cross connect or

telecommunications room and the transmission media required to terminate this equipment on the distribution hardware.

B.38.G The Administration Subsystem: The Administration Subsystem links all of the subsystems together. It consists of labeling hardware for providing circuit identification and patch cords or jumper wire used for creating circuit connections at the cross connects.

B.39 Product Data

B.39.A Provide manufacturer's catalog information showing dimensions, colors, and configurations.

B.39.B Submittals shall include all items called for in PART 2 – PRODUCTS of this document and the manufacturer's cut sheets for the following:

B.39.B.1 All fiber optic and balanced twisted pair cable: to include patch cords, cross connect wire and cross connect cordage.

B.39.B.2 All connectors and required tooling.

B.39.B.3 All termination system components for each cable type.

B.39.B.4 All ER, MC, EF and TR equipment frame types, hardware (and LAN equipment if applicable).

B.39.B.5 All grounding and surge suppression system components.

B.39.B.6 All test equipment to be used for fiber and balanced twisted pair channel.

B.39.B.7 A Performance Specification showing manufacturer's Guaranteed Channel Performance over the full swept frequency range.

B.39.B.8 Technical data sheets shall include the physical specifications as well as the following electrical and transmission characteristics for balanced twisted pair channels:

B.39.B.8.a Mutual Capacitance

B.39.B.8.b Characteristic Impedance

B.39.B.8.c DC Resistance

B.39.B.8.d Insertion Loss (IL)

B.39.B.8.e Pair-to-Pair near End Crosstalk (NEXT)

B.39.B.8.f Power Sum near End Crosstalk (PSNEXT)

B.39.B.8.g ELFEXT (ELFEXT)

B.39.B.8.h Power Sum ELFEXT (PSELFEXT)

B.39.B.8.i Return Loss (RL)

B.39.B.8.j Propagation delay

B.39.B.8.k Delay Skew

PART VI: APPENDICES

APPENDIX A - SPECIAL TERMS AND CONDITIONS FOR RFP'S

These Terms and Conditions shall apply unless otherwise noted in General Terms and Conditions attached to individual bid request. It shall be the Vendor's sole responsibility to insure they are compliant with all applicable federal, state, and city laws, rules, ordinances, statutes, etc., that may impact this contract. SCBE shall bear no responsibility for monitoring the Vendor's compliance with said legal requirements. If the Vendor fails to maintain legal compliance, SCBE may find said Vendor in default.

1. REQUEST FOR PROPOSALS (RFP)

- a. DIRECTIONS: SCBE invites all interested and qualified vendors to submit proposals to this RFP in accordance with directions specified in the attached General Terms and Conditions and these Special Terms and Conditions.
- b. DEFINITIONS: For the purpose and clarity of this document only, "SCBE" will mean The Memphis-Shelby County Schools. Also, for the purpose and clarity of this document, "Vendor" will mean any reliable and interested broker, vendor, supplier, vendor, and/or manufacturer that want to respond to this RFP.

2. GENERAL REQUIREMENTS

- a. AUTHORIZED DEALERS: Only authorized dealers may submit a proposal on requested equipment. At the discretion of SCBE, a certificate, executed by the manufacturer, may be requested stating that the Vendor is an authorized agent of the manufacturer and is duly authorized to service and maintain the equipment.
- b. INSPECTIONS: SCBE reserves the right to have inspectors on the premises of the manufacturer during the process of manufacture of any products being furnished under this RFP for as long as may be considered necessary by SCBE. All expenses of the inspectors shall be borne by SCBE. The presence of the inspectors at the site of manufacture of the products shall not relieve the Awarded Vendor of responsibility for faulty workmanship of materials that may be discovered at any time after delivery and prior to final acceptance in accordance with the specifications. In case of factory inspection of items being manufactured for SCBE, every facility shall be afforded inspectors by the manufacturers for the pursuance of their work.
- c. TYPES OF PURCHASES: These specifications are intended to cover the various types of purchases of equipment, materials, supplies, or services as shown to any or to each of the various public and charter schools, offices, or to any designated warehouse or warehouses in Shelby County.
- d. SINGLE PRICE: Unless otherwise specified in the General Terms and Conditions attached to this RFP, the Vendor will not be allowed to offer more than one price on each item even though the vendor may feel that it has two or more types or styles that will meet specifications. Vendor must determine which to offer. If said Vendor should submit more than one price on any item, all prices for that item will be rejected.
- e. AGGREGATE BIDS: Where provision is made on the proposal form for bidding items on an individual, group or aggregate basis, the award will be made on whichever basis is in the best interest of SCBE. When an aggregate bid is requested, the unit prices for each item shall be identified in the response. The unit prices in an aggregate bid should be

consistent with the total quoted price for an aggregate bid. No bid or a combination of items will be permitted except as noted in the General Terms and Conditions.

- f. **MINIMUM REQUIREMENTS:** Whenever mention is made of any article, material, or workmanship to be in accordance with laws, ordinances, building codes, underwriter's code, A.S.M.E. regulations, or similar expressions, the requirements of these laws, ordinances, etc., shall be construed as to the minimum requirements of these specifications. In case of any apparent conflict between the specifications and such laws, ordinances, etc., the Awarded Vendor shall call said conflict to the attention of SCBE Director of Purchasing & Supply Services for a decision before proceeding with any work.
- g. **USE OF BRAND NAMES:** Brand names and model numbers are offered as a reference for Vendors as to the style, size, weight, and other characteristics of the item(s) in the specifications. The use of such brand names should not be interpreted to be the exclusive brand desired unless so stated. The determination of the acceptability and/or the criteria for acceptability of an alternate is solely the responsibility of SCBE.
- h. **PRODUCT OFFERED BY THE VENDOR:** The product offered by the Vendor shall be new, not used, and the latest version of the product. Should a product be discontinued and/or upgraded during the course of the contract, the Vendor shall offer to SCBE a new alternate product that meets and/or exceeds the established specifications, under the same terms, conditions, and prices as the originally offered item.
- i. **COMPLIANCE WITH SPECIFICATIONS:** The Vendor shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission but shall fully complete every part as the true intent and meaning of the drawings and specifications, as decided by the Procurement Director. Where the requirements of the specifications call for higher grade and are not in conflict with the laws, ordinances, etc., the specifications shall govern. Where the requirements of the laws, ordinances, etc., are mandatory, they shall govern. The successful Vendor, after award and before manufacture and/or shipment, may be required to submit working drawings or detailed descriptive data identified as acceptable to SCBE, which would provide sufficient data to enable SCBE to judge the Vendor's compliance with the specifications.
- j. **DEVIATIONS TO SPECIFICATIONS:** Any deviation from the specifications must be noted in detail by the Vendor, in writing, as an attachment to the response. The absence of a written list of specification deviations attached to the response will hold the Vendor strictly accountable to SCBE to the specification as written. Any deviation by the Awarded Vendor from the specifications, without prior documented approval, will be grounds for rejection of the goods and/or equipment when delivered.
- k. **Piggyback Clause:** Shelby County Board of Education reserves the right to extend the terms, conditions, and prices of this contract to other Institutions (such as State, Local and/or Public Agencies) who express an interest in participating in any contract that results from this RFP. Each of the piggyback institutions will issue their own purchasing documents for purchasing of the goods. Proposer agrees that the Shelby County Board of Education shall bear no responsibility or liability for any agreements between Proposer and the other Institution(s) who desire to exercise this option.

Each participating jurisdiction or agency shall enter into its own contract with the Awarded Respondent(s) and this contract shall be binding only upon the principals

signing such an agreement. Invoices shall be submitted in duplicate "directly" to the ordering jurisdiction for each unit purchased. Disputes over the execution of any contract shall be the responsibility of the participating jurisdiction or agency that entered into that contract. Disputes must be resolved solely between the participating agency and the Awarded Respondent. SCBE does not assume any responsibility other than to obtain pricing for the specifications provided.

3. CONFLICT OF INTEREST

- i. In accordance with policy 1013 Superintendent Code of Ethics SCBE has promulgated Ethics Policies, which cover conflict of interest, financial disclosure and lobbying. All respondents are expected to comply with any and all SCBE Ethics Policies that may apply to them individually or as a business entity.
- ii. All respondents should review carefully the conflict-of-interest policies. Specific attention should be accorded to SCBE Ethics Policies (SCBE Policy 1013) prohibiting SCBE employees from benefiting from business with the school system.
- iii. All respondents are placed on notice that all questions/interpretations concerning SCBE Ethics Policies may be submitted to the Ethics Review Panel in accordance with SCBE Policy 1013.

4. PRICES

- a. **UNIT PRICES:** Unit Prices must be rounded off to no more than two (2) decimal places, unless so specified in the General Terms and Conditions included with the RFP. All unit prices on items shall be completed on the proposal sheet(s). A NO BID notation must be completed for each item not being bid. In case of error in extension of prices in the proposal response, the unit price shall govern.
- b. **UNITS OF MEASURE:** Wherever SCBE indicates the unit of measure required and the Vendor's price is based on a different unit of measure, it shall be at the sole discretion of SCBE to determine whether the Vendor's price will be recalculated. SCBE will not accept any proposals with Vendor escalator clauses, unbalanced figures, or irregular features.
- c. **DELIVERY CHARGES:** All prices shall include FOB Destination.
- d. **CASH DISCOUNTS:** Cash discounts will not be taken into consideration in determining a contract award. All discounts, other than prompt payment, are to be included in the bid price.
- e. **PRICE REDUCTIONS:** SCBE reserves the right to accept price reductions from the Awarded Vendor during the term of this contract to occur no less than thirty (30) days from the approval of the contract.
- f. **Tax Exemption.** SCBE is a tax-exempt entity and, as such, is exempt from the payment of taxes, including but not limited to sales and use taxes, federal excise taxes and federal high use taxes.

5. ITEM DELIVERY

- a. **GENERAL DELIVERY REQUIREMENTS:** All materials, supplies, and equipment for SCBE shall be delivered F.O.B. Destination. All deliveries must be inside the building. Delivery hours shall be Monday through Friday with the exception of holidays, to offices - between **8:30 a.m. and 3:30 p.m.**; to schools – between **9:00 a.m. and 2:30 p.m.** The Awarded Vendor(s) shall be held responsible for clean-up and removal of all packing cartons, boxes, crates, packing materials, etc., from the premises after delivery and set up of any furniture and equipment. Drivers must be bonded, have a clean driving record and have the appropriate training to handle hazardous items. Vendor will have the ability (including all applicable permits and licenses) to handle all types of shipments ranging from letters to multi-carton shipments, including bulky and fragile items. Delivery must include a current MSDS for each hazardous chemical or chemical compound delivered or used by the Vendor at a SCBE worksite. The Awarded Vendor shall be liable for the full replacement value of any delivery item lost or damaged.
- b. **SPECIAL DELIVERY INSTRUCTIONS:** Special Instructions for delivery dates, delivery of heavy equipment, materials or machinery requiring special handling, to schools/sites under construction and/or renovation or refrigerated goods will be defined in General Terms and Conditions.
- c. **PACKING:** All materials must be securely packed in accordance with accepted trade practices. SCBE Purchase Order number must be plainly visible on the exterior of each container. A packing slip and/or delivery ticket shall be included in each shipment. This ticket shall contain the following information: Purchase Order Number, Vendor Name, Name of the Article, Item Number, Quantity, and Delivery Location (Example: ABC Elementary School Library) and Bid/Contract Number. Failure to comply with this condition may be considered sufficient reason to refuse to accept the goods.
- d. **SAFETY REQUIREMENTS:** The Awarded Vendor shall provide all equipment and machinery furnished and delivered to SCBE complying with the Safety regulations as required by OSHA and the Tennessee State Safety Health Act known as MOSHA. The Vendor shall sign the safety section, if attached in the proposal response, certifying that the regulations for the type of equipment furnished shall meet all regulations applying to this type of equipment meeting the CFR-1910 MOSHA Standard. The Vendor shall submit Material Safety Data Sheets (MSDS) for all items awarded to that vendor provided under the terms of this proposal in accordance with OSHA Communication Standard 29 CFR 1910.101, 29 CFR 1910.1200 and 29 CFR 1926.58 or any other applicable state, federal, or local regulation. Prior to delivery of the items awarded, the vendor must submit MSDS sheets to: SCBE Facilities Safety Officer, 1364 Farmville, Memphis, TN, 38122.
- e. **LIQUIDATED DAMAGES:** In the event the Awarded Respondent fails to deliver the goods or services of the contract in accordance with the specifications, SCBE reserves the right to purchase the goods/services on the open market in sufficient quantities to assure the continued operation of SCBE. All additional expenses incurred by SCBE as a result of such purchases will be deducted from the monies owed or monies that may become due to the Vendor.

6. GUARANTEE AND WARRANTIES

- a. **GENERAL REQUIREMENTS:** Payment shall be based upon acceptance of goods or

services by SCBE. Vendor expressly warrants that: (a). The merchandise to be furnished and services performed will be free from defects in material and workmanship and will be in full conformity with the specifications, drawings, representation, or sample; that this warranty shall survive acceptance and payment of the merchandise; and that the Vendor will bear the cost of inspection of all goods and services rejected. (b). The Vendor hereby provides a warranty of authorization as to all goods and services. (c). The goods or services furnished must be or have been mined, manufactured, or produced in full compliance with at least the minimum conditions required under the Fair Labor Standards Act of 1938, as amended, and all other applicable local, state and federal laws, rules, and regulations to include Department of Transportation (DOT), Food and Drug Administration (FDA) regulations, and the Equal Opportunity Clause contained in Executive Order 11246, as amended. If applicable to the goods or services purchased herein, vendor must also be in full compliance with the Workplace Hazardous Materials Information System (WHMIS) legislation and maintain a written Hazard Communication Plan.

- b. **GUARANTEE PERIOD:** The Vendor shall unconditionally guarantee all services, materials, and workmanship of all furniture, goods, and equipment furnished by it for a period of one year from the date of acceptance, i.e., delivery and installation, unless a longer period of warranty is specified in the General Terms and Conditions attached to the RFP.
- c. **OFFICE EQUIPMENT:** Vendor agrees to provide on-site service of equipment within eight (8) hours of notification by school system personnel. Loaner equipment shall be supplied, free of charge, during the warranty period if the office equipment cannot be repaired within three (3) working days.
- d. **OTHER EQUIPMENT:** Certain pieces of equipment, machinery, and refrigeration will require guarantees other than detailed above. Refer to General Terms and Conditions for requirements on specific equipment.
- e. **MANUFACTURER'S AGENT:** The Vendor shall act as the manufacturer's agent for all warranty claims.

7. FEDERAL GRANT FUNDS

- a. The Respondent understands and agrees that it is possible federal grant funds may be used in connection with certain delivery orders issued pursuant to and under the contract agreement. Accordingly, prior to commencing and all work under any and all delivery orders pursuant to and under the contract agreement, the respondent shall ascertain and verify if federal grant funds are to be used by MSCS. If MSCS will use any federal funds in connection with a delivery order, it is the obligation of the respondent and the respondent understands and agrees that the respondent shall adhere to and comply with all applicable federal laws, regulations circulars, executive orders, procedures and guidelines, as and if applicable, amended from time to time.

8. PROPOSAL SUBMISSION

- a. **KNOWLEDGE OF TERMS AND CONDITIONS:** Vendors or their authorized representatives are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting a proposal response. Failure to do so will be at the Vendor's own risk and Vendor cannot secure relief on the plea of error. Neither law nor regulations make allowance for errors of omission or commission on the

part of Vendors.

- b. **SUBMISSION:** Proposals must be delivered to the Procurement Office, 160 Glenn Rogers Sr. Street, Room 126, Memphis, TN 38112. Vendors must submit a proposal as specified in the General Terms and Conditions. Vendors shall retain one (1) copy of the proposal for their files. Proposals must be signed and submitted by an authorized representative of the company. Each Vendor may attach a letter of explanation to the proposal, if so desired (or required), to provide an explanation of any detail(s) in the proposal. This letter may not be used to offer optional or alternative proposals or pricing.
- c. **FORMAT:** Signed proposals must be delivered in sealed, opaque envelopes and clearly marked on the outside with: Name of Vendor, Due Date, RFP Number and Title. SCBE shall not accept any facsimile transmission to agents, representatives or employees as meeting the requirement of the Proposal. A facsimile document shall not be considered a valid response to the RFP.
- d. **VENDOR ADDRESS:** Each proposal must show the full business address, telephone number, email address and fax number of the Vendor and be signed by the person or persons legally authorized to sign contracts. All correspondence concerning the proposal and contract, including Notice of Award, copy of Contract, and Purchase Order, will be mailed or emailed to the address shown on the proposal in the absence of written instructions from the Vendor to the contrary.
- e. **PARTNERSHIPS:** Proposals by partnerships must be signed with the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing, who shall also state the names of the individuals composing the partnership.
- f. **CORPORATIONS:** Proposals by corporations must be signed with the name of the corporation, followed by the signature and designation of the officer having authority to sign. When requested, satisfactory evidence of authority of the officer signing on behalf of the corporation shall be furnished. Anyone signing the proposal as agent shall file satisfactory evidence of authorization to do so.
- g. **CERTIFICATES AND AFFIDAVITS:** All Vendors shall be required to complete the certificates and/or affidavits that are incorporated into the General Terms and conditions of this RFP. Such documents are required by local, state, or federal funding agencies of SCBE as part of the bidding process. The documents may include Anti-Bribery Affidavit, Debarment Certificate, Sales Tax Certification, Minority Business Enterprise affidavit, and when applicable, Asbestos Free Certification.
- h. **SAMPLES:** When indicated in the General Terms and Conditions, a properly tagged sample and descriptive data shall be submitted to the address specified no later than the date specified in the Schedule of Events included in the General Terms and Conditions. The tag on the sample shall indicate the item number, the name of the company submitting the sample, and the RFP number. SCBE will not be responsible for any samples not picked up within 30 days of the notification of Vendors to do so. Samples may be retained by SCBE until Vendors are notified to remove them. Vendors agree that SCBE will incur no liability for samples that are damaged, destroyed, lost, or consumed in testing processes. Failure to submit the above information when requested is sufficient grounds for rejection of the proposal.
- i. **SPECIAL SAMPLES WITH CERTIFIED APPROVAL:** Some successful Vendors shall be

required to submit two (2) samples of each product awarded with an affidavit stating that the chemical composition of the sample submitted is identical with the composition tested prior to the proposal and all remain unchanged during the period of the contract. This requirement shall be part of the specifications of the product or products requested. Failure to submit the above information when requested is sufficient grounds for rejection of the proposal.

- j. PROPOSAL PREPARATION FEES: SCBE will not be responsible for any costs incurred by a Vendor in preparing and submitting a proposal response.
- k. PROPOSAL EVALUATION Proposal responses will be evaluated for compliance with detailed specifications. The specifications shall vary with each individual RFP issued, and the award shall be made in accordance with the General Terms and Conditions. Consideration will be given to the quantities, time required for delivery, purpose of the goods/services, competency and responsibility of the Vendor, and the ability of the Vendor to perform satisfactorily. Evaluation may also be made for other factors, such as serviceability, functional suitability, workmanship, safety in use, and overall product quality, where acceptability may be determined on the basis of professional judgment and educational application. SCBE will consider the Vendor's record and performance of any prior contracts with SCBE, federal departments or agencies, or with other public bodies.
- l. RECOMMENDATION OF AWARD: Recommendation of an award of a contract will be made in accordance with the General Terms and Conditions.

9. RESOLUTION FOR PROTEST AND DISPUTES

The Procurement Director shall attempt to resolve informally all protests of bid award recommendations. Vendors are encouraged to present their concerns promptly to the buyer for consideration and resolution. Open dialogue is helpful for all parties and disputes are often only a misunderstanding of the evaluation and recommendation process.

A. RIGHT TO PROTEST

Prior to the commencement of an action in court concerning the controversy, any actual vendor who claims to be aggrieved in connection with a solicitation, the solicitation process, or a pending award of a contract may protest to the Buyer. Procurement Director shall attempt to resolve informally all protest of award recommendations. Protest shall be submitted in writing within seven (7) days after such claimant knows or should know of the facts giving rise to the protest.

- 1. An aggrieved respondent of standing or Vendor may protest to the Buyer a proposed award of a contract for supplies, equipment, services, or maintenance. A respondent of standing is a respondent who would be directly next in line for an award should the protest be supported.
 - a. The protest shall be in writing addressed to the Buyer with a copy to the Procurement Director and shall include the following:
 - The name address and telephone number(s) of the protester.
 - Identification of the solicitation
 - Statement of reasons for the protest

- Supporting documentation to substantiate the claim.
 - The remedy sought.
2. The protest must be filed with the Procurement Office within seven (7) calendar days of the recommendation of award or notification to the respondent or Vendor that their bid or proposal will be rejected.
 3. A vendor who does not file a timely protest before the contract is executed by the Board is deemed to have waived any objection.
 4. The Procurement Director shall inform the Chief Financial Officer (CFO) upon receipt of the protest.
 5. The Procurement Director shall confer with the general counsel prior to issuance of a decision regarding disputes of contracts or awards.

B. BOND REQUIREMENTS

1. Neither a protest nor a stay of award shall proceed under this section unless the protesting party posts a protest bond. The protesting party shall post with the Procurement Director, at the time of filing a notice of protest, a bond payable to the Shelby County Board of Education in the amount of five percent (5%) of the lowest cost proposal evaluated or, if a protest is filed prior to the opening of cost proposals, the bond payable shall be five percent (5%) of the estimated maximum liability provided in the procurement document. The protest bond shall be in form and substance acceptable to the Shelby County Board of Education and shall be immediately payable to the Shelby County Board of Education conditioned upon a decision by the protest committee that:
 - a. A request for consideration, protest, pleading, motion, or other document is signed, before or after appeal to the Chief Financial Officer, in violation of subsection (b).
 - b. The protest has been brought or pursued in bad faith; or
 - c. The protest does not state on its face a valid basis for protest.
2. The bond shall be payable to the Shelby County Board of Education for any other reason approved by the Procurement Office. The Board of Education shall hold the protest bond for at least eleven (11) calendar days after the date of the final determination by the Procurement Director. If the protesting party appeals the Procurement Director's determination to the protest committee, the Procurement Director shall hold the protest bond until instructed by the General Counsel Office to either keep the bond or return it to the protesting party.
3. At the time of filing notice of a protest of a procurement in which the lowest bid or lowest evaluated cost proposal is less than one million dollars (\$1,000,000), a minority-owned business, woman-owned business, service-disabled veteran-owned business, or small business protesting party may submit a written petition for exemption from the protest bond requirement of subsection (c). The petition shall include clear evidence of a minority-owned business, woman-owned business, service-disabled veteran-owned business, or small business status. On the day of receipt, the petition shall be given to the chief procurement officer. The chief procurement officer has seven (7) calendar

days in which to make a determination. If an exemption from the protest bond requirement is granted, the protest shall proceed as though the bond were posted. Should the chief procurement officer deny an exemption from the requirement, the protesting party shall post the protest bond with the chief procurement officer as required in subsection (c) within five (5) calendar days of the determination.

C. APPEAL OF CONTRACT AWARD DECISION

1. The Procurement Director shall issue a decision in writing. Any decision of an award protest may be appealed to the CFO within seven (7) days of issuance of the decision by the Procurement Director
2. Any decision to make an award protest may be appealed to the Superintendent within seven (7) days of issuance of the decision by the Chief Financial Officer.
3. The Superintendent will evaluate the issues involved and render a decision. The decision of the Superintendent is final.

10. CONTRACT TERM

The Vendor shall refer to the General Terms and Conditions attached to the RFP for details regarding the Term of Contract for this solicitation.

11. COMMENCEMENT OF SERVICES

SCBE shall have no obligation to pay for services performed before SCBE approves the contract or after it ends. SCBE shall have no obligation to pay for services in excess of the monetary amount of the award. SCBE shall have no obligation to pay for services before a purchase order is issued.

12. ADDENDA

- a. **INQUIRIES:** No interpretation of the meaning of the specification or other documents will be made to any Supplier orally. To be given consideration, inquiries must be received as outlined in Part II Item 4.0. Unless otherwise specified in the General Terms and conditions, inquiries are to be emailed to the Buyer, "INQUIRY" and the RFP name and number must be noted on the envelope. Alternatively, inquiries may be e-mailed to the Buyer. The subject field of the e-mail must include "INQUIRY" and the Bid name and number.
- b. **ISSUANCE:** Any changes to the RFP specifications will be made through the appropriate addenda. Failure of any Supplier to receive such addenda or interpretation shall not relieve any Supplier from any obligations under this RFP as amended by all addenda. All addenda so issued shall become part of the award.

13. ANNULMENTS AND RESERVATIONS

- a. **RIGHT TO REJECT:** SCBE reserves the right to exercise its statutory option to reject any or all proposals and re-advertise other proposals. SCBE reserves the right to order the said equipment, materials, supplies or services as described within the specifications, and SCBE also reserves the right not to order any items(s) within the

specification.

- b WAIVER OF TECHNICAL DEFECTS: SCBE reserves the right to waive technical defects, if in its judgment the interest of SCBE shall so require.
- c CONTRACT RESERVATIONS: SCBE reserves the right to annul any contract if, in its opinion, there shall be a failure, at any time, to perform faithfully any of its stipulations, or in case of any willful attempt to impose upon SCBE materials, products and/or workmanship inferior to that required by the Vendor, and any action taken in pursuance of this latter stipulation shall not affect or impair any rights or claims of SCBE to damages for the breach of any covenant of the contract by the Vendor(s). Should the Vendor(s) fail to comply with the conditions of this contract or fail to complete the required work within the time stipulated in the contract, except for circumstances beyond its control, including, but not limited to, Acts of God, war, flood, governmental restrictions, or the inability to obtain transportation, SCBE reserves the right to purchase the required articles in the open market or to complete the required work at the expense of the Vendor(s). Should the Vendor be prevented from furnishing any item or items, or from completing the required work included in the contract, by reason of such failures caused by circumstances beyond its control, including but not limited to Acts of God, war, flood, governmental action, or the inability to obtain transportation, SCBE reserves the right to withdraw such items or required work from the operation of this contract without incurring further liabilities.
- d AUTHORITY TO DEBAR OR SUSPEND The Procurement Director shall have the authority to request to debar a person or company for cause from consideration for award of contracts.

14. TERMINATION OF CONTRACT

- a TERMINATION FOR NON-APPROPRIATION OF FUNDS: SCBE may terminate this contract, in whole or in part, due to insufficient funding or non-appropriation of funds with written notice to the Vendor. SCBE shall pay for all of the purchases, if any, incurred up to the date of the termination notice.
- b TERMINATION FOR DEFAULT: When the Vendor has not performed or has unsatisfactorily performed the contract, payment shall be withheld at the discretion of SCBE. Failure on the part of a Vendor to fulfill contractual obligations shall be considered just cause for termination of the contract, and the Vendor is not entitled to any costs incurred up to the date of termination. In the event of a default by the vendor, this Contract may be terminated.
- c TERMINATION FOR CONVENIENCE: SCBE has the right to terminate this Agreement at any time, without any liability, upon five (5) days prior written notice to Vendor, provided that Vendor shall be compensated for services rendered prior to the date of termination.
- d Each participating jurisdiction and/or local educational agency (LEA) public school district has the right to withdraw from the terms of the contract without showing cause, be providing thirty (30) calendar days' written notice to the vendor(s). The participating jurisdiction/ LEA shall pay all reasonable costs incurred by the vendor(s) up to the date of termination. The vendor(s) shall not be reimbursed for any anticipatory profits which have not been earned up to the date of termination.

Language to support Termination for Convenience by the vendor(s) shall be stipulated in the contract document between jurisdiction/ LEA and the vendor(s). Such language, when included, shall take precedence over the language of this specification.

15. GOVERNING LAW & VENUE

- a. The RFP shall be construed in accordance with, and interpreted under, the laws of the State of Tennessee. Any lawsuits arising out of such RFP shall be filed in the Circuit Court of Memphis, Tennessee.

16. CONTRACT TERMS AND CONDITIONS

- a. **SUBMISSION OF INVOICES:** Supplier agrees to accept the line item price on the purchase order as final payment. All invoices are to be submitted promptly showing Purchase Order number, and name and address of recipient and mailed to SHELBY COUNTY BOARD OF EDUCATION, Accounts Payable Office, Room 160 Glenn Rogers Sr. St., Room 250, Memphis, TN 38112 (unless otherwise noted). **Vendors must receive written authorization from Procurement to redirect invoice submission to another location other than Accounts Payable.**
- b. **INCORRECT INVOICES:** Incorrect invoices will be returned for correction or paid in accordance with the purchase order. Each invoice shall identify SCBE Purchase Order Number, line item number and item descriptions or services shall be listed in the same order as on the Proposal and/or Purchase Order.
- c. **PARTIAL PAYMENTS:** Payment in full will only be made upon final acceptance of items as shown on Purchase Order. Partial payments are permissible.
- d. **LATE SUBMISSION OF INVOICES:** The parties acknowledge and agree that the Vendor's invoices are to be submitted in a timely manner, per the terms of the purchase order, after the services have been provided or the goods and materials have been provided. If invoices are submitted after one calendar year after the Vendor's services have been rendered or the last date when goods and materials were accepted by SCBE, then SCBE shall have no obligation to pay for the stale invoices.
- e. **CONFIDENTIALITY:** Vendor acknowledges and agrees to hold all Confidential Information in the strictest confidence as a fiduciary and will not make any press release or public announcement, or voluntarily sell, transfer, publish, disclose, display or otherwise make available to any third persons such Confidential Information or any portion thereof without the express written consent of SCBE. Vendor and its employees, agents, volunteers and vendors shall maintain the confidentiality of all medical, psychological, and student records in compliance with federal and state laws. Additionally, Vendor shall procure from the parent or guardian of each student receiving services hereunder a written consent in favor of Vendor and SCBE for the mutual disclosure of such records by and among the Vendor, SCBE and SCBE' employees, agents, volunteers and vendors.
- f. **INDEMNIFICATION:** Vendor shall indemnify, defend, and hold harmless the SHELBY COUNTY BOARD OF EDUCATION, Superintendent and their respective elected/appointed officials, employees, departments, agencies, agents and volunteers from any and all claims, demands, suits, and actions, including attorney's fees, litigation expenses and court costs, connected therewith, brought against the SCBE and their respective elected/appointed officials, employees, departments, agencies, agents, and

volunteers, arising as a result of direct or indirect, willful, or negligent act or omission of the Vendor or its employees, agents, or volunteers.

g. INSURANCE:

1. The vendor must maintain and pay for Comprehensive Business Insurance to protect their claims under the Workers' Compensation Act, from claims or damages because of bodily injury to others, including employees of SCBE, damage to the property of others, including SCBE, claims for damages arising out of the operation of motor vehicles, which may arise during the performance of the contract whether caused by themselves or by any sub-vendor or anyone directly or indirectly employed by either of them, and Product Liability Insurance. Said insurance is to cover the duration of the contract under an express or implied warranty.

All contractors, vendors or service providers coming on to District premises to do work or provide services are required to have insurance. Insurance is necessary to cover any claims or losses for which the contractor/vendor may be responsible for. Schools or central office departments should verify a current Certificate of Insurance, including endorsements from the contractor or vendor is on file with Procurement Services prior to the beginning of work and/or the start of a contract. A Certificate of Insurance is a standard form issued by the insurance company evidencing the insurance information (including policy limits and types of insurance) of its policyholder.

2. The following coverages and limits are required of all vendors: The following minimum insurance standards shall apply to all vendors performing, selling, or distributing products and services at Memphis-Shelby County Schools. If a product or service, in the opinion of Risk Management, represents an unusual or exceptional risk, additional insurance for that product or service may be required.

- **Commercial General Liability Insurance:** Including Bodily Injury and Property Damage Liability, Independent Contractors Liability, Contractual Liability, in an amount not less than \$1,000,000, Product Liability and Completed Operations Liability in an amount not less than \$2,000,000 combined single limit, per occurrence, and \$2,000,000 aggregate.
- **Workers' Compensation:** \$1,000,000. If the contractor/vendor has less than 5 employees, a statement on the vendor letterhead should be placed on file.
- **Employers Liability Coverage:** \$1,000,000.
- **Automobile Liability:** For vendors who will drive on District property, Automobile Liability in an amount not less than \$1,000,000 per occurrence for bodily injury and property damage, including owned, hired and non-owned vehicle coverage.
 - For Charter Bus Companies, the minimum Automobile Liability coverage required is \$5,000,000.

Other Insurance Coverage That May Be Required:

- **Professional Liability (Errors & Omissions):** Not less than \$1,000,000 per occurrence and aggregate to be maintained for the duration of the agreement and three years following its termination.
 - This insurance requirement applies when a supplier has a professional designation or license and/or is providing professional services. The minimum limit for architects and engineers is \$2,000,000 per occurrence and in the aggregate and may be increased depending upon the nature of the services to be provided to the district.
- **Umbrella or Excess Liability Coverage:** Not less than \$4,000,000 per occurrence and in the aggregate.
 - This coverage typically sits above the underlying General Liability, Automobile Liability and Professional Liability policies. Depending on the scope and work to be performed in the proposed agreement, this policy may be required in order for the vendor to be able to meet the minimum insurance requirements.
 - Required for all construction, security, IT, and healthcare related contracts.
- **Cyber Risk Insurance:** Not less than \$2,000,000 per claim to be maintained for the duration of the agreement and three years following its termination.
 - This insurance requirement applies when a third party will be using, storing or accessing private, confidential or protected information.
- **Environmental Liability:** Not less than \$2,000,000 per claim and in the aggregate.
 - This insurance requirement applies when a vendor will be performing environmental clean-up work (decontamination/remediation), will be working with hazardous substance or waste, or may have similar such exposures while performing work under the proposed agreement. Higher limits of environmental liability coverage may be required depending upon the scope of services.

Vendors and contractors shall name the Board of Education Shelby County Schools, it's officers, agents, employees and volunteers as an additional insured on its general liability insurance policy.

Coverages and limits are to be considered as minimum requirements and in no way limits the liability of the vendor, contractor or service provider.

All policies shall evidence insurance written by carriers authorized to conduct business in the State of Tennessee and rated at least "A" in A.M. Best's Key Rating Guide.

Renewal certificates of insurance shall be provided annually to Procurement Services until all work is completed.

Please contact Risk Management, Sandra Burgess, burgessse@scsk12.org or 416-1997 with any questions.

3. The certificate on this insurance shall be made in favor of the **Shelby County Board of Education, Memphis TN 38112** and indicate paid up coverage for the term of the contract.
4. The certificate of insurance **TO BE SUBMITTED** to the PROCUREMENT OFFICE, 160 Glenn Rogers Sr. St., Memphis, TN 38112.
5. It will be the responsibility of the successful Respondent(s) to ensure that a **current** Certificate of Insurance is on file in the Purchasing Office during the entire period of the contract.
6. The cost of the above insurance shall be considered an overhead or operating expense to the Vendor, similar to rental costs, utilities, automobile liability insurance, and other business-related expenses. **The premiums or costs to provide the above insurance shall not be directly related to the cost of the work or services specified in this Request for Proposal.**
- h. NON-ASSIGNABILITY: This contract shall not be assigned, or services subcontracted in whole or in part without the written consent of SCBE. Any attempt to do so without such written consent shall be null and void of no effect.
- i. INDEPENDENT VENDOR: Vendor is furnishing its goods and/or services hereunder as an independent Vendor, and nothing herein shall create any association, partnership or joint venture between the parties hereto or any employer-employee relationship.
- j. GENERAL RECORDS CLAUSE: Vendor's contracts, files, accounts, records, and other documents related to this Contract shall be open to examination and/or audit by SCBE and made available by the Vendor to SCBE and/or its designated agents at any time upon reasonable prior notice, during performance under this Contract and for a period of four (4) years after final payment or such longer period of time as required by law or rule or regulations.
- k. SOLE AGREEMENT: This Contract constitutes the sole agreement between the parties hereto and no amendment, modification or waiver of any of the terms and conditions hereof shall be valid unless in writing and executed by both parties. Any prior verbal agreements or proposals shall not be considered a part of this Contract.
- l. PROTECTION OF PROPERTY: Vendor will use reasonable care to avoid damaging existing buildings, equipment, and property at SCBE sites and all material furnished by SCBE ("Property"). If the Vendor's failure to use reasonable care causes damage to any property, Vendor must replace or repair the damage at no expense to SCBE as directed by the Contracting Officer. If the Vendor fails or refuses to make such repair or

replacement, the Vendor will be liable for the cost, which may be deducted from payments due Vendor.

- m. PUBLIC STATEMENTS: Vendor shall not use or reference the Name or Emblem of SCBE in issuing any press releases or otherwise making any public statement with respect to this Contract (unless such press release or statement is required by applicable law regulation or the requirements of any listing agreement with any applicable stock exchange) without the prior written consent of SCBE, which consent will not be unreasonably withheld. Purchase by SCBE of any articles, material, merchandise, or service does not imply that SCBE has either adopted or endorsed the product of service, and the use by any manufacturer, Vendor, merchant or other person of the name or emblem of SCBE in any advertisement that they are furnishing products or services is not authorized. The unauthorized use of the name or emblem of SCBE is prohibited by the United States Criminal Code - Section 706.

17. CHANGES IN TERMS OR DELIVERY/COMPLETION DATE

After award of individual contracts, any questions or correspondence related but not limited to the following matters must be directed to the PROCUREMENT OFFICE SHELBY COUNTY BOARD OF EDUCATION, MEMPHIS, TENNESSEE, 38112, in writing:

In the event of strikes, Acts of God, or other circumstances beyond the vendors control which prevent completion of service or delivery, the vendor must secure temporary contractual relief. The circumstances and duration must be stated by the vendor in writing and be forwarded to the PROCUREMENT OFFICE within ten (10) days after their development. Contractual relief shall be only that which is acceptable to and in agreement with the PROCUREMENT OFFICE, for those goods and services which are necessary for the day to day needs of SCBE.

APPENDIX B-ADDENDUM ACKNOWLEDGEMENT

RFP 110725AW Network Structured Cabling System Services - Non Erate

(If applicable) Please complete and return with your bid response.

I the undersigned acknowledge the receipt of the following addenda to this solicitation.

Addendum #1- Date Received _____

Addendum #2 - Date Received _____

Addendum #3 - Date Received _____

Addendum #4 - Date Received _____

Signature

Title

Vendor Name

Email

Contact Phone Number

APPENDIX C – REFERENCES
RFP 110725AW Network Structured Cabling System Services - Non Erate

1.

Client Name:

Address:

Services Provided:

Date(s)of services:

Contact Name & Title:

Phone No:

Email Address:

2.

Client Name:

Address:

Services Provided:

Date(s)of services:

Contact Name & Title:

Phone No:

Email Address:

3.

Client Name:

Address:

Services Provided:

Date(s)of services:

Contact Name & Title:

Phone No:

Email Address:

APPENDIX D - NON-COLLUSION CERTIFICATE
(TO BE SUBMITTED WITH TECHNICAL PROPOSAL)

RFP 110725AW Network Structured Cabling System Services - Non Erate

I HEREBY CERTIFY that I am the _____ and the duly authorized

representative of _____

whose address is _____ and

THAT NEITHER I nor, to the best of my knowledge, information, and belief, the above firm nor any of its other representatives I here represent:

(a) Have agreed, conspired, connived or colluded to produce a deceptive show of competition in the compilation of the RFP or offer being submitted herewith;

(b) Have in any manner, directly or indirectly, entered into any agreement, participated in any collusion to fix the RFP price or price proposal of the respondents or Vendor herein or any competitor, or otherwise taken any action in restraint of free competitive bidding in connection with the Contract for which the within RFP or offer is submitted.

In making this affidavit, I represent that I have personal knowledge of the matters and facts herein stated.

(SIGNATURE)

(DATE)

(PRINTED OR TYPED NAME)

Subscribed and sworn before me this _____ day of _____, 20____.

x _____ Notary Public

My commission expires: _____

APPENDIX E - DEBARMENT AFFIDAVIT
(TO BE SUBMITTED WITH TECHNICAL PROPOSAL)

RFP 110725AW Network Structured Cabling System Services - Non Erate

**Certification Regarding Debarment, Suspension
Ineligibility and Voluntary
Exclusion—Primary and/or Lower Tier Covered Transactions**

- (1) The prospective participant certifies to the best of its knowledge, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.
- (2) The prospective participant and its principals have not, within a three (3) year period preceding this proposal, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
- (3) The prospective participant and its principals are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses in Paragraph 2 of this certification.
- (4) The prospective participant and its principals have not, within a three (3) year period preceding this application/proposal, had one (1) or more public transactions (Federal, State or local) terminated for cause or default.
- (5) Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Signature of:

x _____
Respondent, if the respondent is an individual

x _____
Partner, if the respondent is a partnership

x _____
Officer, if the respondent is a corporation

Subscribed and sworn before me this _____ day of _____, 20____.

x _____ Notary Public

My commission expires: _____

APPENDIX F- ANTI-BRIBERY AFFIDAVIT
(TO BE SUBMITTED WITH TECHNICAL PROPOSAL)

RFP 110725AW Network Structured Cabling System Services - Non Erate

_____, being first duly sworn deposes and says that he is an officer in the organization known as _____ and the party making a certain proposal or RFP dated, _____ 20____, to the Shelby County of Education:

I further confirm that: Neither I, nor to the best of my knowledge, information, and belief, the above business (as in defined in Section 39-16-101 of the State of Tennessee Code of Ethics Ordinance or any of its officers, directors, partners, or any of its employees directly involved in obtaining or performing contracts with public bodies (as is defined in Section 39-16-102 Bribery of Public Servant has been convicted of bribery, attempted bribery, or conspiracy to bribe in violation of Tennessee Law, or of the law of any other state or federal law, except as follows (indicate the reasons why the affirmation cannot be given and list any conviction, plea, or imposition of probation before judgment with the date, court or administrative body, sentence or disposition, the name(s) of person(s) involved, and their current positions and responsibilities with the business):

Signature of:

x _____
Respondent, if the respondent is an individual

Partner, if the respondent is a partnership

x _____
Officer, if the respondent is a corporation

x _____
Subscribed and sworn before me this _____ day of _____, 20____.

x _____ Notary Public

My commission expires: _____

APPENDIX G - CERTIFICATE OF INSURANCE COVERAGE
(TO BE SUBMITTED WITH PROPOSAL)

RFP 110725AW Network Structured Cabling System Services - Non Erate

VENDOR NAME: _____

ADDRESS: _____

NAME OF SURETY: (TYPE OR PRINT) _____

NAME OF AGENT: (TYPE OR PRINT) _____

AGENT'S PHONE NO: _____

The below signed hereby certifies that the following information is true and correct. [Please note there may be other minimum coverage requirements based on the specifics of the project. Please see Appendix A-16 (Contract Terms and Conditions)]

TYPE OF COVERAGE	MINIMUM REQUIRED LIMITS	POLICY OR BINDER NUMBER	ACTUAL LIMITS PROVIDED	EXPIRATION DATE
COMMERCIAL GENERAL LIABILITY OCC	\$1,000,000			
COMMERCIAL GENERAL LIABILITY AGG	\$2,000,000			
BUSINESS AUTOMOBILE LIABILITY	\$1,000,000 PER OCCURRENCE			
EMPLOYERS LIABILITY	\$1,000,000			
WORKMAN'S COMP	\$1,000,000			

() LIMITS ON ABOVE POLICY WILL BE INCREASED () ABOVE POLICY NOW IN EFFECT

() POLICY WILL BE OBTAINED/ISSUED ON _____

The following additional clauses will be considered a part of the above policy(s), the same as if specifically written therein, as pertains to the above stated contract.

- SCBE is hereby named as Additional Insured.
- The policy(s) cannot be reduced or cancelled without at least forty-five (45) days prior written notice to SCBE.
- The insurance company is prohibited from pleading government function in the absence of any specific written authority by SCBE.
- The policy(s) will be automatically included and cover all phases of work, equipment, persons, et cetera which are normally covered while performing work under the above contract, whether specifically written therein or not.
- SCBE is hereby granted authority to contact the agency directly to confirm SCBE information or obtain copies of certificates of insurance. SCBE bears no responsibility for premiums or other cost of insurance. If policy(s) is not currently in effect, it will be written immediately upon notice of award, and a copy of binder or certificate will be sent directly to SCBE. A properly executed copy of this document shall be legally binding as a Carrier Certificate of Insurance Form.

The successful respondent will be required to provide insurance coverage as shown in General Conditions of RFP and Contract, prior to beginning any work. This insurance coverage must be maintained throughout the life of the contract. **PROOF THAT COVERAGE IS EITHER CURRENTLY IN PLACE OR WILL BE PROVIDED MUST BE SUBMITTED WITH THE BID.** This can be done by one of the two following methods:

Complete form "CERTIFICATION OF INSURANCE COVERAGE" or

Submit a Certificate of Insurance on a form provided by your Insurance Agent. This form must include the following clauses:

SCBE is hereby named Additional Insured.

The policy(s) cannot be reduced or canceled without at least forty-five (45) days' prior written notice to SCBE.

The insurance company is prohibited from pleading government function in the absence of any specified written authority from SCBE.

The policy(s) will automatically include and cover all phases of work, equipment, persons, et cetera which are normally covered while performing work under the above contract, whether specifically written therein or not.

Regardless of the method used, the form **MUST** be totally complete, **MUST** show that all Limits of Insurance are or will be met, and **MUST** be signed by the Agent.

Failure to provide the required insurance coverage by either of the two (2) methods described above when the RFP is submitted may result in rejection of your RFP as being non-responsive.

(AUTHORIZED AGENT'S SIGNATURE)

(DATE)

LOCAL PREFERENCE PURCHASING

I. PURPOSE

To give a local preference to businesses located in Shelby County, Tennessee for the purchase of supplies, materials, equipment, and services.

II. SCOPE

This policy applies to District level contracts with a total dollar purchase greater than \$25,000.

III. DEFINITION

- A. Local Preference Purchasing means giving preference to businesses located within Shelby County, Tennessee in the purchase of personal property, materials, and contractual services and in constructing improvements to real property or to existing structures.
- B. Local Business means a vendor or contractor who holds a valid license to do business in Shelby County, Tennessee; has a street address within the limits of said locality for a continuous period of at least six (6) months prior to bid or proposal opening date; and has proof that Shelby County Personal Taxes are current (applies to local businesses who have been doing business in Shelby County, Tennessee for a year or more).

IV. POLICY STATEMENT

The Shelby County Board of Education recognizes that a significant amount of funds are spent on purchasing personal property, materials, and contractual services and in constructing improvements to real property or to existing structures. The Board also recognizes that dollars used in making purchases are derived largely from revenues generated from businesses located within Shelby County, Tennessee. The Board believes that funds generated in the community should be placed back into the local economy. Therefore, it is the policy of Shelby County Board of Education to provide a preference to local businesses in procurement transactions whenever the application of such a preference is reasonable in light of the dollar-value of proposals received in relation to such expenditures.

In the bidding of, or letting for procurement of supplies, materials, equipment and services, with a total price greater than \$25,000, if the lowest responsive bidder is a regional or nonlocal business, then all bids received from Local Businesses are decreased by five (5) percent. The original bid is not changed; the five (5) percent is calculated only for the purpose of determining the Local Preference. The Local Preference cost differential is not to exceed one hundred thousand dollars (\$100,000.00).

In the case of request for proposals, letters of interest, best evaluated bids, qualifications or other solicitations and competitive negotiation and selection in which objective factors are used to evaluate the responses, Local Businesses will be assigned five (5) percent of the total evaluation points up to a maximum of five (5) points.

In the event of a tie between a local and non-local business, favor shall be given to the Local Business and a coin toss method will be used to break ties between two (2) or more local businesses meeting said specifications.

Exceptions

This preference shall not apply to purchases or contracts that are funded in whole or in part by a governmental entity if the laws, regulations or policies governing such funding prohibit application of the Local Preference; when exigent emergency conditions or noncompetitive situations exist; and when a particular purchase, contract, or category of contracts for which MSCS is the awarding authority is waived upon written justification and recommendation of the Board.

Restrictions

The Local Preference shall apply to District level purchases only. The preference shall apply to new contracts for supplies, materials, equipment, and services first solicited after January 29, 2013.

V. RESPONSIBILITY

- A. The "users" of services are responsible for furnishing an objective evaluation of their needs and for identifying the specifications of the services to be delivered.
- B. The Chief Financial Officer is responsible for developing final specifications and obtaining all bids, requests for proposals, and contracted service agreements.
- C. The Chief Financial Officer is responsible for ensuring that all services have been properly approved and all procedures followed before signing contractual agreements.
- D. The Superintendent is responsible for ensuring compliance with this policy.

APPENDIX J
(TO BE SUBMITTED WITH BID)
RFP 110725AW Network Structured Cabling System Services - Non Erate



STATE OF TENNESSEE
NON-BOYCOTT OF ISRAEL CERTIFICATION

The Bidder certifies that it is not currently engaged in and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars (\$250,000) or to contractors with less than ten (10) employees.

According to the law, a boycott of Israel means engaging in refusals to deal, terminating business activities, or other commercial actions that are intended to limit commercial relations with Israel, or companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or persons or entities doing business in Israel, when such actions are taken:

- 1) In compliance with, or adherence to, calls for a boycott of Israel, or
- 2) In a manner that discriminates on the basis of nationality, national origin, religion, or other unreasonable basis, and is not based on a valid business reason. Tenn. Code Ann. § 12-4-119.

Signature of Authorized Representative	Date
Printed Name	Phone Number / Email Address

APPENDIX K
(TO BE SUBMITTED WITH BID)

RFP 110725AW Network Structured Cabling System Services - Non Erate



STATE OF TENNESSEE
IRAN DIVESTMENT ACT CERTIFICATION

SUBJECT CONTRACT NUMBER(S):	
CONTRACTOR LEGAL ENTITY NAME:	
EDISON SUPPLIER IDENTIFICATION NUMBER:	

The Iran Divestment Act, Tenn. Code Ann. § 12-12-101 et. seq. requires a person that attempts to contract with the state, including a contract renewal or assumption, to certify at the time the bid is submitted or the contract is entered into, renewed, or assigned, that the person or the assignee is not identified on a list created pursuant to § 12-12-106.

Currently, the list is available online at the following website:

<https://www.tn.gov/generalservices/procurement/centralprocurement-office--cpo-/library-/public-information-library.html>

The Contractor, identified above, certifies by signature below that it is not included on the list of persons created pursuant to Tenn. Code Ann. § 12-12-106 of the Iran Divestment Act.

CONTRACTOR SIGNATURE

NOTICE: This certification MUST be signed by an individual with legal capacity to contractually bind the Contractor.

PRINTED NAME AND TITLE OF SIGNATORY

DATE

APPENDIX L
(TO BE SUBMITTED WITH BID)

RFP 110725AW Network Structured Cabling System Services - Non Erate

CERTIFICATION REGARDING LOBBYING

Applicable to Grants, Sub-grants, Cooperative Agreements, and Contracts Exceeding \$100,000 in Federal Funds.

Submission of this certification is a prerequisite for making or entering into this transaction and is imposed by section 1352, title 31, U.S. Code. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Any person who fails to file the required certification shall be subject to a civil penalty or not less than \$10,000 and not more than \$100,000 for each such failure.

The undersigned certifies, to the best of his or her knowledge and belief that:

No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into of cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of the certification be included in the award documents for all covered sub-awards exceeding \$100,000 in Federal funds at all appropriate tiers and that all sub-recipients shall certify and disclose accordingly.

FNS Grant/Cooperative Agreement

Name/Address of Organization

Name/Title of Submitting Official

Signature

Date