



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**Request for  
 Quotation**

RFQ NUMBER  
**ISCG0150**

PAGE  
**2**

ADDRESS FOR RESPONSES  
**KRISTA FERRELL  
 304-558-2596**

RFQ COPY  
 TYPE NAME/ADDRESS HERE

*City Electric*

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
 BUILDING 1 ROOM MB60  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0123 304-558-2317

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
04/18/2007				
BID OPENING DATE: 05/24/2007		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE
<p>BE SUBMITTED IN WRITING TO KRISTA FERRELL IN THE WEST VIRGINIA STATE PURCHASING DIVISION. TECHNICAL QUESTIONS INCLUDE QUESTIONS RELATED TO: SCOPE OF WORK, INSTALLATION, MATERIALS, ETC. VENDORS MAY SUBMIT TECHNICAL QUESTIONS VIA FAX AT 304-558-4115, VIA EMAIL AT KFERRELL@WVADMIN.GOV, AND VIA MAIL AT THE ADDRESS LISTED IN THE BODY OF THIS RFQ. DEADLINE FOR TECHNICAL QUESTIONS IS MAY 7, 2007 AT 9:00 AM. TECHNICAL QUESTIONS MAY ALSO BE SUBMITTED DURING THE MANDATORY PRE-BID MEETING AND SITE SURVEY. ALL TECHNICAL QUESTIONS RECEIVED, IF ANY, WILL BE ANSWERED BY ADDENDUM AFTER THE DEADLINE FOR QUESTIONS.</p> <p>QUESTIONS CONCERNING THE ACTUAL SUBMISSION PROCESS FOR A VENDOR'S BID MAY BE SUBMITTED AT ANY TIME PRIOR TO THE BID OPENING AND IN ANY FORMAT INCLUDING ORAL.</p> <p>DRAWINGS FOR THIS PROJECT WILL BE DISTRIBUTED DURING THE MANDATORY PRE-BID MEETING AND ALSO INCLUDED AS AS PART OF THE SUBSEQUENT ADDENDUM.</p> <p>THIS PROJECT IS A MULTI-PHASE PROJECT. EACH PHASE IS BEING BID INDEPENDENTLY. VENDORS ARE WELCOME TO BID ON AS MANY PHASES AS THEY LIKE. PLEASE NOTE HOWEVER, THAT VENDORS MUST SUBMIT A BID FOR EACH PHASE SEPARATELY PER THE BID REQUIREMENTS SET FORTH IN THE BID DOCUMENTS FOR EACH PHASE.</p> <p>EVALUATION WILL BE BASED ON A PHASE BY PHASE BASIS.</p> <p>EXHIBIT 5</p> <p>NOTICE TO PROCEED: THIS CONTRACT IS TO BE PERFORMED WITHIN 45 CALENDAR DAYS AFTER THE NOTICE TO PROCEED IS RECEIVED. THE AGENCY WILL ISSUE TO THE VENDOR</p>					

RECEIVED  
 2007 MAY 31 A 11:27  
 PURCHASING DIVISION  
 STATE OF WEST VIRGINIA

*No Bid*

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *[Signature]* TELEPHONE: DATE: TITLE: *[Title]* *[Phone]* *[Date]*

ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
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PAGE  
**3**

ADDRESS CORRESPONDENCE TO CONTRACTOR  
**KRISTA FERRELL  
 304-558-2596**

RFQ COPY  
 TYPE NAME/ADDRESS HERE

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
 BUILDING 1 ROOM MB60  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0123 304-558-2317

DATE PRINTED <b>04/18/2007</b>	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: **05/24/2007** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>A NOTICE TO PROCEED LETTER AFTER THE FULLY EXECUTED PURCHASE ORDER IS COMPLETE.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE MATERIALS OR WORKMANSHIP SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HERE IN.</p> <p>WAGE RATES: THE CONTRACTOR OR SUBCONTRACTOR SHALL PAY THE HIGHER OF THE U.S. DEPARTMENT OF LABOR MINIMUM WAG RATES AS ESTABLISHED FOR KANAWHA COUNTY, PURSUANT TO WEST VIRGINIA CODE 21-5A, ET, SEQ. (PREVAILING WAGE RATES APPLY TO THIS PROJECT)</p> <p>ARBITRATION: ANY REFERENCES MADE TO ARBITRATION OR INTEREST FOR PAYMENTS DUE (EXCEPT FOR ANY INTEREST REQUIRED BY STATE LAW) CONTAINED IN THIS CONTRACT OR IN ANY AMERICAN INSTITUTE OF ARCHITECTS DOCUMENTS PERTAINING TO THIS CONTRACT ARE HEREBY DELETED.</p> <p>WORKERS' COMPENSATION: VENDOR IS REQUIRED TO PROVIDE A CERTIFICATE FROM WORKERS' COMPENSATION IF SUCCESSFUL</p> <p>ALL OF THE ITEMS CHECKED BELOW WILL BE A REQUIREMENT OF THIS CONTRACT:</p> <p>(XX) INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO ISSUANCE OF CONTRACT. UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE COVERAGE REQUIRED IS \$250,000.</p> <p>( ) BUILDERS RISK INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF BUILDERS RISK - ALL RISK INSURANCE IN</p>						

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**Request for  
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PAGE  
**4**

ADDRESS CORRESPONDENCE TO ATTENTION IS:  
**KRISTA FERRELL  
 304-558-2596**

RFQ COPY  
 TYPE NAME/ADDRESS HERE

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
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BID OPENING DATE: **05/24/2007** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	QTY NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>AN AMOUNT EQUAL TO 100% OF THE AMOUNT OF THE CONTRACT.</p> <p>(XX) BONDS: FIVE PERCENT (5%) OF THE TOTAL AMOUNT OF THE BID PAYABLE TO THE STATE OF WEST VIRGINIA, SHALL BE SUBMITTED WITH EACH BID AS A BID BOND. THE SUCCESSFUL BIDDER SHALL ALSO FURNISH A PERFORMANCE BOND AND LABOR MATERIAL BOND FOR 100% OF THE AMOUNT OF THE CONTRACT. BONDS MAY BE PROVIDED IN THE FORM OF A CERTIFIED CHECK, IRREVOCABLE LETTER OF CREDIT, OR BOND FURNISHED BY A SOLVENT SURETY COMPANY AUTHORIZED TO DO BUSINESS IN THE STATE OF WEST VIRGINIA. A LETTER OF CREDIT SUBMITTED IN LIEU OF A PERFORMANCE AND LABOR &amp; MATERIAL BOND WILL ONLY BE ALLOWED FOR PROJECTS UNDER \$100,000. PERSONAL OR BUSINESS CHECKS ARE NOT ACCEPTABLE IN LIEU OF THE 5% BID BOND, PERFORMANCE BOND, OR LABOR AND MATERIAL BOND.</p> <p>( ) MAINTENANCE BOND: A TWO (2) YEAR MAINTENANCE BOND COVERING THE ROOFING SYSTEM WILL BE A REQUIREMENT OF THE SUCCESSFUL VENDOR.</p> <p>REV. 11/00</p> <p>EXHIBIT 7</p> <p>DOMESTIC ALUMINUM, GLASS &amp; STEEL IN PUBLIC WORKS PROJECTS</p> <p>IN ACCORDANCE WITH WEST VIRGINIA CODE 5-19-1 ET., SEQ., EVERY CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REPAIR, IMPROVEMENT OR MAINTENANCE OF PUBLIC WORKS, WHERE THE COST IS MORE THAN \$50,000 AND, IN THE CASE OF STEEL ONLY, WHERE THE COST OF STEEL IS MORE THAN \$50,000 OR WHERE MORE THAN 10,000 POUNDS OF STEEL ARE REQUIRED, THE STATE WILL ACCEPT ONLY ALUMINU</p>						

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PAGE  
**5**

ADDRESS CORRESPONDENCE TO ATTENTION OF  
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 304-558-2596**

VENDOR

RFQ COPY  
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VENDOR

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
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<p>GLASS, OR STEEL PRODUCTS PRODUCED IN THE UNITED STATES. IN ADDITION, ITEMS OF MACHINERY OR EQUIPMENT PURCHASED FOR USE AT THE SITE OF PUBLIC WORKS SHALL BE MADE OF DOMESTIC ALUMINUM, GLASS OR STEEL, UNLESS THE COST OF THE PRODUCT IS LESS THAN \$50,000 OR LESS THAN 10,000 POUNDS OF STEEL ARE USED IN PUBLIC WORKS PROJECTS.</p> <p>FOREIGN MADE ALUMINUM, GLASS OR STEEL PRODUCTS MAY BE ACCEPTED ONLY IF THE COST OF DOMESTIC PRODUCTS IS FOUND TO BE UNREASONABLE. SUCH COST IS UNREASONABLE IF IT IS 20% OR MORE HIGHER THAN THE BID PRICE FOR FOREIGN MADE PRODUCTS. IF THE DOMESTIC ALUMINUM, GLASS OR STEEL PRODUCTS TO BE SUPPLIED OR PRODUCED IN A "SUBSTANTIAL LABOR SURPLUS AREA", AS DEFINED BY THE UNITED STATES DEPARTMENT OF LABOR, FOREIGN PRODUCTS MAY BE SUPPLIED ONLY IF DOMESTIC PRODUCTS ARE 30% OR MORE HIGHER IN PRICE THAN THE FOREIGN MADE PRODUCTS.</p> <p>IF, PRIOR TO THE AWARD OF A CONTRACT UNDER THE ABOVE PROVISIONS, THE SPENDING OFFICER OF THE SPENDING UNIT DETERMINES THAT THERE EXISTS A BID FOR LIKE FOREIGN ALUMINUM, GLASS OR STEEL THAT IS REASONABLE AND LOWER THAN THE LOWEST BID DOMESTIC PRODUCTS, THE SPENDING OFFICE MAY REQUEST, IN WRITING, A REEVALUATION AND REDUCTION IN THE LOWEST BID FOR SUCH DOMESTIC PRODUCTS. ALL VENDORS MUST INDICATE IN THEIR BID IF THEY ARE SUPPLYING FOREIGN ALUMINUM, GLASS OR STEEL.</p> <p>REV. 3/88</p> <p>EXHIBIT 9</p> <p>NOTICE FOR ISSUANCE &amp; ACKNOWLEDGEMENT OF CONSTRUCTION PROJECT ADDENDA</p>						

SIGNATURE			TELEPHONE		DATE
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**Request for Quotation**

BRO NUMBER  
**ISCG0150**

PAGE  
**6**

ADDRESS/CORRESPONDENCE/CAUTION/PHONE  
**KRISTA FERRELL  
 304-558-2596**

VENDOR

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DEPARTMENT OF ADMINISTRATION  
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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>THE ARCHITECT/ENGINEER AND/OR AGENCY SHALL BE REQUIRED TO ABIDE BY THE FOLLOWING SCHEDULE IN ISSUING CONSTRUCTION PROJECT ADDENDA FOR STATE AGENCIES:</p> <p>(1) THE ARCHITECT/ENGINEER SHALL PREPARE THE ADDENDUM AND A LIST OF ALL PARTIES THAT HAVE PROCURED DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. THE ADDENDUM AND LIST SHALL BE FORWARDED TO THE BUYER IN THE STATE PURCHASING DIVISION. THE ARCHITECT/ENGINEER SHALL ALSO SEND A COPY OF THE ADDENDUM TO THE STATE AGENCY FOR WHICH THE CONTRACT IS ISSUED.</p> <p>(2) THE BUYER SHALL SEND THE ADDENDUM TO ALL INTERESTED PARTIES AND, IF NECESSARY, EXTEND THE BID OPENING DATE. ANY ADDENDUM SHOULD BE RECEIVED BY THE BUYER WITHIN FOURTEEN (14) DAYS PRIOR TO THE BID OPENING DATE.</p> <p>(3) ALL ADDENDA SHOULD BE FORMALLY ACKNOWLEDGED BY ALL BIDDERS AND SUBMITTED TO THE STATE PURCHASING DIVISION. THE SAME RULES AND REGULATIONS THAT APPLY TO THE ORIGINAL BIDDING DOCUMENT SHALL ALSO APPLY TO AN ADDENDUM DOCUMENT. THE ONLY EXCEPTION MAY BE FOR AN ADDENDUM THAT IS ISSUED FOR TH SOLE PURPOSE OF CHANGING A BID OPENING TIME AND/OR DATE.</p> <p>REV. 11/96</p> <p>EXHIBIT 10</p> <p>ADDENDUM ACKNOWLEDGEMENT</p> <p>I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO</p>						

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### Request for Quotation

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**ISCG0150**

PAGE  
**7**

ADDRESS CORRESPONDENCE TO ATTENTION OF  
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 304-558-2596**

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DEPARTMENT OF ADMINISTRATION  
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DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/18/2007				

BID OPENING DATE: **05/24/2007** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	QTY NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC. ADDENDUM NOS.: NO. 1 ..... NO. 2 ..... NO. 3 ..... NO. 4 ..... NO. 5 .....  I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF THE BIDS.  ..... SIGNATURE ..... COMPANY ..... DATE  REV. 11/96  CONTRACTORS LICENSE  WEST VIRGINIA STATE CODE 21-11-2 REQUIRES THAT ALL PERSONS DESIRING TO PERFORM CONTRACTING WORK IN THIS STATE MUST BE LICENSED. THE WEST VIRGINIA CONTRACTORS LICENSING BOARD IS EMPOWERED TO ISSUE THE CONTRACTORS LICENSE. APPLICATIONS FOR A CONTRACTORS LICENSE MAY BE MADE BY CONTACTING THE WEST VIRGINIA DIVISION OF LABOR CAPITOL COMPLEX, BUILDING 3, ROOM 319, CHARLESTON, WV						

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**Request for  
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PAGE
8

ADDRESS CORRESPONDENCE ATTENTION TO
KRISTA FERRELL 304-558-2596

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PROCURING

SUPPLIER

DEPARTMENT OF ADMINISTRATION  
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 CHARLESTON, WV  
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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
25305. TELEPHONE: (304) 558-7890.  WEST VIRGINIA STATE CODE 21-11-11 REQUIRES ANY PROSPECTIVE BIDDER TO INCLUDE THE CONTRACTORS LICENSE NUMBER ON THEIR BID.  BIDDER TO COMPLETE: CONTRACTORS NAME: ..... CONTRACTORS LICENSE NO.: .....  THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FURNISH A COPY OF THEIR CONTRACTORS LICENSE PRIOR TO ISSUANCE OF A PURCHASE ORDER/CONTRACT  APPLICABLE LAW  THE WEST VIRGINIA STATE CODE, PURCHASING DIVISION RULES AND REGULATIONS, AND THE INFORMATION PROVIDED IN THE "REQUEST FOR QUOTATION" ISSUED BY THE PURCHASING DIVISION IS THE SOLE AUTHORITY GOVERNING THIS PROCUREMENT.  ANY INFORMATION PROVIDED IN SPECIFICATION MANUALS, OR ANY OTHER SOURCE, VERBAL OR WRITTEN, WHICH CONTRADICTS OR ALTERS THE INFORMATION PROVIDED FROM THE SOURCES AS DESCRIBED IN THE ABOVE PARAGRAPH IS VOID AND OF NO EFFECT.  BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.  REV. 1/2005						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
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**Request for  
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RFQ NUMBER
ISCG0150

PAGE
9

ADDRESS FOR CORRESPONDENCE TO ATTENTION OR
KRISTA FERRELL 304-558-2596

RFQ COPY  
 TYPE NAME/ADDRESS HERE

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RFQ COPY

DEPARTMENT OF ADMINISTRATION  
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BID OPENING DATE: 05/24/2007 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOF	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p><b>NOTICE</b></p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION                      PURCHASING DIVISION                      BUILDING 15                      2019 WASHINGTON STREET, EAST                      CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: KRISTA FERRELL-FILE 21</p> <p>REQ. NO.: ISCG0150</p> <p>BID OPENING DATE: 05/24/2007</p> <p>BID OPENING TIME: 1:30 PM</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p> <p>-----</p> <p>PLEASE PRINT OR TYPE NAME OF PERSON TO CONTACT CONCERNING THIS QUOTE:</p> <p>-----</p>						

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**Request for Quotation**

RFQ NUMBER:  
**ISCG0150**

PAGE:  
**10**

ADDRESS FOR CORRESPONDENCE OR NOTIFICATION:  
**KRISTA FERRELL  
 304-558-2596**

RFQ COPY

TYPE NAME/ADDRESS HERE

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DEPARTMENT OF ADMINISTRATION  
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BID OPENING DATE: **05/24/2007** BID OPENING TIME **01:30PM**

LINE	QUANTITY	U/P	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
***** THIS IS THE END OF RFQ ISCG0150 ***** TOTAL:						No Bid

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	RELATIONS	DATE
TITLE	FAX	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

011

**State of West Virginia  
Department of Administration  
Office of Technology  
Charleston, WV**

**Request for Quotation**

**1.0 OBJECTIVE**

The State of West Virginia, Department of Administration, Office of Technology (WVOT) intends to acquire a complete telecommunications distribution system for *Building One (Main Capitol Building) at 1900 Kanawha Blvd, Charleston, WV, 25305.*

The project will be completed in three phases:

- Phase One - **Cable tray and pathways installation**
- Phase Two - **Infrastructure cable installation**
- Phase Three - **Migration, remediation, and removal of existing abandoned cable, facilities, and equipment**

Each of the three phases will be bid out separately. The current schedule for these three phases is attached.

This Request for Quotation covers Phase Two: **installation, testing, and acceptance of the telecommunications distribution system infrastructure cable.** Prices quoted shall be all-inclusive and represent complete installation. The Vendor shall be responsible for all parts, labor and all other associated apparatus necessary to completely install, test, and turnover for acceptance to the WVOT

**1.1 Inquiries:**

Additional information inquiries regarding specifications of this RFQ must be submitted in writing to the State Buyer with the exception of questions regarding proposal submission which may be oral. The deadline for written inquiries is identified in the Schedule of Events, Section 1.16. All inquiries of specification clarification must be addressed to:

Krista Ferrell, Senior Buyer  
Purchasing Division  
2019 Washington Street, East  
P.O. Box 50130  
Charleston, WV 25305-0130  
Fax: (304) 558-4115

**Absolutely NO contact shall be made by the Vendor with any member of the evaluation committee.** Violation may result in rejection of the bid. The State Buyer named above is the sole contact for any and all inquiries after this RFQ has been released.

**1.2 Vendor Registration:**

Vendors participating in this process must complete and file a *Vendor Registration and Disclosure Statement* (Form WV-1) and remit the registration fee. Vendor is not required to be a registered Vendor in order to submit a proposal, but the **successful bidder MUST** register and

012

1.3 pay the fee prior to the award of an actual purchase order/contract.  
**Oral Statements and Commitments:**

Vendor should clearly understand that any verbal representations made or assumed to be made during any oral discussions held between Vendor's representatives and any State personnel is not binding. Only the information issued in writing and added to the Request for Proposal specifications file by an official written addendum are binding.

1.4 **Response Submission:**

State law requires that the original proposal be submitted to the Purchasing Division. All proposals must be submitted to the Purchasing Division prior to the date and time stipulated in the RFQ as the opening date. All bids will be date and time stamped to verify official time and date of receipt.

Vendors mailing proposals must allow sufficient time for mail delivery to ensure timely arrival. In accordance with State Code 5A-3-11, the Purchasing Division cannot waive or excuse late receipt of a proposal that is delayed and late for any reason. Any proposal received after the bid opening date and time will be immediately disqualified in accordance with State law and the administrative rules and regulations.

WVOT requests that bidders also include a copy of their bid in electronic form on a CD.

**Submit:**

One original RFQ to:

Purchasing Division  
 2019 Washington Street, East  
 P.O. Box 50130  
 Charleston, WV 25305-0130

The outside of the envelope or package(s) must be clearly marked:

Buyer: 21  
 Req#: ISCG0150  
 Opening Date: 05/24/2007

1.5 **Schedule of Events**

The following is the required schedule of events for this project. The schedule may change depending on the results of the responses and a final schedule will be established prior to contracting with the successful Vendor.

Event	Date and Time
Mandatory Pre-Bid Conference and on Site Survey	05/02/2007 @ 1:00 pm
Final Questions	05/07/2007 @ 9:00 am
Bid Opening Date	05/24/2007 @ 1:30 pm

1.6 **Incurring Costs:**

013

The State and any of its employees or officers shall not be held liable for any expenses incurred by any bidder responding to this RFQ for expenses to prepare, deliver the proposal, or to attend any mandatory prebid meeting or oral presentations.

#### 1.7 Mandatory Prebid Conference:

A mandatory prebid conference shall be conducted on the date specified above in the Governor's Conference Room (Room 167) of the Main Capitol Building. Said conference will be held at 1:00 pm. **All interested bidders are required to be present at this meeting. Failure to attend the mandatory prebid conference shall automatically result in disqualification. No one person can represent more than one Vendor.**

If The Vendor does not attend the Bidders' Conference, then The Vendor will not be allowed to attend the Site Survey or respond to the RFQ. Final drawings reflecting the proposed work will be provided to the companies attending. Only one set of drawings will be allocated per company. The Vendors will be required to sign in to verify attendance.

#### 1.8 Mandatory Site Survey

A Site Survey will be conducted immediately following the pre-bid meeting. Attendance at the Site Survey is mandatory. If a Vendor does not attend the Site Survey, then that Vendor will not be allowed to respond to the RFQ.

#### 1.9 Omissions

Omission in the bid of any provision herein described shall not be construed as to relieve The Vendor of any responsibility or obligation requisite to the complete and satisfactory delivery, operation, and support of any and all equipment or services.

#### 1.10 Warranty

Materials and workmanship hereinafter specified and furnished shall be fully guaranteed by The Vendor for **fifteen years** from transfer of title against any defects. Defects which may occur as the result of faulty materials or workmanship within **fifteen years** after installation and acceptance by The WVOT shall be corrected by The Vendor at no additional cost to The WVOT. The Vendor's warranties shall commence with acceptance of or payment for the work in full.

This warranty shall in no manner cover equipment that has been damaged or rendered unserviceable due to negligence, misuse, acts of vandalism, or tampering by The WVOT or anyone other than employees or agents of The Vendor. The Vendor's obligation under its warranty is limited to the cost of repair of the warranted item or replacement thereof, at The Vendor's option. Insurance covering said equipment from damage or loss is to be borne by The Vendor until full acceptance of equipment and services.

#### 1.11 Inspection, Acceptance, and Title

Inspection and Acceptance will be at destination and upon successful installation unless otherwise provided. Title to/or risk of loss or damage to all items shall be the responsibility of the successful Vendor until acceptance by The WVOT, unless loss or damage results from negligence by The WVOT. If the materials or services supplied to The WVOT are found to be defective or do not conform to the specifications, The WVOT reserves the right to cancel the contract upon written notice to The Vendor and return products at The Vendor's expense, based upon the terms of the Contract.

The WVOT shall at all times have access to the work wherever it is in preparation or progress, and The Vendor shall provide proper facilities for such access and for inspection.

014

The Vendor shall not close up any work until The WVOT has inspected the work. Should The Vendor close up the work prior to inspection by The WVOT, The Vendor shall uncover the work for inspection by The WVOT at no cost to The WVOT, and then recover the work according to the specification contained herein.

The Vendor shall notify The WVOT in writing when the work is ready for inspection. The WVOT will inspect the work as expeditiously as possible after receipt of notification from The Vendor.

#### 1.12 Price Quotations

Price quotations are to include the furnishing of all materials, equipment, maintenance and training manuals, tools, and the provision of all labor and services necessary or proper for the completion of the work, except as may be otherwise expressly provided in the Contract Documents. The WVOT will not be liable for any costs beyond those proposed herein and awarded. Time and materials quotes will be unacceptable.

In case of discrepancy in computed proposal prices, unit price prevails.

#### 1.13 Price Stability

Contract prices and discounts shall be fixed at the time of contract award. Substitutions must be in accordance with Section 148-1-7 Subsection 7.15 of the West Virginia Legislative Rule.

#### 1.14 Variation in Quantities and Configurations

Equipped and capacity requirements are the best estimates currently available. The WVOT reserves the right to modify quantity and configuration requirements. The Vendor agrees to sell The WVOT the revised quantity of items at the unit price as stated in the RFQ regardless of quantity changes.

#### 1.15 Prime Vendor

In the event multiple Vendors submit a joint response to this RFQ, a single Vendor shall be identified as the Prime Vendor. Prime Vendor responsibilities shall include performing overall project administration and serving as a focal point for The WVOT to coordinate and monitor plans and schedules, maintain project budget and status information, administer changes required, preside over other Vendors participating or present at The WVOT meetings, and oversee preparation of reports and presentations. Prime Vendor shall also prepare and present a consolidated invoice for work performed. The WVOT shall issue only one (1) check for each consolidated invoice. Prime Vendor shall remain responsible for performing tasks associated with installation and implementation of Prime Vendor's portion of the contract.

#### 1.16 Compliance with Laws and Regulations

The Vendor performance of the work shall comply with applicable federal, state, and local laws, rules, and regulations. The Vendor shall give required notices, shall procure necessary governmental licenses and inspections, and shall pay without burden to The WVOT, all fees and charges in connection therewith unless specifically provided otherwise. In the event of violation, The Vendor shall pay all fines and penalties, including attorney's fees and other defense costs and expenses in connection therewith.

1.17.1 Federal Communications Commission  
Equipment requiring FCC registration or approval shall have received such approval and shall be appropriately identified.

1.17.2 Codes, Standards, and Ordinances

015

All work shall conform to the latest edition of the *National Electrical Code*<sup>®</sup>, the *Building Code*, and all local codes and ordinances, as applicable. ANSI/TIA/EIA-568-B.1 through ANSI/TIA/EIA-568-B.3, NECS/BICSI-568 and ANSI/TIA/EIA-569-A shall be adhered to during all installation activities. Methodologies outlined in the latest edition of the *BICSI Telecommunications Distribution Methods Manual* shall also be used during all installation activities. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement will have responsibility for making interpretation.

#### 1.17 Safety

The Vendor shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the work. The Vendor shall at all times comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Vendor shall indemnify and hold harmless The WVOT from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) which may be imposed on The WVOT because of The Vendor, subcontractor, or supplier's failure to comply with the regulations stated herein.

#### 1.18 Patents and Royalties

The Vendor, without exception, shall indemnify and hold harmless The WVOT and its employees from any liability of any nature or kind, including costs and expenses for, or on account of, any trademarked, copyrighted, patented, or nonpatented invention, process, or article manufactured or used in the performance of the Contract, including its use by The WVOT. If The Vendor or subcontractor uses any design, device, or materials covered by letters, patent, trademark, or copyright, it is mutually understood and agreed without exception that the proposal prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

#### 1.19 Indemnification

The Vendor shall indemnify and hold harmless The WVOT, its agents, and employees from or on account of any injuries or damages, received or sustained by any person or persons, during or on account of any operation connected with this Contract; or by consequence of any negligence (excluding negligence by The WVOT, its agents, or employees) in connection with the same; or by use of any improper materials or by or on account of any act or omission of said Vendor or its subcontractors, agents, servants, or employees. The Vendor further agrees to indemnify and hold harmless The WVOT, its agents, or employees, against claims or liability arising from or based upon the violation of any federal, state, county, city, or other applicable laws, bylaws, ordinances, or regulations by The Vendor, its agents, associates, or employees.

The indemnification provided above shall obligate The Vendor to defend at its own expense or to provide for such defense, at The WVOT's option, of any and all claims of liability and all suits and actions of every name and description that may be brought against The WVOT which may result from the operations and activities under this Contract whether the installation operations be performed by The Vendor, subcontractor, or by anyone directly or indirectly employed by either.

The award of this Contract to The Vendor shall obligate The Vendor to comply with the foregoing indemnity provision; however, the collateral obligation of insuring this indemnity must be complied with as set forth.

#### 1.20 Affidavit

West Virginia State Code 5A-3-10a requires that all bidders submit an affidavit regarding any debt owed to the State. The affidavit must be signed and submitted prior to award. It is preferred that the affidavit be submitted with the RFQ.

016

## 2.0 QUALIFICATIONS

### 2.1 Project Manager

The Vendor will provide a Project Manager who will act as a single point of contact for all activities regarding this project. The Project Manager will be required to make on-site decisions regarding the scope of the work and any changes required by the work. The Project Manager must be on the job at any time work is being performed or workers are present. The Project Manager will be totally responsible for all aspects of the work and shall have the authority to make immediate decisions regarding implementation or changes to the work.

### 2.2 Construction Manager

The WVOT shall provide a Construction Manager who shall act as a single point of contact for all activities regarding this project. The Construction Manager will be responsible for all decisions required of The WVOT and shall coordinate with all departments during installation activities. The Construction Manager shall notify The WVOT Inspector when inspections are scheduled and shall coordinate the inspection between The Vendor and The WVOT Inspector.

### 2.3 Experience

2.3.1 The selected Vendor must be fully capable and experienced in the *telecommunications distribution system* specified. To ensure the system has continued support, The WVOT will contract only with Vendors having a successful history of sales, installation, service, and support. The Vendor must have a minimum of *five (5) years* of experience.

2.3.2 The Vendor must have an **RCDD<sup>®</sup>** (*Registered Communications Distribution Designer*) or equivalent on staff that will be ultimately responsible for this project. The RCDD must have 3 years experience in this type project as to be able to lend adequate technical support to the field forces during installation, during the warranty period, and during any extended warranty periods or maintenance contracts. Should the RCDD assigned to this project change during the installation, the new RCDD assigned must meet all requirements of the RFQ.

Vendors must submit a copy of the RCDD's resume to the agency. It is preferred that the vendor include said resume(s) with their bid response. The agency reserves the right to request this information. Vendors must provide this information within 48 hours of the request. Failure to provide this information may result in bid disqualification.

2.3.4 The Vendor must also have **BICSI Registered Installers and Technicians** or equivalent i.e.; Systemax on staff and assign them to this project. The project must be staffed at all times by Installers and Technicians who, in the role of lead crafts persons, will be able to provide leadership and technical resources for the remaining crafts persons on the project. A minimum of 30 percent of personnel must be BICSI registered telecommunications installers. Of that number 15 percent must be registered at the *Technician Level*, at least 40 percent must be registered at the *Installer Level 2*, and the balance must be registered at the *Installer Level 1*. A copy of their registrations must be submitted in The Vendor's response to this RFQ.

### 2.4 References

The Vendor must provide a minimum of *three (3)* references which are of the same size in scope and design that have been completed by The Vendor within the last *two (2)* years. It is preferred that this information accompany the vendor's bid. The agency reserves the right to request this

017

information. Vendors must provide this information within 48 hours of the request. Failure to provide this information may result in bid disqualification.

## 2.5 Liability and Insurance

The Vendor shall assume the full duty, obligation, and expense of obtaining and maintaining necessary insurance.

### 2.5.1 Insurance Coverage

The Vendor shall be fully liable to provide and maintain in force during the life of this Contract, such insurance, including Public Liability Insurance, Product Liability Insurance, Auto Liability Insurance, Worker's Compensation, and Employer's Liability Insurance as will assure to The WVOT the protection contained in the foregoing indemnification provision undertaken by The Vendor. Such policies shall be issued by United States Treasury-approved companies authorized to do business in the State of West Virginia and having agents upon whom service of process may be made in The WVOT and shall contain as a minimum, the following provisions, coverage's, and policy limits of liability.

### 2.5.2 General Liability

General Liability Insurance shall protect The WVOT, The Vendor, subcontractor, agents, and employees from claims for damages. The limits of liability provided by such policy shall be no less than Five Hundred Thousand Dollars (U.S. \$500,000.00) per occurrence combined single limit bodily injury and property damage, and an amount not less than One Million Dollars (U.S. \$1,000,000.00) for damages on account of all occurrences.

### 2.5.3 Product Liability

Product Liability or Completed Operations Insurance shall have bodily injury limits of liability of not less than Five Hundred Thousand Dollars (U.S. \$500,000.00) per person; Five Hundred Thousand Dollars (U.S. \$500,000.00) per occurrence, and Five Hundred Thousand Dollars (U.S. \$500,000.00) aggregate.

### 2.5.4 Auto Liability

Auto Liability Insurance shall have bodily injury limits of not less than Three Hundred Thousand Dollars (U.S. \$300,000.00) per occurrence and property damage limits of not less than One Hundred Thousand Dollars (U.S. \$100,000.00).

### 2.5.5 Workers' Compensation and Employer's Liability

Workers' Compensation and Employer's Liability Insurance shall meet minimum requirements set by the State of West Virginia, but in no case less than One Hundred Thousand Dollars (U.S. \$100,000.00).

### 2.5.6 Proof of Insurance

The Vendor shall furnish to the State of West Virginia a Certificate of Insurance or duplicate policies of insurance described above which specifically protect The State. This will be accomplished by naming The State of West Virginia as a named insured under the policy and by providing an endorsement under the terms of which the insurer specifically agrees not only to pay any claims incurred by or resulting to The State of West Virginia, but also agrees to enter a defense on behalf of The WVOT. The defense includes any and all suits or actions, in which the liability of The WVOT is vicarious and is predicated upon allegation of some act of omission by The Vendor, subcontractor, or his or her agents. This proof shall be received within five (5)



018

working days after request. Purchase order(s) will not be issued until Certificates of Insurance are received.

Such certification must contain a provision for notification of The State of West Virginia thirty (30) days in advance of any material change in coverage or cancellation. Notification shall be in writing and signed in ink by a duly authorized officer of the Insurer.

#### **2.5.7 License Requirements**

The successful bidder **MUST** have a West Virginia Contractor's License. If partnering with subcontractors, only the vendor actually performing the installation of cabling must hold the contractor's license. The license number must be included with the bid response, but the certificate will be required only from the successful vendor. If the prime vendor replaces the networking installation vendor any time during the term of the contract, prior written approval from the WVOT and a properly executed change order to the contract must be processed. The replacement must have a contractor's license and provide a copy before the change will be approved.

#### **2.5.8 Wage Rates**

The West Virginia Division of Labor's Building and Construction Wage Rates are made part of the RFQ by reference. The wage rates are available online at the Secretary of State's website: <http://www.wvsos.com/adlaw/wagerates/bullding02.htm>.

#### **2.5.9 Bonding**

##### **2.5.9.1 Bid Bond**

A Surety Bond, Certified Check, Cashier's Check, Treasurer's Check, or bank draft of any State or National Bank representing five (5) percent of the total amount of the Vendor's response must accompany the response package.

##### **2.5.9.2 Performance, Labor, Materials Bond**

Within five (5) working days after notice of award, The Vendor is required to have a valid Performance, Labor, Materials Bond in force covering the work performed up to the acceptance by The WVOT. The Bond must be in the amount of one hundred (100) percent of the Contract amount, guaranteeing to The State of West Virginia the completion and performance of the work covered in such as well as full payment of all suppliers, agents, laborers, or subcontractors employed in the performance of the project. Bonds shall provide for the protection of all persons supplying labor or materials used for the performance of the work. Purchase order(s) will not be issued until 100 percent payment bond is received. Bonds must be submitted on the State of West Virginia's forms. These forms will be supplied to the apparent successful vendor upon request.

The Vendor agrees to keep such Bond, or a replacement thereof, in force at all times during the course of the performance under this project. In addition to the foregoing requirements, such bond shall contain the provision, whether by attaching endorsements or supplemental agreements, guaranteeing to The State of West Virginia the successful completion of the project. The Vendor may comply with the requirements of this provision by causing said Bond to specifically name The State of West Virginia as one of the parties to whom the protection afforded by said Bond is extended or as an alternate, may furnish a separate Performance Bond meeting the same criteria.

##### **2.5.9.3 Qualification of Surety**

019

The Performance, Labor, Materials Bond must be executed by a Surety Company of recognized standing, authorized to do business in the State of West Virginia. The bonds shall be on the State of WV form provided by the Purchasing Division. A certified check, or cashiers check made payable to the State of West Virginia, will also serve as the bid bond.

#### 2.5.9.4 Failure to Complete and Liquidated Damages

Because the actual damages for delay in completion are impractical to determine, the successful Vendor and its sureties shall be liable for and shall pay to The WVOT stipulated and fixed, agreed, and liquidated damages the sum of Five Hundred Dollars (U.S. \$500.00) for each calendar day past the agreed upon date of completion. The successful Vendor and its sureties shall be liable for and shall pay to The WVOT stipulated and fixed, agreed, and liquidated damages in the sum of One Thousand Dollars (U.S. \$1000.00) for each calendar day an outage is caused on an existing fiber run, Five Hundred Dollars (U.S. \$500.00) for each calendar day an outage is caused on an existing data run and One Hundred Dollars (U.S. \$100.00) for each calendar day an outage is caused on an existing voice run.

#### 2.6 Special Conditions

This facility is a facility that provides services to the State of West Virginia and all those having business with the State. As such, activities in all buildings are critical to the provisioning of services and shall not be interrupted by The Vendor's work activities.

The computer and telecommunications systems associated with this work must not be taken off-line or removed from service during normal working hours without The Vendor first making specific arrangements to coordinate any such activities.

The Vendor will be required to work around all of the conditions listed above, as well as working with The WVOT staff to minimize disruptions to normal Customer activities.

#### 2.7 Cancellation

In the event provisions of this RFQ are violated by The Vendor, The WVOT may give written notice to The Vendor stating the deficiencies. Unless deficiencies are corrected within five (5) working days, recommendations will be made to The Purchasing Division for immediate cancellation. The Purchasing Division reserves the right to terminate immediately any contract resulting from this RFQ for failure to correct deficiencies.

#### 3.0 INSTALLATION GUIDELINES

This RFQ includes equipment, materials, labor, and services to provide telecommunications distribution system infrastructure cable including, but not limited to copper twisted pair and multi-strand fiber; System testing; Documentation and providing all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation.

3.1 All work performed on this project will be installed in accordance with the current edition of the *National Electrical Code*<sup>®</sup>, the current edition of the *National Electrical Safety Code*<sup>®</sup>, the current issue of the *ANSI/NECA/BICSI-588 Standard for Installing Commercial Building Telecommunications Cabling*, the current edition of the *BICSI Telecommunications Distribution Methods Manual*, the current edition of the *BICSI Cabling Installation Manual*, the latest issue of the *ANSI/TIA/EIA Standards* as published by Global Engineering Documents as *ANSI/TIA/EIA Telecommunications Building Wiring Standards*, and all local codes and ordinances.

3.2 At a minimum, not limited to, design, manufacture, test, and install telecommunications infrastructure cable per manufacturer's requirements and in accordance with NFPA-70 (*National*

020

*Electrical Code*), state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards:

- 3.2.1 ANSI/NECA/ Telecommunications Cabling
- 3.2.2 ANSI/TIA/EIA-568-B.1 -- *Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements*
- 3.2.3 BICSI-568 -- *Standard for Installing Commercial Building ANSI/TIA/EIA-569-A -- Commercial Building Standard for Telecommunications Pathways and Spaces*
- 3.2.4 ANSI/TIA/EIA-606(A) -- *The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings*
- 3.2.5 ANSI/TIA/EIA-607(A) -- *Commercial Building Grounding and Bonding Requirements for Telecommunications*
- 3.3 Install in accordance with the most recent edition of BICSI® publications: BICSI -- *Telecommunications Distribution Methods Manual*
- 3.4 Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of the State of West Virginia's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

Cable tray must be Thomas and Betts (or equal) solid trough thru out the main hallways and dock areas.

Tray type and sizes must be Solid Trough Cable Tray 30" x 6" with dividers to make three 10" sections, Wire Mesh Cable Tray 16" x 4", and Wire Mesh Cable Tray 8" x 4".

Final drawings with the desired route and dimensions will be distributed at the vendor conference. The desired route and dimensions will be discussed during the conference and during the site survey / walk thru.

Cable tray in cafeteria portion of the install must be at a constant elevation. This elevation must continue at a minimum five (5) feet outside of the cafeteria area in all directions required.

**Vendor must include a detailed equipment list that at a minimum includes part number, part description, per part pricing and part quantity. It is preferred that the vendor submit this information with their bid response. The agency reserves the right to request this information. Vendors must submit this requested information within 48 hours of the request. Failure to respond within this time frame may result in bid disqualification.**

#### 4.1 Fiber Optic Cable Specifications

- 4.1.1 Laser Optimized Multimode 50µm 550 Plenum Building Cable- Supports 550 Meter Channel @ 10 Gb/s
  - 4.1.1.1 The cable shall support current and next-generation LAN, SAN, and WAN applications via laser-optimized 50/125-µm optical fibers.
  - 4.1.1.2 The cable shall extend the distance of low-cost 850-nm VCSEL-based electronics, supporting 1100 m at 1 Gb/s and 550 m at 10 Gb/s.
  - 4.1.1.3 The application suite shall include Ethernet from 10 Mib/s to 10 Gb/s.

021

- Fiber Channel from 1 Gb/s to 10 Gb/s, and ATM/SONET/SDH from OC-1 to OC-192.
- 4.1.1.4 All fibers shall be Differential Mode Delay (DMD) tested using a high-resolution test bench that exceeds the FOTP-220 standards and is independently certified by UL@.
  - 4.1.1.5 The riser cable shall be constructed with tight buffer fibers, aramid strength yarn, surrounded by a Plenum rated outer jacket.
  - 4.1.1.6 The cables shall be designed for point-to-point applications as well as mid-span access, and shall provide a high-level of protection for fiber installed in the building environment.
  - 4.1.1.7 The cables shall meet the following specifications:

**Physical Specifications:**

Fiber Count	Outer Diameter in.(mm)	Weight lbs/ft (kg/km)	Minimum Bend Radius in.(cm)		Max.Tensile Load lbs.(Newtons)		Maximum Vertical Rise Feet (Meters)
			Loaded	Unloaded	Short Term	Long Term	
6	0.19 (4.7)	14 (21)	3.7 (9.3)	1.9 (4.7)	300 (1335)	90 (400)	1640 (500)
12	0.22 (5.7)	21 (31)	4.5 (11.4)	2.2 (5.7)	300 (1335)	90 (400)	1640 (500)
24	0.55 (13.9)	107 (160)	11.0 (27.8)	5.5 (13.9)	600 (2670)	180 (801)	1640 (500)

**Environmental and Mechanical**

	Specification	Test Method
Operating Temperature	-40°to +70°C	FOTP - 3
Installation Temperature	20°to +70°C	N/A
Storage Temperature	-40°to +70°C	N/A
Crush Resistance	44 N/mm	FOTP - 41
Impact Resistance	20 Impacts of 2.94 N.m.	FOTP - 25
Flexing	Exceeds	FOTP - 104
Twist Bend	Exceeds	FOTP - 85

**Cable Identification:**

Buffer Tubes and Fibers are identified with standard color coding:

1 - Blue	5 - Slate	9 - Yellow
2 - Orange	6 - White	10 - Violet
3 - Green	7 - Red	11 - Rose
4 - Brown	8 - Black	12 - Aqua

**Optical Specifications**

	850 nm,max	1300 nm,max
Cabled Attenuation	3.0 dB/km	1.0 dB/km
Bandwidth by OFL	3500 MHz-km	500 MHz-km
Effective Modal Bandwidth	4700 MHz-km*	500 MHz-km
Differential Mode Delay	See Table below	1 0.88 ps/m

\* Effective modal bandwidth for laser transmitters compliant to TIA/EIA-492-AAACA Annex C.1, such as those in IEEE 802.3

10-Gigabit Ethernet (10GBASE-S),INCITS 364 10-Gigabit Fiber Channel (1200-MX-SN-1),and OIF-VSR4-04 10-Gigabit SONET/SDH (OC-192 Serial Shortwave).

**Table 1 Differential Mode Delay Specifications at 850 nm**  
DMD Template                      DMD Interval Mask

022

for $R_{INNER} = 0 \mu\text{m}$	for radial intervals:
to $R_{OUTER} = 23 \mu\text{m}$	7 - 13 $\mu\text{m}$
	9 - 15 $\mu\text{m}$
	11 - 17 $\mu\text{m}$
	13 - 19 $\mu\text{m}$
0.14 ps/m,max.	0.11 ps/m,max.

- 4.1.2 Armored Laser Optimized Multimode 50 $\mu\text{m}$  Metallic Sheath Supports 550 meters - 10Gb/s
- 4.1.2.1 The cable supports current and next-generation LAN, SAN, and WAN applications via laser-optimized 50/125- $\mu\text{m}$  optical fibers.
- 4.1.2.2 The cable extends the distance of low-cost 850-nm VCSEL-based electronics, supporting 1100 m at 1 Gb/s and 550 m at 10 Gb/s. The application suite includes Ethernet from 10 Mb/s to 10 Gb/s, Fiber Channel from 1 Gb/s to 10 Gb/s, and ATM/SONET/SDH from OC-1 to OC-192.
- 4.1.2.3 The fibers shall be Differential Mode Delay (DMD) tested using a high-resolution test bench that exceeds the FOTP-220 standards and is independently certified by UL®.
- 4.1.2.4 The Loose Tube Metallic cable shall be armored with a corrugated polymer coated steel tape, and constructed with industry standard 3mm buffer tubes, stranded around a central strength member.
- 4.1.2.5 The armor layer shall provide added crush protection and shall meet the Telcordia requirements for Superior Armored cable.
- 4.1.2.6 The buffer tubes shall be compatible with standard hardware, cable routing and fan-out kits.
- 4.1.2.7 The cable core shall be water blocked with dry water-blocking materials, making access and handling of individual tubes easier and craft-friendly.
- 4.1.2.8 The cable shall be designed for point-to-point applications as well as mid-span access, and provide a high-level of protection for fiber installed in the outside plant environment.
- 4.1.2.9 The cable shall meet the following specifications:

Fiber Physical Specifications	
Core Diameter	50 ( $\pm 2.5$ ) $\mu\text{m}$
Core Non-Circularity	$\leq 5\%$
Cladding Diameter	125 ( $\pm 1$ ) $\mu\text{m}$
Core/Cladding Concentricity Error	$\leq 1.5 \mu\text{m}$
Cladding Non-Circularity	$\leq 1.0\%$
Coated Fiber Diameter (uncolored)	245 ( $\pm 10$ ) $\mu\text{m}$
Coating/Cladding Concentricity Error	$\leq 6 \mu\text{m}$
Colored Fiber Diameter	245 ( $\pm 7$ ) $\mu\text{m}$
Proof Test Levels	0.7 GPa minimum
Dynamic Fatigue Parameter	$\geq 18$
Macrobending (100 turns on a 75 mm mandrel)	$\leq 0.5 \text{ dB @ } 850 \text{ nm and } 1300 \text{ nm}$
Operating Temperature	-60 to 85°C
Fiber Optical Specifications	
Numerical Aperture	0.200 $\pm$ 0.015
Effective Group Index of Refraction @ 850 nm	1.482
Effective Group Index of Refraction @ 1300 nm	1.478
Point Discontinuities @ 850 nm or 1300 nm	$\leq 0.1 \text{ dB}$

023

Minimum Bandwidth	Overfilled: 3500 MHz-km @ 850 nm Overfilled: 500 MHz-km @ 1300 nm Laser: 4700 MHz-km @ 850 nm Laser: 500 MHz-km @ 1300 nm
Zero Dispersion Wavelength	minimum 1297 nm maximum 1316 nm
Zero Dispersion Slope	≤ 0.101 ps/(nm <sup>2</sup> km)

**Physical Specifications:**

Fiber Count	Subunits	Outer Diameter in. (mm)	Weight lbs/kft kg/km	Minimum Bend Radius		Max. Tensile Load lbs. (Newtons)		Max. Vertical Rise Feet (Meters)
				Loaded	Unloaded	Short Term	Long Term	
4 - 48	5	0.46 (11.7)	63 (94)	9.2 (23.4)	4.6 (11.7)	607 (2700)	180 (800)	2856 (871)
72	6	0.50 (12.7)	72 (107)	10.0 (25.4)	5.0 (12.7)	607 (2700)	180 (800)	2509 (765)
96	8	0.58 (14.7)	95 (141)	11.5 (29.4)	5.8 (14.7)	607 (2700)	180 (800)	1904 (580)
144	12	0.74 (18.9)	146 (217)	14.8 (37.8)	7.4 (18.9)	607 (2700)	180 (800)	1237 (377)
288	24	0.86 (21.9)	211 (315)	17.2 (43.8)	8.6 (21.9)	607 (2700)	180 (800)	852 (260)

**Environmental and Mechanical:**

	Specification	Test Method
Operating Temperature	-40° to +70°C	FOTP - 3
Installation Temperature	-20° to +70°C	N/A
Storage Temperature	-40° to +70°C	N/A
Crush Resistance	44 N/mm	FOTP - 41
Impact Resistance	Exceeds	FOTP - 25
Flexing	Exceeds	FOTP - 104
Twist Bend	Exceeds	FOTP - 85

**Cable Identification:**

Buffer Tubes and Fibers are identified with standard color coding:

1 - Blue	5 - Slate	9 - Yellow
2 - Orange	6 - White	10 - Violet
3 - Green	7 - Red	11 - Rose
4 - Brown	8 - Black	12 - Aqua

Buffer tubes 13 through 24 repeat the color sequence with tracer stripes: e.g. fiber 13 is blue with tracer strip

**Optical Specifications**

	850 nm, max	1300 nm, max
Cabled Attenuation	3.0 dB/km	1.0 dB/km
Bandwidth by OFL	3500 MHz-km	500 MHz-km
Effective Modal Bandwidth	4700 MHz-km*	500 MHz-km
Differential Mode Delay	See Table 1 below	0.88 ps/m

\* Effective modal bandwidth for laser transmitters compliant to TIA/EIA-492-AAAC-A Annex C.1, such as those in IEEE 802.3 10-Gigabit Ethernet (10GBASE-S), INCITS 364 10-Gigabit Fiber Channel (1200-MX-SN-1), and OIP-VSR4-04 10-Gigabit SONET/SDH (OC-192 Serial Shortwave).

**Table 1 - Differential Mode Delay Specifications at 850 nm**

DMD Template for r <sub>inner</sub> = 0 μm to r <sub>outer</sub> = 23 μm	DMD Interval Mask for radial intervals: 7 - 13 μm 9 - 15 μm 11 - 17 μm 13 - 19 μm
0.14 ps/m, max.	0.11 ps/m, max.

4.2 COPPER MULTI PAIR CABLE SPECIFICATIONS

024

**4.2.1 DESCRIPTION**

UNSHIELDED TWISTED PAIR (UTP) CATEGORY 3 CABLE FOR USE IN BACKBONE CABLING SYSTEMS AS DESCRIBED IN TIA/EIA 568-B. THE CABLE CONSISTS OF #24 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO TWISTED PAIRS, WITH A RIPCORD, UNDER AN OVERALL JACKET. THE PLENUM RATED CABLE IS RATED FOR USE IN AIR HANDLING DUCTS AND SPACES IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE PLENUM CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING NFPA 262/UL 910 (STEINER TUNNEL) TEST.

**4.2.2 SUPPORTED APPLICATIONS**

ANALOG & DIGITAL VOICE, ISDN, IBM 3270 & 3x, IEEE 802.5 4 Mbps, TOKEN RING®, IEEE 802.3, 1BASE-5 & 10 BASE-T, 10 Mbps ETHERNET®, 100 BASE VG-ANYLAN.

**4.2.3 CONSTRUCTION**

- a) **PRIMARIES:**  
CONDUCTOR: 24 AWG (.5 mm) SOLID BARE COPPER  
INSULATION: PL - PLENUM RATED THERMOPLASTIC
- b) **PAIR ASSEMBLY:**  
2 PRIMARIES TWISTED IN VARIED LAYS
- c) **COLOR CODE:** SEE TABLE 1
- d) **CABLE ASSEMBLY:**  
25 PAIRS CABLED TOGETHER.  
>25 PAIRS — GROUPS OF 25 PAIRS, ALONG WITH  
SPARE PAIRS, ARE CABLED TOGETHER.
- e) **BARRIER:**  
OVERAL POLYESTER TAPE, 25% OVERLAP (>100PR)
- f) **JACKET:**  
PL - GRAY ThermoPlen®\*
- g) **LISTINGS:**  
PL - UL/cUL CMP

**4.2.4 PHYSICAL CHARACTERISTICS**

- a) **OPERATING TEMP:** -20°C to +60°C (-4°F to +140°F)
- b) **STORAGE TEMP:** -20°C to +75°C (-4°F to +167°F)
- c) **INSTALLATION TEMP\*:** 0°C to +60°C (+32°F to +140°F)

**4.2.3 ELECTRICAL CHARACTERISTICS**

- a) **STANDARDS:** TIA/EIA 568-B.2 CAT 3 BACKBONE CABLE
- b) **CONDUCTOR DCR:** 9.38  $\Omega$ /100m (28.6  $\Omega$ /Mft) MAX

025

- c) **DCR UNBALANCE:** 5% MAX
- d) **MUTUAL CAPACITANCE:** 66 pF/m (20 pF/ft) NOM
- e) **CAPACITANCE UNBALANCE**
- f) **PAIR/GROUND:** 330 pF/100m (1000 pF/Mft) MAX
- g) **CHARACTERISTIC IMPEDANCE:**  $100 \Omega \pm 15\%$  (1-16 MHz)
- h) **STRUCTURAL RETURN LOSS (SRL):** 12 dB MIN (1-10 MHz)  
12 -  $10 \log_{10}(f/10)$  dB MIN (>10 MHz)
- i) **ATTENUATION:**  $2.320\sqrt{f} + .238f$  dB/100m MAX
- j) **NEAR END CROSSTALK (NEXT):**  $47 - 15 \log_{10}(f/0.772)$  dB/100m MIN
- k) **POWER SUM NEAR END CROSSTALK (PS-NEXT):**  $43 - 15 \log_{10}(f/0.772)$   
dB/100m MIN
- l) **PROPAGATION DELAY:**  $534 + 36\sqrt{f}$  ns/100m MAX
- m) **DELTA DELAY (SKEW):** 45 ns/100m MAX
- n) **NOMINAL VELOCITY OF PROPAGATION (NVP):** 64%  
WHERE  $f$  = FREQUENCY IN MHz from .772 to 16 MHz
- o) **SEE TABLE 2 FOR ADDITIONAL ELECTRICAL CHARACTERISTICS.**



026

TABLE 1

PAIR NUMBER	PAIR COLOR CODE	
	1	WHITE-BLUE
2	WHITE-ORANGE	ORANGE-WHITE
3	WHITE-GREEN	GREEN-WHITE
4	WHITE-BROWN	BROWN-WHITE
5	WHITE-GRAY	GRAY-WHITE
6	RED-BLUE	BLUE-RED
7	RED-ORANGE	ORANGE-RED
8	RED-GREEN	GREEN-RED
9	RED-BROWN	BROWN-RED
10	RED-GRAY	GRAY-RED
11	BLACK-BLUE	BLUE-BLACK
12	BLACK-ORANGE	ORANGE-BLACK
13	BLACK-GREEN	GREEN-BLACK
14	BLACK-BROWN	BROWN-BLACK
15	BLACK-GRAY	GRAY-BLACK
16	YELLOW-BLUE	BLUE-YELLOW
17	YELLOW-ORANGE	ORANGE-YELLOW
18	YELLOW-GREEN	GREEN-YELLOW
19	YELLOW-BROWN	BROWN-YELLOW
20	YELLOW-GRAY	GRAY-YELLOW
21	PURPLE-BLUE	BLUE-PURPLE
22	PURPLE-ORANGE	ORANGE-PURPLE
23	PURPLE-GREEN	GREEN-PURPLE
24	PURPLE-BROWN	BROWN-PURPLE
25	PURPLE-GRAY	GRAY-PURPLE

TABLE 2  
REFERENCE ELECTRICAL CHARACTERISTICS

FREQ (MHz)	ATTENUATION (dB/100m)			NEXT (dB/100m)		ACR* (dB/100m)	POWER SUM NEXT (dB/100m)		PS-ACR* (dB/100m)	SRL (dB)
	avg	max	max	avg	min		avg	min		
0.1	1.9	2.2	8.0	82	47	50.1	48	48	49.1	12
1.0	2.2	2.6	7.8	50	45	47.0	46	41	43.8	12
4.0	5.0	5.5	17	41	38	38.0	37	32	35.0	12
8.0	7.7	8.5	28	36	31	33.3	32	27	24.3	12
10.0	8.5	9.7	30	35	30	35.3	31	26	28.2	12
16.0	11.9	13.1	40	32	27	29.1	28	23	18.1	10

\*ACR - ATTENUATION TO CROSSTALK RATIO

Cable Type	Shield Type	Jacket Type		Weight		Min Bend Radius		Listings
		Diameter inch mm		lbs/ M	kg/ km	inch	mm	
Category 5 Plenum								
25 Pair 24	None	Gray		123	183	3.9	99	UL, c(UL) CMP

027

AWG UTP		ThermoPlen(r)* .389 9.88					
50 Pair 24 AWG UTP	None	Gray ThermoPlen(r)* .550 13.97	224	333	5.5	140	UL, c(UL) CMP
100 Pair 24 AWG UTP	None	Gray ThermoPlen(r)* .786 19.96	467	695	7.9	201	UL, c(UL) CMP
200 Pair 24 AWG UTP	None	Gray ThermoPlen(r)* 1.088 27.64	942	1402	10.9	277	UL, c(UL) CMP
300 Pair 24 AWG UTP	None	Gray ThermoPlen(r)* 1.334 33.88	1397	2079	13.3	338	UL, c(UL) CMP
400 Pair 24 AWG UTP	None	Gray ThermoPlen(r)* 1.527 38.79	1760	2619	15.3	389	ETL, c(ETL) CMP

\*THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED. DO NOT INSTALL BELOW 0°C (+32°F).

**4.3 Interlocking Armored Fiber-Optic Riser-Rated Premises Cable (OFCR) approved**

**4.3.1 Plenum rated**

- 4.3.1.1. The plenum rated interlocking armored cable shall be used where additional protection and security is deemed necessary such as: building backbone, zone distribution, raised floor, data centers and storage area networks (SANs)
- 4.3.1.2. The interlocking armor shall support single mode and multimode riser rated cable. Composite riser rated cables, with any combination of sm and mm fibers shall also be supported.
- 4.3.1.3. The manufacturing process shall include application of a steel or aluminum interlocking armor spirally around riser-rated premises distribution cable and then shall be over-jacketed with a plenum rated sheath
- 4.3.1.4. The plenum rated sheath shall be color-coded to the fiber type and be printed with all relevant information on the cable contained within.
- 4.3.1.5. The plenum rated sheath shall allow for easier handling and pulling.
- 4.3.1.6. The interlocking armor and fiber cable shall be from a single manufacturer.
- 4.3.1.7. Available fiber counts shall range from 2 to 72, with others available at request.

**Environmental and Mechanical:**

	Specification	Test Method
Operating Temperature	-20°C to +70°C	FOTP - 3
Installation Temperature	0°C to +70°C	N/A
Storage Temperature	-40°C to +70°C	N/A
Crush Resistance	85 N/mm	FOTP - 41
Impact Resistance	35 N-m	FOTP - 25
Flexing	Exceeds	FOTP - 104
Cable Bend	Exceeds	FOTP - 83

028

Physical Specifications

Aluminum Armored Plenum Cable:

Fiber Count	Outer Diameter in. (mm)		Weight lbs/ft (kg/km)		Minimum Bend Radius in. (cm)				Max. Tensile Load lbs. (Newtons)				Maximum Vertical Rise Feet (Meters)	
					Loaded		Unloaded		Short Term		Long Term			
2	0.56	14.1	100	(148)	11.1	(28.2)	7.8	(19.7)	225	(1,001)	68	(300)	677	(206)
4	0.56	14.1	103	(154)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	872	(266)
6	0.56	14.1	106	(158)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	849	(259)
8	0.56	14.1	108	(160)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	836	(255)
12	0.56	14.1	112	(166)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	806	(246)
18	0.76	19.2	197	(294)	15.1	(38.4)	10.6	(26.8)	300	(1,335)	90	(400)	456	(139)
24	0.81	20.4	226	(336)	16.1	(40.9)	11.3	(28.6)	300	(1,335)	90	(400)	398	(121)
36	0.86	21.7	282	(420)	17.1	(43.4)	12.0	(30.4)	300	(1,335)	90	(400)	319	(97)
48	0.91	23.0	302	(449)	18.1	(46.0)	12.7	(32.2)	300	(1,335)	90	(400)	298	(91)
60	1.01	25.5	352	(524)	20.1	(51.1)	14.1	(35.7)	300	(1,335)	90	(400)	255	(78)
72	1.11	28.1	418	(622)	22.1	(56.1)	15.5	(39.3)	300	(1,335)	90	(400)	215	(66)
96	1.26	31.9	569	(847)	25.1	(63.8)	17.6	(44.6)	300	(1,335)	90	(400)	158	(48)

029

**Steel Armored Plenum Cable:**

Fiber Count	Outer Diameter in. (mm)		Weight lbs/kft (kg/km)		Minimum Bend Radius in. (cm)				Max. Tensile Load lbs. (Newtons)				Maximum Vertical Rise Feet (Meters)	
									Loaded		Unloaded			
2	0.56	14.1	157	(233)	11.1	(28.2)	7.8	(19.7)	225	(1,001)	68	(300)	431	(131)
4	0.56	14.1	160	(238)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	562	(171)
6	0.56	14.1	163	(243)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	552	(168)
8	0.56	14.1	165	(245)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	547	(167)
12	0.56	14.1	169	(251)	11.1	(28.2)	7.8	(19.7)	300	(1,335)	90	(400)	534	(163)
18	0.76	19.2	285	(423)	15.1	(38.4)	10.6	(26.8)	300	(1,335)	90	(400)	316	(96)
24	0.81	20.4	321	(477)	16.1	(40.9)	11.3	(28.6)	300	(1,335)	90	(400)	281	(86)
36	0.86	21.7	384	(572)	17.1	(43.4)	12.0	(30.4)	300	(1,335)	90	(400)	234	(71)
48	0.91	23.0	412	(613)	18.1	(46.0)	12.7	(32.2)	300	(1,335)	90	(400)	219	(67)
60	1.01	25.5	476	(709)	20.1	(51.1)	14.1	(35.7)	300	(1,335)	90	(400)	189	(58)
72	1.11	28.1	557	(829)	22.1	(56.1)	15.5	(39.3)	300	(1,335)	90	(400)	162	(49)
96	1.26	31.9	730	(1,087)	25.1	(63.8)	17.6	(44.6)	300	(1,335)	90	(400)	123	(38)

**4.4. Single mode fiber optic Premises Cable – Zero Water Peak – Plenum Interlocking Armored Fiber-Optic Plenum-Rated Premises Cable (OFCR) approved**

- 4.4.1. The cable shall be available in plenum type.
- 4.4.2. The premises cable shall use a standard colored tight buffered construction.
- 4.4.3. The higher fiber count cables shall utilize a sub-unitized design with color-coded sub units for easy identification.
- 4.4.4. The cable shall deliver a cost-effective upgrade path by expanding the available wavelengths by 50% and allowing up to 18 channels of CWDM (Coarse Wave Division Multiplexing) on a single fiber and up to 400 channels of DWDM (Dense Wave Division Multiplexing) on a single cable.
- 4.4.5. The cable shall operate over the entire wavelength range from 1260 nm to 1625 nm, removing the water peak (high attenuation) in the E-band, adding more than 50% in operational wavelength range over conventional single mode fiber.

**Physical Specifications:**

Core Diameter:	8.3 µm nominal
Cladding Diameter:	125.0 (± 0.7) µm
Core/Clad Offset:	< 0.5 µm
Cladding Non-Circularity:	< 1%
Coated Fiber Diameter:	245 (± 10) µm
Cladding/Coating Offset:	< 12 µm
Colored Fiber Diameter:	254 (± 7) µm
Proof Test:	0.7 GPa
Fiber Curl:	> 4 m
Dynamic Fatigue Parameter:	> 18
Macrobend (100 turns, 50 mm mandrel):	0.10 dB @ 1310 nm and 1550 nm
Macrobend (1 turn on a 32 mm mandrel):	0.50 dB @ 1310 nm and @ 1550 nm

030

Optical Specifications	
Mode Field Diameter:	9.2 (± 0.3) μm @ 1310 nm 10.4 (nominal) @ 1550 nm
Group Index of Refraction:	1.466 @ 1310 nm and 1383 (± 3) nm, 1.467 @ 1550 nm
Attenuation of Tight Buffered Fibers:	0.7 dB/km @ 1310 nm 0.7 dB/km @ 1385 nm 0.7 dB/km @ 1550 nm
Maximum Dispersion:	3.5 ps/nm-km @ 1285 to 1330 nm, 18 ps/nm-km @ 1550 nm
Zero-Dispersion Wavelength:	1300 - 1322 nm
Zero-Dispersion Slope:	0.092 ps/(nm) <sup>2</sup> /km
Polarization Mode Dispersion LDV:	0.08 ps/(km) <sup>2</sup>

**Physical Characteristics - RISER Rated:**

Fiber Count	Fiber Rating	Outer Diameter		Weight		Minimum Bend				Max. Tensile Load		Maximum Vertical			
		In.	mm	lbs/ft	kg/km	Loaded	Unloaded	Short Term	Long Term	lbs.	N	ft	m.		
2	Riser	0.16	4.1	8.6	12.9	3.2	8.1	1.6	4.1	225	1001	68	300	1640	500
4	Riser	0.19	4.8	13.1	19	3.8	9.5	2.0	5.1	300	1335	90	400	1640	500
6	Riser	0.20	5.1	15.2	23	4.1	10.3	2.0	5.1	300	1335	90	400	1640	500
8	Riser	0.22	5.5	17.2	26	4.3	11.0	2.2	5.5	300	1335	90	400	1640	500
12	Riser	0.23	5.8	18.8	28	4.6	11.7	2.3	5.8	300	1335	90	400	1640	500
18	Riser	0.48	12.3	99.8	148	9.7	24.6	4.8	12.3	600	2670	180	801	1640	500
24	Riser	0.56	14.1	106.7	159	11.1	28.2	5.6	14.1	600	2670	180	801	1640	500
36	Riser	0.56	14.2	118.7	177	11.2	28.4	5.6	14.2	800	3560	240	1068	1640	500
48	Riser	0.62	15.7	126.6	188	12.3	31.3	6.2	15.7	800	3560	240	1068	1640	500
60	Riser	0.70	17.7	170.8	254	13.9	35.3	7.0	17.7	1000	4450	300	1335	1640	500
72	Riser	0.77	19.6	211.2	314	15.4	39.1	7.7	19.6	1000	4450	300	1335	1421	433
96	Riser	0.92	23.4	308.6	459	18.4	46.7	9.2	23.4	1000	4450	300	1335	972	296
144	Riser	1.00	25.3	309.8	461	19.9	50.6	10.0	25.3	1000	4450	300	1335	968	295

**Physical Characteristics - PLENUM Rated**

2	Plenum	0.15	3.9	8.8	13.1	3.1	7.8	1.5	3.9	225	1001	68	300	1640	500
4	Plenum	0.17	4.4	12.2	18	3.4	8.7	1.7	4.4	300	1335	90	400	1640	500
6	Plenum	0.19	4.8	13.1	22	3.8	9.7	1.9	4.8	300	1335	90	400	1640	500
8	Plenum	0.20	5.1	16.8	25	4.0	10.2	2.0	5.1	300	1335	90	400	1640	500
12	Plenum	0.22	5.7	20.8	31	4.5	11.4	2.2	5.7	300	1335	90	400	1640	500
18	Plenum	0.45	11.4	82.5	123	9.0	22.8	4.5	11.4	600	2670	180	801	1640	500
24	Plenum	0.52	13.1	108.1	161	10.3	26.3	5.2	13.1	600	2670	180	801	1640	500
36	Plenum	0.54	13.7	128.4	191	10.8	27.4	5.4	13.7	800	3560	240	1068	1640	500
48	Plenum	0.59	15.1	137.7	205	11.9	30.2	5.9	15.1	800	3560	240	1068	1640	500
60	Plenum	0.68	17.2	189.7	282	13.6	34.4	6.8	17.2	1000	4450	300	1335	1581	482
72	Plenum	0.75	19.1	237.1	353	15.1	38.2	7.5	19.1	1000	4450	300	1335	1265	386
96	Plenum	0.90	23.0	360.8	537	18.1	45.9	9.0	23.0	1000	4450	300	1335	831	253
144	Plenum	0.95	24.1	330.8	492	19.0	48.2	9.5	24.1	1000	4450	300	1335	907	276

**5.0 GROUNDING**

Cable tray grounding must conform to the *National Electrical Code*® 2005 – article 392.7 Grounding

Grounding must conform to ANSI/TIA/EIA 607(A) – *Commercial Building Grounding and Bonding Requirements for Telecommunications*, *National Electrical Code*®, ANSI/NECA/IBCSI-568 and manufacturer's grounding requirements at a minimum.

Vendor must bond to the TMGB (Telecommunications Main Grounding Busbar) in room MB 66. The TMGB will be installed in the center of the northern wall a minimum of eight (8) feet above the floor. Vendor will be required to bond and ground equipment racks, housings, messenger cables, and raceways to the TGB ground system via #6 AWG green insulated copper grounding conductor.

031

Vendor must bond to the TGB (Telecommunications Grounding Busbar) in room all equipment rooms served by the solid trough cable tray. The TGB will be installed in the center of the wall designated by WVOT at a minimum of eight (8) feet above the floor. Vendor will be required to bond and ground equipment racks, housings, messenger cables, and raceways to the TGB ground system via #6 AWG green insulated copper grounding conductor.

## 6.0 LABELING

Labeling shall conform to ANSI/TIA/EIA-606(A) standards and in addition, provide the following:

- 6.1 Labels shall be machine-printed. Hand-lettered labels shall not be acceptable.
- 6.2 Labels shall be affixed to the Infrastructure cable at a minimum of every twenty (20) feet.
- 6.3 Labels shall be at least one (1) inch high black lettering on a white background.

## 7.0 AS - BUILT DRAWINGS

Three (3) sets of as-built drawing shall be delivered to the State of West Virginia within four (4) weeks of acceptance of project by the State of West Virginia. A set of as-built drawings shall be provided to the State of West Virginia in electronic media form and utilizing CAD software that is acceptable to the State of West Virginia. Within six (6) weeks of acceptance of the project the electronic media must be delivered to the State of West Virginia.

## 8.0 FIRESTOPPING MATERIALS

Products may be in the form of caulk, putty, strip, sheet, or devices that shall be specifically designed to fill holes, spaces, and voids (hereinafter referenced as cavities) at communications penetrations. Firestopping materials shall also provide adhesion to substrates and maintain fire and smoke seal under normal expected movements of substrates, conduits, and cables.

## 9.0 FIRESTOPPING

### 9.1 General

9.1.1 New and existing raceways, cable trays, and cables for power, data, and communications systems penetrating non-rated and fire-rated floors, walls, and other partitions of building construction shall be firestopped where they penetrate new or existing building construction.

9.1.2 Firestopping shall be accomplished by using a combination of materials and devices, including penetrating raceway, cable tray, or cables, required to make up complete firestop.

9.1.3 Verify that cabling and other penetrating elements and supporting devices have been completely installed and temporary lines and cables have been removed.

### 9.2 Installation

9.2.1 Select appropriate type or types of through penetration firestop devices or systems appropriate for each type of communications penetration and base each selection on criteria specified herein.

9.2.2 Selected systems shall not be less than the hourly time delay ratings indicated in the Contract Documents for each respective fire-rated floor, wall, or other partition of building construction. Firestop for each type of communications penetration shall conform to requirements

032

of an independent testing laboratory design drawing or manufacturer's approved modification when used in conjunction with details shown on the Drawings.

9.2.3 Perform all necessary coordination with trades constructing floors, walls, or other partitions of building construction with respect to size and shape of each opening to be constructed and device or system approved for use in each instance.

9.2.4 Coordinate each firestop selection with adjacent Work for dimensional or other interference and for feasibility. In areas accessible to public and other "finished" areas, firestop systems Work shall be selected, installed, and finished to the quality of adjacent surfaces of building construction being penetrated.

9.2.5 Use materials that have no irritating or objectionable odors when firestopping is required in existing buildings and areas that are occupied.

9.2.6 Provide damming materials, plates, wires, restricting collars, and devices necessary for proper installation of firestopping. Remove combustible installation aids after firestopping material has cured.

9.2.7 All firestops shall be installed in accordance with the manufacturer's instructions in order to maintain the specific rating assigned by the independent testing laboratory.

9.3 Additional requirements for existing penetrations are as follows:

9.3.1 Existing raceways, cable trays, and cabling that penetrate existing building construction shall be firestopped to the extent necessary to fill cavities that may exist between existing building construction and existing communications penetrations or existing conduit sleeve, and between existing conduits and existing conduit sleeve.

9.3.2 Assemblies consisting of individual steel hat type restricting collars filled with intumescent type materials that completely surround communications penetration shall be used for nonmetallic raceways and cabling.

9.4 If required by inspecting authorities:

9.4.1 Expose and remove firestopping to the extent directed by inspecting authority to permit his or her inspection.

9.4.2 Reinstall new firestopping and restore Work where removed for inspection.

## 10. SLEEVES

10.1 Provide sleeves for new conduit and cable penetrations of building construction.

10.1.1 Openings to accept sleeves in new building construction will be formed in building construction by the Contractor for General Construction work. Openings to accept sleeves in existing building construction shall be provided under this division of the Specifications. Refer to Article, CUTTING AND PATCHING in this Section.

10.1.2 Use electrical metallic tubing sleeves for penetrations through exterior masonry/concrete walls and foundations, concrete floor slabs on grade and above grade, and concrete-filled decks.

10.1.3 Use only fire-rated listed assemblies for the type of sleeve being installed through CMU walls or gypsum walls for communications penetrations. Sleeve type shall be electrical metallic tubing.

033

- 10.2 Where conduits are installed before building construction being penetrated, install sleeves loose around conduits.
- 10.2.1 Split, fit, and weld steel sleeves over existing conduits.
- 10.3 Secure sleeves firmly in place using filling and patching materials (grout) that match with surrounding construction.
- 10.4 In floor penetrations, extend sleeve 4" above finished floor unless noted otherwise. In wall penetrations, cut sleeves flush with wall surface and use metal escutcheon plates in finished interior areas.
- 10.5 Seal voids between sleeves and building construction with joint sealants. Make allowances for and coordinate the Work with installation of firestopping, conduit insulation, and waterproofing, as applicable.
- 10.6 The Contractor shall be fully responsible for final and correct location of sleeves.
- 10.6.1 Sleeves which are omitted or incorrectly located in existing building construction, shall be corrected and provided by the Communications Contractor.

## 11.0 PENETRATIONS OF BUILDING SURFACES

### 11.1 Fire-resistant Areas

11.1.1 Provide through-penetration firestop systems for penetrations through fire-rated walls, floors, and other partitions of building construction as specified in Article, FIRESTOPPING in this Section.

11.1.2 In walls or partitions with 2-hour or less fire ratings, provide only metallic outlet or device boxes installed per UL Fire Resistance Director, NEC, and other national building code requirements.

### 11.2 Firestopping

11.2.1 Manufacturer's technical data for each product including product description, specifications including labeling or listing by an agency acceptable to the Engineer/Designer, and storage requirements.

11.2.2 Firestop design basis documentation that shall include schedule indicating each type of communication penetration, type of building construction being penetrated including the hourly resistance rating of floor, wall, or other partition of building construction into which firestop design will be installed, and firestop device or system proposed for use.

11.2.3 Applicable design drawings by Engineer/Designer-approved testing laboratories.

11.2.4 Installation Procedures and Material Safety Data Sheets shall be included with products delivered to the job site.

11.2.5 Include in project's maintenance manuals, maintenance data that may be published by manufacturer.

## 12.0 FIRESTOP REFERENCES

The vendor must adhere to the following guidelines:



034

ASTM E814, Standard Method of Fire Tests of Through-Penetration Firestops.

UL 1479, Fire Tests of Through-Penetration Firestops.

UL Fire Resistance Directory: Through Penetration Firestop Devices (XHCR) and Through Penetration Firestop Systems (XNEZ).

ASTM E 119, Fire Tests of Building Construction and Materials (for fire-rated architectural barriers).  
2002 NFPA National Electrical Code, Section 800-52, Paragraph 2(B), *Spread of Fire and Products of Combustion*.

ANSI/NECA/BICSI-568, Standard for Installing Commercial Building Telecommunications Cabling, Section 5, Clause 5.1 through 5.2.3, *Firestopping*

2000 edition of the BICSI Telecommunications Distribution Methods Manual, Chapter 15, *Firestopping*.

Factory Mutual Approval Guide.

ULC List of Equipment and Materials, VOL. II.

Installed firestopping systems shall meet approval of authorities having jurisdiction.

### 13.0 **REMOVAL AND REPLACEMENT OF EXISTING CEILINGS**

- 13.1 Carefully remove entire existing ceilings in the main unit, which will be inclusive of the areas adjacent to the existing cafeteria space to perform the work. In the East and West Wing areas carefully remove existing ceilings as required to install cable tray. Store removed tiles in an area designated by the State of West Virginia. Modify and augment existing suspension systems as necessary.
- 13.2 Restoration of the ceiling systems to their original finish in the main unit, which will be inclusive of the areas adjacent to the cafeteria space, is not part of this procurement.
- 13.3 Restoration of the ceiling systems to their original finish in the East and West Wing areas will be a requirement of this RFQ.

### 14.0 **CUTTING AND PATCHING**

- 14.1 Provide openings, cutting, coring, and patching of openings in existing building construction as required. Patching includes openings and voids left in existing construction as a result of demolition.
- 14.2 The Work shall include necessary assemblies and materials to maintain required fire ratings.
- 14.3 Perform cutting as to not impair structural stability of building construction and systems. Do not drill holes or weld attachments to beams and other structural members without prior written approval from the State of West Virginia's Representative.
- 14.4 The Work shall be done by crafts persons skilled in the particular trades affected.
- 14.5 Patching materials shall match existing materials in type and quality. Patching shall be done in a manner to match appearance of adjacent surfaces.

1135

**15.0 CLEANING**

- 15.1 Cleaning shall be performed to the satisfaction of the State of West Virginia's Representative.
- 15.2 Unless otherwise indicated, clean shall mean free of dust, dirt, mud, debris, oil, grease, residues, and contamination. Acceptability shall be determined by sight, touch, and wiping with a clean soft cloth and suitable cleaning agent.

**16.0 PAINTING**

- 16.1 Touch up marred and bared surfaces of primed, galvanized, and finish painted equipment, materials, and accessories installed.
- 16.2 Restore patched surfaces as close to the original condition and finish as reasonably possible. Where patching occurs in smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received two coats of primer and two coats of finished paint.

036

RFQ No. \_\_\_\_\_

# AFFIDAVIT

**West Virginia Code §5A-3-10a states:**

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate

**DEFINITIONS:**

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**EXCEPTION:**

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**LICENSING:**

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit [www.state.wv.us/admin/purchase/privacy](http://www.state.wv.us/admin/purchase/privacy) for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

037

Agency \_\_\_\_\_  
REQ.P.O# \_\_\_\_\_

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, \_\_\_\_\_  
of \_\_\_\_\_, as Principal, and \_\_\_\_\_  
of \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_  
with its principal office in the City of \_\_\_\_\_, as Surety, are held and firmly bound unto the State  
of West Virginia, as Obligee, in the penal sum of \_\_\_\_\_ (\$ \_\_\_\_\_) for the payment of which,  
well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the  
Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOW THEREFORE,**

- (a) If said bid shall be rejected, or
- (b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached  
hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the  
agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full  
force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event,  
exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no  
way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby  
waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations  
have caused their corporate seals to be affixed hereunto and these presents to be signed by their proper officers, this  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Principal Corporate Seal

\_\_\_\_\_  
(Name of Principal)

By \_\_\_\_\_  
(Must be President or  
Vice President)

\_\_\_\_\_  
(Title)

Surety Corporate Seal

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
Attorney-in-Fact

**IMPORTANT - Surety executing bonds must be licensed in West Virginia to transact surety insurance. Raised corporate seals  
must be affixed, a power of attorney must be attached.**

BID BOND PREPARATION INSTRUCTIONS

038

AGENCY (A)
RFQ/RF# (B)

Bid Bond

- (A) WV State Agency (Stated on Page 1 "Spending Unit") Request for Quotation Number (upper right corner of page #1)
(C) Your Company Name
(D) City, Location of your Company
(E) State, Location of your Company
(F) Surety Corporate Name
(G) City, Location of Surety
(H) State, Location of Surety
(I) State of Surety Incorporation
(J) City of Surety Incorporation
(K) Minimum amount of acceptable bid bond is 5% of total bid. You may state "5% of bid" or a specific amount on this line in words.
(L) Amount of bond in figures
(M) Brief Description of scope of work
(N) Day of the month
(O) Month
(P) Year
(Q) Name of Corporation
(R) Raised Corporate Seal of Principal
(S) Signature of President or Vice President
(T) Title of person signing
(U) Raised Corporate Seal of Surety
(V) Corporate Name of Surety
(W) Counter Signature by WV agent
(X) Signature of Attorney in Fact of the Surety

NOTE: Dated, Power of Attorney with Raised Surety Seal must accompany this bid bond.

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, (C) of (D) (E) as Principal, and (F) of (G) (H), a corporation organized and existing under the laws of the State of (I) with its principal office in the City of (J), as Surety, are held and firmly bound unto The State of West Virginia, as Oblige, in the penal sum of (K) (\$ (L)) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof to enter into a contract in writing for (M)

NOW THEREFORE.

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated

The Surety for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of time within which the Oblige may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be affixed hereto and these presents to be signed by their proper officers, this (N) day of (O), 20 (P).

Principal Corporate Seal

(R)

(Q)
(Name of Principal)
By (S)
(Must be President or Vice President)
(T)
Title

(U)
Surety Corporate Seal

(V)
(Name of Surety)

Countersigned:

(W)
Resident West Virginia Agent

(X)
Attorney-in-Fact

IMPORTANT - Surety executing bonds must be licensed in West Virginia to transact surety insurance. Corporate seals must be affixed, a power of attorney must be attached, and a West Virginia resident must sign or countersign.



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
**ISCG0150**

PAGE  
**1**

ADDRESS CORRESPONDENCE TO ATTENTION OF  
**KRISTA FERRELL  
 304-558-2596**

PROCURE

\*709050820      304-345-6150  
**CITY ELECTRIC COMPANY  
 1219 PENNSYLVANIA AVENUE  
 PO BOX 6550  
 CHARLESTON WV 25362**

SHIP TO

**DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
 BUILDING 1 ROOM MB60  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0123      304-558-2317**

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
05/16/2007				

BID OPENING DATE: **05/31/2007**      BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 1		
				THIS ADDENDUM IS ISSUED TO ANSWER QUESTIONS RAISED AT THE MANDATORY PRE-BID MEETING HELD ON MAY 2, 2007 AND THOSE QUESTIONS SUBMITTED PRIOR TO THE MAY 7, 2007 DEADLINE FOR TECHNICAL QUESTIONS.		
				QUESTIONS CONCERNING THE ACTUAL SUBMISSION PROCESS FOR A VENDOR'S BID ONLY WILL BE CONTINUED TO BE ACCEPTED. THESE QUESTIONS MUST BE SUBMITTED TO KRISTA FERRELL IN THE WEST VIRGINIA PURCHASING DIVISION VIA FAX AT 304-558-4115, VIA EMAIL AT KFERRELL@WVADMIN.GOV, OR BY PHONE AT 304-558-2596.		
				ALSO, THE BID OPENING DATE IS EXTENDED.		
				BID OPENING DATE IS EXTENDED TO: MAY 31, 2007 BID OPENING TIME REMAINS: 1:30 PM		
				THIS ADDENDUM INCLUDES THE DRAWINGS CONTAINED ON THE CD DISTRIBUTED AT THE MANDATORY PRE-BID MEETING AND THE ATTACHED ANSWERS AND CLARIFICATIONS.		
				CLARIFICATION TO SECTION 2.3.4: "OF THAT NUMBER 15 PERCENT MUST BE REGISTERED AT THE TECHNICIAN LEVEL, AT LEAST 40 PERCENT MUST BE REGISTERED AT THE INSTALLER LEVEL 2, AND THE BALANCE MUST BE REGISTERED AT THE INSTALLER LEVEL 1. A COPY OF ALL REGISTRATIONS MUST BE SUBMITTED TO THE AGENCY. IT IS PREFERRED THAT THIS INFORMATION BE SUBMITTED WITH THE VENDOR'S BID RESPONSE. THE AGENCY RESERVES THE RIGHT TO REQUEST THIS INFORMATION. VENDORS MUST PROVIDE THIS INFORMATION WITHIN 48 HOURS OF THE REQUEST. FAILURE TO PROVIDE THIS INFORMATION MAY RESULT IN BID		

*No Bid*

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
-----------	-----------	------

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
-------	------	-----------------------------------

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



## Addendum for ISCG0150

003

1. Is prevailing wage rates – electrician rates – to be used on this job?  
**This is considered a construction project. Refer to ...**  
Dept. of Labor <http://www.labor.state.wv.us/wage/default.html>  
Secretary of State <http://www.wvsos.com/adlaw/wagerates/building07.htm>
  
2. Is firestopping required in the tray? How is firestopping to be done? Do specifications show pillows for firestopping? Is firestopping part of phase 1 or phase 2? (vendor asked if this was duplicate effort) How is firestopping to be removed and put back (for Phase 2 or future expansion)? Is there to be firestopping around bulk heads and double swinging doors?  
**All firestopping will be accomplished using Wiremold flamestopper units or equal.**  
<http://www.wiremold.com/flamestopper/home.asp>  
[http://www.wiremold.com/shared\\_content/pdf/ed1312.pdf](http://www.wiremold.com/shared_content/pdf/ed1312.pdf)  
**All firestop must have a 4 hour rating.**  
**The amount of firestop units required will equal or exceed the capacity of the largest cable tray that is served by the penetration.**  
**No more than a 70% fill rate is allowed on any firestop unit.**  
**Firestopping will be installed in phase one.**  
**Phase two will be responsible for maintaining the integrity of the installed firestopping.**  
**Both phases have the same requirements.**  
**Firestopping is required at all locations the cable tray pathway penetrates a wall.**
  
3. Does 45 days for installation include the measuring of job and the ordering of materials?  
**Yes. The State will adjust timelines if required.**
  
4. Can the ceiling tiles, to be removed in the Main Unit, be trashed or will they go to Surplus?  
**The ceiling tiles in the Main Unit will be considered trash. The vendor will dispose of the removed tiles in a designated area or dumpster.**
  
5. Can the original tiles be put back up in the basement wings?  
**Yes, if they are not damaged during removal. The requirement states that the ceiling must be returned to the original finish.**
  
6. Is the successful vendor responsible for holes?  
**Only the ones the vendor makes.**
  
7. Will there be space for staging materials?  
**Yes.**
  
8. What are the working hours?  
**Hours can be flexible and varied but must be approved by Protective Services, General Services and Office of Technology.**
  
9. Where does vendor park during project?  
**There is vendor parking (first come first serve) on the parking lot behind Building 3, the DMV Building, additional parking is available at Laidley Field. Equipment may be unloaded in the loading dock areas but vehicles will not be allowed to remain there.**



## Infrastructure Cabling Requirements

*All copper pair counts and fiber strand counts terminate in and extend from Room MB 66  
(except where noted with a \*)  
to each designated room where all pair counts and fiber strand counts terminate.*

### Main Unit

MB 44	Copper Cat 3	200 Pair
	Copper Cat 6	16 Pair
	Fiber Multi Mode	12 Strand
	Fiber Single Mode	6 Strand

**\*1 These cables will run between MB 44 and listed room**

MB 2 SW *1	Copper Cat 3	50 Pair
	Copper Cat 6	16 Pair

MB 2 NW *1	Copper Cat 3	50 Pair
	Copper Cat 6	16 Pair

MB 3 SW *1	Copper Cat 3	50 Pair
	Copper Cat 6	16 Pair

MB 3 NW *1	Copper Cat 3	50 Pair
	Copper Cat 6	16 Pair

MB 99	Copper Cat 3	200 Pair
	Copper Cat 6	16 Pair
	Fiber Multi Mode	12 Strand
	Fiber Single Mode	6 Strand

**\*2 These cables will run between MB 99 and listed room**

MB 2 SE *2	Copper Cat 3	50 Pair
	Copper Cat 6	16 Pair

<b>MB 2 NE *2</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>

<b>MB 3 SE *2</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>

<b>MB 3 NE *2</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>

### East Wing

<b>EB 61</b>	<b>Copper Cat 3</b>	<b>400 Pair</b>
	<b>Copper Cat 6</b>	<b>24 Pair</b>
	<b>Fiber Multi Mode</b>	<b>12 Strand</b>
	<b>Fiber Single Mode</b>	<b>6 Strand</b>

<b>EB 90</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>
	<b>Fiber Multi Mode</b>	<b>96 Strand</b>
	<b>Fiber Single Mode</b>	<b>48 Strand</b>

<b>1 EA</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>
	<b>Fiber Multi Mode</b>	<b>6 Strand</b>
	<b>Fiber Single Mode</b>	<b>6 Strand</b>

### West Wing

<b>WB 04</b>	<b>Copper Cat 3</b>	<b>400 Pair</b>
	<b>Copper Cat 6</b>	<b>24 Pair</b>
	<b>Fiber Multi Mode</b>	<b>96 Strand</b>
	<b>Fiber Single Mode</b>	<b>48 Strand</b>

<b>1 WA</b>	<b>Copper Cat 3</b>	<b>50 Pair</b>
	<b>Copper Cat 6</b>	<b>16 Pair</b>
	<b>Fiber Multi Mode</b>	<b>6 Strand</b>
	<b>Fiber Single Mode</b>	<b>6 Strand</b>

## Terminating Unit Requirements

These units with associated hardware will be used for infrastructure terminations.  
All parts are as specified or equal.

### Room MB 66

#### Copper Terminations

##### **Chatsworth Products Inc.**

One XLBET 110A BLOCK MOUNTING SYSTEM

Part number 11810-X36 Kit

(3600 pair/12 blocks/single sided) consists of:

- (1) 23" Standard Rack, 6" deep (P/N 66383-X03)
- (6) XLBET Mounting Bars (P/N 11770-X23)
- (3) XLBET Small Wire Managers (P/N 11771-X23)
- (3) XLBET Large Wire Managers (P/N 11772-X23)

##### **SYSTIMAX GigaSPEED XL**

Two 1100GS3-48 Modular Patch Panel Universal A/B 48xRJ45 760062364

#### Fiber Termination

##### **SYSTIMAX 600G2 System**

###### Single Mode East Wing

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324

Two RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867

Four MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

###### Multi Mode East Wing

One 600G2-2U-MOD-SD 600G2 Modular Shelf, 2U, Slide 760032086

Two RS-4AF-16SF RoloSplice Kit E/W 4x Fusion Splice Tray for 2U Shelf 760031856

Eight MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

###### Single Mode West Wing

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324

Two RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867

Four MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

###### Multi Mode West Wing

One 600G2-2U-MOD-SD 600G2 Modular Shelf, 2U, Slide 760032086

Two RS-4AF-16SF RoloSplice Kit E/W 4x Fusion Splice Tray for 2U Shelf 760031856

Eight MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

Room MB 99Copper Terminations**SYSTIMAX****GigaSPEED XL**

Three 1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356

One 110PA2-300FT 24.68 in (62.69 cm) Field Terminated 5 300 107058802

Fiber Terminations**SYSTIMAX 600G2 System**Single Mode

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324

One RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867

One MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

Multi Mode

One MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

Room MB 44Copper Terminations**SYSTIMAX****GigaSPEED XL**

Three 1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356

One 110PA2-300FT 24.68 in (62.69 cm) Field Terminated 5 300 107058802

Fiber Terminations**SYSTIMAX 600G2 System**Single Mode

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324

One RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867

One MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

Multi Mode

One MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

**East Wing****Room EB 90****Copper Terminations****GigaSPEED XL**

One 1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356

**Fiber Terminations****SYSTIMAX 600G2 System****Single Mode**

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324  
 Two RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867  
 Four MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

**Multi Mode**

One 600G2-2U-MOD-SD 600G2 Modular Shelf, 2U, Slide 760032086  
 Two RS-4AF-16SF RoloSplice Kit E/W 4x Fusion Splice Tray for 2U Shelf 760031856  
 Eight MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

**Room EB 61****Copper Terminations****GigaSPEED XL**

One 1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356  
 One 110PA2-900FT 61.70 in (156.72 cm) Field Terminated 5 900 107058851

**Fiber Terminations****SYSTIMAX 600G2 System****Single Mode**

One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324  
 One RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867  
 One MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

**Multi Mode**

One MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748

# West Wing

## Room WB 04

### Copper Terminations

#### **GigaSPEED XL**

- One 1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356
- One 110PA2-900FT 61.70 in (156.72 cm) Field Terminated 5 900 107058851

### Fiber Terminations

#### **SYSTIMAX 600G2 System**

##### Single Mode

- One 600G2-1U-MOD-SD 600G2 Modular Shelf, 1U, Slide 760028324
- Two RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray for 1U Shelf 760039867
- Four MODG2-12LC-SM-PT G2 Module with 12LC TeraSPEED Pigtailes 760031039

##### Multi Mode

- One 600G2-2U-MOD-SD 600G2 Modular Shelf, 2U, Slide 760032086
- Two RS-4AF-16SF RoloSplice Kit E/W 4x Fusion Splice Tray for 2U Shelf 760031856
- Eight MODG2-12LC-LS-PT G2 Module with 12LC LazrSPEED 550 Pigtailes 760027748




## Optional Miscellaneous (Prices Only)

### Systimax Items

Ten Reels	2091004AYL R1000 4 Yellow 1,000 ft (305 m) Reel 760024224
Ten Reels	3091004AWH R1000 4 White 1,000 ft (305 m) Reel 760023226
Twenty	MGS500 information outlet, MGS500-123 Yellow 760023572
Ten	M13FP-246 Single Gang Frame Ivory 760010017
Ten	M102SMB-B-246 Electrical Ivory 107984049
One	PoE 2400G 24-Port PoE Device with Remote Management 760031591
One	RK100A RACK 19 in Black 45U 84 in 3 in 750 lbs 32 lbs 108527441
One	RK130A RACK 19 in Black 45U 84 in 6 in 750 lbs 38 lbs 108867151
One	GV100A Std Vertical CA Mgr, Single Sided Black 7 ft 108527560
Ten pkgs	5-Pair (110C-5) Connecting Blocks 10/pkg 103801254
One	110 Wiring Block 110AW2-300 300 A 107059917
1000 feet	6 strand multi mode fiber as per RFQ specifications
1000 feet	6 strand single mode fiber as per RFQ specifications

### Copper Cat 3 Cable

1000 feet	300 pair 24ga. Plenum rated
1000 feet	200 pair 24ga. Plenum rated
1000 feet	100 pair 24ga. Plenum rated
1000 feet	50 pair 24ga. Plenum rated

Print Company Name	Print and Sign Attendee's Name	Company Mailing Address	Phone and Fax No.	e-mail address
Augusta Construction Services, Inc	GARY JEFFERS	Young's Industrial Building #14 927 Barlow Drive Charleston WV 25311	304-414-4009	gj=ffers@augustacon.com
Mon Valley Technologies	Samy Jeffere Bob Bishop Rebecca	3564 River Road Moegantown, WV 26501	304 278-7723 304 278-7404	EBISHOP@MUTECH.US
Verizon	Sandy Hawkins	1410 McCOTTLE AVE Chas WV 25314	304 344-6700 304 341-1464 fax	sandra.k.hawkins @verizon.business.com
Verizon	Lance Host 	827 Fairmont Rd suite 204 Morgan town, WV	304-284-0502 304-284-0500 Fax	lawrence, host @verizon.com
City Electric	FRANK HOPSON F. H.	P.O. Box 6550 CHAS. 25362	304-345-6150 304-345-6151	fhopson@ cityelectricwv.com
City Electric	Rennae Short	" "	" "	RSHORT@ cityelectricwv.com
Advanced Electricians	Briey Mae 	Advanced Electric 229 Crispin St Charleston WV 25301	304-345-5530 304-345-5534	AEOATACOMAN, @Verizon.net
Advanced Electric	Richard Macy 	" "	" "	" "







State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
 ISCG0150

PAGE  
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF  
 KRISTA FERRELL  
 304-558-2596

A U D I T O R

\*709050820 304-345-6150  
 CITY ELECTRIC COMPANY  
 1219 PENNSYLVANIA AVENUE  
 PO BOX 6550  
 CHARLESTON WV 25362  
 304-345-6151

S H I P T O

DEPARTMENT OF ADMINISTRATION  
 GENERAL SERVICES  
 BUILDING 1 ROOM MB60  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0123 304-558-2317

DATE PRINTED 05/23/2007	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
BID OPENING DATE: 05/31/2007		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO 2						
THIS ADDENDIM IS TO OFFER ADDITIONAL CLARIFICATION TO THE SPECIFICATIONS PER THE ATTACHED.						
BID OPENING DATE REMAINS: 05/31/2007						
BID OPENING TIME REMAINS: 1:30 PM						
***** ADDENDUM NO. 2 *****						
0001	1	LS		910-82		
TELECOMMUNICATIONS DISTRIBUTION INFRASTRUCTURE CABLE						
***** THIS IS THE END OF RFQ ISCG0150 ***** TOTAL:						No Bid

No Bid

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE		TELEPHONE		DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**Addendum for ISCG0150**  
**Addendum 2**

**Replace:**

1100GS3-24 Modular Patch Panel Universal A/B 24xRJ45 760062356

**With:**

PM-GS3-24

PATCHMAX GS3 Patch Panel with Termination Manager - 24-Port 4 Modules  
760062356

**Replace:**

1100GS3-48 Modular Patch Panel Universal A/B 48xRJ45 760062364

**With:**

PM-GS3-48

PATCHMAX GS3 Patch Panel with Termination Manager - 48-Port 8 Modules  
760062364