

**THE ESCAMBIA COUNTY SCHOOL DISTRICT  
PURCHASING DEPARTMENT  
215 WEST GARDEN STREET  
PENSACOLA, FL 32502**

**REQUEST FOR PROPOSAL (RFP) & PROPOSAL ACKNOWLEDGEMENT**

POSTING DATE:

**November 16, 2004**

PURCHASING CONTACT & TELEPHONE:

**Bob Pacenta (850) 469 - 6204**

RFP TITLE:

**Communications Cabling**

RFP NUMBER:

**051104**

RFP OPENING DATE & TIME:

**December 14, 2004 @ 3:30 P.M. CST**

**NOTE: RFPS RECEIVED AFTER THE RFP OPENING DATE AND TIME WILL NOT BE ACCEPTED.**

The School District of Escambia County, Florida, solicits your company to submit a proposal on the above referenced goods or services. All terms, specifications and conditions set forth in this request are incorporated by this reference into your response. Proposals will not be accepted unless all conditions have been met. All proposals must have an authorized signature in the space provided below. All proposals must be sealed and received in the School District's Purchasing Office at 215 West Garden Street, Pensacola, Florida, by the "RFP Opening Date & Time referenced above. All envelopes containing sealed proposals must reference the "RFP Title", "RFP Number" and the "RFP Opening Date & Time". The School District is not responsible for lost or late delivery of Proposals by the U.S. Postal Service or other delivery services used by the Bidder. Proposals may not be withdrawn for a period of sixty (60) days after the bid opening unless otherwise specified.

**THE FOLLOWING MUST BE COMPLETED, SIGNED, AND RETURNED AS PART OF YOUR PROPOSAL. PROPOSALS WILL NOT BE ACCEPTED WITHOUT THIS FORM, SIGNED BY AN AUTHORIZED AGENT OF THE BIDDER.**

COMPANY NAME:

MAILING ADDRESS:

CITY, STATE, ZIP:

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER (FEIN):

TELEPHONE NUMBER: ( EXT: ) FACSIMILE NUMBER:

EMAIL:

HOW DID YOU FIND OUT ABOUT THIS RFP? SCHOOL DISTRICT WEBSITE\_\_\_ BIDNET\_\_\_ DEMAND STAR\_\_\_ PRIME VENDOR\_\_\_  
OTHER\_\_\_ (PLEASE SPECIFY \_\_\_\_\_)

I CERTIFY THAT THIS PROPOSAL IS MADE WITHOUT PRIOR UNDERSTANDING, AGREEMENT, OR CONNECTION WITH ANY OTHER BIDDER SUBMITTING A PROPOSAL FOR THE SAME MATERIALS, SUPPLIES, EQUIPMENT OR SERVICES, AND IS IN ALL RESPECTS FAIR AND WITHOUT COLLUSION OR FRAUD. I AGREE TO ABIDE TO ALL TERMS AND CONDITIONS OF THIS RFP AND CERTIFY THAT I AM AUTHORIZED TO SIGN THIS RFP FOR THE BIDDER.

AUTHORIZED SIGNATURE:

TYPED OR  
PRINTED NAME:

TITLE:

DATE:

## I. INTRODUCTION & GENERAL INFORMATION

The Escambia County School District (the District) is soliciting proposals for a Five-Year Time and Material service agreement for maintenance, revisions, and additions to it's Data Communications, Fiber Optic, Telephone Cabling and Closed Circuit Television (CCTV) Systems.

## II. GENERAL TERMS AND CONDITIONS

NOTE: The term "Bidder" as used within this Request For Proposal (RFP) refers to the person, company or organization responding to this RFP. The Bidder is responsible for understanding and complying with the terms and conditions herein.

- A. **GENERAL:** Upon an RFP award, the terms and conditions of this RFP or any portion thereof, may upon mutual agreement of the parties be extended for an additional term(s) or for additional quantities (all original terms and conditions will remain in effect). Subject to the mutual consent of the parties, the pricing, terms and conditions of this RFP, for the products or services specified herein, may be extended to other municipal, city or county government agencies, school boards, community or junior colleges, or state universities within the State of Florida.
- B. **RFP OPENING AND FORM:** Proposal openings will be public on the date and time specified on the Proposal Acknowledgement form. All proposals received after the time indicated will be rejected as non-responsive and returned unopened to sender. Proposals by Email, fax, telegram, or verbally by telephone or in person will not be accepted. The public opening will acknowledge receipt of the Proposals only; details concerning pricing or the offering will not be announced. All proposals submitted shall become public record upon an announcement of a recommended award or ten days after the opening date whichever occurs first. To protect any confidential information contained in their Proposal, companies must invoke the exemptions to disclosure provided by law in response to the RFP, and must identify the data and other material to be protected, and must state the reasons why such exclusion from public disclosure is necessary.
- C. **WARRANTY:** All goods and services furnished by the Bidder, relating to and pursuant to this RFP will be warranted to meet or exceed the Specifications contained herein. In the event of breach, the Bidder will take all necessary action, at Bidder's expense, to correct such breach in the most expeditious manner possible.
- D. **PRICING:** All pricing submitted will include all packaging, handling, shipping charges, and delivery to any point within Escambia County, Florida to a secure area or inside delivery. The School Board is exempt and does not pay Federal Excise and State of Florida Sales taxes.
- E. **TERMS OF PAYMENT / INVOICING:** The normal terms of payment will be Net 30 Days from receipt and acceptance of goods or services and Bidder's invoice. Itemized invoices, each bearing the Purchase Order Number must be mailed on the day of shipment. Invoicing subject to cash discounts will be mailed on the day that they are dated.
- F. **TRANSPORTATION AND TITLE:** (1) Title to the goods will pass to the School District upon receipt and acceptance at the destination indicated herein. Until acceptance, the Bidder retains the sole insurable interest in the goods. (2) The shipper will prepay all transportation charges. The School District will not accept collect freight charges. (3) No premium carriers will be used for the School District's account without prior written consent of the Director of Purchasing.
- G. **PACKING:** All shipments will include an itemized list of each package's content, and reference the School District's Purchase Order Number. No charges will be allowed for cartage or packing unless agreed upon by the School District prior to shipment.

- H. **INSPECTIONS AND TESTING:** The School District will have the right to expedite, inspect and test any of the goods or work covered by this RFP. All goods or services are subject to the School District's inspection and approval upon arrival or completion. If rejected, they will be held for disposal at the Bidder's risk. Such inspection, or the waiver thereof, however, will not relieve the Bidder from full responsibility for furnishing goods or work conforming to the requirements of this RFP or the RFP Specifications, and will not prejudice any claim, right, or privilege the School District may have because of the use of defective or unsatisfactory goods or work.
- I. **STOP WORK ORDER:** The School District may at any time by written notice to the Bidder stop all or any part of the work for this RFP award. Upon receiving such notice, the Bidder will take all reasonable steps to minimize additional costs during the period of work stoppage. The School District may subsequently either cancel the stop work order resulting in an equitable adjustment in the delivery schedule and/or the price, or terminate the work in accordance with the provisions of the RFP terms and conditions.
- J. **INSURANCE AND INDEMNIFICATION:** The Bidder agrees to indemnify and save harmless the School District, its officers, agents and employees from and against any and all claims and liabilities (including expenses) for injury or death of persons or damage to any property which may result, in whole or in part, from any act or omission on the part of the Bidder, its agents, employees, or representatives, or are arising from any Bidder furnished goods or services, except to the extent that such damage is due solely and directly to the negligence of the School District. The Bidder will carry comprehensive general liability insurance, including contractual and product liability coverage, with minimum limits acceptable to the School District. The Bidder will, at the request of the School District, supply certificates evidencing such coverage.
- K. **RISK OF LOSS:** The Bidder assumes the following risks: (1) all risks of loss or damage to all goods, work in process, materials and equipment until the delivery thereof as herein provided; (2) all risks of loss or damage to third persons and their property until delivery of all goods as herein provided; (3) all risks of loss or damage to any property received by the Bidder or held by the Bidder or its suppliers for the account of the School District, until such property has been delivered to the School District; (4) all risks of loss or damage to any of the goods or part thereof rejected by the School District, from the time of shipment thereof to Bidder until redelivery thereof to the School District.
- L. **LAWS AND REGULATIONS:** Bidders will comply with all applicable Federal, State and Local laws, statutes and ordinances including, but not limited to the rules, regulations and standards of the Occupational Safety and Health Act of 1970, the Federal Contract Work Hours and Safety Standards Act, and the rules and regulations promulgated under these Acts. Bidders agree not to discriminate against any employee or applicant for employment because of race, sex, religion, color, age or national origin.

All agreements as a result of an award hereto and all extensions and modifications thereto and all questions relating to its validity, interpretation, performance or enforcement shall be governed and construed in conformance to the laws of the State of Florida.

- M. **PUBLIC ENTITY CRIMES:** A Bidder, person, or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Florida State Statute, Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

- N. **PATENTS:** Bidders agree to indemnify and save harmless the School District, its officers, employees, agents, or representatives using the goods specified herein from any loss, damage or injury arising out of a claim or suit at law or equity for actual or alleged infringement of letters of patent by reason of the buying, selling or using the goods supplied under this bid, and will assume the defense of any and all suits and will pay all costs and expenses thereto.
- O. **CONFLICT OF INTEREST:** The award hereunder is subject to the provisions of Chapter 112 Florida Statutes. All Bidders must disclose the name of any company owner, officer, director or agent who is an employee of the School District and/or is an employee of the School District and owns, directly or indirectly, an interest of five percent or more of the company.
- P. **TERMINATION: DEFAULT.** The School District may terminate all or any part of a subsequent award by giving notice of default to Bidder, if Bidder: (1) refuses or fails to deliver the goods or services within the time specified; (2) fails to comply with any of the provisions of this RFP or so fails to make progress as to endanger performances, hereunder, or; (3) becomes insolvent or subject to proceedings under any law relating to bankruptcy, insolvency, or relief of debtors. In the event of termination for default, the School District's liability will be limited to the payment for goods and services delivered and accepted as of the date of termination. **CONVENIENCE.** The School District may terminate for its convenience at any time, in whole or in part any subsequent award. In which event of termination for convenience, the School District's sole obligations will be to reimburse Bidder for (1) those goods or services actually shipped/performed and accepted up to the date of termination, and (2) costs incurred by Bidder for unfinished goods, which are specifically manufactured for the School District and which are not standard products of the Bidder, as of the date of termination, and a reasonable profit thereon. In no event is the School District responsible for loss of anticipated profit nor will reimbursement exceed the RFP value.
- Q. **DRUG-FREE WORKPLACE:** Whenever two or more RFPs are equal with respect to price, quality, and service, an RFP received from a business that certifies that it has implemented a drug-free workplace program as defined by Section 287.087 Florida Statutes, will be given preference in the award process.
- R. **PERFORMANCE:** In an effort to reduce the cost of doing business with the School District, and unless indicated elsewhere, no bid or performance bond is required. However, upon award and subsequent default by Bidder, the School District reserves the right to pursue any or all of the following remedies: (1) to accept the next lowest available RFP price or to purchase materials or services on the open market, and to charge the original awardees for the difference in cost via a deduction to any outstanding or future obligations; (2) the Bidder in default will be prohibited from activity for a period of time determined by the severity of the default, but not exceeding two years; (3) any other remedy available to the School District in tort or law.
- S. **AUDIT AND INSPECTION:** The District or its representative reserves the right to inspect and/or audit all the Bidder's documents and records as they pertain to the products and services delivered under this agreement. Such rights will be exercised with notice to the Bidder to determine compliance with and performance of the terms, conditions and specifications on all matters, rights and duties, and obligations established by this agreement. Documents/records in any form shall be open to the District's representative and may include but are not limited to all correspondence, ordering, payment, inspection and receiving records, and contracts or sub-contracts that directly or indirectly pertain to the transactions between the District and the Bidder.
- T. **SAMPLES AND BRAND NAMES: BRAND NAMES.** Specifications referencing specific brand names and models are used to reflect the kind and type of quality in materials and workmanship, and the corresponding level of performance the School District expects to receive as a minimum. Bidders offering equivalents or superior products to the brand/model referenced will: (1) reference on the RFP in the space provided the manufacturer's name, brand name, model and/or part number; (2) next to the price Bidder will indicate "ALT" to reflect an alternate offering; (3) where no

sample is provided with the RFP, Bidders will enclose sufficient technical specification sheets and literature to enable the School District to reach a preliminary evaluation; (4) the School District may request and Bidder agrees to submit a sample or to provide its product on-trial or demonstration, whichever the School District may deem appropriate, at no charge to the District; (5) the School District reserves the right to determine the acceptability of any alternatives offered. **SAMPLES.** Any sample requested by this RFP or to be provided at the Bidder's option, should be forwarded under separate cover to the attention of the Purchasing Office of the School District. The package or envelope will reference the RFP Number, RFP Title, and RFP Item Number and clearly marked "Samples". All samples will be provided free of charge, including transportation charges. Bidders are responsible for notifying and making arrangements for pick up from the School District if a return of samples is expected. All samples unclaimed for thirty (30) days will be disposed of at the discretion of the School District.

- U. **EVALUATION CRITERIA:** Primary factors used to decide the award hereunder will be price, quality, availability, and responsiveness. Other factors that may be used in the evaluation of this bid will be: (1) administrative costs incurred by the School District in association with the discharge of any subsequent award; (2) alternative payment terms; (3) Bidder's past performance. The School District reserves the right to evaluate by lot, by partial lot, or by item, and to accept or reject any proposal in its entirety or in part, and to waive minor irregularities if the proposal is otherwise valid. In the event of a price extension error, the unit price will be accepted as correct. The School District has sole discretion in determining testing and evaluation methods. The School District may consider in conjunction to any award hereunder, those products, services and, prices available to them through contracts from state, federal, and local government agencies or other school districts within the State of Florida.
  
- V. **CLARIFICATIONS AND INTERPRETATIONS:** The School District reserves the right to allow for clarification of questionable entries, and for the Bidder to withdraw items with obvious mistakes. Any questions concerning terms, conditions or specifications will be directed to the designated Purchasing Agent referenced on the RFP Acknowledgement. Any ambiguities or inconsistencies shall be brought to the attention of the designated Purchasing Agent in writing at least seven workdays prior to the opening date of the proposals. Failure to do so, on the part of the bidder will constitute an acceptance by the bidder of consequent decision. An addendum to the RFP shall be issued and posted for those interpretations that may affect the eventual outcome of this bid. It is the bidder's responsibility to assure the receipt of all addendum issued. No person is authorized to give oral interpretations of, or make oral changes to the RFP. Therefore oral statements given before the RFP opening date will not be binding. The School District will consider no interpretations binding unless provided for by issuance of an addendum. Addenda will be posted to the School District's Purchasing website address at "[www.escambia.k12.fl.us/adminoff/finance/purchasing](http://www.escambia.k12.fl.us/adminoff/finance/purchasing)" at least five workdays prior to the opening date. The bidder shall acknowledge receipt of all addenda by signing and enclosing said addenda with their proposal.
  
- W. **RFP TABULATIONS, RECOMMENDATIONS, AND PROTEST:** RFP tabulations with award recommendations are posted for 72 hours in the Purchasing Office and are also posted to the School District's Purchasing website address at "[www.escambia.k12.fl.us/adminoff/finance/purchasing](http://www.escambia.k12.fl.us/adminoff/finance/purchasing)". Failure to file a protest within the time prescribed in Section 120.57(3) Florida State Statutes will constitute a waiver of proceedings under Chapter 120, Florida State Statutes and School Board Rules. RFP tabulations, recommendations or notices will not be automatically mailed.
  
- X. **CONTACT:** All questions for additional information regarding this RFP **must be directed to the designated Purchasing Agent noted on page one.** Prospective bidders shall not contact any member of the Escambia County School Board, Superintendent, or staff regarding this bid prior to posting of the final tabulation and award recommendation on the website and in the Purchasing Office. Any such contact shall be cause for rejection of your proposal.
  
- Y. **PROPOSAL PREPARATION COSTS:** Neither the School District nor its representatives shall be liable for any expenses incurred in connection with the preparation of a response to this proposal.

- Z. **AGREEMENT FORM:** All subsequent agreements as a result of an award hereunder, shall incorporate all terms, conditions and specifications contained herein, and in response hereto, unless mutually amended in writing.

**III. SPECIAL CONDITIONS** These "SPECIAL CONDITIONS" are in addition to or supplement Section II GENERAL TERMS AND CONDITIONS. In the event of a conflict these SPECIAL CONDITIONS shall have precedence.

**A. Definitions:**

For the purposes of this Request for Proposal (RFP) and future agreements, the following definitions apply.

1. **Data Communications:** Data communications is a designation referring to any stand-alone or bundled equipment, systems, or services (including but not limited to: all cable types; wireless and hardwired electronics; transport and monitoring protocols; operating systems; miscellaneous components, materials, and supplies; and certified personnel) that facilitate and/or maintain the capacity to transfer data, voice, or video over the District's LAN's, MAN, closed Circuits, and Telephony networks.

2. **Inside Plant:** Inside plant is a designation applied to any data communications equipment, systems, or services located on District property. Predominately, but not exclusively, inside plant refers to data communications equipment, systems, and services providing connectivity within individual District facilities (LAN's, Local Area Networks).

3. **Outside Plant:** Outside plant is a designation applied to any data communications equipment, systems, or services located outside District property. Predominately, but not exclusively, outside plant refers to data communications equipment, systems, or services providing connectivity among District facilities (collectively referred to as the District MAN, Metropolitan Area Network).

4. **The Bidder:** The company, business entity, individual or organization, submitting a response to this RFP. The Bidder may also be referred to as "Proposer", "Supplier" or "Vendor". The "Successful Bidder" shall be that company, Proposer, Supplier or Vendor who receives an award from the District to do business with it under the terms of this RFP.

**B. Agreement Form:** The basis of our agreement shall be the terms and conditions of this Request for Proposal, and the Bidder's response thereto. Any alternative agreement form or document required by Bidder shall be attached with their response hereto. The District reserves the right to reject any terms or conditions in conflict with those set by this RFP or negotiate mutually acceptable terms or conditions as it deems appropriate.

**C. Interpretation of Proposal Documents:** No interpretation of the meaning of the RFP, no correction of any apparent ambiguity, inconsistency or error therein, will be made to any Bidder verbally. Every request for such interpretation or correction should be made in writing, via fax or e-mail no later than Wednesday, November 24 at 2:00 P.M. CDST. Responses will be posted to the ECSD'S purchasing website [www.escambia.k12.fl.us/adminoff/finance/purchasing](http://www.escambia.k12.fl.us/adminoff/finance/purchasing) by Tuesday, November 30. All such interpretations and any supplemental instructions will be in the form of written Addenda to the RFP. Only the interpretation or correction so given through a written Addenda issued by the Purchasing Department shall be binding. No other source is authorized to give information concerning, or to explain or interpret the RFP. It shall be the Bidder's responsibility to confirm with the Purchasing Department, that they have received all Addenda issued, to obtain all such Addenda, and to return executed Addenda with their bid response.

**D. Firm Offer:** Any proposal may be withdrawn until the date and time set for the opening of the proposals. Any proposal not so withdrawn shall constitute an irrevocable offer to provide the District the services/products

set forth in this RFP. Such offer shall be held open for a period of ninety days from RFP opening date or until one of the proposals has been awarded by the District.

**E. Clarifications:** The District reserves the right to request clarification of information submitted and/or request related additional information or materials from the Proposal, to accurately evaluate the Proposal. Such information shall not materially change the original proposal response nor serve to allow the addition of new information that was not originally expressed or referenced.

**F. Other Contracts:** The District reserves the right to use other existing bids, contracts, or approved sources (i.e. State of Florida contracts) when determined to be in their best interest. The District also reserves the right to bid separately any item(s) and /or service(s) covered under this agreement if deemed to be in the best interest of the District at any time during the term of this agreement.

**G. Indemnification:** Successful bidder agrees to indemnify and save harmless the Escambia County School District, it's officers, agents and employees from and against any demand, claim, suit, loss, expense, or damage which may be asserted against any of them in their official or individual capacities by reason of any alleged damage to property, or injury to, or death of any person arising out of, or in any way related to, any action or inaction of the successful bidder (including its sub-contractors, officers, agents, and employees) in the performance or intended performance of this agreement, or the maintenance of any facility, or the operation of any program, which is the subject of, or is related to the performance of this agreement. The obligations of the successful bidder pursuant to this paragraph shall not be limited in any way by any limitation in the amount or type of proceeds, damages, compensation, or benefits payable under any policy of insurance or self-insurance maintained by or for the use and benefit of the successful bidder.

**H. Insurance:**

1. The successful bidder agrees to maintain, in full force and effect during the term of this agreement and any extensions and renewals thereof, and furnish to the undersigned good and sufficient evidence of general liability and auto liability insurance in an amount not less than \$500,000 with an Insurance company rated not lower than "A" by A.M. Best and Company. The School Board shall be named as an additional insured. The policy and evidence of such insurance shall be endorsed so as to provide coverage for all liability hereby contractually assumed by the Supplier and a copy thereof shall be delivered to the District before beginning performance of this agreement. Such insurance shall not be subject to cancellation, non-renewal, reduction in policy limits or other adverse change in coverage, except with 45 days prior written notice to the School Board, which notice shall be given by U.S. Certified Mail with return receipt requested to the undersigned. No other form of notification shall relieve the insurance company, or its agents, or representatives of responsibility.
2. If this agreement involves construction to be performed by the Supplier, the above required comprehensive general liability and auto liability insurance shall be in an amount not less than \$1,000,000 and the Supplier shall also maintain, keep in full force and effect during the term of this agreement and any extensions and renewals thereof, and furnish to the undersigned good and sufficient evidence of an Owners and Contractors General Liability Insurance policy in the amount of \$500,000 according to the same terms, provisions, conditions and requirements described in the first paragraph of this section. The named insured on the Owners and Contractors General Liability Insurance policy shall be the School Board.
3. If this agreement involves performance by officers, employees, agents or sub-contractors of the Supplier, the Supplier shall also maintain, keep in full force and effect during the term of this agreement and any extensions and renewals thereof, and furnish to the undersigned good and sufficient evidence of workers' compensation insurance in the amount required by Florida State Statutes Chapter 440, and Employer Legal Liability Insurance in the amount of \$100,000.00.

**I. Termination:** Except as it relates to any warranty provision established by this agreement, and in addition to any and all rights by the parties in law or equity, the Successful Bidder may terminate this agreement at any time with ninety (90) days written notice to other without penalty. The District may unilaterally terminate this agreement in writing at any time. In the event of termination, the Supplier (a) shall be responsible for the

delivery of all equipment for orders received up to the date of termination, or (b) may mutually be canceled without penalty upon agreement by the parties. The District shall be responsible for payment of all goods, materials, and services ordered, received and accepted prior to termination. All warranty provisions as it relates to services/parts purchased during this agreement shall survive any termination between the parties regardless of cause and the supplier agrees to be obligated to continue to provide warranty repair service when and where needed as if no termination has occurred.

**J. Price Adjustment:** All Pricing will remain firm through January 30, 2006. Any price decrease or increase request must be submitted in writing, with justification, by November 1, of each contract year, to the Director of Purchasing, in order to be considered for the following contract year. A purchase order will be generated for each job to be performed and billed under this agreement. No work should be started nor any material / equipment provided to the District without a purchase order.

**K. Service Provider Information Number:** Supplier must acquire or have acquired a "Service Provider Information Number" (SPIN) from the Schools and Libraries Division (SLD) of the Universe Service Administrative Company. For further information go to the SLD website, [www.sl.universalservice.org](http://www.sl.universalservice.org).

## **IV SCOPE OF WORK OR SERVICES**

**A.** The District will enter into a five-year agreement with a Supplier. This agreement will be renewed annually upon mutual consent (and approval by the School Board of Escambia County, Florida) for a total of five-years. The agreement will be effective starting February 1, 2005. Annual expenditures will vary based on need and availability of funds. In the last three Fiscal Years, the District has averaged expenditures of approximately \$ 800,000.00 annually. This service agreement includes all materials, equipment and labor necessary to install, test and certify systems. The Supplier will provide, as requested, job estimates at no charge to the District (which may include system design). Additionally, the Supplier must respond to warranty and emergency service requests within an average of three hours, and act as the District advocate in warranty issues with manufacturers.

**B.** All services and material provided will be in accordance with the District's "TELECOMMUNICATIONS DESIGN STANDARD FOR ALL BUILDING CONSTRUCTION AND TECHNOLOGY RETROFIT PROJECTS" (ATTACHMENT A). Therefore it is imperative that you are familiar with all details outlined in this document. All equipment and material shall be new. Used, refurbished, damaged or deteriorated equipment and material is not acceptable.

## **V. QUESTIONNAIRE AND RESPONSE**

The Bidder will complete the information requested in this section and the Worksheet as well as provide any additional information requested. This information will be used to determine supply and material cost for a typical job as well as a factor in determining lowest and best bidder. Primary manufacturer's catalog used for supplies and materials with price sheet showing supplier's cost structure must accompany this proposal submission. Indicate the price to the District based on Supplier markup or percentage taken off manufacturer's list price on the form. The District reserves the right at any time, to audit or demand documentation to verify that prices charged on projects are consistent with price structures indicated within this proposal. Bidders response will describe fully how they propose to accomplish the scope of services defined above. **Your proposal will discuss the following in the sequence listed below.**

**A. Company Profile:** Bidder shall present a company profile to include:

- Overview about the company
- Ownership
- Primary focus of business dealings
- Years in business
- Number of employees

- # of technicians
- # of technicians certified to climb towers (provide copies of certifications)
- # of BICSI certified technicians (provide copies of certifications)
- Provide information on current multi-year contracts (open ended contracts)
- Last 3 years of balance sheets and income statements to demonstrate stability through increased/steady sales, income, and net worth. (If applicable, include information about any parent company. If a corporation, include last annual report.)
- List at least five business references (other than the Escambia County School District) from current or previous customers receiving similar services. Preference desired for similar size/volume and/or school or government applications. All references listed must include contact person, phone number, estimated dollar volume and dates of business relationship.
- **“Bid Requirements” listed in Section 17000, 9.0 – 9.4 of Attachment A (“Telecommunications Design Standard For All Building Construction & Technology Retrofit Projects”) will be addressed in this section.**

**B. Performance Parameter Commitment:**

State the average time it will take to respond on site to a request for quote. \_\_\_\_\_

State the average time it will take to respond on site after a receipt of a Purchase Order. \_\_\_\_\_

State the average time it will take to respond to a trouble call for warranty repairs. \_\_\_\_\_

Describe the process the District would utilize to effect repair / replacement of a malfunctioning cable drop or network component.

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Will contractor install components acquired from other sources? YES \_\_\_\_\_ NO \_\_\_\_\_

List equipment / brands which your company is an authorized reseller and certified installer.

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List a site within 50 miles of Pensacola, FL where we may view a project your company has completed, preferably one of in the range of \$ 300,000.00 to \$ 500,000.00. (Please include point of contact and phone number to arrange a site visit.)

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**C. Pricing:** In addition to the below requested information, the Bidder will include with their proposal a completed Worksheet.

State the hourly rate for a 1 man crew: \_\_\_\_\_ State the hourly rate for a tower crew: \_\_\_\_\_

State the hourly rate for a 2-man crew: \_\_\_\_\_

State the hourly rate for an emergency 2-man crew: \_\_\_\_\_

How are partial hours billed? \_\_\_\_\_

Indicate the method of calculating supply and material pricing:

Cost + \_\_\_\_\_%

or List Price Less \_\_\_\_\_% Discount

State percentage discounts for jobs in the following price ranges:

\$ 10,000 - \$ 25,000 \_\_\_\_\_

\$ 25,001 - \$ 50,000 \_\_\_\_\_

\$ 50,001 - \$ 100,000 \_\_\_\_\_

\$ 100,001 and over \_\_\_\_\_

Complete the Worksheet.

**C. Warranties:** A minimum one year warranty shall apply to all contractor furnished and installed parts, materials, supplies, and /or equipment excluding wiring. Wiring, both copper and fiber, will carry a five-year warranty. The warranty shall cover the cost of any and all parts, materials, supplies, and/or equipment as well as related labor required to return the system to its proper working condition. Describe your warranty covering parts and workmanship. Your response shall clearly acknowledge your warranty policy period, exclusions and acceptable warranty repair rate.

**D. Documentation:** Bidder **must include in their proposal** all documentation that will be used during the course of this agreement. Bidder in all cases shall be in a position to assure a timely completion of service to the District. Bidder will be asked to commit to an acceptable response and turn-around time as a performance parameter to this agreement. Bidder will be audited during the contract to confirm that performance commitments are being met. Parts pricing will be charged on a cost + or discount percentage off basis. Vendor must agree to provide the District during the term of this contract current parts price lists.

## Complete the following worksheet.

(Base your below cost estimates in accordance with the brands / model numbers specified in Attachment A.)

ITEM	QTY	MAKE/MODEL	UNIT PRICE	TOTAL PRICE
Outlet - 2 Port Cat 6	120	Siemon		
Outlet - 2 Port Cat 6	120	Panduit		
Cat 6 Plenum Cable	60,000'			
Panuit LD5	540'			
LD5 Couplings	45			
Drop Ceiling Clips	45			
36" Wall Rack	2			
7' Freestanding Rack	2			
24 Port Cat 6 Patch Panel	4			
48 Port Cat 6 Patch Panel	4			
12 Strand Fiber Plenum Cable	6,000'			
3M Hotmelt Connectors	48			
Loaded LIU's 12 Port	4			
2 Meter LC-SC FO Duplex Jumpers	6			
2 Meter SC-SC FO Duplex Jumpers	6			
2 Meter LC-LC FO Duplex Jumpers	6			
3' Cat 6 Patch Cable RJ45	80			
5' Cat 6 Patch Cable RJ45	40			
7' Cat 6 Patch Cable RJ45	80			
15' Cat 6 Patch Cable RJ45	40			
Panduit PDLR-1 Mylar Labels	2			
2" Penetrations w/Fire Stop	2			
1" Penetrations w/Fire Stop	6			
Matrix E1 Gig Switch w/6 MGBIC Slots	1	Enterasys 1G587-09		
Matrix E1 2-Port 1000B-T Uplink	1	Enterasys 1G-2TX		
Matrix E1 Expansion Module	1	Enterasys 1G-2MGBIC		
Matrix N7 Bundle w/chassis, 2 pwr sup	1	Enterasys N7-SYSTEM-R		
DFE w/12 1000Base-X ports via MGBIC	2	Enterasys 7G4270-12		
DFE w/60 10/100/1000 RJ45 Ports	1	Enterasys 7G4202-60		
1000Base-SX Mini GBIC w/LC Con.	24	Enterasys MGBIC-LC01		
1000Base-LX Mini GBIC w/LC Con.	2	Enterasys MGBIC-LC09		
1000Base-LX/LH (70K) Mini GBIC w/LC	2	Enterasys MGBIC-08		
1000Base-TX Mini GBIC w/RJ45 Con.	4	Enterasys MGBIC-02		
Ladder Rack	40'			
100' Above Ground Monopole	2			
Orthogon Systems OS-Gemini	1			
RoamAbout R2 w/Mezzanine	8	Enterasys RBTR2-AZ		
RoamAbout R2 Tri-Mode Card	8			
RoamAbout AP3000 Wireless AP	8			
PowerConnect 3348 w/1000B-SX LC	10	Dell		
			TOTAL \$	

## **DRUG FREE WORKPLACE**

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids that are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- 1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- 2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
- 3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
- 4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employees will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
- 5) Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
- 6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Vendor's Signature \_\_\_\_\_

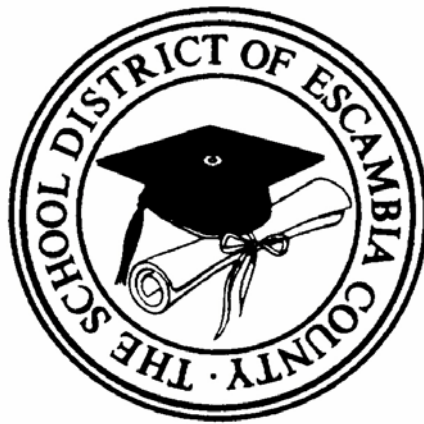
ATTACHMENT A

# Telecommunications Design Standard

For

## All Building Construction & Technology Retrofit Projects

For the



Prepared by:



139 East Government Street  
Pensacola, Florida 32501  
Phone (850) 438-0050 Fax (850) 432-8631

Fourth Revision  
November 8, 2004

SCHMIDT DELL ASSOCIATES, INC.  
Consulting Engineers, Pensacola, Florida

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Section 17050	Telephone Equipment	11/08/04
Section 17100	Instructional Television / Media Retrieval System	11/08/04
Section 17125	Camera Surveillance System and Related Infrastructure	11/08/04
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**17000/COMMUNICATIONS STRUCTURED CABLING SYSTEM**

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1.0 INTRODUCTION

All telecommunications design work for any facility owned and operated by The School District of Escambia County shall be done in accordance with the most recent School Board approved revision of these standards.

This section is intended to provide the A/E guidance in the design of Communications Structured Cabling Systems (SCS). The SCS consists of conduit, cabling, terminal equipment, racks, backboards, wire management and the like that make up the infrastructure serving various technologies including:

- Data Local Area Networks (LANs).
- Data Wide Area Networks (WANs).
- Telephone service distribution.
- Current and future services offered by the local telephone exchange carrier including plain old telephone (POTS) and the various higher bandwidth offerings such as 56 Kbps, ISDN, T-1, T-3, frame relay and ATM.

Related systems such as Instructional Television/Media Retrieval (ITV) and Camera Surveillance (CCTV) systems shall share common communications spaces and pathways with the SCS. See paragraph 5.0 of this section and related sections.

1.1 DESIGN REQUIREMENTS

The A/E team shall be responsible for a fully developed structured cabling systems (SCS) and related communications systems design. This section provides overall guidance in specific School District requirements, but is not intended to provide an exhaustive design methodology nor construction specifications. The School District also requires the services of a BICSI certified (Registered Communications Distribution Designer (RCDD) for all communications systems design services. The A/E shall provide a competent designer who, in the judgment of the School District, is sufficiently experienced to design the SCS in accordance with these guidelines and all applicable standards.

The A/E shall provide detailed drawings and specifications that fully document the SCS. The A/E shall not rely upon the installing contractor to develop the SCS design or to provide detailed drawings for the system.

The types of drawings and level of detail indicated below are mandatory requirements for

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each telecommunications design project for the School District with individual considerations to be taken into account for each project. A custom design shall be provided for each school.

Key design requirements are as follows:

- 1.1.1 Develop and indicate specific topology for the SCS including location and sizing of equipment rooms, backbone conduit sizes and configuration, and backbone cabling pair or strand counts and configuration.
- 1.1.2 Provide dimensionally accurate site floor plans indicating location of all buildings and rooms, correct FISH room numbers, location of all equipment rooms and communications outlets, conduit routing, and other pertinent information.
- 1.1.3 Indicate all cable types and sizes, including end connections and terminal equipment. Provide detailed single line riser diagrams of all voice, data and video systems indicating manufacturer and model number for each system component.
- 1.1.4 Provide detailed layout elevations of all backboards and racks, including all wire management, drawn to scale.
- 1.1.5 Select and properly apply all data equipment including high speed backbone interconnections. Indicate location and mounting of equipment. Incorporate into riser diagrams and backboard and rack elevations.
- 1.1.6 Select and properly apply equipment for wireless network access for all instructional and administrative areas for each facility. Indicate physical location of all access points and their required power connections. Incorporate into riser diagrams and specify equipment requirements. Quantity of access points shall be dependent on the anticipated data connectivity demands for each area served.
- 1.1.7 Select and properly apply all telephone equipment. Indicate location and mounting. Incorporate into riser diagrams and backboard elevations. Indicate interfaces to Media Retrieval and Intercom System equipment as required.
- 1.1.8 Select and properly apply all ITV and Media Retrieval equipment. Indicate location and mounting. Incorporate into riser diagrams and backboard elevations.

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2.0 STANDARDS AND ABBREVIATIONS

2.1 STANDARDS

All work shall be designed in accordance with the most recent School Board approved revision of these standards. Where there is a perceived conflict between a listed standard and this guideline, the A/E shall design the work as directed by the School District.

NFPA	National Fire Protection Association
TIA/EIA-568	Telecommunications Industry Association / Electronic Industries Association "Commercial Building Telecommunications Wiring Standard" – Revision B, April, 2002
EIA/TIA-569	Electronic Industries Association / Telecommunications Industry Association "Commercial Building Standard for Telecommunications Pathways and Spaces"
TIA/EIA-607	Telecommunications Industry Association / Electronic Industries Association Commercial Building "Grounding and Bonding Requirements for Telecommunications"
TIA/EIA-606A	Telecommunications Industry Association / Electronic Industries Association Commercial Building "Administrative Standard "
IEEE 802.3	Institute of Electrical and Electronics Engineers - LAN Standard for Ethernet
IEEE 802.11	Institute of Electrical and Electronics Engineers - LAN Standard for Wireless Ethernet
BICSI TDMM	BICSI, A Telecommunications Association, "Telecommunications Distribution Methods Manual", Tenth Edition, adopted 2003

All materials and equipment shall be UL listed for the intended application.

2.2 ABBREVIATIONS

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- SCS - Communications Structured Cabling System
- CER - Communications Equipment Room
- CC - Communications Closet
- CP - Communications Panel
- CO - Communications Outlet
- BICSI - Building Industry Consulting Service International
- RCDD - Registered Communications Distribution Designer

**3.0 EXISTING TECHNOLOGIES**

The design for new networks shall include detailed provisions for integration with or replacement of all existing networks as directed by district level personnel.

The School District provides WAN (Wide Area Network) interface equipment, but each design must conveniently accommodate such interfaces.

**4.0 SCS TOPOLOGY**

The general design of the SCS shall be in accordance with TIA/EIA-568 and shall be a hierarchical star. Horizontal cabling shall extend from the CER, CCs and CPs to COs and shall not exceed 90 meters (295 feet) in actual length. Backbone cabling shall extend from the CER to CCs and from the CER to CPs and shall not exceed 500 meters (1640 feet) in actual length to accommodate Gigabit Ethernet services over multimode fiber optic cabling. The SCS shall incorporate cabling and equipment for wireless Ethernet access for all instructional and administrative areas.

The SCS shall be designed to support telephone services as well as data services. Current data equipment requirements are specified under Section 17025. Current telephone equipment requirements are specified under Section 17050.

**5.0 COMMUNICATIONS SPACES AND PATHWAYS**

**5.1 COMMUNICATIONS EQUIPMENT ROOM (CER)**

A CER is defined as a telecommunications room that serves as the main communications equipment room in a school campus. This room will house some or all of the following systems:

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- telecommunications (PBX/KSU/ESSX) equipment
- broadband CATV equipment
- data network equipment
- lightning protection
- fiber optic cable terminations
- building automation system equipment
- building security and fire alarm equipment
- overhead paging systems

All school campus' shall have one Communications Equipment Room. The smallest dimension permitted for any CER shall not be less than 12' X 12'.

The district information technology (IT) group shall provide final square footage approval for any CER before construction documents are issued however this room shall not be less than 12' x 12', except in specifically approved situations. The Communications Equipment Room is the central equipment space to which all star wired segments of the network attach. Space shall be reserved for other technologies that share the same space. CERs shall not be located in rooms which house HVAC, plumbing, electrical power panels, or other equipment. CERs shall be provided with HVAC services with dedicated thermostats. Do not locate CERs in a perimeter space with vented doors (i.e. similar to outside access mechanical and electrical rooms). All CER's shall be environmentally controlled to maintain a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50%. Conditions shall be capable of being maintained 24 hours per day, 7 days per week.

Cover all walls of CER with 8'-0" high 3/4" exterior grade AC plywood primed and finished with 2 coats of gray fire retardant semi-gloss enamel paint. Provide lighting to 50 footcandles at 3'-0" above the finished floor. Provide surge protected and filtered power as required for convenient service to all devices requiring power. As a minimum provide three quadraplex power receptacles on each long wall and one quadraplex power receptacle on each short wall. Indicate specific location of receptacles relative to equipment served. All receptacles shall be non-switched and surge suppression type. Provide racks, cable tray, and wire management as required for a uniformly organized installation.

## 5.2 COMMUNICATIONS CLOSET (CC)

A CC is defined as a telecommunications room that serves as an intermediate connecting

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point for the building horizontal and vertical cabling and information systems. This room will typically serve a portion of a floor for a large building or a free-standing school building.

CCs shall not be located in rooms which house HVAC, plumbing, electrical power panels, or other equipment. CCs may be provided with HVAC service equivalent to that in the surrounding areas, however a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50% shall be maintained 24 hours per day, 7 days per week. This may require the use of a dedicated HVAC unit or the use of ducted vent fans with vented doors. Do not locate CCs in a perimeter space with vented doors (i.e. similar to outside access mechanical and electrical rooms).

CC's shall be approximately 8' x8' in size or equivalent. The smallest dimension of any room (CER or CC) shall not be less than 6' for any reason.

**GENERAL REQUIREMENTS**

**Janitorial or storage space is not suitable for telecommunications rooms. Telecommunications rooms shall not be used to store materials or janitorial supplies.**

**Shallow telecommunications closets are strictly prohibited and shall not be permitted for any reason.**

Minimum clearances for equipment and cross-connect fields in the telecommunications closet:

- Allow a minimum of 3.0 ft. of clear working space from equipment and cross connect fields.
- Equipment racks or cabinets should be provided within the telecommunications closet (room). Allocate a space at least 32 in. deep and 7 ft., 6 in. high for each rack or cabinet. Provide space for an aisle at least 32 in. wide

To facilitate the proper installation, routing and placement of cables, wires, premise equipment and terminal fields, CC's shall be located in the middle of the floor, and stacked one above the other (if multiple floors). Rooms shall be placed to minimize cable lengths, such that no length of cable exceeds 260 feet horizontally (this length will assure the maximum cable distance of 295' is maintained.).

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Doors shall be 3' W x 7' H. Doors shall open fully into the corridor. Some exceptions may apply. Floors shall be tile or sealed concrete. No carpet shall be installed in telecommunications rooms.

All rooms shall be provided with 2' x 2' acoustical ceiling tile grid ceilings. No rooms shall be permitted to have ceilings exposed to the building structure.

Fire treated plywood, 3/4" thick, shall be provided on all walls in the CER and CCs with (2) coats of fire retardant paint, light gray in color.

Install multiple 3" or 4" conduits sleeves between CC's and CER's. Quantity shall be as required by the project.

Install overhead ladder cable tray in CER's and CC's on all walls and extend to the data racks in the room. Cable tray shall be 12" W x 1-1/2"D, typical. Provide racks, cable tray, and wire management as required for a uniformly organized installation.

**ELECTRICAL AND MECHANICAL REQUIREMENTS**

All CER's and CC's shall be environmentally controlled to maintain a temperature range of 65 to 85 degrees Fahrenheit and relative humidity of 50%. Conditions shall be capable of being maintained 24 hours per day, 7 days per week. If these conditions cannot be maintained 24 hours per day, 7 days per week, HVAC units dedicated to these rooms must be installed.

No plumbing, HVAC ductwork or electrical conduit shall pass through or be directly above the telecommunications spaces, whenever possible.

Provide 2' X 4' fluorescent fixtures, ceiling mounted, as required, to provide 50 foot-candles at 3' AFF. All lighting should be connected to emergency power when available. All ballast types shall be electronic.

Provide quad 120V receptacles on each wall at 6' intervals, at standard 18" AFF height. Provide additional, dedicated 20 amp, duplex 120V receptacles mounted on overhead cable tray. Quantity and locations shall be as shown on construction drawings. Coordinate with Information Technology for any 30A or atypical power requirements. Provide surge protected and filtered power as required for convenient service to all devices requiring power. All power receptacles shall be non-switched and surge suppression type.

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5.3 COMMUNICATIONS PANEL (CP)

A Communications Panel is a mini-CC within an enclosed hinged lockable Panel or a specific purpose wall mounted cabinet. All components of the CP, including a surge protected and filtered power source, surge suppression type power receptacle, and telephone terminal blocks, shall be enclosed within the panel or cabinet. CPs shall be star attached to the CER unless special topologies are needed and approved by the School District. Provide slotted wireway and wire management as required for a uniformly organized installation. **The use of CP's shall be limited and shall only be used when the project warrants its use and only when specifically permitted by the School District.**

5.4 COMMUNICATIONS CONDUIT, RACEWAY AND CABLE TRAY

Design in accordance with all applicable standards and the following specific requirements:

5.4.1 CONDUITS FOR BACKBONE CABLING

All backbone cabling shall be run continuously in conduit. Provide conduits between the CER and CCs and between the CER and CPs as follows:

- Exterior underground: Direct burial grade schedule 80 PVC electrical conduit. Elbows turning up to aboveground shall be rigid galvanized threaded and coated. All underground conduits shall be installed with a traceable identifier marker and aboveground markers shall be placed at all turns in conduit runs.
- Exterior aboveground: Rigid galvanized threaded.
- Indoors: EMT with set steel screw fittings where concealed and steel compression fitting where exposed.

Size conduit as required to prevent excess tension on cabling while being pulled using proper equipment and methods. Analyze each pull segment separately. A fill rate of 30% or less will allow for a reasonable amount of future expansion as well as ease of service.

Require that a pull tape with sequential footage markings be pulled in along with cables, unless a conduit is designed with no spare capacity.

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Require that all underground conduit be cleaned and verified with a test mandrel. Spare underground conduits should then have pull tape installed and closed at each end by a conduit plug with rope tie.

**5.4.2 CONDUITS, CABLE TRAY & RACEWAYS FOR HORIZONTAL CABLING**

All wall mounted communications outlets shall consist of a dual-gang back box, a single gang plaster ring, and a 1" conduit stubbed above the ceiling with a pull string. Under no circumstances shall conduit smaller than 1" be used for communications cabling. All conduit ends shall be furnished with a plastic bushing to prevent damage to communications cables. Where conduit is extended to a cable tray or CC/CER, no more than two 90 degree sweeping bends shall be used without adding a junction box. Junction boxes shall NOT be used at 90 degree bends.

In new buildings where horizontal cabling may be damaged during construction, provide homerun conduits serving all COs, or provide cable tray with conduit drops to COs. Cable tray shall not extend between floors.

In existing buildings and where horizontal cabling is not subject to physical abuse, free route cabling above ceiling, supported with J-hooks at 4 feet on center minimum.

Size conduit as required to prevent excess tension on cabling while being pulled using proper equipment and methods. Analyze each pull segment separately. A fill rate of 30% or less will allow for a reasonable amount of future expansion as well as ease of service. Higher fill rates may be employed with School District approval.

Conduits: EMT with set steel screw fittings where concealed and steel compression fittings where exposed. Paint all exposed conduits to match surroundings.

Raceway: Non-metallic with TIA/EIA Category 6 compliant fittings shall be used for small raceways. **Color shall match that of any existing raceway and/or wall color.** Panduit Type T70 or equal for large raceways. Surface mounted raceways shall only be used in existing buildings where concealed cabling is not possible and only then with the written permission of the Owner and Engineer. Where surface raceways exist, any new raceways shall match existing for color and type.

**5.5 COMMUNICATIONS SYSTEMS GROUNDING**

Provide a telecommunications grounding busbar in each CER and CC. The bar shall be a minimum of 12" W X 2" H with pre-drilled 1/4" holes. This bar shall be attached to the

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main building grounding system with a #4 AWG copper wire, minimum. All bonding and grounding shall meet the minimum requirements of the NEC.

Communications Systems Grounding shall comply with the NEC and EIA/TIA-607, Grounding and Bonding Requirements for Telecommunications.

Provide grounding busbars in all communication closets. Ground main busbar to building main electrical service ground with #2/o AWG insulated (green) copper grounding conductor. Run conductor from busbar location to building service ground in conduit. **Grounding to building structure, conduits, utility piping, or electrical subpanels in lieu of bonding to building main electrical service ground shall not be acceptable.** All ground connections shall be made with heavy duty 2 hole compression lugs.

All communication racks, cable trays, conduits, etc shall be grounded with #6 AWG insulated (green) copper grounding conductor to main grounding busbar. Ground racks individually to busbar (do not loop grounds).

6.0 CABLING AND TERMINAL DEVICES

The installed system shall be a complete Category 6 Structured Cabling System solution with all outlet and termination hardware provided by one single manufacturer. The corresponding cable required to make up the complete channel solution must be an approved and tested cable with the outlet and termination hardware provider.

For existing schools, the specified SCS manufacturer solution shall match that of the “incumbent” system already installed at that facility. For example, if School “A” has Panduit Mini-Com Category 5E outlets installed throughout the school, any new cabling installations for any new additions or renovations shall be Panduit Mini-Com category 6 outlets using the same general components (patch panel types, outlet types, etc) of the previously installed system unless directed differently by the School District.

Any new schools shall be a certified Category 6 solution utilizing either Siemon MX jacks or Panduit Mini-Com jacks. No other manufacturers will be accepted.

Unless specifically directly otherwise by the School District’s project manager, provide four jacks per classroom for student computers and a wireless access point connection and three jacks per classroom for a teacher station (including one jack for data, one jack for teacher telephone, and one for a printer).

Horizontal cabling shall be UL or ETL verified TIA Category 6 UTP. In general, the

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horizontal cabling system will consist of multiple category 6 cables routed to communications outlets on each floor. Cables shall be terminated in patch panels in each corresponding communications closet. Install all cabling in conduit or cable tray, unless specific approval is given by the School District to free route bundled cable above ceilings. Where cable is not installed in conduit, cabling shall be supported at 4'-0" on center with CADDY "CableCat" cable support hangers. All cabling installed above ceilings and not in conduit shall be plenum rated, regardless of code requirements.

- 6.2 The Backbone Cabling connects each communications closet to the main communications equipment room. It consists of the fiber optic and multi-pair copper backbone transmission media between these locations and the associated connecting hardware terminating this media.

All multimode optical fiber cable must be a **50/125 multimode**. Optical specifications are as follows;

1. Attenuation The attenuation, of the cabled fiber, shall not exceed 3.5 dB/km at 850 nm and 1.0 dB/km at 1300 nm. The maximum typical attenuation values should be 2.9 dB/km at 850 nm and 0.7 dB/km at 1300 nm.
2. Bandwidth The bandwidth shall not be less than 510 MHz-km at 850 nm and 500 MHz-km at 1300 nm.
3. Bandwidth Distances for Gigabit Ethernet  
The maximum distance for 1000BaseSX shall be 600 meters.

**50 micron fiber is different than the 62.5 fiber installed in the majority of schools. patch cables for this cable are NOT interchangeable. Fiber optic patch panels MUST be labeled accordingly, notifying user as to the fiber type.**

Terminate all stands with Duplex-SC connectors. Install all fiber optic cabling in conduit. A quantity 12, 18, or 24 strands of fiber optic cabling shall be distributed to each CC with the quantity dependent of the network connectivity density of each closet. A fiber optic cable suitable for both indoor and outdoor use shall be provided in all cases.

Fiber optic patch cords shall be provided with connectorized ends as required to suit new and existing LAN equipment and fiber optic terminal cabinets at each school. Provide quantity equal to the number of connections required to fully interconnect all fiber optic equipment, plus 10 percent extra. Provide various lengths of each type of fiber patch cords to suit each CER, CC and CP and to make all connections required without excess

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length.

6.5 Telephone backbone cabling shall be tested and certified by the manufacturer to TIA Category 3 performance. Install all backbone cabling in conduit. Provide telephone backbone cabling as follows:

- Exterior underground in conduit: Type AFMW Category 3 multi-pair direct burial grade gel-filled cable. Extend into indoors only in conduit. If not, splice to ARMM-type cable, ground splice, continue shield to point of termination, then ground shield and surge protect all pairs with UL listed primary and secondary protection devices.
- Exterior aboveground in conduit: Type ARMM Category 3 multi-pair shielded cable. Must continue to point of termination indoors, then ground shield and surge protect all pairs with UL listed primary and secondary protection devices.
- Indoors in conduit or cable tray: Type Category 3 multi-pair cable, rated as required.

6.6 GENERAL CABLING REQUIREMENTS:

In general, a certified, tested, and warranted structured data and voice cabling system shall be designed and installed in accordance with these standards

The complete installation shall be installed with highly skilled and trained technicians providing a quality and professional system. Installers shall be trained and certified to install all specified materials and also certified to use all system test equipment. Workmanship shall be of the highest grade in accordance with the best modern practice and the highest standards of the industry.

The installed system shall be neat, clean, and well organized in appearance. Provide working clearances for normal system operation, reconfiguration and repair.

The installation shall be in strict accordance with all applicable codes and standards, the respective manufacturer's written recommendations, the contract drawings and these specifications.

Provide wire management on backboards, such as exposed cabling ladder runway, to organize and protect all cabling.

Provide wire management equal to Panduit WMP series on racks to organize, protect,

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and conceal patch cords. Provide appropriate wiring rings on sides of racks for vertical routing of patch cords.

Provide slack at each end of each cable to allow for a minimum of five future re-terminations without rerouting or replacing cable.

All cables routed through a return air plenum must be plenum rated cable.

All cables shall be independently supported throughout the entire Project.

Cables shall be routed in accordance with TIA/EIA 568A and standards.

The BICSI Telecommunications Distribution Methods Manual is to also be used as a guide for cable installations.

All cable shall be neatly routed in the ceiling at parallel or right angles to the building structure. Route cables by the shortest path to the cable tray at these angles.

Route cables along cable rack trays in a neat and straight order in 24 cable bundles. Use drop out shields to protect cables as they drop out of cable trays or cable rack trays. Use rear vertical cable management rails at racks to support and manage cables terminated to rear of patch panels. Maintain a neat and straight order of the cables inside the cable management rails. Adjust length of cables terminating on the rear of patch panels so that cables exit out of vertical cable management rail, fan into the proper port and are punched down in the proper order.

All cables shall be neatly bundled and velcroed to the racks and patch panels. Group outlet cables with not more than 24 cables per bundle. Ty-wraps or other similar cable securing means shall strictly NOT be used for securing cables in patch panels or wire-management.

All cables being pulled shall not exceed the manufacturers recommendations for pulling tensions.

All cables shall be installed following the manufacturer's recommendations for minimum bending radius.

All cables shall be tested after installation is complete. All test results are to be documented. All cables shall pass acceptable test requirements and levels. The Contractor shall remedy any cabling problems or defects in order to pass or comply with testing. This includes the re-pull of new cable as required at no additional cost to the owner.

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7.1 FIRESTOPPING

The A/E shall require that the contractor firestop all penetrations of all floors, all fire rated walls, and all fire rated ceilings. Firestopping shall be accomplished using UL classified systems with a fire rating equal to or greater than the floor, wall or ceiling penetrated. Firestop systems shall be installed in accordance with the manufacturer's standard detail for the each type of floor, wall or ceiling penetration encountered. The A/E shall require that the contractor submit the manufacturer's standard details that he proposes to use for approval.

7.2 ASBESTOS CONTAINING MATERIALS (ACMs)

No asbestos or asbestos-bearing materials in any form shall be used in the construction of the SCS.

Prior to the commencement of work, the School District will identify known asbestos containing materials (ACMs) at the site in the presence of the contractor. All ACM abatement required to complete work under this contract will be performed by an asbestos abatement contractor employed directly by the School District outside of this contract. The contractor shall coordinate the location of ACMs which require abatement with the asbestos abatement contractor.

The contractor shall instruct his employees not to disturb any ACMs identified by the School District or the asbestos abatement contractor. When ACM abatement is in progress, the contractor shall limit his activities and location within buildings as directed by the asbestos abatement contractor. Any violation of directions provided by the asbestos abatement contractor shall be at the risk of and the sole responsibility of the contractor.

8.0 CONTRACTOR QUALIFICATIONS

The A/E shall specify and enforce the following qualifications for SCS contractors:

- 8.1 The SCS contractor shall be an experienced firm regularly engaged in the layout and installation of structured cabling systems of similar size and complexity as required for this installation. The SCS contractor, under the same company name, shall have successfully completed the layout, installation, testing and warranty of not less than five structured cabling systems of the scope of the largest system on this project for a

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- minimum period of three years prior to the bid date. The contractor shall have an existing permanent office located within 75 miles of the job site from which installation and warranty service operations will be performed.
- 8.2 The SCS contractor shall present, with his bid, the name and certification number of a BICSI certified Registered Communications Distribution Designer (RCDD) who is a permanent employee of the contractor. The contractor shall maintain this RCDD, or another RCDD approved by the A/E, in his permanent employment throughout this project. The RCDD shall have overall responsibility for certifying that the installed structured cabling system conforms to these contract documents and to the referenced EIA/TIA, IEEE, BICSI, and UL standards. Specific requirements for the RCDD are as follows:
- 8.3 The RCDD shall be, in the judgment of the A/E, thoroughly experienced in the layout and installation of structured cabling systems of similar size and complexity as required for this installation. The RCDD shall submit evidence of these qualifications to the A/E upon request.
- 8.4 The RCDD shall affix his stamp to the contractor's pre-installation submittal drawings, indicating that he has reviewed and approved the drawings for conformance to the contract documents and to the referenced codes and standards.
- 8.5 The RCDD shall periodically visit the site and inspect the work in progress. RCDD site visits shall be made not less than twice per month when the job is in active progress. The RCDD shall prepare a field report for each site visit for submission to the Engineer.
- 8.6 The RCDD shall sign off on all copper and fiber optic cable test results, indicating that he was in responsible charge of all cable testing procedures and that all cables were tested in compliance with the contract documents and met or exceeded the requirements stated therein.
- 8.7 The RCDD shall affix his stamp to the contractor's as-built drawings, indicating that he has reviewed and approved the drawings as being complete, accurate, and representative of the system as actually installed.
- 8.8 All conduit and cable tray systems shall be installed by a licensed electrical contractor using tradesmen who are skilled and experienced in the types of conduit installations indicated in the bid documents.

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9.0 BID REQUIREMENTS

The SCS contractor shall provide the following documentation, to be presented with the bid, as evidence that the requirements for SCS contractor qualifications listed above are satisfied. If the bidder does not meet the requirements of this specification section for structured cabling system work, he shall provide the following documentation, to be presented with the bid, as evidence that the requirements listed above are satisfied by the SCS subcontractor he proposes to use to perform work under this section. In either case, all work under this section shall be performed by permanent employees of the SCS contractor listed on the bid form, and shall not be performed by another subcontractor, employees of another company, or by temporary employees.

- 9.1 A list of not less than five (5) references for jobs of similar size and complexity including project name, location, contact person and phone number.
- 9.2 RCDD name, BICSI certification number, and qualifications.
- 9.3 Location of office from which installation and warranty work will be performed.
- 9.4 Qualifications of conduit and cable tray installer.

10.0 WARRANTY REQUIREMENTS

The following shall be a requirement for all installed systems. Contractor shall provide certificate of such warranty at project completion.

The Contractor shall warrant the entire structured cabling system under the manufacturer's systems warranty for a minimum period of 15 years. The warranty will begin on the first day after final acceptance. The warranty shall include materials, parts and labor. If any failure or defect occurs within the warranty period, the contractor and/or manufacturers shall remedy it within 48 hours at no cost to the owner, or any owner representative or consultant. Structured cabling systems warranty shall cover applications assurance, cable, connecting hardware and the labor cost for the repair or replacement

The Contractor shall warrant the remainder of installed systems for a period of one year. The warranty will begin on the first day after final acceptance. The warranty shall include materials, parts and labor. If any failure or defect occurs within the warranty period, the contractor and/or manufacturers shall remedy it within 48 hours at no cost to the owner, or any owner representative or consultant.

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END OF SECTION 17000

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**17025/LOCAL AREA NETWORK EQUIPMENT**

**Revised 11/08/04**

1.0 INTRODUCTION

All telecommunications design work for any facility owned and operated The School District of Escambia County shall be done in accordance with the most recent School Board approved revision of these standards.

This section is intended to provide the A/E guidance in the design of data equipment for Local Area Networks (LANs):

1.1 DESIGN REQUIREMENTS - refer to Section 17000.

2.0 STANDARDS AND ABBREVIATIONS - refer to Section 17000.

3.0 TECHNOLOGIES - refer to Section 17000.

4.0 SCS TOPOLOGY - refer to Section 17000.

5.0 DATA EQUIPMENT

Coordinate all data equipment design with district personnel. Coordinate site specific requirements with a school technology coordinator assigned by the Principal. Coordinate throughout the design process.

5.1 QUANTITIES

Provide the types and quantities of LAN equipment ports:

5.1.1 Desktop ports - provide 10/100Base-T/TX auto-negotiating switched Ethernet ports serving each desktop as follows:

- Each instructional area: Unless specifically directed otherwise by the School District's project manager, provide four desktop ports for student computers, one connection to a wireless access point, two desktop ports for the teacher PC and printer (total of seven desktop ports per classroom or other instructional area). The 3rd teacher location is reserved for telephone connection.
- Administrative areas: Provide one desktop port for each computer workstation (existing or firmly planned in the next three years) and one desktop port for each network connected printer.
- Computer labs: Provide one desktop port for each computer workstation (existing or

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firmly planned in the next three years) and one desktop port for each network connected printer. Provide ports as required for any wireless access points required as well.

- Miscellaneous areas: Provide a desktop port for each computer workstation (existing or firmly planned in the next three years) and one desktop port for each network connected printer.
- In no case shall a single desktop port be installed. A minimum of two ports should be installed in each location.

5.1.2 Wireless ports - provide IEEE 802.11g 54mbps wireless access points throughout school to provide wireless network access from all instructional and administrative areas of the school. Provide and locate access points throughout school as required to fulfill the anticipated network connectivity demands for each area covered.

5.2 CURRENT BASIS OF DESIGN - DATA EQUIPMENT

5.2.1 10/100 Desktop Switches: 48 port 10/100Base-TX switch with Gigabit-Ethernet 1000base-SX fiber uplink modules for connection to CER and with Web based management software. Provide Dell 3348 series or approved equivalent. The 48-port switches shall be standalone with each having one Gigabit-Ethernet uplink module and shall be connected to the backbone switch via fiber optic backbone cabling. Provide alternate switch types and backbone network speeds as required to suit individual requirements (i.e. 8 ports switch with 100base-FX uplinks for cafeteria or gymnasium buildings when low port connectivity is required in building served).

5.2.2 100/1000 Server/Power-user Switches: 24 port 100/1000Base-TX switch with 2 – 4 1000Base-SX fiber uplink modules for connection to CER and with Web based management software. Provide Dell PowerConnect 5324 series or approved equivalent.

5.2.2 Backbone Switch (CER): Provide an Enterasys X-pedition 8000 or 8600 series routing switches, Matrix N or E series switches, or District approved equivalent as a backbone switch. Switch shall provide wire-speed layer 3/4 routing capabilities, port-level Quality of Service (QOS), per port bandwidth allocation, and VLAN capability in order to control streaming/high bandwidth applications on school LANs. Provide correct series model as required for port densities and WAN capabilities to facility. Provide gigabit uplinks as required for each desktop switch with 25% of slots open on final router configuration. In addition, size router as required to provide open slot for addition of 1000base-LX long-haul Gigabit-Ethernet uplink.

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5.2.3 Wireless Access Points (WAP): Wireless access points shall be the Enterasys Roamabout 3000 wireless access point. Wireless Access Points (WAPs) shall be IEEE 802.11b/g/a compliant wireless devices provided with 128-bit encryption. Locate wireless access points throughout school to provide full coverage of wireless connectivity for each instructional and administrative area. The A/E shall coordinate with the Owner for exact placement and shall provide specifications for the contractor to utilize the manufacturer's utility software to determine in the field the best location and coverage for each access point. Locate access points as to allow roaming between them.

Contractor shall set-up access points as coordinated with the Owner and set channel spacing as required between different Access Points to avoid interference and configure per manufacturer's requirements.

A/E shall design cabling to allow for the student computer connected to be utilized as wireless access point connection if so required. Mount cables in WAP manufacturer provided (or recommended) outlet box on wall and mount access point directly to outlet box, with cabling concealed behind WAP.

At the switch end (in communications closet), wall or rack mount access point (802.3af) "power injectors" and connect to protected 120vac power source per manufacturer's recommendations or provide Power over Ethernet (PoE) enabled desktop switches. Connect horizontal cable serving the WAP to the powered side of injector and provide a patch cord from injector to a switch port. No Access Points shall be powered locally at the access point location, unless the actual access point is located at the communications closet.

6.0 CONTRACTOR'S RESPONSIBILITY

Contractor shall provide a system of data equipment and cabling as indicated on the final design drawings.

Contractor shall install equipment as directed by the Owner and Engineer and shall complete all manufacturer recommended startup and checkout procedures. Verify proper equipment operation and startup. Once set up, contractor shall coordinate with the District IT personnel for final configuration.

The Contractor is not responsible for installation or configuration of Network Operating Software (NOS) or Network Interface Cards (NICs).

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Provide and install fiber optic and copper patch cords to interconnect data network equipment and to connect each port of data equipment to horizontal wiring connections as specified herein and as indicated on the drawings.

END OF SECTION 17025

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**17050/TELEPHONE EQUIPMENT**

**Revised 11/08/04**

1.0 INTRODUCTION

All telecommunications design work for any facility owned and operated by The School District of Escambia County shall be done in accordance with the most recent School Board approved revision of these standards.

This section is intended to provide the A/E guidance in the design of telephone equipment:

1.1 DESIGN REQUIREMENTS - refer to Section 17000.

2.0 STANDARDS AND ABBREVIATIONS - refer to Section 17000.

3.0 TECHNOLOGIES - refer to Section 17000.

4.0 SCS TOPOLOGY - refer to Section 17000.

5.0 TELEPHONE EQUIPMENT

Coordinate all telephone equipment design with district. Coordinate site specific requirements with a school technology coordinator assigned by the Principal. Coordinate throughout the design process.

5.1 QUANTITIES

Provide the types and quantities of telephone equipment ports:

5.1.1 Trunk ports - provide analog trunks, quantity as required for non-blocking operation for incoming and outgoing calls. Verify with traffic study after system is installed and fully operational during a weeklong period of typical school activity.

5.1.2 Station ports - provide digital station ports as follows:

- Provide a station port for the teacher location in each instructional area.
- Provide a station port for each teacher workroom location.
- Provide a station port for each administrative location requiring a telephone instrument.
- Provide a station port for all other locations requiring a telephone instrument.

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**17050/TELEPHONE EQUIPMENT**

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5.1.3 Telephone instruments - provide a telephone instrument for each port listed above as follows:

- Classrooms shall have single line sets with display and handsfree capability.
- Administrative areas shall have multi-line sets with display and handsfree capability, features to suit job function.
- Answering positions shall have multi-line sets with display and handsfree capability, and with add-on busy lamp field modules to expedite call distribution functions.

5.2 CURRENT BASIS OF DESIGN - TELEPHONE EQUIPMENT

Provide a telephone Key System Unit (KSU), Northern Telcom Norstar-Plus Modular ICS with latest version of software. Configure to suit project requirements. Trunk and station modules shall connect to the base KSU with fiber optic cables. Trunk cartridges shall have the capability to provide disconnect supervision when connected to loop start trunk lines and shall provide caller identification functionality with the capability to detect and translate CMS/CLASS information for display on digital handsets.

Provide system with a remote access device to interface to the School District's existing central management computer for remote alarm notification, offsite programming and monitoring.

Provide system with an uninterruptible power supply (UPS), American Power Conversion Model SU1400Net, for backup power in the event of a power failure. In addition, provide an eight port power transfer module and connect eight analog telephones that shall automatically switch to a direct connection to trunk lines in the event of an extended power outage.

6.0 THE CONTRACTOR

The KSU shall be furnished, installed and fully configured by an Authorized Dealer of the KSU manufacturer. The Authorized Dealer shall have an existing permanent office located within 75 miles of the job site. The Authorized Dealer shall provide a permanent employee who is certified as a technician by the KSU manufacturer in the installation and configuration of the specific KSU equipment furnished for this project. The certified technician shall install, configure, and maintain the KSU throughout the project and warranty period.

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The contractor shall provide all miscellaneous equipment, hardware, materials, labor and programming required for a complete system that is functional in every respect, whether or not those items are called for in the drawings or specifications.

The contractor shall provide full system, trunk, station and set programming as directed by the School District.

The Contractor shall install the telephone instruments in the locations specified by the School District, install patch cables to connect to station ports, and verify that each instrument is functioning properly.

END OF SECTION 17050

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**17100/INSTRUCTIONAL TELEVISION SYSTEM**

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1.0 INTRODUCTION

All telecommunications design work for any facility owned and operated by The School District of Escambia County shall be done in accordance with the most recent School Board approved revision of these standards.

This section is intended to provide the A/E guidance in the design of Instructional Television Systems (ITV). ITV headend equipment cabinets for all projects shall be provided under a multi-year continuing supply contract (see "SYSTEM OVERVIEW").

2.0 STANDARDS AND ABBREVIATIONS

2.1 STANDARDS

All work shall be designed in accordance with the most recent issue of the following standards. Where there is a perceived conflict between a standard and this guideline, the A/E shall design the work as directed by the School District.

CFR	Code of Federal Regulations
NFPA	National Fire Protection Association
SCTE	Society of Cable Television Engineers
NCTA	National Cable Television Association
UL 467	Underwriters Laboratories

All materials and equipment shall be UL listed for the intended application.

2.2 ABBREVIATIONS

- ITV - Instructional Television System
- CER - Communications Equipment Room
- CC - Communications Closet
- CP - Communications Panel

3.0 ITV TOPOLOGY

The general design of the ITV shall be a splitter based distribution system. Backbone cabling shall extend from the Headend Equipment to the CER, from the CER to CCs and from the CER to CPs. In the CER, CCs and CPs splitters are used for distribution. A

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tap-based system shall NOT be used for ITV signal Distribution. Outlet cabling shall extend from the CER, CCs and CPs to ITV outlets. The design shall provide a signal strength of 6-10 dB at each ITV outlet. The system shall comply with CFR 47 Part 15 and CFR 47 Part 76.

4.0 SYSTEM OVERVIEW

The ITV Headend Equipment shall be located in a cabinet mounted rack.

ITV headend equipment cabinets for all projects shall be provided under an existing multi-year continuing supply contract. Contact the school district's project manager for detailed instructions regarding ITV headend equipment cabinets for each project. Costs associated with providing and installing the cabinets shall be incorporated into the construction budget.

ITV headend equipment cabinets provide for:

- A CATV service provider input with signal being distributed to twelve channel demodulators for system inputs.
- A satellite TV input, if required by the school.
- A TV production studio input.
- Three commercial grade VCR inputs (VHS or mini DV, or combination thereof) and/or DVD player input.
- One input for future expansion
- All of these inputs shall be modulated onto channels for a unique channel line-up, individually catered to the viewer at the schools discretion. This cable TV signal will then be distributed via a single amplified output to the schools ITV cable distribution.
- The actual quantity of inputs listed above will vary depending on the type and size of school. (i.e. High Schools may have more VCR inputs). Actual Cabinet input components will be determined by the School Principal along with the contractor providing the equipment and the District's Video Specialist with the Office of Information Technology.

The system designer shall provide conduit infrastructure, coordinate/provide power supplies and power protection, and provide a coaxial cabling system with interfaces for each input and output service provided by the ITV headend equipment cabinet for each project.

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ITV coaxial cabling systems shall consist of cabling, jumpers, connectors, surge protectors, grounding, splitters, and all related conduits, raceways, cabinets, boxes, and accessories required for a complete working system. Utilize existing “tap” type systems and provide all related components only when the existing coaxial cabling system is based on a ‘tap’ type design and the project manager indicates that the existing system is to remain in service.

Provide surge protected and filtered power as required for convenient service to all devices requiring power. Provide wire management as required for a uniformly organized installation.

5.0 COMMUNICATIONS SPACES AND PATHWAYS - refer to Section 17000.

6.0 CABLING

6.1 ITV Outlet cabling shall be RG-6/U coaxial cable. Install all cabling in conduit or cable tray. Provide ITV outlet cable as follows:

- Exterior underground in conduit extending to point of termination indoors in conduit: Belden 9066 or CommScope 5728, surge protect at entrance to building.
- Exterior underground in conduit extending to indoors in cable tray (non-plenum environment): Belden 9066 or CommScope 5728, surge protect at entrance to building and convert to Belden 9116 or CommScope 5726 or their Plenum equivalent.
- Exterior aboveground in conduit: Belden 9116 or CommScope 5726, surge protect at entrance to building.
- Indoors in conduit or cable tray: Belden 9116 or CommScope 5726 or their plenum equivalent.

In the CER, CCs and CPs bring outlet cabling directly to the ITV backboard or into a NEMA 1 junction box (provide painted NEMA 4 enclosure in finished spaces). Terminate on Blonder Tongue XRS splitters as required with Toner F56-324 'F' connectors. Provide attenuators (Blonder Tongue FAM) at splitter outputs to ITV outlets as required to achieve signal strength of 6-10 dB at each outlet.

At the workspace terminate ITV outlet cabling on 'F' connectors mounted faceplates along with communications outlets.

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6.2 Backbone cabling shall be RG-11/U coaxial cable. Install all RG—1/U backbone cabling in conduit. Provide backbone cable as follows:

- Exterior underground in conduit extending to point of termination indoors in conduit: Belden 1523A or CommScope 5913, surge protect at entrance to building.
- Exterior underground in conduit extending to indoors in cable tray: (non-plenum environment): Belden 1523A or CommScope 5913, surge protect at entrance to building and convert to Belden 1525A or CommScope 5914.
- Exterior aboveground in conduit: Belden 1525A or CommScope 5914, surge protect at entrance to building.
- Indoors in conduit or cable tray: Belden 1525A or CommScope 5914.

In the CER, CCs and CPs bring outlet cabling directly to the ITV backboard or into a NEMA 1 junction box (provide painted NEMA 4 enclosure in finished spaces). Terminate on Blonder Tongue XRS splitters as required with Toner F-11 ALM 'F' connectors.

All distribution amplifiers shall be BlonderTongue BIDA-86A-30P series to allow for two-way ITV distribution (reverse sub-band channel).

At the Headend Equipment terminate backbone cabling with Toner F-11 ALM 'F' connectors.

6.4 GENERAL CABLING REQUIREMENTS:

- Provide wire management equal to Panduit slotted wireway on backboards or in exposed cable ladder runway to organize and protect all cabling.
- Provide slack at each end of each cable to allow for a minimum of five future re-terminations without rerouting or replacing cable.

7.0 SAFETY - refer to Section 17000

8.0 CONTRACTOR QUALIFICATIONS

The ITV System Contractor shall be an experienced firm regularly engaged in the layout and installation of ITV systems of similar size and complexity as required for this installation. The contractor, under the same company name, shall have successfully completed the installation, testing, and warranty of systems of the scope of the largest

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system on this project at least two years prior to the bid date, and have been regularly engaged in the business of ITV systems contracting continuously since. The contractor shall have a permanent office located within 75 miles of the job site.

- 8.1 The ITV System Contractor shall assign a project manager to oversee the installation of the ITV System for this project. The ITV System project manager shall be certified by the manufacturer in the installation and configuration of the ITV equipment furnished for the project. The ITV System project manager shall attend the pre-bid conference, all construction meetings, and all close-out and training meetings.
- 8.2 The ITV System project manager shall periodically visit the site and inspect the work in progress. ITV System project manager site visits shall be made not less than twice per month when the job is in active progress. The ITV System project manager shall prepare a field report for each site visit for submission to the Engineer.
- 8.3 The ITV System project manager shall sign off on all cable and system test results.
- 8.4 The ITV System project manager shall be present for and participate in not less than two hours of user training.
- 8.5 **BID REQUIREMENTS**

Each bidder shall provide the name and qualifications of the ITV System Contractor he proposes to use as a subcontractor for work under this section. The ITV System Contractor shall provide the following documentation, to be presented with the bid, as evidence that the requirements for ITV System Contractor qualifications listed above are satisfied.

- 8.5.1 A list of not less than five (5) references for jobs of similar size and complexity.
- 8.5.2 ITV System project manager name and certificate of manufacturer certification.
- 8.5.3 Location of office from which installation and warranty work will be performed.

END OF SECTION 17100

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**17125/CAMERA SURVEILLANCE SYSTEMS**

Revised 11/08/04
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1.0 INTRODUCTION

All surveillance system (CCTV) design work for any facility owned and operated The School District of Escambia County shall be done in accordance with the most recent School Board approved revision of these standards.

This section is intended to provide the A/E guidance in the design of infrastructure and related equipment for camera surveillance systems (CCTV)

1.1 DESIGN REQUIREMENTS

1.1.1 The surveillance systems system shall be a fully digital CCTV system (no VCRs) with high-resolution color cameras using either twisted pair, coaxial, or fiber optic cable infrastructure.

1.1.2 The system shall be designed alongside the structured cabling system infrastructure and shall utilize the same communications closets and backbone conduits for distribution.

1.1.3 All exposed cabling shall be installed in conduit. No camera cables shall be run exposed on any interior or exterior of any building.

1.1.4 The end result from the contractor shall be a complete and warranted system ready for operation. The installation shall include all accessories and appurtenances required to provide a complete and fully operational system. Any materials not specifically mentioned in these specifications, but required for a finished installation shall be furnished and installed at no additional cost to the Owner.

2.0 HEADEND AND CAMERA EQUIPMENT

2.1 The proposed CCTV system shall be a complete and functional digital video surveillance system. The system shall include all required cameras, lenses, cabling, conduit, power supplies, camera enclosures, support brackets, computer servers, control enclosures, surge protection, and all other device, equipment, and appurtenances not specifically listed herein.

2.2 The system shall be capable of simultaneous monitoring, recording, and playback of video and shall be capable of viewing multiple cameras from a central location or remotely via LAN, ISDN, POTS, or the internet.

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- 2.3 The system shall be capable of recording over the oldest recorded images in the case of no events requiring playback. This shall be done on a first in, first out basis (FIFO). Archiving shall not affect viewing, recording, and playback capabilities.
- 2.4 If multiple platforms or systems are required due to the number of cameras in the system, each individual system shall have the complete capabilities of the other. Each system shall be capable of viewing archived images of the other.
  - 2.4.1 The system shall be compatible with standard color and B&W video cameras (NTSC) without video synchronization.
- 2.5 The system shall be capable of user selectable multicamera displays in any position of 1x1, 2x2, and 3x3 formats. Full-screen views shall be capable by removing on-screen control.
- 2.6 The system shall be provided equipped to digitally store a minimum of 96 hours of full video of the entire camera system. A minimum of 1 frame per second per camera is permissible. The size and quality of the recorded image shall be set to the highest possible setting for the system for obtaining this recording time.
- 2.7 The system must be capable of recording recorded events to a Video CD. The viewing software, capable of playing the recorded event shall be included on the CD.
- 2.8 The system shall be fully and seamlessly integrated for pan/tilt/zoom camera control of third party PTZ receivers, lenses, cameras, and PTZ enclosures and domes. The system shall allow for up to 16 presets per PTZ camera on the system. The system shall be capable of automatically touring through PTZ camera presets at regular intervals (or continuously).
- 2.9 The system shall be capable of connection to external, standalone, video matrix switches and monitors.
- 2.10 The system shall allow for multiple access levels, allowing for different administrative and operation control capability.
- 2.11 All set-up and system programming to suit the owner's requirements shall be included. System shall include anti-virus software in accordance with current district policies.

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**17125/CAMERA SURVEILLANCE SYSTEMS**

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Anti-virus software must be installed, configured and current before the system can be connected to the district network. Owner shall be provided with complete administrative access to system. Coordinate with school technology coordinator as appointed by principal.

**3.0 CABLING INFRASTRUCTURE**

- 3.1 The facilities existing cabling infrastructure shall be used whenever possible.
- 3.2 The camera shall be connected via twisted pair, coax, or fiber. The systems shall be designed so that adequate spare cables remain on existing cabling systems.
- 3.3 Lightning protection shall be provided on any exterior cabling.
- 3.4 The system shall be designed alongside the structured cabling system infrastructure and shall utilize the same communications closets and backbone conduits for distribution.
- 3.5 All exposed cable cabling shall be installed in conduit. No camera cables shall be run exposed on any interior or exterior of any building.

**4.0 LAYOUT**

- 4.1 Coordinate the layout of cameras and placement of the headend with district personnel. Coordinate site specific requirements with a school technology coordinator assigned by the Principal. Coordinate throughout the design process.
- 4.2 Based on budget and need, each school will have different coverage requirements. Coordinate with school district personnel for budgeting and design systems as allowable.

**6.0 CONTRACTOR'S RESPONSIBILITY**

- 6.1 The contractor shall deliver, install, program, test, start-up, checkout and otherwise provide a fully operational and warranted system in accordance with the A/E design.

**7.0 TRAINING**

- 7.1 The contractor shall provide a minimum of four hours training for the system. Additionally, the contractor shall be available for periodic additional training as required

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to keep personnel up to date on the use of the system.

END OF SECTION 17150

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**17150/METROPOLITAN AREA NETWORK WIRELESS  
COMMUNICATIONS SYSTEM**

<b>Revised 11/08/04</b>
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1.0 INTRODUCTION

The School District has standardized on a wireless equipment line for connecting each facility into its Wide Area Network.

The wireless connectivity shall provide a minimum of 33 Mbps (full duplex) transmission rates.

This section is intended to provide the A/E with guidance in the placement of antenna towers and in specification of the wireless equipment. Design for the following must be included for this system:

- Concrete monopole structural engineering
- Soil analysis
- Wireless Path calculation
- Power and network cabling infrastructure.

2.0 DESIGN REQUIREMENTS

Each site shall best case performance as determined by path analysis to far end of wireless link. Outdoor unit shall be installed at the proper height onto a permanent structure with a minimum wind rating of 140 mph for areas south of Interstate 10 and 135 mph for areas north of the interstate.

- 2.1 In many cases this will entail each site having one 100' (above ground level) concrete monopole structure with wireless gear. Connectivity for the wireless gear shall be extended from the facility to the pole. Actual height will be site specific and depend on physical terrain and wireless path to far end.
- 2.2 The wireless equipment shall be manufactured by Orthogon Systems and equipment shall be the OS-Gemini I Wireless Ethernet Bridge with 5825 or higher version software.

3.0 INSTALLATION REQUIREMENTS

- 3.1 Concrete monopole shall be installed either by the contractor or by a subcontractor who is experienced and equipped in the installation of such equipment.
- 3.2 The wireless gear shall be installed in accordance with the manufacturer's

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recommendations.

- 3.3 Installation of any antenna cabling or wireless equipment on the tower shall be installed by the contractor or by a subcontractor who is experienced and equipped in the installation of such equipment.
- 3.4 Contractor shall install outdoor unit (ODU) at height on pole as required by the path analysis to far end of wireless link.
- 3.5 Indoor unit (IDU) shall be housed either inside the facility or in a vented, weather tight enclosure with fiber optic interface to building's network. Installation inside the facility is strongly preferred.
- 3.6 Contractor shall aim devices (at each end, simultaneously) in order to provide a perfect link. Contractor shall fine-tune aim as required to suit owner.
- 3.7 Contractor shall provide and properly install all lightning protection devices as recommended and required by the manufacturer.

END OF SECTION 17150