LACCD INFORMATION TECHNOLOGY STANDARD	Orig. Date: **3.1.09**	Control No.: **ITSTD-2009-03-SCS**
Title: **IT Structured Cabling Systems Design Standard**	Rev. Date: **9.29.10**	Rev. No.: **R1**
Technical Team: **CFM Group**	Approval: **DTC**	Page **1** of **21**

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I. INSTRUCTIONS

Please check latest revision of these standards at time of implementation.

This template is intended to be used for all forward-looking technology standards Districtwide.

The Communications Cabling Contractor (Contractor) must be prequalified by LACCD (see Structured Cabling Contractors RFQ list) to furnish Structured Cabling services and provide manufacturers 20+ year system warranty for the cabling system to be installed. Qualified contractors shall furnish and install all materials, including incidentals, necessary to perform The Work. The criteria contained in this document are subject to change, revision and updating as warranted by advances in building construction techniques and communications technology.

This document serves as a standard and is not intended to be the specific bid document, rather a guideline for installation practices. Contractor shall utilize this document in combination with industry best practices, campus specifications and project drawings to identify project requirements.

II. PURPOSE

The District provides education programs to the community that meet the changing needs of students for academic and occupational preparation. Providing robust, sustainable technology systems at each of the nine colleges enhances these educational programs. This IT standard is meant to provide guidance in designing, building, and renovating these IT systems.
Specifically, the purpose of this standard is to identify the performance and design characteristics of Structured Cabling Systems throughout LACCD.

This Standard provides minimums and guidelines for the design, installation, testing and documentation of Structured Cabling Systems designated for network, telephony and digital media at all LACCD Campuses and select facilities. It ensures a secure, consistent, robust facility with physical, electrical, communication environments for all server, computer, network, and telephony equipment used at LACCD.
Each environment will have unique specification based on the size, local codes, regulations and function of the facility. Building Distribution Facilities and Intermediate Distribution Facilities (BDF's and IDF's) have specifications for physical, electrical, communications and temperature environments defined in this document and campus specifications.

LACCD requires meeting or exceeding the performance levels defined herein for Structured Cabling Systems deployed within any of the nine colleges, District Office and satellite locations (Districtwide).

III. SCOPE

This standard applies to all LACCD full time, part time, temporary, consulting, architectural, engineering and contract staff.

IV. STANDARDS

Key Terms

- ***Must*** *means that the item or course of action is absolutely required.*
- ***Shall*** *means that the District intends that the supplier or consultant adhere to the instruction or command.*
- ***Will*** *means that the existing District systems or conditions require the item or course of action.*
- ***Optional*** *means that the consultant/vendor may choose to include or omit a particular item according to its preference. However, the item chosen must still interoperate or function with the District's existing systems.*
- ***Minimum of*** *means that the stated item or course of action meets the standard but may be superseded.*

1. Section 1: SCS GENERAL REQUIREMENTS

The preferred structured cabling system will be based on the following design guidelines:

1.1 The cabling system will be standards compliant (EIA/TIA 568B)
1.2 The cabling system will provide a high level of flexibility, capability and resilience
1.3 The cabling system shall include high performance copper (UTP, STP, FTP) and optical fiber (MM and SM) cabling where appropriate and as defined by LACCD location
1.4 Communications outlets will be provided throughout the facility as approved by IT or its representatives. Each outlet will support voice, data and digital media connectivity.

All testing documentation will be required in an Owner specified format to be provided no later than two weeks of project completion.

Contractor shall furnish preliminary as-built drawings immediately after cable rough-in. These preliminary drawings may be Hand written. These drawings will be used by Owner to establish move circuit schedules.

2. Section 2: MAIN / INTERMEDIATE DISTRIBUTION FACILITIES (MDF/IDF) – EQUIPMENT RACKS

The preferred structured cabling system will be based on the following design guidelines:

2.1 19" Relay Racks For MDF/IDFs

Contractor shall furnish and install the required quantity of Client defined universal 8-foot by 19" relay racks with a 3" wide channel. The racks must be drilled and double-sided with twelve to twenty-four tapped holes for equipment/panel mounting in each MDF/IDF. Contractor shall construct the racks using #6061-T6 aluminum alloy with a black finish. Contractor shall furnish and install all requirements to mount the racks to the concrete floor with wedge anchor bolts, or equal, and shall securely anchor all holes and fasten to the overhead cable runway to maintain proper stability.

2.2 Cable Management Components for Free-Standing MDF/IDF Relay Racks

Contractor shall furnish and install 7-foot sections of Double Vertical Rack Cabling Section along both sides of each relay rack. Contractor shall drill holes on the sides of the wiring duct and attach it to each relay rack utilizing pop rivets.

2.3 MDF/IDF Cable Runway

Contractor shall furnish and install all necessary black finish components to properly place, in accordance with manufacturer's specifications, cable runway systems, including, but not limited to, horizontal sections of 12-inch cable runway which shall be located at eight feet above the finished floor, on all wall surfaces in each MDF/IDF, providing a continuous perimeter pathway. 12-inch sections shall connect the 19-inch relay racks in the MDF/IDF to both sides of the perimeter cable runway, trisecting the room. Vertical sections of 12-inch, 18-inch and 24-inch cable runway, width as required, shall be installed where buried or riser conduits enter or exit a MDF/IDF. Contractor shall furnish and install Cable Runway Radius Drops as required at all locations where cables transition from the cable runway to the wall or racks.

Contractor will furnish and install Vertical Rack Cabling Sections between and at the end of each floor mounted rack. Contractor shall furnish and install the required number of horizontal cable management as depicted in the project drawings.

3. Section 3: PATCH PANEL HARDWARE

Contractor shall furnish and install manufacturer's RJ-45 patch panels at the rack location within the MDF/IDF. These systems shall include, but not be limited to the manufacturer's supplied designation strips on the appropriate labeling slot as required. Contractor shall furnish and install manufacturer's cable management components as required between all patch panel termination hardware and on each end of the patch panel layout in each MDF/IDF.

4. Section 4: STATION CABLING PLACEMENT

Contractor shall place all station cable runs in the existing overhead cable tray and/or conduit system as detailed below. For locations listed below, Contractor shall route station cabling from the overhead cable tray to each outlet via existing dedicated 1-inch conduit stubs. For modular furniture locations, Contractor shall route station cabling from the overhead cable trays to the furniture power poles or from floor fed poke through systems. Contractor shall furnish and install ceiling wire hangers every four feet or less, as specified by the NEC or other applicable codes, for cabling support wherever the cables are not supported by conduit or cable tray. In no event shall any station cable run exceed **80 meters**. In no event shall Contractor splice station cable at any point.

4.1 Standard Wall Mounted Outlets

Contractor shall furnish and install four (4) manufacturer's plenum cables, labeled consecutively, to all designated standard wall outlets. Contractor will terminate cables in the MDF/IDF on Contractor furnished and installed patch panels. Contractor shall furnish and install all requirements to label each cable at both ends and to terminate such cables at the information outlets on manufacturer's single-gang four-plex outlets. Contractor shall follow EIA/TIA 568B and manufacturer's termination specifications to ensure twist and jacket integrity.

4.2 Wall Phone

Contractor shall furnish and install one manufacturer's 4-pair cable from the MDF/IDF to each wall mounted phone location, complete with termination using the manufacturer's patch panels.

4.3 Floor Box/Poke Through

In areas that require communications outlets in the floor, the typical floor-box and poke through shall be used. Contractor shall furnish and install four manufacturer's 4-pair cable from the MDF/IDF to each floor box/poke through location, complete with termination.

4.4 Audiovisual Communications Outlets

At instruction or presentation locations, provide communications outlets dedicated to the audiovisual presentation system. Contractor shall furnish and install four manufacturer's 4-pair cables from the MDF/IDF to each instruction or presentation location, complete with termination.

4.5 Ceiling Mounted Outlets

At the video projection locations ceiling mounted outlets will consist of four manufacturer's 4-pair cables. Contractor shall furnish and install four manufacturer's 4-pair cables from the MDF/IDF to each ceiling mounted location, complete with termination. This supports two cables for the video projector equipment and two cables for the wireless access point (see below).

4.6 Wireless Access Points

Communication outlets supporting wireless access points will be co-located at the projector locations in all classrooms. The co-located wireless access points will use two of the four cables provided at that location. In other areas, wall mounted 1-foot above the accessible ceiling or 1-foot below an inaccessible ceiling. The outlets supporting the wireless access points will consist of two manufacturer's 4-pair cables complete with termination.

4.7 Elevator Phones

Contractor shall furnish and install one manufacturer's 4-pair cable from the elevator location to the closest MDF/IDF, complete with termination using the manufacturer's patch panels. The only termination Contractor shall make on this cable is in the MDF/IDF.

4.8 Fire Alarm

Contractor shall furnish and install one manufacturer's 4-pair cable from the Fire Alarm FACP panel to the closest MDF/IDF, complete with termination using the manufacturer's

patch panels. The only termination Contractor shall make on this cable is in the MDF/IDF.

4.9 Gas and Electrical Meters

Contractor shall furnish and install one manufacturer's 4-pair cable from the gas and electric meters to the closest MDF/IDF, complete with termination using the manufacturer's patch panels. The only termination Contractor shall make on this cable is in the MDF/IDF.

4.10 Building Management Systems (BMS)

Contractor shall furnish and install four (4) manufacturer's 4-pair cables, labeled consecutively, and dedicated for BMS applications to all designated Information Outlets. Contractor will terminate cables in the MDF/IDF on Contractor furnished and installed patch panels. Contractor shall furnish and install all requirements to label each cable at both ends and to terminate such cables at the information outlets on manufacturer's single-gang four-plex outlets. Contractor shall follow EIA/TIA 568B and manufacturer's termination specifications to ensure twist and jacket integrity.

5. Section 5: STATION CABLING TERMINATIONS

Contractor shall route all 4-pair cable inside the MDF/IDF onto the cable runway system. Contractor shall make all directional changes with this cable with a gradual sweep to maintain proper bend radius. Contractor shall uniformly bundle all cables and shall secure such cables every nine (9) inches, utilizing black Velcro cable ties. Contractor shall furnish and install all requirements for cable dressing.

Contractor shall terminate these cables on manufacturer's Patch Panel hardware. Contractor shall terminate the cables at the panels in increasing numerical order from upper left to bottom right following EIA/TIA 568 and manufacturer's termination specifications to ensure twist and jacket integrity.

5.1 Standard Wall Outlet Terminations

Contractor shall furnish and install one (1) manufacturer's four-plex Information Outlet and all termination components for each Information Outlet location. Contractor shall follow EIA/TIA 568B and manufacturer's termination specifications to ensure twist and jacket integrity.

Contractor shall separate the four cables and install them in the Information Outlet as follow:

Faceplate	Cable No.	Manufacturer's No.
Top Left	1	#1 (Color TBD by IT)
Top Right	2	#2 (Color TBD by IT)
Bottom Left	3	#3 (Color TBD by IT)
Bottom Right	4	#4 (Color TBD by IT)

Note: Please refer to campus specifications to determine manufacturer's part numbers for different parts to be used in hard-wall offices versus modular furniture offices.

5.1 Hard Wall Office Terminations

Contractor shall mount the termination outlets to the single gang ring at each hard all termination location.

5.2 Modular Furniture Office Terminations

Contractor shall furnish and install manufacturer's Variable Furniture Faceplate and required connectors and panel components, above the modular furniture (Belt Line) work surface. Contractor shall route the cabling in modular channels integrated in the furniture.

5.3 Wall Phone Terminations

Contractor shall terminate all cabling to the wall mounted phone locations with stainless steel 8-position wall-mount phone outlet.

6. Section 6: STATION CABLING MDF/IDF TERMINATIONS

Contractor shall furnish and install hardware for all voice/data cable terminations in the MDF/IDF.

6.1 Voice/Data Cabling Terminations

Contractor shall route all 4-pair cable inside the MDF/IDF onto the cable runway system. Contractor shall make all directional changes with this cable with a gradual sweep to maintain proper bend radius. Contractor shall uniformly bundle all cables and shall

secure such cables every nine (9) inches, utilizing black Velcro cable ties. Contractor shall furnish and install all requirements for cable dressing.

Contractor shall terminate these cables on manufacturer's Patch Panel hardware. Contractor shall terminate the cables at the panels in increasing numerical order from upper left to bottom right following EIA/TIA 568 and manufacturer's termination specifications to ensure twist and jacket integrity.

7. Section 7: COPPER FEED CABLE PLACEMENT AND TERMINATION

7.1 Cable Plant Labeling

Contractor shall label splice cases to match the existing labels, using letters with machine-produced black typeface on an orange background. Contractor shall identify all binder groups utilizing color coded zip ties. Contractor shall furnish and install stamped metal band labels on all feed cables indicating cable size, gauge and plant pair counts.

7.2 Outside Plant (OSP) Cable Placement

IT must approve Contractor's voice feeder cable design prior to installation.

7.3 OSP Cable Splicing Detail

Contractor shall furnish and install splice modules for all inside and/or outside splices. Contractor shall secure all cables in the splice case and end plates in accordance with manufacturer's specifications, ensuring a watertight seal. Contractor shall exercise special care when assembling the case as the splice enclosure must not be flooded with encapsulant. Contractor shall pressure test each case for leaks at 15 psi, ensuring a watertight seal.

Contractor shall bond the cable's metallic sheath/shield to the metallic splice case with the bonding bar assembly provided with the splice case. Contractor shall connect the splice case to the manhole/building grounding grid using a #6 AWG solid copper wire or bonding tape.

Contractor shall furnish and install all materials and appropriate size splice cases necessary to complete the work.

7.4 Inside Copper Feed Cable Installation/Splicing and Termination

Contractor shall furnish and install all requirements to route and terminate the copper feed cables inside the Entrance Facility (EF) or MDF/IDF using termination hardware in accordance with manufacturer's requirements. All directional changes with these cables shall be made with gradual sweeps to maintain proper bend radius. All such cables shall be uniformly bundled and secured every 9 inches, utilizing black Velcro cable ties. Contractor shall bundle voice feed cables independent of other cables. Contractor shall furnish and install all necessary materials for cable dressing.

Note: Straight splices may be required within a MDF/IDF based on the feeder cable design.

7.5 Lightning Protection

Where applicable, Contractor shall furnish and install the appropriate amount of manufacturer's Multipair Protector Panels. Contractor shall furnish and install Protector Panels with the 110 Connector System and all related components. Contractor shall install all equipment in accordance with manufacturer's specifications. Contractor shall route and terminate the copper feed cables inside the MDF/IDF in accordance with manufacturer's requirements.

All directional changes with these cables shall be made with gradual sweeps to maintain proper bend radius. All such cables shall be uniformly bundled and secured every 9 inches, utilizing black Velcro cable ties. Contractor shall bundle voice feed cables independent of other cables. Contractor shall furnish and install all necessary materials for cable dressing.

7.6 Cable Termination Labeling

Contractor shall label the cross connect blocks using the appropriate manufacturer's labels. The labels shall be designated every four and/or five pairs as determined by IT. The label designations shall be printed with machine-produced type. Handwritten designations are not acceptable.

7.7 Conduit Sealing

Contractor shall furnish and install all requirements to effectively seal all utilized conduits with an approved conduit sealing kit after splicing, testing and acceptance.

7.8 ISP Copper Riser Cable

Contractor shall furnish and install riser cables and terminate cables on Contractor furnished and installed termination blocks. Pair count requirements per MDF/IDF will be determined on a case-by-case basis. IT must approve Contractor's riser cable design prior to installation.

8. Section 8: FIBER OPTIC CABLE

8.1 Installation Parameters

Contractor shall furnish and install all requirements to place the fiber optic cable in the innerduct segments described below. Contractor shall furnish and install aluminum threaded couplings at every point where a ribbed fiber optic innerduct meets a slit corrugated fiber optic innerduct. Contractor shall install the coupler on each respective end of the ribbed fiber optic innerduct prior to placing any section of fiber optic cable. Contractor shall not exceed 90% of the manufacturer's installation tensile load. Contractor shall use an electronic control module with LCD readout to monitor the pulling force when using a mechanical puller. Contractor shall coordinate this installation with IT to monitor this process.

8.2 Installation of Fiber Innerduct

Contractor shall furnish and install four ribbed fiber optic innerducts, with a 1/4-inch poly pull rope, in each 4" conduit designated for fiber optic cable.

Labeling: Contractor shall label both ends of each fiber optic innerduct using machine-produced labels with black typeface on yellow background, a minimum of 2 inches wide.

Note: Equivalent methods for protecting fiber cable may be used.

8.3 OSP Backbone Cable Installation

Contractor shall reuse existing splice cases and furnish and install end plates and sealant when possible. Contractor shall leave a 50-foot section coiled in the designated manhole servicing the building, and a 30-foot section coiled at the building splice or pass-through locations.

8.4 ISP Fiber Riser Cable

Contractor shall furnish and install plenum rated fiber optic cables as required to interconnect all MDF/IDFs. Contractor shall furnish and install termination shelves as required for fiber optic riser cable termination, and furnish and install "SC" connectors as required for each cable termination.

8.5 Fiber Termination

Contractor shall furnish and install all requirements to route the fiber cables to the entrance point on the fiber distribution frames.

8.6 Install Fiber Optic Slit Innerduct

Contractor shall furnish and install 1-inch slit corrugated fiber optic innerduct over all exposed sections of Riser and Tie fiber cables in all pull boxes, mechanical areas, and MDF/IDFs. Contractor shall furnish and install aluminum threaded couplers to join the ribbed fiber optic innerduct with the slit corrugated innerduct. At the fiber distribution frames, Contractor shall secure the slit corrugated innerduct to the frame by placing a 6-inch section of slit corrugated innerduct inside the frame at the entrance and exit points of the frame.

8.7 Labeling

Contractor shall label each individual 900 micron buffered fiber 3-inches from the connector with a polyester film marker tape as a "flag", designated in numerical sequence.

Contractor shall furnish and install a 1-1-inch by 3-1/2-inch fiber optic caution tag every four feet on the slit innerduct.

Contractor shall furnish and install self-laminating type labels to the unitized spur cable's overall jacket, six inches from the fiber storage panel strain relief, with the MDF/IDF number and fiber number in numerical sequence.

Contractor shall label the front of each fiber termination shelf with the labels furnished with such shelf, using Owner's approved scheme.

Handwritten labels are not acceptable.

8.8 Fiber Optic Innerduct Plugging

After all the fiber optic cables have been placed, terminated, tested and accepted, Contractor shall plug and seal all fiber optic innerducts, slit-corrugated and ribbed, in the MDF/IDFs, according to the following description:

Empty Innerducts: Contractor shall plug all empty fiber optic innerducts with a slit innerduct rubber plug with a 9/16-inch hole. Contractor shall extend the existing pull ropes through the 9/16-inch hole and secure the pull rope so that it cannot be accidentally pulled out of the innerduct.

Filled Innerducts: Contractor shall fill all innerducts that house fiber optic cables with conduit sealer according to the manufacturer's directions.

Conduits: Contractor shall plug conduits containing innerducts with duct plugs. Contractor shall also plug all unused conduits with duct plugs as appropriate.

9. Section 9: TESTING REQUIREMENTS - TWISTED PAIR CABLE

Contractor shall perform tests on all 4-pair Category 6 cables designated for data communications to ensure full Category 6 transmission reliability and quality. Contractor shall utilize a WaveTek, Fluke or equivalent device for all testing of cables. Contractor shall furnish and utilize a Category 6 patch cable to insure proper certification.

All terminations shall be tested end to end by Contractor, using modular-type testing equipment and methods appropriate to standards set forth by TSB-67 and as specified by manufacturer’s installation criteria. In no event shall Contractor test by tone. Contractor shall perform a test on every cable for wire map, length, attenuation and Near end Cross Talk (NEXT) utilizing an approved cable scanner per TSB-67 specifications.

Contractor shall be required to furnish Owner with fifty random test result deliverables utilizing cable scanner software, computer generated and bound for review. Contractor shall furnish complete test results on disc in Owner specified format. Contractor shall provide two (2) copies of the disc test results to Owner as defined in project specific contract.

10. Section 10: TESTING REQUIREMENTS - OSP COPPER CABLE

All terminations shall be tested end to end by Contractor, using 25-pair shoe-type testing equipment and methods appropriate to standards of the cabling installation for the applicable medium. OSP end-to-end means: 1) testing of all plant pairs from the manhole to the main MDF/IDF within the building; 2) testing of the riser pairs from the main MDF/IDF to all MDF/IDFs within the building and to the Data Center (if a Data Center is installed within the building).

In no event shall Contractor test by tone. Contractor shall perform tests to show shorts, opens, reversals, crossed pairs, transposed pairs and transposed groups. Additionally, each end-to-end run shall be measured with a Time Domain Reflectometer (TDR) to provide detailed length information.

11. Section 11: TESTING REQUIREMENTS - FIBER OPTIC CABLE

The following tests apply to all fiber cables except station cables.

11.1 Test Result Forms

Contractor shall furnish Owner with a documentation binder and electronic disks of all test results from OTDR and power meter test equipment. Electronic copies of test results must be presented in an IT approved readable format (runtime software application included if necessary). The content requirements for these forms are described in the following sections.

11.2 OTDR Test Results

Contractor shall furnish on disc with application software, electronic strip charts and/or tracer recordings on each and every fiber strand in each and every cable in one direction for both Multimode and Singlemode fiber with the following information:

- Date of test
- Name of test personnel
- Test wavelength
- Pulse duration(s) and scale range(s)
- Index of refraction
- Fiber cable type and part number
- Fiber tube and/or fiber strand number

- Direction of test
- Overall distance in meters
- Attenuation in dB or dBm

11.3 Power Meter Test Results

Contractor shall furnish attenuation assessments on each and every fiber in each and every cable, which may be tested in one direction with the following information:

- Date of test
- Name of test personnel
- Fiber cable type and part number
- Fiber number
- TX wavelength
- TX location
- RX location
- TX model and serial number
- RX model and serial number
- Attenuation dB or dBm

12. Section 12: FINAL ACCEPTANCE TESTS

Additional testing may be required on a case-by-case basis.

Owner representatives must be notified before all acceptance testing and may require Owner presence during such testing.

13. Section 13: LABELING REQUIREMENTS - TWISTED PAIR CABLE

13.1 Station Cable Labeling

Immediately following award of the Contract and prior to commencement of any other Work, Contractor shall number and label all station locations and furnish one copy of station location/identification prints to Owner.

Contractor is required to label all station cable within six inches of the termination ends using type self-laminating cable markers. At the wall plate, Contractor shall also furnish and install appropriate labels. All labels shall be typed, not handwritten, using the scheme specified by the individual campus.

13.2 Patch Panel Hardware Labeling

Contractor shall utilize the blank designation inserts which accompany the manufacturer's Patch Panel hardware to label the hardware. Contractor shall remove the inserts and input Owner's labeling scheme. All information shall be laser printed, not handwritten, as specified by the individual campus.

13.3 Fiber Panel Hardware Labeling

Contractor shall utilize standard manufacturer's designation labels. Contractor shall input the Owner furnished labeling scheme and attach these labels to the appropriate connector panel. All information shall be typed, not handwritten as specified by the individual campus.

14. Section 14: DRAWINGS

Contractor shall maintain at the jobsite up-to-date copies of all drawings, specifications and other documents and supplementary data, complete with latest revisions thereto. In addition, Contractor shall maintain a continuous record of all field changes, shall incorporate all such changes on the "as-built" drawings and other engineering data at the conclusion of the Work, and shall submit the required number of copies thereof to Owner.

Contractor shall submit two (2) E-size copies and one (1) electronic copy of all interior and exterior as-built documentation within two weeks of project completion. The electronic copy shall be in the format specified by the individual campus. Hand written drawings are unacceptable.

V. WARRANTY

- Minimum 3-year on parts, labor and on-site support
- Minimum 20 year on all cabling components

VI. SUPPORT

Provide a full range of support services including:

- Installation and Start-up
- Extended coverage hours and enhanced response times
- Availability and recovery services

VII. RELATED STANDARDS

In addition to the standards set forth above in Section IV "Standards," the following standards must also be compliant with:

- LACCD IT Infrastructure Standard

VIII. EXCEPTIONS OR WAIVER REQUIREMENTS

Process
Exceptions or waivers to this Standard must be approved by the District Technology Committee and documented using the following process:

A request for exception or waiver to any portion of the standards listed above shall be electronically delivered to the local College IT Leadership and Chief Information Officer. In order to be considered, the request must include the following information:

1. The specific standard number, revision, and title
2. Description of standard section being considered for exception or waiver
3. Reason for request
4. Name and contact information of the requesting party

Compliance
Failure to comply with the exception or waiver requirements and process may lead to the removal of non-compliant equipment and associated software at the expense of responsible parties.

IX. REQUESTS FOR CLARIFICATION

A request for clarification on any of the standards listed above may be emailed to the local IT Leadership or Chief Information Officer. In order to be considered, the request must include the following information:

1. The specific standard number, revision and title
2. Section(s) of the standard needing clarification
3. Name and contact information of the requesting party

X. REFERENCES

Industry or best practice standards, ISO, ANSI, NEMA, IEEE, BICSI

XI. GLOSSARY

The following terms are defined as follows:

1. **Need** means that the item or course of action is essential and it will be absolutely required at the time indicated in the standard. (e.g. A high level risk assessment **needs** to be performed…)
2. **Call for** means that the item or course of action is absolutely required.
3. **Are to be provided** means that the item or course of action must be supplied in order to meet the standard.
4. **May be required if** means that if the condition stated in the standard is met, the capability, performance expectation, or any other description in the standard is absolutely required.
5. **Recommended** means that the course of action is in accordance with (Insert Applicable Area such as Security) Best Practices and should be adopted.
6. **Not Recommended** means that a course of action is not consistent with (Insert Applicable Area) Best Practices and/or other laws, codes, or requirements and should not be adopted.
7. **May/Might/Can** mean "optional." The items specified using this language may be included or omitted depending upon the consultant/vendor's preferences. However, even if one particular item is optional, the item chosen must still interoperate or function with the District's existing systems.
8. **Preferred/encouraged** mean that one item or course of action is favored over other optional courses of action because of proven favorable outcomes.
9. **Acceptable** means that the item or course of action is only a minimum, and the consultant/vendor may supersede the quality or performance of that item or course of action.

XII. DOCUMENT HISTORY

REV NO.	OLD SECTION NO./ PARA	NEW SECTION NO./ PARA	DESCRIPTION OF CHANGE	DTC APPROVAL DATE
R0	-	-	First Release	3.1.2009
R1	All	All	Document Format and Revised Standard Cable types and installation practices	9.10.2010
	-	I, II, III, V-XII	Added sections	
	I - 3rd bullet	1.3	Added "(UTP, STP, FTP)" and "(MM and SM)"	
	I - 4th bullet	1.4	Added …throughout the facility "as approved by IT or its representatives."	
	I-A		Deleted section	
	-	2, 3	Added sections	
	I-B Table, All Rows	4	Deleted all specified “Category 6A communications cables” and “RJ45 connectors”	
	I-B Table, Row 3	4	Deleted item "Duplex or Quad Wall Mounted Outlet"	
	I-C		Deleted Table "Communication Outlet Population in Specific Room Types"	
	I-D	4	Revised sections "Backbone Cable (Inside Building)"	
	I-D	8.4	Replaced “SC” Connectors with “LC”	
	I-E		Deleted section "Link Cable (Between IDFs on the same floor)"	
	I-F		Deleted section "Backbone Cable (Campus Connection)"	
	-	4.7	Added section "Elevator Phones"	
	-	4.8	Added section "Fire Alarm"	
	-	4.9	Added section "Gas and Electrical Meters"	
	-	4.10	Added section "Building Management System (BMS)"	
	-	5	Added section "Station Cabling Terminations"	
	-	6	Added section "Station Cabling MDF/IDF Terminations"	
	-	7	Added section "Copper Placement and Terminations"	
	-	8	Added section "Fiber Optic Cable"	

REV NO.	OLD SECTION NO./ PARA	NEW SECTION NO./ PARA	DESCRIPTION OF CHANGE	DTC APPROVAL DATE
	-	9	Added section "Testing Requirements - Twisted Pair Cable"	
	-	10	Added section "Testing Requirements - OSP Copper Cable"	
	-	11	Added section "Testing Requirements - Fiber Optic Cable"	
	-	12	Added section "Final Acceptance Tests"	
	II	13	Revised entire section "Labeling"	
	-	14	Added section "Drawings"	