



LACCD
IT Design
Standards

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This document establishes a uniform standard for the design of IT Structured Cabling for LACCD. It ensures a secure, consistent, robust system with physical and low-voltage electrical environments for all network and telephony equipment deployed at LACCD. Each system will have unique specifications based on the size, local codes, regulations and function of the facility

IT Structured
Cabling Systems
Design
Standards
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DESIGN CRITERIA FOR COMMUNICATION CABLING

I. CABLING SYSTEM REQUIREMENTS

The communications-cabling system will be based on the following design guidelines:

- The cabling system will be standards compliant (EIA/TIA 568B)
- The cabling system will provide a high level of flexibility, capability and resilience.
- The cabling system shall include high performance copper and optical fiber cabling, as well as wireless systems where appropriate.
- Communications Outlets will be provided throughout the facility. Each outlet will support voice, data and digital media connectivity.

A. Cabling System Overview

The communications cabling system at LACCD is based on a flexible design that will allow any communications connector to be used for voice or data. All communications station cable is terminated on RJ45 connectors at the faceplate and RJ45 patch panels in the IDF Closets. The voice riser cable will be extended from 66 blocks in the BDF to each IDF with one pair terminated on each port of a voice riser patch panel. This system will support add, moves and changes by simply moving a patch cord.

B. Communications Outlet Configurations

All communications outlets will support a combination of voice, data and media applications. The jack position 1 (top right) on standard outlets will be utilized primarily for voice applications, therefore provide a white insert at this position to designate voice, blue for data and all others will be grey. For applications where there is no anticipated voice, provide all white inserts.

The table below describes the typical outlet configurations.

Standard Wall Mounted Outlet	Standard wall mounted outlets will be the typical outlet configuration throughout the buildings. Standard wall mounted outlets will consist of <u>four</u> Category 6 unshielded communications cables terminated on RJ45 connectors at the faceplate.
Wall Mounted Phone Outlet	Wall mounted phone outlets will consist of <u>one</u> Category 6 unshielded communications cables terminated on RJ45 connectors at the faceplate. The faceplate will be mounted 48” above the finished floor, unless directed otherwise by the Architect.
Duplex or Quad Wall Mounted Outlet	In classrooms and other spaces requiring only one data connection per user, a duplex or quad outlet will be provided as appropriate to the seating and equipment layouts. Duplex outlets will consist of <u>four</u> Category 6 unshielded communications cables and Quad outlets will consist of <u>four</u> Category 6 unshielded communications cables terminated on RJ45 connectors at the faceplate.
Floorbox / Poke-through	In areas that need communications outlets in the floor, the typical floorbox and poke through will consist of <u>four</u> Category 6 unshielded communications cables terminated on RJ45 connectors in the floor device.

Audiovisual Communications Outlets	At instruction or presentation locations, provide communications outlets dedicated to the audiovisual presentation system. If no audiovisual system exists, the AV communications outlet will still be provided at the instructor's location consisting of <u>four</u> Category 6 unshielded communications cables terminated on RJ45 connectors in the floor device.
Ceiling Mounted Outlet	At the video projection locations ceiling mounted outlets will consist of <u>Three</u> Category 6 unshielded communications cables terminated on RJ45 connectors at the faceplate mounted in the accessible ceiling tile or mounted on the surface as applicable. This supports (1) cable for the video projector and (2) cables for the wireless access point.
Wireless Access Point	Communication outlets support wireless access points will be co-located at the projector locations in all classrooms. The co-located wireless access points will use (2) of the three cables provided at that location. In other areas, wall mounted 1' above the accessible ceiling or 1' below an inaccessible ceiling. The outlets supporting the wireless access points will consist of <u>two</u> Category 6 unshielded communications cables terminated on RJ45 connectors at the faceplate.

C. Communications Outlet Population in Specific Room Types

Office Single Occupancy <80sf	(2) Standard Outlet (4 cables and connectors)
Office Single or Double Occupancy >80sf	(2) Standard Outlets located on two walls that are perpendicular to the door wall.
Division Dean's Office	(3) Standard Outlets located on three walls
Conference / Meeting Rooms	(2) Standard outlets located on long walls and (1) standard outlets on short walls. (1) Quad located in a floorbox under the conference room table or integrated into the conference room table.
Classrooms	(1) Duplex outlet on each of the three walls in the classroom (not including the front wall). (1) Standard outlet dedicated to AV next to the multi-media input panel. (1) Standard outlet mounted at the ceiling projector location for ceiling mounted projector and wireless access point.
Computer Labs	Same as above plus, Computer Labs – (1) Data drop per seat

D. Backbone Cable (Inside Building)

The Backbone cable will connect each IDF back to the BDF. Backbone connectivity will be supported by multi-pair copper cabling for voice and optical fiber cables for data.

- Multi-pair telephone riser cable will be run from 66 blocks in the BDF to rack mounted voice patch panels in the IDFs with (2) pair of riser cable terminated on RJ45 connectors.
- Optical fiber will be run from the BDF to each IDF consisting of (6) Singlemode and (6) high performance, 50 micron Multimode elements terminated on SC connectors rack mounted in optical fiber patch panels.
- Category 6 augmented cable will be run from the BDF to the IDFs located less than 290 feet away and shall consist of (12) Category 6 cables terminated on RJ45 connectors terminated in patch panels.

E. Link Cable (Between IDFs on the same floor)

The link cable will connect each multiple IDFs on a floor.

- Category 6 augmented cable will be run between IDFs located less than 290 feet away and shall consist of (6) Category 6 augmented cables terminated on RJ45 connectors terminated in patch panels.
- Optical fiber will be run from the between IDFs (6) high performance, 50 micron Multimode elements terminated on small form factor LC connectors rack mounted in optical fiber patch panels.

F. Backbone Cable (Campus Connection)

1. Optical Fiber
2. Copper Voice Cable

II. LABELING

Labeling shall be consistent across all projects.

A. BDF/IDF Rooms

All BDF and IFD rooms will be identified by room number

B. Equipment Racks

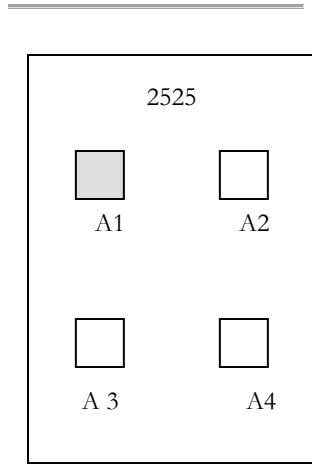
Equipment racks will be numbered sequentially starting from the first rack next to the wall

C. Workstation Outlets

Workstation outlets will be clearly labeled to identify the serving BDF or IDF (top of outlet only), patch panel letter (A, B, C, etc), and Jack ID. Jack ID's will correspond to patch panel ports 1 through 40, leaving the last 8 ports available to future growth. See example below:

XXXX BDF/IDF Room Number (TOP only)
A Patch Panel Letter
1, 2, 3, 4 Jack Numbers (1-40 used, 41-48 future growth)

Example:
BDF/IDF room **2525**, Patch Panel **A**,
Jack 1, 2, 3, 4



D. Patch Panels

All patch panels will be labeled alphabetically starting from at the top of the rack with letter A. See example below:

A Patch Panel
1through 40 Jack Number

B Patch Panel
1through 40 Jack Number

Panel Label: the 48 port patch panels will be terminated from *A1*, *A2*, *A3*, and so on until *A40*. Ports 41through 48 will be to be used as spares.