Design Standard
Data Communications

Purpose

This design standard has the purpose of creating consistent installation of data and telephone systems throughout the South San Francisco Unified School District thereby achieving a standard of aesthetic quality, maintenance and performance throughout all renovation and new building projects.

Design Standard

General

- The District intends to provide network services to all sites, accessing data from computers on site and at other sites. These networks and cable will be tied into all instructional areas at schools.
- Six data outlets for student computers in each classroom should be included.
- Libraries should include data outlets for computer data based catalogs, check-out area, staff work stations and student computer stations.
- Data system infrastructure will typically consist of fiber optic cabling between each building at a campus from the Main Distribution Frame (MDF) at each school. The MDF will typically be located at the same location as the incoming telephone and other main signal services. Each building will be provided with an Intermediate Distribution Frame (IDF) that is directly connected to the MDF with fiber optic cabling. Each IDF will include copper Cat-6 data cabling to each classroom and other room outlet jacks within each building to provide the connectivity for computers and e-mail.
- The contractor for each project shall include the installation and testing of all cabling systems, ready for use by the District as well as data equipment such as routers, servers, switches, hubs, and fiber transceivers. Test Reports to be submitted to District Technology Department.
- Air Conditioning to be provided at MDF rooms where required. Provide wired thermostat.
- Provide power and VGA cabling at classroom ceilings to teacher work stations for ceiling mounted projectors.

- Data communications design at each site to be reviewed by District Technology Department.

- Each classroom to have a phone and be linked to VOIP system. Phones to be "Cisco Call Manager" series. No substitutions on telephones.

- Contractor to provide phones and associated equipment.

Electrical Power Considerations

General upgrades of electrical service within a site may be a prerequisite to the following computer network requirements:

- All new power systems or system upgrades are to be checked for proper grounding and installed per grounding standards.

- Power conditioning is required for panel boards serving computers or other non-linear power supply loads. Transient Voltage Surge Suppression (TVSS) protection is required at the panels or at receptacles where computers are located; i.e.: in the administrative areas and computer labs.

- Provide one duplex outlet per data port at classrooms. Outlets to be located next to data outlets.

- IDF closet to be designed so that distance to any classroom does not exceed 300'. Provide 4'x 4' closet minimum. Provide patch panels with room for expansion for ease in routing signals.

Computer Network

- All data network cabling systems shall be fiber optic between the MDF and IDF closets and Cat-6 between IDF's and terminated ports or jacks in rooms throughout the school.

- Cable trays above ceiling in corridors with stub-outs in each classroom, office or other room to be served. Wiremold to be used only in retro-fit conditions.

- Perimeter wall data outlets are preferred. Floor-mounted outlets may be used as needed. Power poles are not allowed.

- Conduit run to instructional areas shall stub into each room in a consistent location.

- Low voltage wiring to be protected inside conduit within 12" stub walls and covered with a 12" 16 gauge metal access panel running the full width of the stub wall.

- Provide ceiling mounted data outlets for wireless computer network (WI-FI). Plan for 25 ceiling drops at each school.

- Each IDF closet to home-run back to MDF Room.

- Label all devices at both source and destination.

- Labeling convention as follows:
  - IDF Room- Room- Data Outlet Number
  - Example: I306- R203- 8

Substitutes Allowed?

- Yes, if performance and quality can be evidenced, unless noted above.

Associated Construction Specifications

- N/A

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