

San Diego Unified School District
DISTRICT STANDARD DESIGN GUIDE
TECHNOLOGY ELECTRICAL INFRASTRUCTURE

D8020 TECHNOLOGY ELECTRICAL INFRASTRUCTURE

1.1 Goals and Objectives

- A. The design of Technology Electrical System shall meet or exceed all requirements of latest edition of EIA/TIA standards and all other applicable rules and regulations, thereby guaranteeing safety and reliability at the specific school environment.
- B. The design of all low voltage and security systems shall be based on a useful life of 25 years. Where practical, provide for future growth at the school sites. While no one can accurately predict the future demands due to population growth or changes in technology, space and capacity shall be allotted for increasing the current designed load by 25 percent when new or upgraded facilities are being designed.
- C. Sustainability Standards: The Board of Education has adopted Guidelines for Sustainable Construction, requiring design professionals and staff to follow California's Collaborative for High Performance Schools (CHPS) standards and best practices for all future District building projects. These standards incorporate the latest green building practices to reduce operating costs, reduce environmental impact, and increase building life, while creating schools that are healthy, comfortable, well-lit and well-equipped. The District intends to incorporate sustainable site design, water conservation, energy efficiency, improving indoor air quality and incorporating sustainable materials and products into the bond projects, emphasizing long term life cycle cost analysis in its design process.

1.2 Related Design Guides and Specifications

*NOTE: Specifications highlighted in **YELLOW** in this document need to be updated by the architect, design team or consultant.*

- A. D5022 Exterior Lighting
- B. D8021 Structured Cabling Systems
- C. D8023 Wireless Local Area Network (WLAN) Systems
- D. D8024 Classroom Multi-media Technology Systems
- E. D8030 Fire Alarm and Voice Evacuation Systems
- F. D8040 General Requirements for Electronic Security Systems
- G. D8041 Intrusion Detection and Access Control Systems
- H. D8042 Video Surveillance and Control Systems
- I. D8062 Campus Wide Emergency Communications System (CWECS)
- J. D8064 Video Communication Systems

DISTRICT STANDARD DESIGN GUIDE
TECHNOLOGY ELECTRICAL INFRASTRUCTURE

- K. 260120 Operation and Maintenance of Low Voltage Electrical Distribution Rev. 8-1-11
- L. 260519 Low-Voltage Electrical Power Conductors and Cables Rev. 8-1-11
- M. 260526 Grounding and Bonding for Electrical Systems Rev. 8-1-11
- N. 281300 Access Control Rev. 8-1-11
- O. 283111 Digital Addressable Fire Alarm and Voice Evacuation System Rev. 5-15-12
- P. 281600 Intrusion Detection Rev. 8-1-11
- Q. 282300 Video Surveillance System Rev. 8-1-11.

1.3 Codes and Regulations

- A. 2013 California Electrical Code (CEC).
- B. EIA/TIA Standards.
- C. San Diego Gas and Electric Rule 16.
- D. California General Order 95, Standards for Underground Electrical installation.
- E. 2013 California Building Code (CBC), Title 24.

1.4 General

- A. Where practical, i21 classroom suite with related infrastructure and components shall be installed in all new construction and modernization projects.
- B. Refer to applicable Design Standards and Guide Specifications for project designs.

1.5 Commissioning of Technology Electrical Systems

- A. General:
 - 1. Commissioning of technology electrical systems shall encompass all low voltage electrical distribution, communication, audio/visual, fire alarm, security, etc. systems covered under Divisions 27 and 28 of the Specifications.
 - 2. Prior to commissioning of the systems listed above, all infrastructure shall be 100% complete, ready for testing and commissioning.
- B. Fire Alarm System:
 - 1. Testing and maintenance of all fire alarm wiring and components shall be performed by qualified and experienced fire alarm technicians, trained and certified for fire alarm systems, in accordance with manufacturer's instructions.
 - 2. See specifications section 283111 for exact requirements for pre-testing and testing of the fire alarm system.
- C. Security Systems:
 - 1. Security systems shall include Intrusion Detection, Video Surveillance,

DISTRICT STANDARD DESIGN GUIDE
TECHNOLOGY ELECTRICAL INFRASTRUCTURE

and Access Control systems.

2. Testing and maintenance of all security wiring and components shall be performed by qualified and experienced security technicians, trained and certified for security systems, in accordance with manufacturer's instructions.
3. See specification sections 281300, 281600 and 282300 for exact requirements for pre- testing and testing of the Intrusion Detection, Video Surveillance and Access Control systems.