Cupertino Electric (CEI) Overview

- **Services:** Engineering & construction
- **Founded:** 1954
- **Employees:** \( \approx 1,500 \) (field + office)
- **Revenue:** $570 million (2012)
- **Safety:** AGC "Safety Awards of Excellence" (2011 & 2012)
- **Customers:** Fortune 100 companies
- **Reach:** National
Outline

- Stadium
  - Primary Gear
  - Substations
  - Scoreboards
- Superbowl
  - Event
  - Solution

CUPERTINO ELECTRIC INC.
NEW SANTA CLARA STADIUM
(LEVI'S STADIUM)
Design Parameters

- Maximize Uptime
- Event Considerations
  - 8 Football
  - 12 Other Events
- Longevity
- Budget
Facts

- 300 Drawings
- 52 Miles Feeders
- 350 Miles Conduit
- 45 Miles PVC Underground
- 500 Miles Low Voltage Cable
- 1st ALL Exterior LED Stadium*
- 500 Power Panels (12,000 Breakers)
- 17,000 Luminaires
Just Numbers

- Connected = 27MVA
- Diversity = 45%
- Demand = 12MVA
- Single Point Failure when Tie Closed
Secondary Distribution
Sports Lighting

- Voltage Sag Tolerance 42%
- Power Loss Tolerance 1/4 cycle

(648)1500W Metal Halide  (24)2000W Hot Restrike
Two of a Kind
What Really Happened?

- Study by Palmer Engineering and Forensics
  - 13.8 kV S&C switch operated as designed but...
  - Improper LT settings

![Power](image1.png)  ![Sports Lights](image2.png)
Contractor’s Engineering Guide

Budget

Simple

Schedule
Low-Hanging Fruit

- Second Harmonic Restraint at Mains
  - Blackout Restart Inrush
  - 2 Layer 50 Relay
- VLF-Tested 12 kV Cables
Basic Load Shed

11.8 MVA

SUNBELT CONTROLS

VAV Air Handlers
1.7 MVA Connected
1.0 MVA Demanded

Manual Shed
300 kVA

Escalators
600 HP

Broadcast
300 kVA

10.5 MVA

Meter Images by Schneider Electric