Smart Buildings, Smart Cities, and the Smart Grid

- Renewable Energy
- Smart Cities Streetlighting
- Commercial & Residential Buildings
- Internet of Things
California Code of Regulations, 
Title 24 (Building Standards) 
Part 6 (Energy Code)

Slides courtesy of Gabe Taylor, CEC
Nonresidential Building

**NONRESIDENTIAL BUILDING** is any building which is identified in the California Building Code Table; Description of Occupancy as Group A, B, E, F, H, L, M, or S; and is a U; as defined by Part 2 of Title 24, Title 24 of the California Code or Regulation.

**NOTE:** Requirements for high-rise residential buildings and hotels/motels are included in the nonresidential sections of Part 6.

- “Nonresidential” includes:
  - High-rise residential
  - Hotels/motels
2019 Energy Code DR

- **Nonresidential**
  1. Thermostats
  2. Lighting
  3. EMC
  4. General

- **Multifamily**
  5. Solar Ready

- **Residential**
  6. Solar Ready
  7. Water Heaters
  8. HVAC
Nonresidential

- Single Zone
  - A/C & Heat Pumps
- Single Zone w/ DDC
  - Additional Shed Requirements
- Alterations
  - §120.2(b), 120.2(h) → 110.12(b), & 141(b)2E

REQUIRED
Nonresidential

- Lighting Controls
- Buildings >10,000 ft\(^2\)
- LPD > 0.5 W/ft\(^2\)
- §130.1(e) → 110.12(e)

REQUIRED
Nonresidential

- Electronic Message Centers (EMC)
- > 15 kW
- >30% Reduction
- §130.3(a)3 → 110.12(d)

REQUIRED
Nonresidential

- Demand Responsive Controls
- For Compliance or Credit
- §130.5(e) → 110.12

REQUIRED
Multifamily

- DR Thermostats +
  
  *Either:*
  - Additional EE, or
  - EV Chargers

- **0 ft²** of Solar Ready
  - Down from 250 ft²

- §110.10(b)1B

**REQUIRED**
Residential

- DR Thermostats
  - $150 \text{ ft}^2$ of Solar Ready
    - Down from $250 \text{ ft}^2$
    - DR Thermostats
    - + Additional EE
  - $0 \text{ ft}^2$ of Solar Ready
- §110.10(b)1A

REQUIRED
Residential

- Heat Pump Only
- Alterations Only
- Optional:
  - §110.12, or
  - NEEA Tier 3
  - §150.2(b)1Hiii b & c

REQUIRED
Residential

- Alterations Only
- Optional Testing
  Allowance
- Rare Cases
  - EXCEPTION to §150.2(b)1Fiia
  - EXCEPTION to §150.2(b)1Fiib

REQUIRED
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