



Summary of Changes For
California 2008 Building Energy Efficiency Standards

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Adopted changes for Both Residential and Nonresidential Buildings

- Update Time Dependent Valuation (TDV) to measure savings from energy efficiency standards at times of peak
- Revisions to 10-105 to clarify roles and responsibilities of state agencies for enforcement of the standards, 10-113 to clarify requirements for low-sloped and steep-sloped roofs and CRRC rating requirements, and 10-114 to require local ordinance for using security multipliers for outdoor lighting
- Revisions and clarifications to Section 118, Mandatory Requirements for Insulation and Roofing Products, including introduction of Solar Reflectance Index (SRI) for cool roof compliance
- Revisions and clarifications to Section 119, Mandatory Requirements for Lighting Control Devices
- Changes to Joint Appendix JA4 for wall, roof, and floor assemblies
- Re-organizing the Joint Appendices into the Reference Appendices, creating the Residential and Nonresidential Appendices, migrating relevant sections from the ACM Manuals into the Reference Appendices



Adopted changes for Nonresidential Buildings

- Revisions and clarification to Sections 130-134, Mandatory Requirements for Lighting Systems and Equipment related to Luminaire Power determination, sign lighting controls, and other clarifications
- Updates for compliance to require side-lighting (§131) and day-lit areas near windows, change definition of daylit area and requirements for daylighting controls. Update skylight requirements to include smaller buildings (8,000 sf vs 25,000 sf), buildings with 15 ft ceiling heights (§143(c))
- Add requirements for occupant sensors in new indoor areas including small offices, multipurpose rooms less than 1,000 sf, classrooms, and conference rooms (§132(d))
- Revising the Lighting Power Densities (LPDs) for Complete Building Method Type of Use categories and Area Category Function Areas for indoor lighting (§146)
- Update indoor lighting requirements for Tailored Method, including wall and floor display lighting, and revised LPDs based on metal halide (§146)
- Compliance credit for high efficacy load shedding ballasts to reduce energy use when signaled (§146)
- Demand response controls to reduce indoor lighting when signaled (§146)



Adopted changes for Nonresidential Buildings (Continued)

- Revise the outdoor lighting compliance procedure and update outdoor lighting power densities, require outdoor lighting to meet Title 24 standards when alterations replace 30% of fixtures (§147)
- Update sign mandatory and prescriptive requirements (§148)
- Add acceptance requirements for outdoor lighting and update existing acceptance requirements for indoor lighting (NA7)
- Changes to site-built fenestration requirements including NFRC new Component Method Approach certification and CEC default values in Section 116 and NA6
- New fenestration acceptance verification requirements for nonresidential building envelope (NA7).
- Revised Cool Roof requirements for low-slope roofs and add prescriptive Cool Roof requirements for steep-sloped roofs (§143)
- Revised roof, wall, and floor insulation requirements, establish field verification and protocols for spray foams and acceptance requirements (§143)



Adopted changes for Nonresidential Buildings (Continued)

- Revised overall building envelope method to combine heating and cooling and to provide simplified trade-offs for roofing alterations (§143(b))
- Refine acceptance testing requirements to ensure HVAC works properly, allow compliance credit for automatic fault detection diagnostic systems (NA7)
- New controls requirements for single-zone variable (adjustable) air volume equipment (§122)
- New envelope, lighting, and mechanical requirements for refrigerated warehouses (§126)
- Expand direct digital control systems to zone level for HVAC systems, including demand shedding controls, hydronic pressure reset, VAV zone minimums, demand control ventilation, and supply air temperature reset (§121)
- New Requirement for Hotel/Motel occupancies to use residential water heating models (§145)
- Prescriptive requirement for gas water heating in nonresidential buildings (§145)
- Refinements to additions and alterations requirements for nonresidential buildings (§149)



Adopted changes for Residential Buildings

- Revisions to the Administrative sections 10-103 to allow for electronic filing and compliance documentation maintenance for future use. For newly constructed low-rise residential buildings using the performance approach multiple orientation alternative for which compliance requires HERS field verification, the person responsible for the installation that requires HERS field verification, or their authorized representative(s), shall submit the applicable sections of the Installation Certificate(s) for retention to a HERS provider data registry. Submittals to the HERS provider data registry shall be made electronically. Beginning on October 1, 2010, for all low-rise residential buildings for which compliance requires HERS field verification must meet these requirements.
- New Solar Home Partnership (NSHP) photovoltaic (PV) installation as an option for energy efficiency over and above Title 24
- Improve roof and attic modeling - Unconditioned Zone Model (UZM) - to better model thermal interactions in attic such as radiant barriers, cool roofs, and ducts
- Upgrade window requirements (solar heat gain coefficient and U factor) (§151)
- Add prescriptive Cool Roof requirements for steep-sloped roofs (§151)



Adopted changes for Residential Buildings (Continued)

- Clarifying lighting requirements, including controls and kitchen lighting; allow additional kitchen lighting Up to 50 watts for dwelling units less than or equal to 2,500 ft² or 100 watts for dwelling units larger than 2,500 ft² when all low efficacy luminaires in the kitchen are controlled by a manual-on occupant sensor or a dimmer, and all permanently installed luminaires in garages, laundry rooms, closets greater than 70 square feet, and utility rooms are high efficacy and are controlled by a manual-on occupant sensor (§150k)
- Use mechanical ventilation to maintain indoor air quality in-line with ASHRAE Standards 62.2 requirements; such as continuous running bathroom fans or central fan systems (§150(o))
- Update swimming pool and spa requirements to include two-speed pumps and time clocks, limit flow velocity (§150(p))
- Update requirements for air conditioning refrigerant charge verification procedures, proper airflow; removing thermal expansion valve as an alternative to refrigerant charge verification; added simplified HERS verification procedure for refrigerant charge and airflow measurements, such as saturation temperature and static pressure ports (§151(f)7)
- Require proper central fan airflow and draw in climate zones 10-15 (§151(f)7)



- Refinements to additions and alterations requirements for residential buildings (§152)
- Improved cross-flow prevention and pump protection for central hot water distribution systems in multifamily buildings with demand-control circulation loops (§113)
- Under-slab hot water pipe insulation to mitigate heat loss (§151(f)8E)



Compliance Options adopted for 2008 Standards

Residential Compliance Options

- Distributed Energy Storage
- Evaporatively Cooled Condensers
- Evaporative Coolers

Nonresidential Compliance Options

- Under Floor Air Distribution Systems
- Fault Detection And Diagnostics For Air Handler Units, VAV, and Rooftop Units
- Thermal Energy Storage

All 2008 Standards documents are available for download here:

<http://www.energy.ca.gov/title24/2008standards/>