Revised: March 18, 2013

2013 Residential Building Energy Efficiency Standards Measures Summary

Prescriptive Measures:

1. High Performance Windows – Reducing the U-Factor down to 0.32 and SHGC down to 0.25. **(Section 150.1(c)3A)**
2. Duct Insulation – Raise minimum from R-4.2 to R-6.0 in climate zones 6, 7, and 8. **(Section 150.1(c)9)**
3. Night Ventilation – Whole house fan as a minimum in CZs 8-14; allows for central fan integrated ventilation systems as alternatives. **(Section 150.1(c)12)**
4. Adding the Radiant Barrier requirements in CZs 3, and 5-7. **(Section 150.1(c)2)**
5. Increase wall insulation to R15/4 in all CZs **(Section 150.1(c)1B)**

Mandatory Requirements:

1. Duct sealing in all CZs. **(Section 150.0(m)11)**
2. Return duct design or fan power and airflow testing (Residential HVAC Quality Installation Improvements). **(Section 150.0(m)13)**
3. Lighting – Improving and clarifying the mandatory lighting requirements for all residential buildings including kitchens, bathrooms, dining rooms, utility rooms, garages, hall ways, bedrooms, and outdoor lighting. Require at least one high efficacy luminaire in each bathroom. **(Section 150.0(k))** Updated requirements for LED luminaires for manufacturers to certify to qualify as high efficacy. **(JA8)**
4. Hot water pipe insulation -Requires insulation on pipes ¾ inch and larger. **(Section 150.0(j)2Aii)**
5. Solar Ready Measure – 250 square feet of solar ready zone on single family roofs. **(Section 150.0(r) and Section 110.10(b)1A)**

Compliance Options

1. Solar Photovoltaic can be used as a compliance option to comply under the performance path.
2. Occupant Controlled Smart Thermostat and High Efficacy Lighting and Controls as a tradeoff against the solar ready zone. **(EXCEPTION 7 to Section 110.10(b)1A)**

Additions and Alterations

1. Simplified Compliance documentation requirements for small additions and alteration projects that do not involve a HERS measure. **(Section 10-103(a)1C)**
2. Simplified rules for both the prescriptive and performance paths for additions, alterations, and existing plus additions plus alterations. **(Section 150.2(a) and (b))**

2013 Nonresidential Building Energy Efficiency Standards Measures Summary

Envelope

1. Increased low-slope cool roof requirements (increase reflectance from 0.55 to 0.63 for new construction and alterations). **(Section 140.3(a)1Aia1 and Section 141.0(b)2Bia)**
2. Established a maximum air leakage rate (0.04 cfm/sf) except in mild climate zones. Consistent with air leakage requirements in IECC. **(Section 140.3(a)9B)**
3. Increased fenestration requirements to reduce solar gains and increase visual light transmittance for daylighting; 0.36 U-factor, 0.25 SHGC, VT 0.42 for fixed windows; the numbers are different for operable windows and skylights. **(Section 140.3(a)5B, C and D)**
4. Added mandatory minimum wall and roof insulation requirements. **(Section 120.7)**

Lighting

1. Clarification and simplification of existing language; removing exceptions no longer relevant. **(Sections 130.0 - 130.5, and 140.6 - 140.8)**
2. Lighting control devices moving from Title 24 to Title 20; Lighting control systems shall now be acceptance tested for Title 24. **(Section 110.9(b) and Section 130.4(a))**
3. Nonresidential indoor lighting, advanced multi-level lighting controls (controllable ballasts) increased in granularity (in addition to ON/OFF, increasing from one intermediate level to three intermediate levels for or continuous dimming), favoring dimmable ballasts for linear fluorescent lighting systems. These controls will allow precise and non-interruptive adjustment of lighting to match the available daylighting, and provide dimming and demand response function throughout the building. **(Section 130.1(b) and Section 130.1(a)2C)**
4. Enhancing, modifying, and daylighting controls mandatory requirements (removed off ramps); daylighting language significantly simplified. **(Section 130.1(d))** Inserted prescriptive daylighting control requirements for secondary daylit zones **(Section 140.6(d))**
5. Requirements for demand responsive reduction of lighting power being applied to smaller spaces. **(Section 130.1(e))**
6. Mandatory Automated Lighting Controls and Switching Requirements in Warehouses and Libraries - Require the installation of occupancy sensors in warehouse aisle ways and open spaces, and library stack aisles. **(Section 130.1(c)6A and B)**
7. Mandatory automated multi-level lighting shut-off controls and switching requirements for hotels and multifamily building corridors - Require the installation of occupancy sensors in corridors and stairwells in lodging and multifamily buildings. **(Section 130.1(c)6C)**
8. New mandatory occupancy sensor and daylighting controls in parking garage spaces. **(Section 130.1(d)3)**
9. Increased requirements for multi-level lighting controls for nonresidential outdoor lighting. **(Section 130.2(c)3B)**
10. Existing outdoor lighting cutoff (shielding) requirements, changed to the new IES standard: Backlight, Uplight, Glare (BUG) requirements. **(Section 130.2(b))**
11. Reduction of allowed lighting power density for some nonresidential indoor and outdoor lighting applications. **(Section 140.6(c) and Section 140.7(d))**

12. Tailored lighting revisions - Reduce the allowed LPD for Floor Display, Wall Display, and Ornamental Lighting under the Tailored Compliance. Significant editing of Tailored Method language for clarification. **Section 140.6(c)3I, J and K)**
13. Plug Load Circuit Controls - requiring automatic shut-off controls of electric circuits that serve plug loads, including task lightings, in office buildings. **(Section 130.5(d)1)**
14. Hotel/Motel Guest Room Occupancy Controls for HVAC and lighting systems - would require installation of occupancy controls for HVAC equipment, and all lighting fixtures in hotel/motel guest rooms, including plug-in lighting. **(Section 120.2(e)4 & Section 130.1(c)8)**
15. Reduction of threshold when lighting alterations must comply with the Standards, (from when 50% of the luminaires are replaced), to when only 10% of the luminaires are replaced. Consistent with proposed changes to ASHRAE 90.1-2010. **(Section 141.0(b)I and J)**
16. Added threshold requirements for when luminaire-modifications-in-place (sometimes referred to as lighting retrofits – i.e.: lamp/ballast change-outs) must comply with the Standards. **(Section 141.0(b)I)**
17. Added certification requirement for technicians conducting lighting acceptance testing to be a Certified Lighting Controls Acceptance Test Technician (CLCATT). **(Section 130.4(c))**

Mechanical

1. Added requirements for Fan Control and Integrated Economizers. **(Section 140.4(c) & (e))**
2. Reduced ability for HVAC systems to reheat conditioned air. **(Section 140.4(d))**
3. Increased chiller efficiency requirements, consistent with ASHRAE 90.1-2010. **(Section 140.4(i))**
4. Increased cooling tower energy efficiency and water Savings. **(Section 140.4(k)2)**
5. Added requirements for commercial boiler combustion controls. **(Section 140.4(k)3)**
6. Added acceptance tests for HVAC sensors and controls, including those for demand controlled ventilation. **(Section 120.5(a))**
7. Added efficiency requirements for small motors. **(Section 140.4(c)4)**
8. Added credit for evaporative systems that meet the Western Cooling Efficiency Challenge (WCEC program to acknowledge high energy and water efficiency in evaporative systems). **(Section 140.4)**
9. Moving Fault Detection and Diagnostics (FDD) protocols for air temperature, economizers, damper modulation, and excess outdoor air to mandatory measures from the current compliance option. **(Section 120.2(i))**
10. Added certification requirement for technicians conducting mechanical acceptance testing to be a Certified Mechanical Acceptance Test Technician (CMATT). **(Section 120.5(b))**

Electrical Power Distribution Systems

New section in the Standards, for electrical measures which are not specifically related to lighting:

1. Added requirements for user accessible metering of total electrical use per TABLE 130.5-A (for larger rated panels).
2. Disaggregation of electrical circuits according to TABLE 130.5-B (for larger size services).
3. Added maximum voltage drop requirements. **(Section 130.5(c))**

4. Added mandatory requirement for receptacle controls in private offices, open office areas, reception lobbies, conference rooms, kitchens, and copy rooms to automatically shut off task lighting and other plug loads when the area is not occupied. **(Section 130.5(d))**
5. Added requirements for demand responsive controls and equipment. (**Section 130.5(e))**
6. Added requirements for Energy Management Control Systems (EMCS) to meet to be recognized for compliance with Part 6. (**Section 130.5(f))**

Process Loads

1. Added mandatory requirements for commercial supermarket refrigeration. **(Section 120.6(b))**
2. Increased mandatory requirements for refrigerated warehouses. **(Section 120.6(a))**
3. Added prescriptive ventilation control requirements for commercial kitchens. **(Section 140.9(b))**
4. Added prescriptive requirements for laboratory exhaust VAV and heat recovery. **(Section 140.9(c))**
5. Added mandatory ventilation control requirements for parking garages. **(Section 120.6(c))**
6. Added mandatory requirements for variable speed drives (VSD) and system controls on compressed air systems. **(Section 120.6(e))**
7. Added mandatory requirements for computer data centers. **(Section 140.9(a))**
8. Added mandatory requirements for process boilers. **(Section 120.6(d))**

Solar Ready

1. Added mandatory requirements for nonresidential buildings (3 stories or less) to make provisions to more easily enable the future addition of solar electric or solar water heating systems. **(Section 110.10(a)4)**

Commissioning

1. Moved Part 11 commissioning requirements to Part 6 for energy-related building components. **(Section 120.8)**
2. Added mandatory requirements for design-phase commissioning, which includes an early review of design intent documents and highlighting efficiency specifications in both construction documents and Standards compliance forms. **(Section 120.8(d))**
3. Added performance standard compliance requirement to produce whole building performance rating twice: once during design permit stage ("design rating") then after construction acceptance testing ("as-built rating"). **(Section 120.8(g))**

Compliance Option

1. Hybrid Evaporative Cooling Systems in Nonresidential Buildings.

Residential and Nonresidential

1. Compliance Documents Central Repository – Create a central repository to store compliance documentation that can be used by the CEC and others to improve compliance with the standards and perform program evaluation. **(10-103)**