SUMMARY OF CHANGES TO THE TITLE 24 RESIDENTIAL ENERGY REGULATIONS (Now 2019 Version) EFFECTIVE JANUARY 1, 2020

The most significant change Is the introduction of photovoltaic requirements in the prescriptive standards. There are also significant changes in requirements related to indoor air quality.

The determining factor for whether natural gas is available for newly constructed buildings is a gas service line can be connected to the site without a gas main extension. For additions and alterations, natural gas is available if a gas service line is connected to the existing building.

Other changes for residential buildings include:

1.4.1 Mandatory Measures:

A. Walls with 2x6 framing require R-20 insulation (if wood-framed) or 0.071 maximum U-factor (§150.0(c)2).

B. Fan efficacy requirements change to 0.45 W/CFM for gas furnaces and remain at 0.58 W/CFM for systems that are not gas furnaces (single zone and zonally controlled systems ((§150.0(c)13B and C).

C. Modifications to the indoor air quality requirements of American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) 62.2 are included for various building and dwelling unit configurations such as horizontally attached buildings, or central ventilation systems (§150.0(o)1-(o)2).

D. Minimum efficiency reporting value MERV 13 (or equivalent) filters are required for heating/cooling systems and ventilation systems (§150.0(m)12).

E. New fan efficacy requirement for small-duct high-velocity forced-air systems (§150.0(m)13D).

1.4.2 Prescriptive Compliance:

A. Adding a prescriptive table (150.1-B) for multifamily buildings (§150.1(c)).

B. Removing the attic/roof Option A with above-deck insulation (§150.1(c)1A).

C. Required wall U-factors in Climate Zones 1-5 and 9-16 are changed from 0.051 to 0.048 in single-family buildings; Climate Zones 6-7 remain at 0.065 (§150.1(c)1B).

D. Added a U-factor requirement for doors (§150.1(c)5).

E. Quality insulation installation (QII) is now a prescriptive requirement for all single-family buildings in all climate zones, and multifamily buildings in all climate zones except Climate Zone 7 (§150.1(c)1E).

F. Added prescriptive options for heat pump water heaters for newly constructed buildings, addition, and alterations (§150.1(c)8, §150.2(a)1D, and §150.2(b)1H).

G. New solar electric generation photovoltaic requirement (§150.1(c)14).

H. New fan efficacy requirements of 0.45 W/CFM for gas furnaces.

1.4.3 Performance Compliance:

All compliance software programs approved by the Energy Commission use the same compliance engine as the public domain software. The technical details and information about how the energy budget is determined are included in the 2019 Residential Alternative Compliance Manual (ACM) Reference Manual.

Compliance requires meeting two components of an Energy Design Rating (EDR): (1) an energy efficiency design rating and (2) a solar electric generation and demand flexibility design rating (§150.1(b)1). For more information, see Chapter 8.

1.4.4 Additions and Alterations:

A. Changes to the prescriptive requirement for continuous insulation on an existing wall with wood siding; if siding is not removed, only cavity insulation is required (§150.2(a)1).

B. The prescriptive requirement for quality insulation installation (QII) is not required for additions that are 700 square feet or less (§150.2(a)1B).

C. Roof/ceiling insulation and radiant barrier requirements for prescriptive additions with 700 square feet or less follow Option C (R-38 in Climate Zones 1, 11-16, or R-30 and radiant barrier in Climate Zones 2-10) (§150.2(a)1B).

D. More detailed information on additions and alterations is found in Chapter 9 of the Residential Design manual.

SUMMARY OF CHANGES TO THE TITLE 24 NON-RESIDENTIAL ENERGY REGULATIONS (Now 2019 Version) EFFECTIVE JANUARY 1, 2020

Building Envelope:

The site-built fenestration requirement (allowance) is reduced from 1,000 square feet to 200 square feet. Daylight design power adjustments (PAFs) are available for the following daylighting devices: clerestory fenestration, interior and exterior horizontal slats, and interior and exterior light shelves.

Mechanical:

Demand response HVAC controls; open ADR 2.0 and Occupancy sensors.

Ventilation and indoor air quality; Kitchen range hoods, natural ventilation criteria, minimum ventilation rates, exhaust ventilation zone air distribution effectiveness, air classification and recirculation limits. Demand control ventilation updates. Health care facilities. Fan power limitation changes; pressure drop adjustment. Variable air volume zone controls. Passive water side economizer requirements; integrated waterside economizer. Cooling tower efficiency. Exhaust system transfer air. Expanded economizer fault detection diagnostics. Adiabatic condenser requirements.

Indoor Lighting:

Revisions to all indoor lighting power allowances so that they are based on LED lighting technologies.

• Compliance with the standard is allowed for other appropriate lighting technologies.

• Revisions to Lighting Power Density (LPD) values in Tables 140.6-B thru 140.6-G.

• Revision and streamlining of luminaire classification and wattage requirements.

• New lighting power adjustment for small aperture tunable white LED and dim-to-warm LED luminaires.

• New mandatory occupancy sensing controls for restrooms.

• Clarification and streamlining of manual area control requirements, multi-level lighting control requirements, and automatic daylighting control requirements.

• New Power Adjustment Factors (PAFs) for advanced daylighting devices including clerestories, horizontal slats, and light shelves.

• Revisions and streamlining of alteration requirements. Changes include merging three sections into a single “Altered Indoor Lighting Systems” section and aligning two reduced power options on controls. Table 141.0-F was also revised and consolidated.

• Elimination of the installation certification requirements for line voltage track lighting

current limiters and supplementary overcurrent protection panels.

• Healthcare facilities overseen by the California Office of Statewide Health Planning and

Development (OSHPD) must comply with some applicable indoor lighting controls requirements as well as the indoor lighting power requirements under the “prescriptive method.”

Outdoor Lighting.

• Changes to outdoor lighting power allowances with the allowance values based on LED

lighting technologies. Revisions to the general hardscape lighting values in Tables 140.7-A and the specific lighting application values in Table 140.7-B for all Lighting Zones (LZ) – Lighting Zone 1 thru Lighting Zone 4.

• Add separate lighting power allowance values for concrete-surfaced and for asphalt-surfaced

hardscape lighting application in Table 140.-7A.

• Add new lighting power allowances for narrow band spectrum light sources used in applications for minimizing outdoor lighting impacts on professional astronomy and nocturnal habitat. (Table 140.7-A)

• Revision and streamlining outdoor lighting control requirements. (§130.2(c))

• Healthcare facilities overseen by the California Office of Statewide Health Planning and

Development (OSHPD) have to comply with the Energy Standards including the outdoor lighting requirements for all outdoor areas of healthcare facilities.