OVERVIEW OF 2025 TITLE 24, PART 6 CHANGES

CALIFORNIA'S TITLE 24, PART 6 BUILDING ENERGY CODE

Schnackel engineers

The 2025 Title 24 Part 6 (Energy) code expands on the new construction baselines, for single-zone heat pumps, introduced in the 2022 code update.

It encourages electric-ready buildings, for when owners are ready to invest in those technologies.

It updates photovoltaic and battery energy storage system standards for nonresidential, and high-rise multifamily buildings to achieve cost effective installations as advancements toward California's Net Zero 2045 goals.

Implementation Date: January 1, 2026

Notable: *Laboratories are no longer an exempted occupancy type in the 2025 T24 Energy Code.*

Notable: *Building Energy Efficiency Ratings are now based on Long-Term System Costs, rather than Time Dependent Valuations. As in the 2022 code, Efficiency, Total, and Source compliance scores have to pass, for the project to comply.*

Section and Table numbers are provided to point the reader toward the code section where these changes are found.

Please Note: *This article is based on the latest, "15 Day", codebook. Changes are still being made, in advance of the final codebook release. Section, Table numbers, and language may change.*

ENVELOPE

Fenestration

Vertical fenestration assemblies require a maximum area weighted average U-factor ≤ 0.47 **§120.7(d)**. None of the Default U-factors found in **Table 110.6-A** meet this new requirement.

If more than 150 sf of vertical fenestration is replaced, it must have a U-factor ≤ 0.58, or the climate zone prescriptive maximum.

Vestibules

In selected occupancies, vestibules are now required for newly constructed buildings (where the doors open directly into a greater than 3,000 sf space) **§120.7(e)**.The vestibule must be large enough, so that interior, and exterior doors will not be opened at the same time. Additionally, the doors require self-closing hardware. An air curtain is an acceptable alternative to providing a vestibule. Thermostatic controls are required in conditioned vestibules, for both HVAC, and Heated Air Curtains.

Building Assemblies

Numerous changes are made to the prescriptive envelope criteria in **Table 140.3-B**. Maximum U-factors for many types of building assemblies (in most climate zones) are reduced.

MECHANICAL

Changes in HVAC Efficiencies

There are efficiency changes in **Tables 110.2-H, I, & J**. These changes affect DOAS, Heat Pump, and Heat Recovery Chiller Packages, in heating, and cooling operations.

The VRF Efficiencies in **Table 110.2-F, and Table 110.2-G** are adjusted to meet new EER, and SEER2 values **§110.2.**

Ventilation and Exhaust

The 2025 T24 code introduces a new formula for the calculation of minimum ventilation rates.

Equation 120.1-F uses the larger two equations, one Occupant-based, and another Area-based (**Table 120.1-A**) **§120.1(c)3.**

A new exhaust category, for Occupancy L (supporting laboratories, specifically animal containment spaces), appears on **Table 120.1-B. §120.1**

ASHRAE Guideline 36 ("High-Performance Sequences of Operation for HVAC Systems")

Title 24 now utilizes the ASHRAE Guideline 36. It covers: Variable Air Volume (VAV) Systems, Economizers, Supply Air Temperature Reset Controls, and DDC Controller Logic. **§140.4**. These requirements apply to new or replacement systems, not repairs or upgrades to existing equipment.

Offices and Schools with Multi-zone Systems (varies by climate zone) §140.4(a)3

(≤ 150,000 sf, or ≤ 4 Stories), in selected climate zones, must contain one of the following options:

Variable Refrigerant Flow (VRF) Heat Pump with DOAS and refrigerant loop heat recovery **§140.4(a)i.**
or
4-Pipe Fan Coil (FPFC) Terminal Unit – Utilizing an Air-to-water Heat Pump (AWHP) with DOAS **§140.4(a) ii.**
or
Variable Air Volume (VAV) – Utilizing AWHP with DOAS) **§140.4(c) 2.**
or
Dual-Fan Dual-Duct (DFDD)
or
Other System (Determined by the Executive Director of the CEC) **§140.4(a)3G.**

Cooling Towers

The mandatory requirements for Cooling Tower Fan Efficiency **§140.4(h)5** have changed. Additionally, mandatory requirements for cycles of concentration have been revised **§110.2(e.)** A new Table **140.4-H-2** is added to define Prescriptive Minimum Fan Efficiencies for Open-circuit Cooling Towers ≥ 900gpm.

Heat Recovery

Simultaneous mechanical heat recovery is required for new buildings that meet one of the two below **§140.4(s)**: A Peak Cooling Load of ≥ 200 tons (with a design equipment power density of > 5w sf and minimum OA of <0.5 cfm sf) and service water heating plus space heating ≥ 2,200 kBtuh.
or
Cooling Design Capacity ≥ 300 tons and service water heating ≥ 700kBtuh.

< 65,000Btuh HVAC Alterations §141.0(b) 2Cii. New or replacement single zone packaged RTUs with DX cooling and a capacity < 65,000Btuh are required to comply with **Table 141.0-E-1** or the performance requirements of **§141.0(b)3**.

Laboratory Exhaust Systems §140.9(c) are now subject to the prescriptive requirements of the Energy Code.

Notable: *Healthcare facilities are exempted.*

Pipe Insulation for Covered Processes §120.3(a)

The 2025 code expands the mandatory pipe insulation requirements to cover process heating and cooling systems. Insulation values are defined in Table 120.3-A-1 and Table 120.3-A-2. Additionally, there is a new equation in **§120.3(c)** to calculate the minimum insulation thickness for "insulation with a conductivity outside the range" given in the two tables.

ELECTRICAL

Electric Ready Commercial Kitchens §120.6(k)

These create new mandatory requirements for Electric Ready Quick-service and Institutional Commercial Kitchens. Branch circuit conductors rated at ≥ 50 amps and an electrical service panel capacity ≥ 800 connected amps are required.

In addition, the electrical service panel must be sized to accommodate an additional 208v or 240V 50 amp breaker.

Notable: *Healthcare facilities and all-electric commercial kitchens are exempted from this new provision.*

Indoor Lighting Controls §130.1

Manual area control requirements are simplified. **§130.1(a)**

Daylighting Controls **§130.1(d)** for primary and secondary zones have reduced triggers of 75w, and controlled segments are now restricted to 8 feet or less**§130.1(d)Biii**.

Prescriptive Requirements for Indoor Lighting §140.6(b & c)

There have been numerous changes to the Complete Building Method **§140.6(c)1 (Table 140.6-B)** and the Area Category Method **§140.6(c)2 (Table 140.6-C)**.

Additional allowances have changed in the space types indicated on **Table 140.6-C**:

- Convention, Conference, Multipurpose, and Meeting Areas
- Most applications in Dining Area, Bar/Lounge, and Fine Dining
- Most Applications in Lobby and Main Entry
- Some applications are removed from Office Area
- Most applications are increased in: Retail Sales Area, Grocery Sales, and Retail Merchandise Sales

Notable: *see below for changes to the Tailored Method.*

Tailored Method removed from Allowed Indoor Lighting Power Calculation

The Tailored Method of lighting compliance is removed from the 2025 Title 24 code.

Outdoor Lighting Controls and Equipment §130.2

There is a new exception for luminaire shielding requirements, changes to automatic scheduling controls, and changes in the requirements for motion sensing controls.

Sign Lighting §140.8

Signs now have only two approved sources for illumination: LED and Neon. HPS, MH, Fluorescent, and CFL are no longer allowed.

SOLAR PHOTOVOLTAIC AND BATTERY STORAGE §140.10

There have been several modifications to the Solar Photovoltaic and Battery Storage requirements for new nonresidential buildings. In mixed occupancy buildings, where at least 80% of the floor area of the building serves one of the required occupancies, a PV system must be installed to meet the requirements of §140.10(a).

Solar PV requirements (expressed in KW DC) are met by the smaller of two options:

Sizing the PV system by **Equation 140.10-A**. The equation is unchanged, although the PV Capacity Factors on **Table 140.10-A** have new occupancies, and many capacity factors have changed.

Notable: *Restaurant occupancies have seen the greatest increase in PV capacity factor. Additionally, there are new requirements for Event & Exhibits, Religious Worship, and Sports & Recreation.*

The formula inputs for using the **Solar Access Roof Area (SARA)** calculation have changed. There are now two W/sf values depending on the type of roof - 14W/sf for Low-Slope Roofs and 18W/sf for Steep-Slope Roofs. A project with both roof types would sum the two different roof types to get the total capacity needed. See **§140.10(a)** for added exceptions to the Solar Photovoltaic and Battery Storage requirements.

Battery Energy Storage System (BESS)

New buildings required to have a Photovoltaic System by **§140.10(a)** must have a Battery Energy Storage System **§140.10(b)**. The minimum rated useable energy capacity of the Battery Energy Storage System is determined by **Equation 140.10-B**, if **Equation 140.10-A** was used to determine the

system capacity, or **Equation 140.10-C** if the SARA method was used. For either method, **Equation 140.10-D** is used to determine the minimum power capacity. In mixed occupancy buildings, the total battery capacity is found by summing the minimum rated usable energy capacity for each required occupancy. As with PV Systems, BESS Capacity Factors have been updated.

Conclusion

As with every revision, the 2025 edition of the Title 24, Part 6 code moves us another step down the road to a cleaner, greener future. As usual, these changes will move California ahead in the race toward Net Zero/Greenhouse Gas Reduction. But the lag between it and the rest country is narrowing. With advances in the IECC/ASHRAE codes, the rollout of LEED v5, improvements in the International Green Construction Code, and greenhouse gas reduction laws like NYC's Local Law 97, the movement toward a carbon neutral future is coming closer.

Have questions about the 2025 Title 24 updates? Contact Schnackel Engineers today and let our experts help keep your project compliant and on schedule.