California Building Energy Code Compliance (CBECC) is free, public domain, compliance software developed by the California Energy Commission for use in showing performance compliance with the 2025 Energy Code for nonresidential and multifamily residential buildings.

2025.1.0 RC Release Notes

- 2025.1.0 RC was released 5/30/25.
- The 2025.1.0 Release Candidate (RC) provides a preview of the final 2025.1.0 compliance software, is for review and testing only, and is not usable for compliance.
- 2025.1.0 RC can be downloaded from:
    - 2025 Energy Code Compliance Software website [https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-energy-code-compliance-software]

Capabilities and enhancements included in CBECC 2025.1.0 RC

- General
    - Expanded available weather locations from the minimal 16 climate zones to all 92 locations supported in 2022 analysis.
- HVAC and Ventilation
    - The baseline HVAC system determination logic for EAA projects has been updated to reflect the NMACM.
    - Added new “HeatPump” plant equipment object. Currently, this object can only be used in the proposed design as an air-to-water heat pump for space heating. This object is also used in the new baseline Systems 14 and 15 described below.
    - The new Baseline System 14 has been implemented as the new laboratory system in the Standard Design.
    - The new Baseline System 15 has been implemented as the new school/office system in the Standard Design.
    - Occupied/unoccupied ventilation and exhaust inputs for laboratory systems are now defined using previously available Space inputs. Updates made to enforce minimum flow terminal unit and exhaust flow at these specified rates.
- HVAC and Ventilation (Plant)
    - The boiler hot water supply temperature and hot water temperature difference has been updated to reflect the 2025 ACM.
    - Updates to ensure 2025 Standard design highrise residential dwelling HVAC systems are properly configured (CZ1 from HP w/ Elec supp to HP w/ Gas supp and CZ16 from AC/Gas Furnace to HP w/ Gas supp).

- Envelope
    - Added new limitation on area-weighted U-factor for vertical fenestrations per 2025 standards section 120.7(d).
    - Updated roof U-value and reflectance per 2025 standards section 140.3
- California Utility Allowance Calculator (CUAC)
    - Enabled access to CUAC analysis via 2025 software releases (no changes from 2022).

[Previous Version]Capabilities and enhancements included in CBECC 2025.1.0 RV

- General
    - Upgraded simulation engine from EnergyPlus 9.4 to EnergyPlus 24.1 along with related updates to OpenStudio translation.
- Envelope
    - The standard design for nonresidential new construction has been updated to reflect 2025 envelope changes.
    - Updates related to the standard design for nonresidential additions/alterations has not been incorporated into CBECC 2025.1.0 RV
    - New vestibule requirements of 120.7 have not been incorporated into CBECC 2025.1.0 RV.
    - New area weighted nonresidential new construction mandatory fenestration requirements have not been incorporated into CBECC 2025.1.0 RV.
    - Changes to residential (dwelling and common area) window U-factor and SHGC requirements as stated in the 2025 energy code.
- Internal Loads
    - Occupancy density has been revised to follow Table 120.1-A in the 2025 Standard. When the density is not defined in the Table the old value based on the space function type is used. The minimum occupant load density for ventilation calculation is half of what is for egress/DCV purposes except for the retail spaces where the two values are the same.
    - Tailored Method has been removed from the lighting inputs, and a few additional power allowances for the Tailored Method were added for the Area Category Method following the 2025 Standard update.
    - The Standard design lighting power density has been updated to reflect 2025 changes.
    - The mandatory check of the daylighting controls and the daylighting controls in the Standard model have been updated to follow updated Standard.
- HVAC & Ventilation

  - Replace prior residential heat pump and air conditioner (CSE) simulation method/algorithms w/ the new Performance Map model based on in depth statistical analysis of the NEEP database. This impacts how all split heat pumps and air conditioners are simulated and allows specification of single vs. variable speed for each equipment. This also allows for specification of heat pump backup as none, electric resistance or gas.
  - Standard design HVAC system mapping updated to reflect 2025 changes. Note that this update does not include the details of the new lab, large school, and medium office systems (14 and 15).
  - Minimum ventilation calculation has been updated to reflect the 2025 Standard.
  - New input has been added for users to indicate that the certified guideline 36 libraries are used in the control system. When the libraries should be used but not used, penalties will be applied to the terminal flow rate and the performance of the fan.
  - Changes to residential cooling equipment crankcase heater power by equipment type and size.
  - Limitations
    - Air system efficiency is still defaulted and checked based on the 2022 Standard.
- Service Water Heating / Domestic Hot Water Heating
  - Updates to Service Water Heating not included in the RV release.
  - Fixes to residential central HPWH secondary (loop) tank temperature setpoint to align with 2025 NRMF ACM
- Reporting
  - NRCC/LMCC PRF compliance report currently uses the 2022 reporting templates and will be updated for final release.

Bugs Fixed in CBECC 2025.1.0 RV

- Fixed error preventing analysis in models containing both residential dwelling units and hotel/motel guest rooms.

[Previous Version] Bugs Fixed in CBECC 2022.3.2

- A multifamily IAQ system simulation error caused by a rounding error has been resolved.
- There was a discrepancy between the definition of a computer room in the standard and the software. The software is now consistent with the standard, recognizing computer rooms with a power density greater than 20 W/ft² as covered process spaces.

- The HVAC systems created by the software for computer rooms with unknown systems were not always correct. The system type should be determined by the total process load, but it was not. This issue has been fixed.
- Fixed an error that prevented non-residential only project switching from newly constructed to EAA.
- The behavior of the optimum start control is not very predictable in EnergyPlus resulting in unexpected credits or penalties. Therefore, the simulation of optimum start has been disabled.
- Fixed incorrect multifamily common space baseline HVAC system flow rate.
- Resolved minor issue with how the fan power was distributed in baseline HVAC systems.
- In a very specific condition where the ventilation system and the conditioning system are different systems with different statuses (new, altered, existing), the baseline terminal units were not created. This issue has been fixed.
- Air-side economizer low lockout temperature can now be edited by users, which was overwritten by the software.
- A simulation error caused by thermal zones with mixed-status HVAC systems has been resolved.
- Fixed an error causing analysis abort when assigning an existing residential DHW system to both res common areas (ResOtherZn) and dwellings (ResZn (via DwellUnitType)).
- Fix to prevent compliance reporting of air distribution (duct) systems added to ductless systems during analysis (when adding cooling to no-cooling systems).
- Fixed problem where a user's choice to auto-size proposed HVAC capacities using EnergyPlus was causing failures of residential CSE simulations.
- Fixed a problem in writing of hourly results CSV export for all-residential models conditioned by FPFC or WSHP systems.
- Fixed a problem causing incorrect water heater counts in compliance reports for central non-HPWH systems.
- Expanded allowable range for photovoltaic (PV) array azimuth (horizontal direction) from 90-300 to 0-360, enabling analysis of arrays pointed in any orientation.

Known Issues

- General Issues
    - No resizing of standard design systems if unmet load hour (UMLH) requirement is not met.
- Spaces
    - Increasing the number of occupants in the space only currently impacts the ventilation

calculation when using DCV. It does not increase the prescribed occupant density assumed in the compliance simulation.

  - Space without a ceiling can cause unexpected heating/cooling load.

- HVAC Secondary Systems
  - Simulation of supply air temperature and flow controls may not match ACM requirements
  - Specifying DCV for all zones of a multi-zone system results in unexpectedly high energy use.
  - The simulated supply air temperature for FPFC systems may be less than expected; which can result in more hours of fan operation and therefore high fan energy use.
  - AirSystem SZVAV systems with economizers act as constant volume systems when the economizer is not active. A higher economizer control limit is recommended to alleviate this.
  - AirSystem SZVAV systems with water-source cooling coils have higher cooling loads and energy use than comparable air-source cooling coils.
  - In some cases with central IAQ systems in multifamily buildings the Standard Design rules are not applied properly and incorrect compliance results may be produced
  - Imbalanced air flow with insufficient zone connection of a residential zone can cause CSE air pressure out of range error that leads to simulation termination. But this error is not obvious to users.
  - Due to limitations imposed by EnergyPlus, the maximum number of zone exhausts that can be connected to a heat recovery system is capped at eight.
  - In a project file with multiple VRF systems, if any VRF system is connected to only one zone system, and heat recovery is specified for one or more VRF systems, heat recovery for one of the units will be disabled causing UMLHs. The current workaround is to avoid having a VRF system connected to only one zone system. If the zone system represents multiple indoor units, divide the thermal zone into smaller zones, and create a zone system for each zone. Otherwise, use mini-split heat pumps to model the single zone VRF systems.
  - WSHP stopped providing any heating/cooling after the EnergyPlus upgrade. This will be fixed in the next EnergyPlus upgrade.
  - The simulated outdoor air in kitchens is not realistic and causes overestimating of heating load and sometimes large numbers of UMLHs.
- HVAC Primary Systems
  - Simulation failures have been observed for WSHP models, where the condenser water loop temperature runs (high) out of the accepted E+ temperature range. Potential workarounds for this issue include:

        - Modeling the WSHP system as an AirSystem (Type = ‘SZHP’ or ‘SZVAVHP’ with ‘WaterSource’ as the condenser type).
        - Modeling CW system with a single variable-speed pump on the return FluidSegment.
        - Modeling CW loop pump in ‘StandBy’ mode.
    - VRF and WSHP systems, when modeled for multifamily dwelling units, can yield unreasonable results which could result in incorrect compliance results.
    - The capacities of the auto-sized condensing water loop equipment which serve WSHP in multifamily dwelling units are doubled in simulation.
    - Some models with constant speed pumps on hot water loops may see errors where the water temperature exceeds upper limits due to an EnergyPlus issue where pumps run and add heat to the loop during periods when there is no heating demand.
    - All pumps on primary loop of primary/secondary pumping systems will run if there is any demand on the secondary loop
    - Evaporative-only cooling systems that cycle to meet cooling loads are not simulated correctly.
    - Multifamily WSHP loop cooling tower pump turns on when boiler pump is on. This happens to the systems with separate ‘constant speed’ pumps serving the cooling tower and the boiler respectively.
    - WSHP loop temperature is not properly controlled if the heat rejection device is “ClosedTowerEvaporative” and the pump(s) is variable speed.
- Material Data
    - The values in Table 4.3.8 of JA4 are being reviewed for potential revision. Spandrel panel and curtain wall material data are based on the current values in the table.