



**Building and Safety
Permit Service Center**

Newly constructed residential buildings and additions or alterations to existing residential buildings, which increase an existing dwelling's conditioned area, volume, or size are subject to the provisions of the 2022 California Green Building Standards Code (CGBSC). This checklist is provided by the City of Berkeley in order to demonstrate compliance with the code and facilitate permit approval.

Instructions:

1. Read and understand the requirements of all mandatory measures listed in this checklist.
2. Mark all mandatory measures that are applicable to the proposed project.
3. Coordinate the construction drawings with the mandatory measures.
4. Incorporate this checklist into the submitted set of construction drawings on full sized sheets.

Building and Safety

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Code Compliance Checklist

CALGREEN RESIDENTIAL

Project Information

Project Address:

Permit Number:

New Building [N]

Addition [A]

Alteration

Planning and Design

Storm Water

Stormwater drainage and retention during construction. In order to manage stormwater drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site: [CGBSC 4.106.2]

- Retention basins of sufficient size shall be utilized to retain storm water on the site.
- Where stormwater is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other approved method.
- Stormwater management requirements per Title 17 of the City of Berkeley Municipal Code.

Grading and Paving. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows.

Electrical Vehicle Charging

Definitions

ELECTRIC VEHICLE (EV) CAPABLE SPACE. A vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways, both underground and/or surface mounted, to support EV charging.

ELECTRIC VEHICLE (EV) CHARGER. Off-board charging equipment used to charge an electric vehicle.

ELECTRIC VEHICLE CHARGING SPACE (EV SPACE). A space intended for future installation of EV charging equipment and charging of electric vehicles.

ELECTRIC VEHICLE CHARGING STATION (EVCS). One or more electric vehicle charging spaces served by electric vehicle charger(s) or other charging equipment allowing charging of electric vehicles. Electric vehicle charging stations are not considered parking spaces.

ELECTRIC VEHICLE (EV) READY SPACE. A vehicle space which is provided with a branch circuit; any necessary raceways, both underground and/or surface mounted; to accommodate EV charging, terminating in a receptacle or a charger.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and electric vehicle.

Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device for future EV charging as "EV CHARGER READY"

The raceway termination location shall be permanently and visibly marked as "EV CHARGER READY". [CGBSC 4.106.4.1.1 and 4.106.4.2.4]

Raceways. Listed raceways and associated conductors shall be sized to accommodate a dedicated 208/240-volt branch circuit for future EV charger. The raceway shall not be less than normal 1-inch inside diameter. Raceways shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction. Construction documents shall identify the raceway termination point. [CGBSC 4.106.4.1]

Future EV Chargers

Single EV Space. The service panel and/or subpanel shall be provided with a 40 ampere minimum dedicated branch circuit and overcurrent protective device for a future EV Charger. [CGSBC 4.106.4.1 and 4.106.4.2.3.1]

Multiple EV spaces. Construction documents shall also provide information on amperage of dedicated branch circuits. EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit [CGSBC 4.106.4.2.3.2]

New One- and Two-Family Dwellings and Townhouses

Attached or detached private garages, carports, or any other on-site parking. For each dwelling unit with onsite parking, install a listed raceway and associated conductors to accommodate a dedicated branch circuit for a future EV charger. [CGSBS 4.106.4.1]

New Multi-family Dwellings, Multifamily EV Space Dimensions

Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following: [CGSBC 4.106.4.2.2.1.2]

- The minimum length of each EV space shall be 18 feet.
- The minimum width of each EV space shall be 9 feet.
- One in every 25 EV spaces, but not less than one, shall also have an 8-foot wide minimum aisle. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

Multifamily EVCS Accessibility / Location

Multifamily EVCS shall comply with at least one of the following two options: [CGBSC 4.106.4.2.2.1.1]

- 1.) The charging space shall be located adjacent to an accessible parking space meeting the requirements of the California Building Code, Chapter 11A, to allow use of the EV Charger from the accessible parking space.
- 2.) The charging space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.

Hotel and Motel Accessible EV spaces. EV spaces for hotels / motels, public housing and all EVSE, shall comply with the accessibility provisions for EV charging stations in the California Building Code, Chapter 11B. [CGBSC 4.106.4.2.2.1 and 4.106.4.2.2.1.3]

Multifamily EV Accessible Spaces. EV ready spaces and EVCS in multifamily developments shall comply with California Building Code, Chapter 11A, Section 1109A [CGBSC 4.106.4.2.2.1.3]

EV Spaces

New Multifamily and New Hotel or Motel Occupancies. When residential parking is provided: [CHBSC 4.106.4.2 and BMC 19.37.040]

- 1.) 20% of spaces shall be EV Capable with RACEWAY, panel service capacity and electrical system sufficient to charge all required spaces at a minimum of 40 amperes.
- 2.) 25% of spaces shall be EV READY with circuit and receptacle conforming to the provisions of 2022 CEC 625.44

3.) 5% of spaces shall be an ELECTRIC VEHICLE CHARGING STATION (EVCS)

NOTE: Calculations required by Section 4.106.4.2, Items 1 - 3 shall be rounded up to the nearest whole number.

Electric Vehicle Charging for Additions and Alterations of Parking Facilities Serving Existing Multifamily Occupancies [CGBSC 4.106.4.3]. When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered and the work requires a building permit, ten (10) percent of the total number of parking spaces added or altered shall be ELECTRIC VEHICLE CHARGING SPACES (EV SPACES) capable of supporting future Level 2 EVSE.

Water Efficiency and Conservation

Indoor Water Use

Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the US EPA WaterSense Specification for Tank-type Toilets. [CGBSC 4.303.1.1]

Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush. [CGBSC 4.303.1.2]

Showerheads

Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the US EPA WaterSense Specification for Showerheads. [CGBSC 4.303.1.3.1].

Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. Note: A hand-held shower shall be considered a showerhead. [CGBSC 4.303.1.3.2]

Faucets

Pre-Rinse Spray Valves. Pre-Rinse Spray Valves, when installed, shall meet the requirements in the California Code of Regulations, Title 20 (Appliance Efficiency Regulations), Sections 1605.1(h)(4) Tabke H-2, Section 1605.3 (h)(4)(A), and Section 1607(d)(7), and shall be equipped with an integral automatic shutoff. [CGBSC 4.303.1.4.5]

Residential lavatory faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi [CGBSC 4.303.1.4.1].

Lavatory faucets in common and public use areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwelling or sleeping units) shall not exceed 0.5 gallons per minute at 60 psi [CGBSC 4.303.1.4.2].

Metering faucets. Metering faucets shall not deliver more than 0.2 gallons per cycle. [CGBSC 4.303.1.4.3]

Kitchen faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. Where complying faucets are unavailable, aerators or other means may be used to achieve reduction. [CGBSC 4.303.1.4.4]

Outdoor Water Use

Outdoor potable water use in landscape areas. New residential developments with an aggregate landscape area equal to or greater than 500 square feet shall comply with one of the following: [CGBSC 4.304.1]

- Current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWEL0).
- Projects with aggregate landscape areas less than 2,500 square feet may comply with the MWEL0's Appendix D Prescriptive Compliance Option.

Material Conservation and Resource Efficiency

Low-carbon Concrete

Reduction in cement use. As allowed by the enforcing agency, cement used in concrete mix design shall be reduced not less than 25 percent. Products commonly used to replace cement in concrete mix designs include, but are not limited to fly ash, slag, silica fume, and rice hull ash. [CGBSC 4.405.1 and BMC 19.37.040]

Enhanced Durability and Reduced Maintenance

Rodent proofing. Annular spaces around pipes, electric cables, conduits, or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable by the City of Berkeley. [CGBSC 4.406.1]

Construction Waste Reduction, Disposal and Recycling

Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste and 100 percent of excavated soil, land-clearing debris, concrete and asphalt. Provide a completed City of Berkeley Construction Waste Management Plan, Form #172. Use waste facilities that can provide verifiable documentation that the percentage of construction water material diverted from the landfill complies with this section. [CGBSC 4.408.1 and BMC 19.37.040]

Building Maintenance and Operation

Operation and maintenance manual. At the time of final inspection, a manual which includes all of the information listed in CALGreen section 4.410.1 shall be presented to the building inspector and placed in the building, for the building occupant or owner, prior to final inspection sign off. [CGBSC 4.410.1]

Recycling by occupants. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serve the entire building or buildings on the site and is identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals. [CGBSC 4.410.2]

Environmental Quality**Fireplaces**

General. Any installed gas fireplace shall be a direct vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. [CGBSC 4.503.1]

Mechanical Systems

Covering of new duct openings and protection of mechanical equipment during construction. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable by the City of Berkeley to reduce the amount of water, dust and debris, which may enter the system. [CGBSC 4.504.1]

Finish Material

Adhesives, sealants and caulks. Adhesives, sealants and caulks used on the project shall comply with CALGreen Table 4.504.1 or 4.504.2 for VOC limits. Product units which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces shall comply with statewide VOC standards and California Code of Regulations, Title 17. [CGBSC 4.504.2.1]

Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in CALGreen Table 4.504.3 [CGBSC 4.504.2.2]

Aerosol paints and coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in California Code of Regulations, Title 17 and the Bay Area Air Quality Management District percent VOC by weight of product limits of Regulation 8, Rule 49. [CGBSC 4.504.2.3]

Carpets

Carpet Systems. All carpet and carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health's website for certification programs and testing labs. <https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx> [CGBSC 4.504.3]

Resilient Flooring

Resilient Flooring Systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health's website for certification programs and testing labs. <https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx> [CGBSC 4.504.4]

Composite Wood Products

Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as shown in CALGreen Table 4.504.5. [CGBSC 4.504.5]

Documentation. Verification of compliance shall be provided as requested by the City of Berkeley. Documentation shall include at least one of the following: [CGBSC 4.504.5.1]

- Product certifications and specifications.
- Chain of custody certifications.
- Product labeled and invoiced as meeting the Composite Wood Products regulation per California Code of Regulations, Title 17.
- Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian ASINZS 2269, European 636 3S, or Canadian CSA 0121, 0151, 0153 and 0325 standards.
- Other methods acceptable to the City of Berkeley.

Interior Moisture Control

Capillary break. Concrete slab foundations required to have a vapor retarder shall have a capillary break installed in compliance with at least one of the following: [CGBSC 4.505.2.1]

- A 4-inch-thick base of ½ inch or larger clean aggregate shall be provided with a vapor retarder in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling shall be used.
- Other equivalent methods approved by the City of Berkeley.
- A slab design specified by a licensed design professional.

Moisture content of building materials. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following: [CGBSC 4.505.3]

- Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the City of Berkeley and shall satisfy requirements found in CALGreen Section 101.8.
- Moisture readings shall be taken 2 ft to 4 ft from the grade stamped end of each piece to be verified.
- At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the City of Berkeley provided at the time of approval to enclose the wall and floor framing.

Note: Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufactures' drying recommendations prior to enclosure.

Indoor Air Quality and Exhaust

Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and comply with the following [CGBSC 4.506.1]:

- Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building [CGBSC 4.506.1].
- Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
- Humidity controls shall be capable of adjustment between a relative humidity range of ≤ 50 percent to a maximum of 80 percent. A humidity control may utilize manual or automatic means of adjustment.
- A humidity control may be a separate component to the exhaust fan and is not required to be integral.

Note: For the purposes of this section a bathroom is a room which contains a bathtub, shower, or tub/shower combination.

Environmental Comfort

Heating and air-conditioning system design. Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods, except when the use of alternate design temperatures necessary to ensure the systems function are acceptable [CGBSC 4.507.2]:

- The heat loss and heat gain is established according to ANSI/ ACCA 2 Manual J-2016 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
- Duct systems are sized according to ANSI/ACCA 1 Manual D-2016 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
- The heat loss and heat gain is established according to ANSI/ ACCA 2 Manual J-2016 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
- Duct systems are sized according to ANSI/ACCA 1 Manual D-2016 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
- Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2014 (Residential Equipment Selection) or other equivalent design software or methods.

Additional:

I certify that I have read and acknowledged all of the Code Requirements noted above. I accept full responsibility for complying with all of the above requirements, as applicable to my project. I further agree that if I fail to comply with the code requirements, due to error or omission, I will correct all deficiencies prior to final inspection.

Name

Signature

Date

Check One:

Contractor

Owner

Owner's Agent