OC PublicWorks

2019 Green Building Code Requirements For Residential Construction

In order to facilitate sustainable construction practices, all new projects* must comply with the State of California 2019 Green Building Standards Code (CGBSC) at both the design and construction phases of development. Before preparing plans for submittal, please be aware of the following information. This information is the most common items for residential projects.

*All new residential building and addition/alteration when the existing building's conditioned area, volume or size increases. The requirements shall apply to and/or within the specific area of addition or alteration.

Site Development – CGBSC 4.106.3

1. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:
1.1 Swales
1.2 Water collection and disposal systems
1.3 French drains
1.4 Water retention gardens
1.5 Other water measures which keep surface water away from building and aid in groundwater recharge.

Electric vehicle (EV) charging for new construction- CGBSC 4.106.4

New construction shall comply with Sections 4.106.4.1 and 4.106.4.2 to facilitate future installation and use of EV charges. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625.

New one-and two-family dwellings and town-houses with attached private garages. CGBSC 4.106.4.1

For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway 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. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Identification CGBSC 4.106.4.1.1

The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

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Indoor Water Use – CGBSC 4.303

1. Indoor water fixtures must incorporate the fixture flow rates of Section 4.303

Fixture Type	Flow Rate
Lavatory faucets	1.2 gpm @ 60 psi (minimum 0.8 gpm at 20 psi)
Kitchen faucets	1.8 gpm @ 60 psi (may temporarily exceed maximum, but not to exceed 2.2 gpm @ 60 psi)
Water Closets (toilets)	1.28 gallons per flush (urinals shall not exceed 0.5 gallons per flush)
Showerheads	1.8 gpm @ 80 psi (per shower)

Outdoor Water Use - CGBSC 4.304.1

Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance "MWELO" whichever is more stringent.

Rodent Proofing – CGBSC 4.406.1

1. 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 a similar method acceptable to the enforcing agency.

Construction Waste Reduction – CGBSC 4.408 .2

1. A construction waste management plan shall be submitted at plan check and comply with the Orange County Mandatory Construction and Demolition Recycling Policy and Program.

Building Maintenance and Operation – CGBSC 4.410

1.0 At final inspection, a manual on building maintenance and operation must be provided, which includes all of the following:
1.1 Direction to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
1.2 Operation and maintenance instructions for:
1.2.1 All equipment and appliances.
1.2.2 Roof and yard drainage including gutters and downspouts.
1.2.3 Space conditioning systems including condensers and air filters.
1.2.4 Landscape and irrigation systems.
1.2.5 Water reuse systems.
1.3 Recycle programs and locations.
1.4 Public transportation and carpool options.
1.5 Educational material on the positive impacts of maintaining indoor relative humidity between 30 and 60 percent.

1.6 Information about water conserving landscape and irrigation design.
1.7 Importance of gutters and downspouts and diverting water at least 5 ft. from buildings.
1.8 Information on routine maintenance such as caulking, painting, grading, etc.
1.9 Information about state solar energy and incentive programs.
1.10 A copy of all special inspection verifications required by the enforcing agency.

Fireplaces – CGBSC 4.503.1

1. Gas fireplace must be of the direct-vent sealed-combustion chamber type.

Pollution Control – CGBSC 4.504

1. All duct and related distribution component openings must be covered with tape or other approved means to prevent dust accumulation.
2. Adhesives, sealants, and caulks must be meet minimum VOC limits (see VOC Limits Handout).
3. Paints and coatings must meet minimum VOC limits (see VOC Limits Handout).
4. Aerosol Paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of California Code of Regulations, Title 17, commencing with Section 94520.
5. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:
5.1. Carpet and Rug Institute's Green Label Plus Program.
5.2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).
5.3. NSF/ANSI 140 at the Gold Level.
5.4. Scientific Certifications Systems Indoor Advantage Gold.
6. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.
7. All carpet adhesive shall meet minimum VOC limits (see VOC Limits Handout).
8. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall comply with one of the following:
8.1. Products compliant with 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 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
8.2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
8.3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
8.4. Meet 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 1.1, February 2010 (also known as Specification 01350).
9. 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 specified in ARB's Air Toxics Control

Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

FORMALDEHYDE LIMIT IN PARTS PER MILLION

Product	Current Limit
Harwood plywood veneer core	0.05
Harwood plywood composite core	0.05
Particleboard	0.09
Medium Density Fiberboard	0.11
Thin Medium Density Fiberboard	0.13

10. Documentation for the items listed above must be made available to your inspector upon request.

Interior Moisture Control – CGBSC 4.505

1. A capillary break shall be installed and shall consist of the following: a 4-inch thick base of ½ inch or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute ACI 302.2R-06. An equivalent slab design by a design professional is acceptable

Moisture Content of Building Materials – CGBSC 4.505.3

1. Building materials with visible signs of water damage shall not be installed.
2. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content.
3. Moisture content shall be verified in compliance with the following:
3.1 Moisture content shall be determined with either a probe-type or contact-type moisture meter.
3.2 Moisture readings shall be taken at a point 2 feet to 4 feet from the grade stamped end of each piece to be verified.
3.3 At least three random moisture readings shall be performed on wall and floor framing with documentation provided immediately prior to enclosure of the wall and floor framing.
4. Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities.
5. Wet- applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

Indoor Air Quality and Exhaust – CGBSC 4.506

1. For bathrooms containing a bathtub, shower, or tub/shower combination, a mechanical exhaust fan which exhausts directly from the bathroom must be installed.
2. Fans must be ENERGY STAR compliant and be ducted to terminate outside the building.
3. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidistat which shall be readily accessible.

3.1 Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent.

Environmental Comfort – CGBSC 4.507

1.0 Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods:
1.1 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 methods.
1.2 Duct systems are sized according to ANSI/ACCA 1 Manual D—2016 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
1.3 Select heating and cooling equipment according to ANSI/ACCA 3 Manual S—2014 (Residential Equipment Selection) or other equivalent design software or methods.
1.4 Use of alternate design temperatures necessary to ensure the systems function are acceptable.