



RESIDENTIAL MANDATORY MEASURES ADDITIONS/ALTERATIONS

The 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CalGreen) requires all of the following provisions. These provisions apply to additions or alterations that increases the conditioned space of existing residential buildings including one- and two-family dwellings, townhomes, and multi-family units in low-rise and high-rise residential buildings such as apartments, condominiums, motels and hotels and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Detached "U" occupancy buildings are not subject to the requirements of CALGreen. Existing site and landscaping improvements that are not otherwise disturbed are also not subject to the requirements of CALGreen. For newly constructed residential building, see separate checklist. Repairs to existing structures are not subject to CALGreen at this time.

Please incorporate these requirements into the plans and sign the compliance statement at the end of this document.

Provisions that are underlined and italicized shall be shown on the construction documents. The information listed here is an outline of the Mandatory Measures. For complete requirements and possible exceptions, please refer to the 2022 CalGreen Code. Code Sections in **bold** are City of Glendale additional mandatory CALGreen amendments.

ITEM #	CODE SECTION	REQUIREMENTS
Chapter 3 – GREEN BUILDING		
		Addition and Alterations
	301.3	• Applies to additions or alterations of residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. • Section 4.106.4.3 may apply to additions or alterations of existing parking facilities or the addition of new parking facilities serving existing multi-family buildings. • Requirements only apply within the specific area of the addition or alteration.
Chapter 4 – RESIDENTIAL MANDATORY MEASURES		
Division 4.1 – Planning and Design		
		Site Development (Sec. 4.106)
1	4.106.1	General. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas.
2	4.106.2	Storm water drainage and retention during construction. Projects which disturb less than one acre of soil and are not part of a larger common development, shall manage storm water drainage during construction. In order to manage storm store water 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. a. Retention basins of sufficient size shall be utilized to retain storm water on the site. b. Where storm water is conveyed to a public drainage system or gutter, water shall be filtered by use of a barrier system or wattle approved by the city. c. Compliance with all NPDES and City of Glendale Storm Water Management Ordinance.

ITEM #	CODE SECTION	REQUIREMENTS
		Note: Refer to the State Water Resource Control Board for projects which disturb one acre or more of soil, or part of a larger common plan of development which in total disturbs one acre or more of soil. (Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)
3	4.106.3	Grading and paving. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. (Does not apply to additions and alterations not altering the drainage path.)
4	4.106.4.3	Multi-family residential only: When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added or altered, ten 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. (Electric Vehicle Charging Space definition: A space intended for future installation of EV charging equipment and charging of electric vehicles). <i>Construction documents shall show the requirements above.</i>
5	4.106.5 (GBSC)	Water permeable surface. <i>Provide calculation on site plan to show proposed water permeable surfaces shall not to be less than 20 percent of the total on-grade, residential uncovered parking, walking or patio surfaces.</i> The primary driveway, the primary entry walkway and entry porch or landing and required accessible routes for persons with disability as required by Chapter 11A and / or 11B of CBC shall not be included when calculating the area required to be a permeable surface.
Division 4.2 – Energy Efficiency		
		Performance Requirements (Sec. 4.201)
6	4.201.1	Scope. This project shall comply with all applicable energy efficiency requirements as set forth in the 2022 California Energy Code and the City of Glendale Amendment to the California Energy Code Ordinance No. 5999. <i>Energy calculations and compliance forms shall be included as part of the plans and drawings.</i>
Division 4.3 – Water Efficiency and Conservation		
		Indoor Water Use (Sec. 4.303)
7	4.303.1	Indoor water use. Plumbing fixtures and fittings shall comply with the following and <u>shall be shown on the construction documents</u> : a. Water closets: Maximum 1.28 gallons per flush b. Urinals: Maximum 0.125 gallons per flush for wall-mounted. Other urinals: 0.5 gallons per flush. c. Single showerheads: Maximum flow rate of 2.0 gallons per minute at 80 psi. d. Multiple showerheads serving one shower: combined flow rate of all showerheads controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi. e. Lavatory faucets within dwelling units: Max flow rate of 1.2 gallons per minute at 60 psi. Minimum flow rate of 0.8 gallon per minute at 20 psi. f. Lavatory faucets in common and public use areas: Maximum flow rate of 0.5 gallons per minute at 60 psi. g. Metering faucets: Maximum 0.25 gallons per cycle. h. Kitchen faucets: Maximum flow rate of 1.8 gallons per minute at 60 psi.

ITEM #	CODE SECTION	REQUIREMENTS
		Plumbing fixtures and fittings shall be installed in accordance with the 2022 <i>California Plumbing Code</i> and shall meet the applicable standards referenced in Table 1701.1 of the <i>California Plumbing Code</i>. Note: All noncompliant plumbing fixtures in any residential property shall be replaced with water conserving plumbing fixtures. Plumbing fixtures replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final approval by the City of Glendale Building and Safety Division.
8	4.303.3	Submetering for multifamily buildings and dwelling units in mixed use residential/commercial buildings. Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the <i>California Plumbing Code</i> .
9	4.303.3	Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the <i>California Plumbing Code</i> , and shall meet the applicable referenced standards in Table 1701.1 of the <i>California Plumbing Code</i> .
Outdoor Water Use (Sec. 4.304)		
10	4.304.1	Outdoor potable water use in landscape areas. Residential developments shall comply with a local water efficiency landscape ordinance or the current California Department of Water Resources' Model Water Efficiency Landscape Ordinance (MWELO) whichever is more stringent. <u>Landscape plans shall show all outdoor water efficiency features of CalGreen Section 4.304.</u>
Division 4.4 – Material Conservation and Resource Efficiency		
Enhanced Durability and Reduced Maintenance (Sec. 4.406)		
11	4.406.1	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 a similar method acceptable to the city building inspector.
Construction Waste Reduction, Disposal and Recycling (Sec. 4.408)		
12	4.408.1	Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with the City of Glendale's Construction and Demolition Waste Reduction and Recycling Plan (CDWRRP) Ordinance. A City approved waste management company/hauler shall be used for recycling of construction waste. Documentation of compliance shall be provided to the City's Building and Safety Division. <u>The project shall complete the city's Construction and Demolition Waste Reduction and Recycling Plan form prior to the issuance of the building permit and pay the CDWRRP deposit.</u>
Building Maintenance and Operation (Sec. 4.410)		
13	4.410.1	Operation and Maintenance manual. The builder shall prepare an Operation and Maintenance Manual as outlined in 2022 CalGreen Section 4.410.1. The manual shall be given to the owner upon final approval by the building inspector. In such case where the property is being sold, it should be given to the new owner at the time of sale. A copy of the manual shall be available for the inspector prior to, or at the time of final inspection.

ITEM #	CODE SECTION	REQUIREMENTS
14	4.410.2	Recycling by occupants. Where 5 or more multifamily dwelling units are constructed on a building site, provide a readily accessible area(s) that serves all buildings on the site and is identified for recycling. Contact the City's Public Works Integrated Waste Management Division for details of the City's recycling ordinance.
Division 4.5 – Environmental Quality		
Fireplaces (Sec. 4.503)		
15	4.503.1	Fireplaces. Any installed gas fireplace shall be direct vent sealed combustion type. New wood burning masonry fireplaces are not allowed per SCAQMD Rule 445.
Pollutant Control (Sec.4.504)		
16	4.504.1	HVAC system protection. During the construction process and until final startup of the HVAC system, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other method to reduce the amount of water, dust and debris which may enter the system.
17	4.504.2	Finish material pollutant control. Finish material pollutant control, shall comply as follows: a. Adhesives, sealants and caulks used on this project shall comply with SCAQMD Rule 1168 for VOC limits and toxic compounds. Aerosol adhesives, sealants and caulks (in packaging units not more than one pound or 16 fluid ounces) shall comply with statewide VOC standards. b. Paints and coatings shall comply with VOC limits in CalGreen Table 4.504.3. c. Aerosol paints and coatings shall comply with statewide requirements and other requirements noted in CalGreen Section 4.504.2.3 d. Carpet Systems. All carpeting and carpet cushion shall meet the requirements of the Carpet and Rug Institute Green Label Plus Program. Adhesives shall comply with VOC limits in CalGreen Table 4.504.1. e. Resilient flooring. Where installed, 80% of the floor area receiving resilient flooring shall comply with one or more of the standards listed in CalGreen Section 4.504.4. f. Composite wood products used on the interior or exterior of the building shall comply with the formaldehyde limits in CalGreen Table 4.504.5. Verification of compliance with the standards listed above shall be provided upon request to the building inspector.
Interior Moisture Control (Sec. 4.505)		
18	4.505.1	Interior moisture control. Buildings shall meet or exceed the provisions of the <i>California Building Code</i>. a. Concrete Slab foundations. Concrete Slab-on-grade foundations/floors that are required to have a vapor retarder by the <i>California Building Code</i> section 1907 or the <i>California Residential Code</i> section R506, shall have a capillary break consisting of a 4-inch-thick base of ½ inch or larger clean aggregate with a vapor retarder in direct contact with concrete. The concrete mix design shall address bleeding, shrinkage, and curling. For additional information, see American Concrete Institute, ACE 302.2R-06.

ITEM #	CODE SECTION	REQUIREMENTS
		b. Building materials with visible signs of water damage shall not be installed. Wall and floor framing lumber shall not be enclosed when the framing members exceed 19-percent moisture content. Moisture content shall be verified using one of the methods listed in CalGreen section 4.505.3. c. 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.
Indoor Air Quality (Sec.4.506)		
19	4.506.1	Bathroom and exhaust fans. Each bathroom (a room which contains a bathtub, shower, or tub/shower combination) shall be mechanically ventilated and shall comply with the following: a. Exhaust fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. b. Unless functioning as a component of a whole house ventilation system, bathroom exhaust fans must be controlled by a humidity control. c. Humidity controls shall be capable of adjustment between 50% and 80% relative humidity. Humidity control may utilize manual or automatic means of adjustment which may be a separate component to the exhaust fan (not required to be built-in).
Environmental Comfort (Sec. 4.507)		
20	4.507.2	Heating and air-conditioning system design. HVAC systems shall be sized, designed and have equipment selected using the methods listed in CalGreen Section 4.507.2.
Natural Light and Ventilation (Sec. 4.509)		
21	4.509.1 (GBSC)	Natural light and ventilation. <u>Provide calculation of required natural light and ventilation on plans showing the following:</u> a. The minimum glazed area for natural light shall not be less than 10 percent of the floor area of the room served. b. The minimum openable area for ventilation to the outdoors shall be 5 percent of the floor area of being ventilated.
Chapter 7 – INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS		
Qualifications (Sec. 702)		
22	702.1	Installer and training. HVAC system installers shall be trained and certified in the proper installation of HVAC systems and equipment by a recognized training or certification program. a. State certified apprenticeship programs. b. Public utility training programs. c. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. d. Programs sponsored by manufacturing organizations. e. Other programs acceptable to the enforcing agency.
23	702.2	Special inspection. When required by the <i>California Building Code</i>, or the approved plans, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with the CalGreen Code. Special inspectors shall comply with the following:

ITEM #	CODE SECTION	REQUIREMENTS
		a. Special Inspectors shall be approved by the City of Glendale Building & Safety Division prior to performing any special inspections of any component or system required by the CalGreen Code. b. Special inspectors shall be qualified and able to demonstrate competence to the enforcing agency in the discipline which they are inspecting. c. Special Inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting.
Verifications (Sec. 703)		
24	703.1	Documentation. Documentation used to show compliance with this code shall include but is not limited to: construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the City of Glendale which demonstrates substantial conformance.
DEFINITIONS		
25		ADDITION. An extension or increase in floor area of an existing building or structure.
26		ALTERATION OR ALTER. Any construction or renovation to an existing structure other than repair for the purpose of maintenance or addition.
27		LEVEL 2 ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The 208/240-volt 40-ampere branch circuit, and the electric vehicle charging 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 the electric vehicle.
28		GREEN BUILDING. A holistic approach to design, construction and demolition that minimizes the building's impact on the environment, the occupants and the community.
29		HIGH-RISE RESIDENTIAL BUILDING. For the purposes of CALGreen, any building that is of Occupancy Group R and is four stories or greater in height.
30		LOW-RISE RESIDENTIAL BUILDING. For the purpose of CALGreen, any building that is of Occupancy Group R and is three stories or less.
COMPLIANCE STATEMENT		
31		Compliance Statement. As the design professional or designer of record for this project, I certify that the design complies with all the applicable provisions of the 2022 California Green Building Standards Code (CalGreen Code) and including the Glendale Amendments to Volume IX Green Building Standards (Ord. No 5998 and No. 5999) of the 2023 Glendale Building and Safety Code. Signature _____ Print Name _____ Company _____ Address _____ Date _____ License _____

TABLE 4.504.1
ADHESIVE VOC LIMITS ^{1, 2}
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

TABLE 4.504.2
SEALANT VOC LIMITS
Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural	250
Nonporous	775
Porous	
Modified bituminous	500
Marine deck	760
Other	750

TABLE 4.504.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS ^{2, 3}
Grams of VOC per liter of Coating, Less Water and Less Exempt Compounds

COATING CATEGORY	VOC LIMITS
Flat coatings	50
Nonflat coatings	100
Nonflat-high gloss coatings	150
SPECIALTY COATINGS	
Aluminum roof coatings	400
Basement specialty coatings	400
Bituminous roof coatings	50
Bituminous roof primers	350
Bond breakers	350
Concrete curing compounds	350
Concrete/masonry sealers	100
Driveway sealers	50
Dry fog coatings	150
Faux finishing coatings	350
Fire resistive coatings	350
Floor coatings	100
Form-release compounds	250
Graphic arts coatings (sign paints)	500
High temperature coatings	420
Industrial maintenance coatings	250
Low solid coatings ¹	120
Magnesite cement coatings	450
Mastic texture coatings	100
Metallic pigmented coatings	500
Multicolor coatings	250
Pretreatment wash primers	420
Primers, sealers, and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Rust preventative coatings	250
Shellac Clear Opaque	730 550
Specialty primers, sealers and undercoaters	100
Stains	250
Stone Consolidation	450
Swimming pool coatings	340

TABLE 4.504.3 (CONT'D)
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS ^{2, 3}
Grams of VOC per liter of Coating, Less Water and Less Exempt Compounds

Traffic marking coatings	100
Tub and Tile refinish coating	420
Waterproofing membranes	250
Wood coatings	275
Wood preservatives	350
Zinc-rich primers	340

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

TABLE 4.504.5
FORMALDEHYDE LIMITS ¹
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard ²	0.13

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333-96(2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 8 millimeters.



CITY OF GLENDALE
BUILDING AND SAFETY DIVISION
VOC CONTENT VERIFICATION CHECKLIST
WORKSHEET WS-3



VOC content verification of paints, coatings, carpets, cushions, resilient flooring, adhesives, sealants, and caulks shall be identified on this checklist. VOC limits shall meet the limits specified in the 2022 Edition of the CALGreen Code. **Attach product specification sheets and other supporting documents.** Use additional sheets, if necessary.

Item #	Product Category (e.g. paint, carpet, adhesive)	Location (e.g. bedroom, kitchen)	Product Manufacturer	Product Specification (e.g. model #)	VOC Content (in grams/liter) or Standard (e.g. Green Label Plus)	Allowable VOC Content (in grams/liters)



CITY OF GLENDALE
BUILDING AND SAFETY DIVISION
VOC CONTENT VERIFICATION CHECKLIST
WORKSHEET WS-3



The following section shall be completed by a person with overall responsibility for the planning and design portion of the project.

DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided is true and correct.
- I certify that the installed measures, materials, components, or manufactured devices identified on this certificate conform to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcing agency.

Responsible Person's Name:	Responsible Person's Signature:
Date Signed:	Position/Title:
Notes:	

NOTE: This form should be completed, signed and submitted prior to request for final building inspection as required by the enforcing agency.



CITY OF GLENDALE
BUILDING AND SAFETY DIVISION
FORMALDEHYDE EMISSIONS VERIFICATION CHECKLIST
WORKSHEET WS-4



Formaldehyde emissions verification of non-structural engineered wood, hardwood plywood, particleboard, and medium density fiberboard composite wood shall be identified on this checklist. Formaldehyde limits shall meet the limits specified in the 2022 Edition of the CALGreen Code. **Attach product specification sheets and other supporting documents.** Use additional sheets, if necessary.

Item #	Product Category (e.g. particleboard, hardwood plywood, etc.)	Location (e.g. bedroom, kitchen)	Product Manufacturer	Product Specification (e.g. model #)	Formaldehyde Content (in parts per million)	Formaldehyde Limit (in parts per million)



CITY OF GLENDALE
BUILDING AND SAFETY DIVISION
FORMALDEHYDE EMISSIONS VERIFICATION CHECKLIST
WORKSHEET WS-4



The following section shall be completed by a person with overall responsibility for the planning and design portion of the project.

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