



2019 CAL GREEN RESIDENTIAL MANDATORY MEASURES CHECKLIST

DATE: _____

PERMIT NUMBER: BLD _____

JOB ADDRESS: _____

APPLICANT'S NAME: _____

PHONE NUMBER: _____

E-MAIL: _____

Following is a standardized checklist of the 2019 California Green Building Standards Code (CalGreen) requirements that may be used to demonstrate compliance with the CalGreen Mandatory Measures (chapter 4 and FMC 15.48). This checklist is required for all new buildings and additions/alterations that increase the building's conditioned area. The requirements shall apply only to and/or within the specific area of the addition or alteration. Complete and reproduce checklist on to the plan sets.

CALGREEN REFERENCE AND DESCRIPTION	DESIGNER'S COMMENTS WITH PLAN SHEET REFERENCE	CITY USE: FIELD VERIFICATION																		
PLANNING AND DESIGN – SITE DEVELOPMENT																				
4.106.2 Storm water drainage and retention during construction. A plan is developed and implemented to manage storm water drainage during construction.																				
4.106.3 Grading and paving. Surface water shall be managed to drain away from buildings.																				
4.106.4 Electric Vehicle Charging Provide capacity for electric vehicle charging in one- and two- family dwellings and townhouses with attached garages at the time of original construction. (For number of required EV ready parking spaces, see FMC 15.40.050). <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 35%;">Total Number of Actual Parking Spaces</th> <th style="width: 65%;">Number of Required EV-Ready Parking Spaces</th> </tr> </thead> <tbody> <tr><td>0-9</td><td>1</td></tr> <tr><td>10-25</td><td>2</td></tr> <tr><td>26-50</td><td>4</td></tr> <tr><td>51-75</td><td>6</td></tr> <tr><td>76-100</td><td>9</td></tr> <tr><td>101-150</td><td>12</td></tr> <tr><td>151-200</td><td>17</td></tr> <tr><td>201 and over</td><td>10% of total standard spaces (rounded up to the nearest whole number)</td></tr> </tbody> </table>	Total Number of Actual Parking Spaces	Number of Required EV-Ready Parking Spaces	0-9	1	10-25	2	26-50	4	51-75	6	76-100	9	101-150	12	151-200	17	201 and over	10% of total standard spaces (rounded up to the nearest whole number)		
Total Number of Actual Parking Spaces	Number of Required EV-Ready Parking Spaces																			
0-9	1																			
10-25	2																			
26-50	4																			
51-75	6																			
76-100	9																			
101-150	12																			
151-200	17																			
201 and over	10% of total standard spaces (rounded up to the nearest whole number)																			

ENERGY EFFICIENCY		
4.201.1 Scope Building meets or exceeds the requirements of the California Building Energy Efficiency Standards		
WATER EFFICIENCY AND CONSERVATION		
4.303.1 Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Sections 4303.1.1 through 4303.1.4.4.		
Water closets. The effective flush volume of all water closets shall not exceed 1.28 gpf. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.		
Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 glf The effective flush volume of all other urinals shall not exceed 0.50 glf		
Single showerheads. Showerheads shall have a max. flow rate of not more than 1.8 gpm at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.		
Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gpm at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.		
Residential lavatory faucets. The max flow rate of residential lavatory faucets shall not exceed 1.2 gpm at 60 psi. The min. flow rate of residential lavatory faucets shall not be less than 0.8 gpm at 20 psi.		
Lavatory faucets in common and public use areas. The max. flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gpm at 60 psi.		
Metering faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.20 gallons per cycle.		
Kitchen faucets. The max. flow rate of kitchen faucets shall not exceed 1.5 gpm at 60 psi.		
4.304.1. Irrigation Controllers. Automatic irrigation systems controllers installed at the time of final inspection shall be weather or soil moisture-based.		

MATERIAL CONSERVATION AND RESOURCE

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 enforcing agency.

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 one of the following:

1. Comply with a more stringent local construction and demolition waste management ordinance; or
2. A construction waste management plan, per Section 4.408.2; or
3. A waste management company, per Section 4.408.3; or
4. The waste stream reduction alternative, per Section 4.408.4.

4.410.1 Operation and maintenance manual.

An operation and maintenance manual shall be provided to the building occupant or owner.

ENVIRONMENTAL QUALITY

4.503.1 Fireplace.

Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA Phase II emission limits where applicable.

Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504.1 Covering of duct openings and protection of mechanical equipment during construction.

Duct openings and other related air distribution component openings shall be covered during construction

4.504.2.1 Adhesives, sealants and caulks.

Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.

ADHESIVE VOC LIMIT ^{1,2}	
(Less Water and Less Exempt Compounds in Grams per Liter)	
ARCHITECTURAL APPLICATIONS	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 VOC content specified in table, see South Coast Air Quality Management District Rule 1168.

SEALANT VOC LIMIT (Less Water and Less Exempt Compounds in Grams per Liter)	
SEALANTS	VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous	250
Porous	775
Modified bituminous	500
Marine deck	760
Other	750

4.504.2.2 Paints and coatings.
Paints, stains and other coatings shall be compliant with VOC limits.

VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS (Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds)	
COATING CATEGORY	VOC
Flat coatings	50
Nonflat coatings	100
Nonflat-high gloss coatings	150
SPECIALTY COATING	
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 solids 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
Roof coatings	50
Rust preventative coatings	250
Shellacs	
-Clear	730
-Opaque	550
Specialty primers, sealers and undercoaters	100
Stains	250
Stone consolidants	450
Swimming pool coatings	340
Traffic marking coatings	100
Tub and tile refinish coatings	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 derived from those specified by the California Air Resource Board, Architectural Coatings Suggested Control Measure February 1, 2008. More information is available from the Air Resources Board

4.504.2.3 Aerosol paints and coatings.

Aerosol paints and coatings shall be compliant with product weighted MIR limits for ROC and other toxic compounds.

4.504.2.4 Verification.

Documentation shall be provided to verify that compliant VOC limit finish materials have been used.

4.504.3 Carpet systems.

All carpet shall meet the testing and project requirements per sec. 4.504.3. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program. All carpet adhesive shall meet the requirements of Table 4.504.1.

<p>4.504.4 Resilient flooring systems. At least 80% of floor area receiving resilient flooring shall comply with the requirements per sec. 4.504.4.</p>																
<p>4.504.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard (MDF) used on interior or exterior of the building shall comply with formaldehyde emission limits per Table 4.504.5.</p> <table border="1" data-bbox="120 495 1182 753"> <thead> <tr> <th colspan="2" style="text-align: center;">FORMALDEHYDE LIMITS¹ (Maximum formaldehyde Emissions in Parts per Million)</th> </tr> <tr> <th>PRODUCT</th> <th>LIMIT</th> </tr> </thead> <tbody> <tr> <td>Hardwood plywood veneer core</td> <td>0.05</td> </tr> <tr> <td>Hardwood plywood composite core</td> <td>0.05</td> </tr> <tr> <td>Particleboard</td> <td>0.09</td> </tr> <tr> <td>Medium density fiberboard</td> <td>0.11</td> </tr> <tr> <td>Thin medium density fiberboard²</td> <td>0.13</td> </tr> </tbody> </table> <p>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 5/16 inch (8mm)</p>	FORMALDEHYDE LIMITS¹ (Maximum formaldehyde Emissions in Parts per Million)		PRODUCT	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		
FORMALDEHYDE LIMITS¹ (Maximum formaldehyde Emissions in Parts per Million)																
PRODUCT	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															
<p>4.505.2 Concrete slab foundations. Vapor retarder and capillary break is installed at slab-on-grade foundations.</p>																
<p>4.503.3 Moisture content of building materials. Moisture content of building materials used in wall and floor framing shall not to exceed 19% before enclosure. Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure.</p>																
<p>4.506 Indoor air quality and exhaust. Bathroom exhaust fans shall be ENERGY STAR ducted to outside. Unless functioning as a component of a whole house ventilation system, bathroom exhaust fans must be controlled by a humidistat between a relative humidity range of 50% - 80%.</p>																
<p>4.507.2 Heating and air-conditioning system design. Duct systems are sized, designed, and equipment is selected using the following methods:</p> <ol style="list-style-type: none"> 1. Establish heat loss and heat gain values according to ANSI/ACCA 2 Manual J-2004 or equivalent. 2. Size duct systems according to ANSI/ACCA 1 Manual D-2009 or equivalent. 3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2004 or equivalent 																
INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS																
<p>702.1 Installer Training. HVAC system installers are trained and certified in the proper installation of HVAC systems.</p>																
<p>702.2 Special Inspection. Special inspectors employed by the enforcing agency must be qualified and able to demonstrate competence in the discipline they are inspecting.</p>																

<p>703.1 Documentation. Verification of compliance with this code may include construction documents, plans, specifications builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance.</p>		
---	--	--

REFERENCES		
-------------------	--	--

<p><i>Green Building Design</i> https://fremont.gov/2173/Green-Building 2019 Green Building Standards Code, Part II https://codes.iccsafe.org/content/CAGBSC2019/cover Amendment to Green Building Code – See table 15 – 15.48 Fremont Green Building Standards Code https://www.codepublishing.com/CA/Fremont/#!/Fremont15/Fremont1548.html#15.48</p>		
--	--	--