

TOWN OF LOS ALTOS HILLS

26379 Fremont Road
 Los Altos Hills, CA 94022
 Phone: (650) 941-7222
 Fax: (650) 941-3160
www.losaltoshills.ca.gov



2019 California Green Building Code Residential Checklist

These Green Building mandatory measures apply to additions or alterations of existing residential buildings where the addition or alteration increases the buildings conditioned area, volume, or size. These requirements apply only to the specific area of addition or alteration.

New residences must comply with GreenPoint requirements per LAHMC 8-4.04.

Building Permit #: _____

Site Address: _____

Instructions: In the column labeled “Plan Reference,” specify where each measure can be found on the plans.

Chapter 3, Green Building	Plan Reference
General	
301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.	
301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration. Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.	
Chapter 4, Residential Mandatory Measures	Plan Reference
Planning and Design (Division 4.1)	
SITE DEVELOPMENT	
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. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.	
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 plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm 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. <ol style="list-style-type: none"> 1. Retention basins of sufficient size shall be utilized to retain storm water on the site. 2. Where storm water 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 method approved by the enforcing agency. 3. Compliance with a lawfully enacted storm water management ordinance. Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil or are part of a larger common plan of development which in total disturbs one acre or more of soil. https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html	
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. Examples of methods to manage surface water include, but are not limited to, the following: <ol style="list-style-type: none"> 1. Swales 2. Water collection and disposal systems 3. French drains 4. Water retention gardens 	

<p>5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.</p>																					
<p>Exception: Additions and alterations not altering the drainage path.</p> <p>4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i>, Article 625.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: <ol style="list-style-type: none"> 1.1. Where there is no commercial power supply. 1.2. Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit. 2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities. 																					
<p>4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. 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.</p>																					
<p>4.106.4.1.1 Identification. 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".</p>																					
<p>4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV space shall be designed to comply with the following:</p> <ol style="list-style-type: none"> 1. The minimum length of each EV space shall be 18 feet (5486 mm). 2. The minimum width of each EV space shall be 9 feet (2743 mm). 3. One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). <ol style="list-style-type: none"> 3a. 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. 																					
<p>4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240- volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. 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.</p>																					
<p>4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future 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. 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.</p>																					
<p>4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the <i>California Electrical Code</i>.</p>																					
<p>4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.</p> <table border="1" data-bbox="388 1648 1002 1955" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">TABLE 4.106.4.3.1</th> </tr> <tr> <th style="text-align: center;">Total # of Parking Spaces</th> <th style="text-align: center;"># of Required EV Spaces</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0-9</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">10-25</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">26-50</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">51-75</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">76-100</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">101-150</td> <td style="text-align: center;">7</td> </tr> <tr> <td style="text-align: center;">151-200</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: center;">201 & over</td> <td style="text-align: center;">6% of total</td> </tr> </tbody> </table>	TABLE 4.106.4.3.1		Total # of Parking Spaces	# of Required EV Spaces	0-9	0	10-25	1	26-50	2	51-75	4	76-100	5	101-150	7	151-200	10	201 & over	6% of total	
TABLE 4.106.4.3.1																					
Total # of Parking Spaces	# of Required EV Spaces																				
0-9	0																				
10-25	1																				
26-50	2																				
51-75	4																				
76-100	5																				
101-150	7																				
151-200	10																				
201 & over	6% of total																				

<p>4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:</p> <ol style="list-style-type: none"> 1. The minimum length of each EV space shall be 18 feet (5486mm) 2. The minimum width of each EV space shall be 9 feet (2743mm) 															
<p>4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.</p>															
<p>4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.</p>															
<p>4.106.4.3.5 Identification. The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5.</p>															
Energy Efficiency (Division 4.2)															
GENERAL															
<p>4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.</p>															
<p>2019 Energy Code performance compliance documentation must be provided in 8-1/2" X 11" format and must be replicated on the plans.</p>															
Water Efficiency and Conservation (Division 4.3)															
INDOOR WATER USE															
<p>4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4. Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.</p>															
<p>4.303.1.1 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 U.S. EPA WaterSense Specification for Tank-type Toilets. Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.</p>															
<p>4.303.1.2 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.</p>															
<p>4.303.1.3 Showerheads. Note: A hand-held shower shall be considered a showerhead.</p>															
<p>4.303.1.3.1 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 U.S. EPA WaterSense Specification for Showerheads.</p>															
<p>4.303.1.3.2 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 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.</p>															
<p>4.303.1.4 Faucets. Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.</p>															
<p>4.303.1.4.1 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.</p>															
<p>4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum 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 gallons per minute at 60 psi.</p>															
<p>4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.</p>															
<p>4.303.1.4.4 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.</p>															
<p>4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the <i>California Plumbing Code</i> and shall meet the applicable standards referenced in Table 1701.1 of the <i>California Plumbing Code</i>. Note: This table compiles the data in Section 4.303.1 and is included as a convenience for the user.</p>															
<table border="1"> <thead> <tr> <th colspan="2">MAXIMUM FIXTURE WATER USE</th> </tr> <tr> <th>Fixture Type</th> <th>Flow Rate</th> </tr> </thead> <tbody> <tr> <td>Residential Shower Heads</td> <td>1.8 GMP @ 80 PSI</td> </tr> <tr> <td>Residential Lavatory Faucets</td> <td>MAX. 1.2 FPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI</td> </tr> <tr> <td>Lavatory Faucets in Common & Public Use Areas</td> <td>0.5 GPM @ 60 PSI</td> </tr> <tr> <td>Kitchen Faucets</td> <td>1.8 GPM @ 60 PSI</td> </tr> <tr> <td>Metering Faucets</td> <td>0.2 GAL/CYCLE</td> </tr> </tbody> </table>		MAXIMUM FIXTURE WATER USE		Fixture Type	Flow Rate	Residential Shower Heads	1.8 GMP @ 80 PSI	Residential Lavatory Faucets	MAX. 1.2 FPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI	Lavatory Faucets in Common & Public Use Areas	0.5 GPM @ 60 PSI	Kitchen Faucets	1.8 GPM @ 60 PSI	Metering Faucets	0.2 GAL/CYCLE
MAXIMUM FIXTURE WATER USE															
Fixture Type	Flow Rate														
Residential Shower Heads	1.8 GMP @ 80 PSI														
Residential Lavatory Faucets	MAX. 1.2 FPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI														
Lavatory Faucets in Common & Public Use Areas	0.5 GPM @ 60 PSI														
Kitchen Faucets	1.8 GPM @ 60 PSI														
Metering Faucets	0.2 GAL/CYCLE														

	Water Closet	1.28 GAL/FLUSH	
	Urinals	0.125 GAL/FLUSH	
OUTDOOR WATER USE			
4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. 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.			
NOTES:			
1. The Model Water Efficient Landscape Ordinance (MWELo) is located in the <i>California Code Regulations</i> , Title 23, Chapter 2.7, Division 2. MWELo and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/			
Projects with aggregate landscape over 500 square feet shall conform to MWELo 2019 CGC §4.304			
Material Conservation and Resource Efficiency (Division 4.4)			
ENHANCED DURABILITY AND REDUCED MAINTENANCE			
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.			
CONSTRUCTION WASTE REDUCTION, DISPOSAL, AND RECYCLING			
4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.			
Exceptions:			
<ol style="list-style-type: none"> 1. Excavated soil and land-clearing debris. 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. 3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility. 			
4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.			
<ol style="list-style-type: none"> 1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale. 2. Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream). 3. Identify diversion facilities where the construction and demolition waste material collected will be taken. 4. Identify construction methods employed to reduce the amount of construction and demolition waste generated. 5. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both. 			
4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.			
Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.			
4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4lbs./sq.ft. of the building			
4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1			
4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4.			
Notes:			
<ol style="list-style-type: none"> 1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section. 2. Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle). 			
BUILDING MAINTENANCE AND OPERATION			
4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:			
<ol style="list-style-type: none"> 1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure. 2. Operation and maintenance instructions for the following: <ol style="list-style-type: none"> a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment. b. Roof and yard drainage, including gutters and downspouts. c. Space conditioning systems, including condensers and air filters. 			

<ul style="list-style-type: none"> d. Landscape irrigation systems. e. Water reuse systems. <ol style="list-style-type: none"> 3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations. 4. Public transportation and/or carpool options available in the area. 5. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range. 6. Information about water-conserving landscape and irrigation design and controllers which conserve water. 7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation. 8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc. 9. Information about state solar energy and incentive programs available. 10. A copy of all special inspections verifications required by the enforcing agency or this code. 	
<p>4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.</p> <p>Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.</p>	
Environmental Quality (Division 4.5)	
GENERAL	
<p>4.501.1 Scope The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.</p>	
FIREPLACES	
<p>4.503.1 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. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.</p>	
POLLUTANT CONTROL	
<p>4.504.1 COVERING OF DUCT OPENINGS & 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, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.</p>	
<p>4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.</p>	
<p>4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:</p> <ol style="list-style-type: none"> 1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below. 2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, 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 other requirements, including prohibitions on use of certain toxic compounds, of <i>California Code of Regulations</i>, Title 17, commencing with section 94507. 	
<p>4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.</p>	
<p>4.504.2.3 Aerosol Paints and Coatings. 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 <i>California Code of Regulations</i>, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.</p>	
<p>4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:</p> <ol style="list-style-type: none"> 1. Manufacturer's product specification. 2. Field verification of on-site product containers. 	

TABLE 4.504.1 ADHESIVE VOC LIMIT ^{1,2}

Less Water & Less Exempt Compounds in Grams per Liter

Architectural Applications	VOC Limit	Specialty Applications	VOC Limit
Indoor Carpet Adhesives	50	PVC Welding	510
Carpet Pad Adhesives	50	CPVC Welding	490
Outdoor Carpet Adhesives	150	ABS Welding	325
Wood Flooring Adhesives	100	Plastic Cement Welding	250
Rubber Floor Adhesives	60	Adhesive Primer for Plastic	550
Subfloor Adhesives	50	Contact Adhesive	80
Ceramic Tile Adhesives	65	Special Purpose Contact Adhesive	250
VCT & Asphalt Tile Adhesives	50	Structural Wood Member Adhesive	140
Drywall & Panel Adhesives	50	Top & Trim Adhesive	250
Cove Base Adhesives	50	Substrate Specific Applications	VOC Limit
Multipurpose Construction Adhesives	70	Metal to Metal	30
Structural Glazing Adhesives	100	Plastic Foams	50
Single-Ply Roof Membrane Adhesives	250	Porous Material (except Wood)	50
Other Adhesives Not Listed	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 in this table, refer to **the Bay Area Air Quality Management District Regulations**.

TABLE 4.504.2 SEALANT VOC LIMIT

Less Water & Less Exempt Compounds in Grams per Liter

Sealant	VOC Limit	Sealant Primers	VOC Limit
Architectural	250	Architectural	
Marine Deck	760	Non-Porous	250
Nonmembrane Roof	300	Porous	775
Roadway	250	Modified Bituminous	500
Single-Ply Roof Membrane	450	Marine Deck	760
Other	420	Other	750

TABLE 4.504.3 VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS ^{2,3}

Grams of VOC per Liter of Coating, Less Water & Less Exempt Compounds

Coating Category	VOC Limit	Specialty Coatings, cont'd	VOC Limit
Flat Coatings	50	Mastic Texture Coatings	100
Non-Flat Coatings	100	Metallic Pigmented Coatings	500
Non-Flat, High Gloss Coatings	150	Multicolor Coatings	250
Specialty Coatings	VOC Limit	Pretreatment Wash Primers	420
Aluminum Roof Coatings	400	Primers, Sealers, & Undercoaters	100
Basement Specialty Coatings	400	Reactive Penetrating Sealers	350
Bituminous Roof Coatings	50	Recycled Coatings	250
Bituminous Roof Primers	350	Roof Coatings	50
Bond Breakers	350	Rust Preventative Coatings	250
Concrete Curing Compounds	350	Shellacs	
Concrete/Masonry Sealers	100	Clear	730
Driveway Sealers	50	Opaque	550
Dry Fog Coatings	150	Specialty Primers, Sealers & Undercoaters	100
Faux Finishing Coatings	350	Stains	250
Fire Resistive Coatings	350	Stone Consolidants	450
Floor Coatings	100	Swimming Pool Coatings	340
Form-Release Compounds	250	Traffic Marking Coatings	100
Graphic Arts Coatings (Sign Paints)	500	Tub & Tile Refinish Coatings	420
High Temperature Coatings	420	Waterproofing Membranes	250
Industrial Maintenance Coatings	250	Wood Coatings	275
Low Solids Coatings ¹	120	Wood Preservatives	350
Magnesite Cement Coatings	450	Zinc-Rich Primers	340

1. Grams of VOC per liter of coating, including water & 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, Feb 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
Particle Board	0.09
Medium Density Fiberboard	0.11
Thin Medium Density Fiberboard ²	0.13

- 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. For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.
- Thin Medium Density Fiberboard has a maximum thickness of $\frac{5}{16}$ " (8mm).

4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product requirements of at least one of the following:

- Carpet and Rug Institute's Green Label Plus Program.
- 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).
- NSF/ANSI 140 at the Gold level.
- Scientific Certifications Systems Indoor Advantage™ Gold.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with one or more of the following:

- 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.
- Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
- Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
- 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).

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings 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

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

- Product certifications and specifications.
- Chain of custody certifications.
- Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
- Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
- Other methods acceptable to the enforcing agency.

INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

- A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) 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.
- Other equivalent methods approved by the enforcing agency.
- A slab design specified by a licensed design professional.

4.505.3 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:

- Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.

<ol style="list-style-type: none"> 2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified. 3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. 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 manufacturers' drying recommendations prior to enclosure. 	
INDOOR AIR QUALITY AND EXHAUST	
<p>4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:</p> <ol style="list-style-type: none"> 1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. 2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control. <ol style="list-style-type: none"> a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment. b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in) <p>Notes:</p> <ol style="list-style-type: none"> 1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination. 2. Lighting integral to bathroom exhaust fans shall comply with the <i>California Energy Code</i>. 	
ENVIRONMENTAL COMFORT	
<p>4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:</p> <ol style="list-style-type: none"> 1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods. 2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods. 3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods. <p>Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.</p>	
Chapter 7, Installer & Special Inspector Qualifications	Plan Reference
Qualifications	
<p>702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems.</p> <p>Examples of acceptable HVAC training and certification programs include but are not limited to the following:</p> <ol style="list-style-type: none"> 1. State certified apprenticeship programs. 2. Public utility training programs. 3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. 4. Programs sponsored by manufacturing organizations. 5. Other programs acceptable to the enforcing agency. 	
<p>702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, 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 this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:</p> <ol style="list-style-type: none"> 1. Certification by a national or regional green building program or standard publisher. 2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors. 3. Successful completion of a third-party apprentice training program in the appropriate trade. 4. Other programs acceptable to the enforcing agency. <p>Notes:</p> <ol style="list-style-type: none"> 1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code. 2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS). <p>[BSC] When required by the enforcing agency, 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 this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.</p> <p>Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.</p>	

Verifications	
<p>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 enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.</p>	
Responsible Designer's Declaration Statement	Contractor's Declaration
I hereby certify that this project has been designed to meet the requirements of the 2019 Green Building Code.	I hereby certify, as the builder or installer, that this project will be constructed to meet the requirements of the 2019 Green Building Code.
Name:	Name:
Address:	Address:
City/State/Zip Code:	City/State/Zip Code:
Signature:	Signature:
Date:	Date: