



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
See specific referenced sections for complete details on CALGreen requirements.

2022 CALGREEN CODE

DIVISION A4.1 – PLANNING AND DESIGN

SECTION	REQUIREMENTS
A4.106.2.3	Topsoil protection
	<p>Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.</p> <p>Note: Protection from erosion includes covering with tarps, straw, mulch, chipped wood, vegetative cover, or other means acceptable to the enforcing agency to protect the topsoil for later use.</p>
A4.106.4	Water permeable surfaces
	Not less than 20% of the total parking, walking or patio surfaces shall be permeable.
A4.106.5	Cool roof for reduction of heat island effect
	<p>Roofing materials for Tier 1 buildings shall comply with this section.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Roof constructions that have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 lbs/sf. 2. Roof areas covered by building integrated solar photovoltaic panels and solar thermal panels.
A4.106.5.1	Solar reflectance
	<ul style="list-style-type: none"> • Roofing materials shall have a minimum 3-year aged solar reflectance equal to or greater than the values specified in Tables A4.106.5.1(1) and A4.106.5.1(3). • If Cool Roof Rating Council (CRRC) testing for aged solar reflectance is not available, see Section A4.106.5.1 and Table A4.106.5.1.
A4.106.5.2	Thermal emittance
	<ul style="list-style-type: none"> • Roofing materials shall have a CRRC initial or aged thermal emittance equal to or greater than those specified in Tables A4.106.5.1(1) and A4.106.5.1(3). • Thermal emittance may also be certified by other entities approved by the Energy Commission pursuant to Title 24, Part 1, the <i>California Administrative Code</i>.



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
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2022 CALGREEN CODE

A4.106.5.3	Solar reflectance index alternative
	<ul style="list-style-type: none"> • Solar Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5.1(1) & A4.106.5.1(3) may be used as an alternative to compliance with the 3-year aged solar reflectance values and thermal emittance. • SRI values shall be calculated as allowed in Section A4.106.5.3. • Note: An SRI Calculation Worksheet (SRI-WS) is available by contacting the Energy Standards Hotline by phone at (800) 772-3300 (toll-free within California) or (916) 654-5106; on the California Energy Commission website at: https://www.energy.ca.gov/; or by email at title24@energy.ca.gov.
A4.106.5.4	Verification
	<p>Inspection shall be conducted to ensure roofing materials meet cool roof aged solar reflectance and thermal emittance or SRI values.</p>
A4.106.8	Electric vehicle (EV) charging for new construction
	<p>New construction shall comply with Section A4.106.8.1 or A4.106.8.2 to facilitate the installation and use of EV ready spaces. Electric vehicle supply equipment (EVSE) shall comply with the <i>California Electrical Code</i>.</p>
A4.106.8.1	New one- and two-family dwellings and townhouses with attached private garages
	<p>For each dwelling unit, a dedicated 208/240-volt branch circuit shall be installed in the raceway required by Section 4.106.4.1. The branch circuit and associated overcurrent protective device shall be rated at 40 amperes minimum.</p>
A4.106.8.1.1	Identification
	<p>Service panel or subpanel circuit directory shall identify the overcurrent protective device designated for future EV charging purposes as “EV READY” in accordance with the <i>California Electrical Code</i>. Receptacle or blank cover shall be identified as “EV READY.”</p>



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
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2022 CALGREEN CODE

	New multifamily dwellings, hotels and motels
<p>A4.106.8.2 & A4.106.8.2.1 & A4.106.8.2.2</p>	<p>New multifamily dwellings, hotels and motels shall meet the following requirements: Tier 1. Consists of Option A and Option B. One or both may be adopted as voluntary measures.</p> <p>Option A for New multifamily dwellings, hotels and motels</p> <p>1. EV Ready Parking Spaces with Receptacles</p> <ul style="list-style-type: none"> a. Hotels and Motels 50% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. b. Multifamily parking facilities 50% of the total number of parking spaces shall be equipped with low power Level 2 EV charging receptacles. EV charging receptacles required by this section shall be located in at least one assigned parking space per dwelling unit where assigned parking is provided but need not exceed 50% of the total number of assigned parking spaces provided on the site. <p>Exception:</p> <ul style="list-style-type: none"> 1. Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging. 2. Hotels and motels may install Level 2 EV chargers instead of all or portions of the required percentage of low power Level 2 receptacles for EV charging. Where Level 2 EV chargers are installed in place of low power Level 2 receptacles, at least 50% of the installed EV chargers shall be equipped with J1772 connectors. <p>2. EV Ready Parking spaces with EV Chargers</p> <ul style="list-style-type: none"> a. Hotels and Motels 15% of the total number of parking spaces shall be equipped with level 2 EV chargers. At least 50% of chargers shall be equipped with J1772 connectors. Where common use parking or unassigned parking is provided, EV chargers shall be located in common use or unassigned parking areas and shall be available for use by all residents or guests. b. Multifamily parking facilities 15% of the total number of parking spaces shall be equipped with level 2 EV chargers. At least 50% of chargers shall be equipped with J1772 connectors. EV chargers shall be located in common use or unassigned parking areas for residents and guests.



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
See specific referenced sections for complete details on CALGreen requirements.

2022 CALGREEN CODE

Exception: Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging.

An automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EV chargers shall have a capacity of not less than 30 amperes.

- **Option B Multifamily Dwellings**

1. **EV Ready parking spaces with receptacles** Multifamily parking facilities install low power level 2 EV charging receptacles in at least one parking space for each dwelling unit with assigned parking.

Exception:

1. Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging.
2. Where the number of parking spaces available for residents is less than the total number of dwelling units.

2. **EV Ready parking spaces with EV chargers** 10%, but not less than one, of common use parking spaces shall be equipped with level 2 EV chargers for use by all residents or guests. At least 50% of chargers shall be equipped with J1772 connectors. EV chargers shall be located in common use parking areas for residents and guests. Automatic load management systems (ALMS) may be used to reduce the maximum required electrical capacity.

Exception:

1. Areas of parking facilities served by parking lifts, including but not limited to automated mechanical-access open parking garages as defined in the California Building Code; or parking facilities otherwise incapable of supporting electric vehicle charging.
2. Where no common use spaces are provided.

An automatic load management system (ALMS) may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The electrical system and any on-site distribution transformers shall have sufficient capacity to deliver at least 3.3 kW simultaneously to



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
See specific referenced sections for complete details on CALGreen requirements.

2022 CALGREEN CODE

	each EV charging station (EVCS) served by the ALMS. The branch circuit shall have a minimum capacity of 40 amperes, and installed EV chargers shall have a capacity of not less than 30 amperes.
A4.601.4.2	Prerequisite and elective measures for Tier 1
	Comply with at least two elective measures selected from Division A4.1.

DIVISION A4.2 – ENERGY EFFICIENCY

SECTION	REQUIREMENTS
A4.203.1.1	Low-Rise Residential Prerequisites A4.203.1.1 through A4.203.1.3
	Hourly Source Energy Design Rating (EDR1) for the Proposed Design Building is included in the Certificate of Compliance documentation shall be calculated by compliance software certified by the Energy Commission and included in the Certificate of Compliance documentation. <ul style="list-style-type: none"> • See Table A4.203.1.1 Recommended EDR1 Margins by Climate Zones, with note.
A4.203.1.2	<p>Prerequisite Options. <u>Two</u> of the following efficiency measures are required:</p> <p>A4.203.1.2.1 – Roof deck insulation or ducts in conditioned space. A4.203.1.2.2 – High performance walls. A4.203.1.2.3 – Compact hot water distribution system. A4.203.1.2.4 – Drain water heat recovery. A4.203.1.2.5 – High performance vertical fenestration. A4.203.1.2.6 – Heat pump water heater demand management. A4.203.1.2.7 – Battery storage system controls. A4.203.1.2.8 – Heat pump space and water heating.</p>
A4.203.1.3	Local jurisdictions considering the adoption of reduced EDR targets based on using solar photovoltaic (PV) systems larger than required by the <i>California Energy Code</i> shall consult with the local electric service provider for acceptance. The local jurisdiction shall not require onsite PV systems that are larger than the local electric service provider will allow to be interconnected.



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
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2022 CALGREEN CODE

DIVISION A5.2 – ENERGY EFFICIENCY

SECTION	REQUIREMENTS
	<p>High-Rise Residential and Hotel/Motel Prerequisites</p> <p>A5.203.1.1 and A5.203.1.2.1 apply if lighting and mechanical systems are included. Buildings permitted without lighting or mechanical systems shall comply with Section A5.203.1.1 only.</p>
A5.203.1.1	<p>Tier 1. <u>One</u> of the following efficiency measures is required:</p> <p>A5.203.1.1.1 – ≤ 90% of Allowed Outdoor Lighting Power and color temperature for applicable general hardscape lighting is ≤ 3000K. See exception.</p> <p>A5.203.1.1.2 – Newly constructed restaurants ≥ 8000 square feet with service water heaters rated ≥ 75,000 Btu/h shall install a solar water-heating system with a minimum solar savings fraction of 0.15. See exceptions.</p> <p>A5.203.1.1.3 – Exterior loading dock doors adjacent to conditioned or indirectly conditioned spaces shall have dock seals or dock shelters installed at the time of permit. Applies to newly constructed buildings and to loading dock doors added to existing buildings.</p> <p>A5.203.1.1.4 – Daylighting devices shall be installed as specified in Title 24, Part 6, <i>California Energy Code</i>, Section 140.3(d).</p> <p>A5.203.1.1.5 – Heat recovery requirements based on ASHRAE 90.1, Section 6.5.6.1 are adapted and modified for California climate zones as specified in CALGreen. See exceptions.</p>



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

This list focuses on TIER 1 measures only.
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2022 CALGREEN CODE

	High-Rise Residential and Hotel/Motel Performance Standards
A5.203.1.2.1	<p>Tier 1. Buildings complying with the first level of advanced energy efficiency shall have an Energy Budget no greater than indicated below, depending on building type and type of energy systems included in the building project. If the newly constructed building or addition does not include indoor lighting or mechanical systems, no additional performance requirements above the <i>California Energy Code</i> are required.</p> <ol style="list-style-type: none"> 1. For nonresidential building projects that include indoor lighting or mechanical systems, but not both: No greater than 95% of the <i>California Energy Code's</i> Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission. 2. For nonresidential building projects that include indoor lighting and mechanical systems: No greater than 90% of the <i>California Energy Code's</i> Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission. 3. High-rise residential and hotel/motel projects: No greater than 95% of the <i>California Energy Code's</i> Energy Budget for the Standard Design Building as calculated by compliance software certified by the Energy Commission.

DIVISION A4.3 – WATER EFFICIENCY AND CONSERVATION

SECTION	REQUIREMENTS
A4.601.4.2	Required elective measures
	Comply with at least two elective measures selected from Division A4.3.

DIVISION A4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION	REQUIREMENTS
A4.403.2	Reduction in cement use
	<ol style="list-style-type: none"> 1. As allowed by the enforcing agency, cement used in foundation mix design shall be reduced to not less than 20%. 2. Examples of products commonly used to replace cement in concrete mix designs: fly ash, slag, silica fume, and rice hull ash.



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

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2022 CALGREEN CODE

	Recycled content
A4.405.3.1	<p>Use materials, equivalent in performance to virgin materials, with a total (combined) recycled content value (RCV) of not less than 10% per Section A4.405.3.1.</p> <p>Note: Interactive forms for calculation of RCV are available on the HCD CALGreen website at: https://www.hcd.ca.gov/building-standards/calgreen</p>
	Enhanced construction waste reduction
A4.408.1	<p>Nonhazardous construction and demolition debris generated at the site is diverted to recycle or salvage in compliance with the following:</p> <ul style="list-style-type: none"> • At least a 65% reduction. • Any mixed recyclables sent to mixed-waste recycling facilities shall include a qualified third party verified facility average diversion rate. Verification of diversion rates shall meet minimum certification eligibility guidelines, acceptable to the local enforcing agency. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Equivalent or alternative waste reduction methods are developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist. 2. The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.
	Required elective measures
A4.601.4.2	Comply with at least two elective measures selected from Division A4.4.



2022 CALGREEN TIER 1 RESIDENTIAL MEASURES EFFECTIVE July 1, 2024

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2022 CALGREEN CODE

DIVISION A4.5 – ENVIRONMENTAL QUALITY

SECTION	REQUIREMENTS
A4.504.2	Resilient flooring systems
	<p>At least 90% of the total area of resilient flooring systems installed in the building shall meet the percentages specified in this section and meet the requirements of the California Department of Public Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,” Version 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health’s website for certification programs and testing labs: https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/AQS/Pages/VOCs.aspx</p> <p>Note: Documentation must be provided that verifies the materials are certified to meet the pollutant emission limits in this section.</p>
A4.504.3	Thermal insulation
	<p>Install thermal insulation that meet the requirements of the California Department of Public Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,” Version 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health’s website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/AQS/Pages/VOCs.aspx</p> <p>Note: Documentation must be provided that verifies the materials are certified to meet the pollutant emission limits in this section.</p>
A4.601.4.2	Required elective measures
	Comply with at least two elective measures selected from Division A4.5