

**CALIFORNIA BUILDING STANDARDS COMMISSION  
2016 INTERVENING CYCLE  
GREEN BUILDING FOCUS GROUP  
WORKSHOP #2  
November 18, 2016 - Agenda Item 4f**

**DRAFT EXPRESS TERMS for the 2016  
CALIFORNIA GREEN BUILDING STANDARDS CODE,  
(CALGreen), PART 11,  
CALIFORNIA BUILDING STANDARDS CODE,  
TITLE 24, CALIFORNIA CODE OF REGULATIONS**

**Proposed code language for the 2016 Intervening Code Adoption Cycle**

LEGEND FOR DRAFT EXPRESS TERMS	
1.	New California amendments: All such language appears <u>underlined</u> .
2.	Repealed text: All such language appears in <del>strikeout</del> . <i>[Information for the reader is bracketed and in red italics]</i>

**Table A5.601 and A5.602 Nonresidential Occupancies Application Checklists**

**Statement of specific purpose, problem, rationale and benefits:**

- CBSC is proposing to amend Table A5.601 by adding a note to the new proposed checklist tables (found in Attachments A, B, and C) and to add additional references to checklist within Table A5.601. Additionally Section A5.602 Nonresidential Occupancies Application Checklists is being repealed in its entirety and replaced with three checklist tables. These three new checklist tables are developed to show compliance with; mandatory measures, Tier 1 measures and the Tier 2 measures. This proposed code change will give guidance to local jurisdictions for determining if Tier 1 or Tier 2 reach standards are being achieved. These checklist tables will provide a useful tool that can be used on the construction documents.

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**A5.601.4 Compliance verification. ...**

**TABLE A5.601 NONRESIDENTIAL BUILDINGS:  
Green Building Standards Code Proposed Performance Approach**

*Note: This table is intended only as an aid in illustrating the nonresidential tier structure*

*(Refer to Tables A5.602, A5.602.1 and A5.602.2 for CALGreen Verification guidelines for Mandatory Checklist, Tier 1 Checklist and Tier 2 Checklist)*

CATEGORY	ENVIRONMENTAL PERFORMANCE GOAL	TIER 1	TIER 2
<b>All</b>	Minimum Mandatory  (See Mandatory Checklist)	Meet all of the provisions of Chapter 5  (See Tier 1 Checklist)	Meet all of the provision of Chapter 5  (See Tier 2 Checklist)
<b>DIVISION 5.1 Planning and Design</b>	Designated Parking for Fuel Efficient	10% of total spaces	12% of total spaces
	Electric Vehicle Charging	Approx. 4% of total spaces	Approx. 6% of total spaces
	Cool Roof to Reduce Heat Island Effect	Roof Slope < 2:12 SRI 75 Roof Slope > 2:12 SRI 16	Roof Slope < 2:12 SRI 82 Roof Slope > 2:12 SRI 27
		1 additional Elective from Division A5.1	3 additional Electives from
<b>DIVISION 5.2 Energy Efficiency</b>	Energy Performance <sup>2a, 2b</sup>	Outdoor lighting power 90% of Part 6 allowance	Outdoor lighting power 90% of Part 6 allowance

		If applicable, solar water-heating system with minimum solar savings fraction of 0.15	If applicable, solar water-heating system with minimum solar savings fraction of 0.15
		If applicable, certain functional areas comply with residential indoor lighting requirements	If applicable, certain functional areas comply with residential indoor lighting requirements
		Energy Budget 95% or 90% of Part 6 calculated value of	Energy Budget 90% or 85% of Part 6 calculated value of
<b><u>DIVISION 5.3</u></b> <b>Water Efficiency</b>	Indoor Water Use	12% Savings	20% Savings
	Outdoor Water Use	Not to exceed 60% of ETo times the landscape	Not to exceed 55% of ETo times the
		1 additional Elective from Division A5.3	3 additional Electives from
<b><u>DIVISION 5.4</u></b> <b>Material Conservation and</b>	Construction Waste Reduction	At least 65% reduction	At least 80% reduction
	Recycled Content	Utilize recycled content materials for 10% of total material cost	Utilize recycled content materials for 15% of total material cost
		1 additional Elective from Division A5.4	3 additional Electives from
<b><u>DIVISION 5.5</u></b> <b>Environmental Quality</b>	Low-VOC Resilient Flooring	90% of flooring meets VOC limits	100% of flooring meets VOC limits <sup>1</sup>
	Low-VOC Thermal Insulation	Comply with VOC limits	Install no-added formaldehyde insulation and comply with VOC limits
		1 additional Elective from Division A5.5	3 additional Electives from
<b>Additional Measures</b>	Added measures shall be achieved across at least 3 categories	1 additional Elective	3 additional Electives
<b>Approximate Total</b>		14	24

1. Exception: Allowance may be permitted in Tier 2 for up to 5-percent specialty purpose flooring.

2. Solar water-heating system requirement for newly constructed restaurants as per A5.203.1.1.2.

**Exceptions:**

a. Buildings with a natural gas service water heater with a minimum of 95-percent thermal efficiency.

b. Buildings where greater than 75 percent of the total roof area has annual solar access that is less than 70 percent. Solar access is the ratio of solar insolation including shade to the solar insolation without shade. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.

3. Life cycle assessment compliant with Section A5.409.4 in this code may be substituted for prescriptive measures from Division A5.4.

**SECTION A5.602**  
**NONRESIDENTIAL OCCUPANCIES APPLICATION CHECKLISTS<sup>4</sup>**  
**Tables A5.602 Mandatory Checklist, Table A5.602.1 Tier 1 Checklist and Table A5.602.2 Tier 2**  
**Checklist**

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<b>Requirements</b>			
Project meets all of the requirements of Divisions 5.1 through 5.5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Planning and Design</b>			
<b>Site Selection</b>			
<b>A5.103.1 Community connectivity.</b> Locate project on a previously developed site within a <sup>1</sup> / <sub>2</sub> -mile radius of at least ten basic services, listed in Section A5.103.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.103.2 Brownfield or greyfield site redevelopment or infill area development.</b> Select for development a brownfield in accordance with Section A5.103.2.1 or on a greyfield or infill site as defined in Section A5.102. <b>A5.103.3.1 Brownfield redevelopment.</b> Develop a site documented as contaminated and fully remediated or on a site defined as a brownfield.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Site Preservation</b>			
<b>A5.104.1.1 Local zoning requirement in place.</b> Exceed the zoning's open space vegetated open space on the site by 25 percent. <b>A5.104.1.2 No local zoning requirement in place.</b> Provide vegetated open space area to the building equal to the building footprint area. <b>A5.104.1.3 No open space required in zoning ordinance.</b> Provide vegetated open to 20 percent of the total project site area.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Deconstruction and Reuse of Existing Structures</b>			
<b>A5.105.1.1 Existing building structure.</b> Maintain at least 75 percent of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing) based on surface area. <b>Exceptions:</b> 1. Window assemblies and nonstructural roofing material. 2. Hazardous materials that are remediated as a part of the project. 3. A project with an addition of more than two times the square footage of the existing building. <b>A5.105.1.2 Existing nonstructural elements.</b> Reuse existing interior nonstructural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50 percent of the area of the completed building (including additions). <b>Exception:</b> A project with an addition of more than two times the square footage of the existing building. <b>A5.105.1.3 Salvage.</b> Salvage additional items in good condition such as light fixtures, plumbing fixtures and doors for reuse on this project in an onsite storage area or for salvage in dedicated collection bins. Document the weight or number of the items		<input type="checkbox"/>	<input type="checkbox"/>
<b>Site Development</b>			
<b>5.106.1 Storm water pollution prevention.</b> Newly constructed projects and additions which disturb less than one acre of land shall prevent the pollution of stormwater runoff from the construction activities through local ordinance in Section 5.106.1.1 or Best management practices (BMP) in Section 5.106.1.2. <b>A5.106.2 Storm water design.</b> Design storm water runoff rate and quantity in conformance with Section A5.106.3.1 and storm water runoff quality by Section A5.106.3.2 or by local requirements, whichever are stricter. <b>A5.106.2.1 Storm water runoff rate and quantity.</b> Implement a storm water management plan resulting in no net increase in rate and quantity of storm water runoff from existing to developed conditions. <b>Exception:</b> If the site is already greater than 50 percent impervious, implement a storm water management plan resulting in a 25 percent decrease in rate and quantity. <b>A5.106.2.2 Storm water runoff quality.</b> Use post construction treatment control best management practices (BMPs) to mitigate (infiltrate, filter or treat) storm water	<input type="checkbox"/>  or <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.106.3 Low impact development (LID).</b> Reduce peak runoff in compliance with Section 5.106.3.1. Employ at least two of the following methods or other best management practices to allow rainwater to soak into the ground, evaporate into the air or collect in storage receptacles for irrigation or other beneficial uses. LID strategies include, but are		<input type="checkbox"/>	<input type="checkbox"/>



APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<p><b>Light pollution reduction. [N]</b> Outdoor lighting systems shall be designed and installed to comply with the following:</p> <ol style="list-style-type: none"> <li>1. The minimum requirements in the <i>California Energy Code</i> for Lighting Zones 1–4 as defined in Chapter 10 of the <i>California Administrative Code</i>; and</li> <li>2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11; and</li> <li>3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or</li> </ol> <p>Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.</p> <p><b>Exceptions: [N]</b></p> <ol style="list-style-type: none"> <li>1. Luminaires that qualify as exceptions in Section 140.7 of the <i>California Energy Code</i></li> <li>2. Emergency lighting</li> </ol>	<input type="checkbox"/>   or <input type="checkbox"/>		
<p><b>5.106.10 Grading and paving.</b> Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include those shown in Items 1–5. See exception for additions or alterations.</p>	<input type="checkbox"/>		
<p><b>A5.106.11 Heat island effect.</b> Reduce nonroof heat islands and roof heat islands as follows: <b>A5.106.11.1 Hardscape alternatives.</b> Use one or a combination of strategies 1 through 2 for 50 percent of site hardscape or put 50 percent of parking underground.</p> <ol style="list-style-type: none"> <li>1. Use light colored materials with an initial solar reflectance value of at least .30 as determined in accordance with ASTM Standards E 1918 or C 1549.</li> <li>2. Use open-grid pavement system or pervious or permeable pavement system.</li> </ol> <p><b>A5.106.11.2 Cool roof for reduction of heat island effect.</b> Use roofing materials having a minimum aged solar reflectance, thermal emittance complying with Sections A5.106.11.2.2 and A5.106.11.2.3 or a minimum aged or Solar Reflectance Index (SRI) equal to or greater than the values shown in:</p> <p>Table A5.106.11.2.2 – Tier 1 or Table A5.106.11.2.3 – Tier 2</p> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. Roof constructions that have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 lb/sf.</li> <li>2. Roof area covered by building integrated solar photovoltaic and building</li> </ol>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>1</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<b>Energy Efficiency</b>			
<b>Performance Requirements</b>			
<b>5.201.1 Scope.</b> Building meets or exceeds the requirements of the California Building Energy Efficiency Standards.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.203.1 Energy efficiency.</b> Nonresidential, high-rise residential and hotel/motel buildings that include lighting and/or mechanical systems shall comply with Sections A5.203.1.1 and either A5.203.1.2.1 or A5.203.1.2.2. Newly constructed buildings, as well as additions and alterations, are included in the scope of these sections. Buildings permitted without lighting or mechanical systems shall comply with Section A5.203.1.1 but are not required to comply with Sections A5.203.1.1.2 or A5.203.1.2.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.203.1.1.1 Outdoor lighting.</b> Newly installed outdoor lighting power is no greater than 90 percent of the Title 24, Part 6 calculated value of allowed outdoor lighting		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.203.1.1.2 Service water heating in restaurants.</b> Newly constructed restaurants 8,000 square feet or greater and with service water heaters rated 75,000 Btu/h or greater installed a solar		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.203.1.1.3 Functional areas where compliance with residential lighting standards is required.</b> For newly constructed high-rise residential dwelling units and hotel and motel guest rooms, indoor lighting complies with the applicable requirements in Appendix A4 Residential Voluntary Measures, Division A4.2 – Energy Efficiency, Section A4.203.1.1.3. For additions and alterations to high-rise residential dwelling units and hotel and motel guest rooms, indoor lighting complies with the applicable requirements in Appendix A4 Residential Voluntary Measures, Division A4.2 – Energy		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.203.1.2.1 Tier 1.</b> For building projects that include indoor lighting or mechanical systems, but not both, the Energy Budget is no greater than 95 percent of the Title 24, Part 6, Energy Budget for the Proposed Design Building. For building projects that include indoor lighting and mechanical systems, the Energy Budget is no greater than 90 percent of the Title 24, Part 6, Energy Budget for the Proposed Design Building.		<input type="checkbox"/>	
<b>A5.203.1.2.2 Tier 2.</b> For building projects that include indoor lighting or mechanical systems, but not both, the Energy Budget is no greater than 90 percent of the Title 24, Part 6, Energy Budget for the Proposed Design Building. For building projects that include indoor lighting and mechanical systems, the Energy Budget is no greater than 85 percent of the Title 24, Part 6, Energy Budget for the Proposed Design Building.			<input type="checkbox"/>
<b>Renewable Energy</b>			
<b>A5.211.1 On-site renewable energy.</b> Use on-site renewable energy for at least 1 percent electrical service overcurrent protection device rating calculated in accordance with the <i>California Electrical Code</i> or 1KW, whichever is greater, in addition to the electrical required to meet 1 percent of natural gas and propane use calculated in accordance with <i>California Plumbing Code</i> .		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.211.1.1 Documentation.</b> Calculate renewable on-site system to meet the Section A5.211.1. Factor in net metering, if offered by local utility, on an annual basis.			
<b>A5.211.3 Green power.</b> Participate in the local utility's renewable energy portfolio program provides a minimum of 50-percent electrical power from renewable sources. Maintain documentation through utility billings.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Elevators, Escalators and Other Equipment</b>			
<b>A5.212.1 Elevators and escalators.</b> In buildings with more than one elevator or two escalators, provide systems and controls to reduce the energy demand of elevators and escalators as follows. Document systems operation and controls in the project specifications and commissioning plan.			
<b>A5.212.1.1 Elevators.</b> Traction elevators shall have a regenerative drive system that feeds electrical power back into the building grid when the elevator is in motion:		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.212.1.1.1 Car lights and fan.</b> A parked elevator shall turn off its car lights and fan automatically until the elevator is called for use.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.212.1.2 Escalators.</b> An escalator shall have a variable voltage variable frequency (VVVF) motor drive system that is fully regenerative when the escalator is in motion.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.212.1.4 Controls.</b> Controls that reduce energy demand shall meet			

APPLICATION-CHECKLIST-FOR-BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier-1	CALGreen Tier-2
<b>Energy Efficient Steel Framing</b>			
<b>A5.213.1 Steel framing.</b> Design for and employ techniques to avoid thermal bridging.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Water Efficiency and Conservation</b>			
<b>Indoor Water Use</b>			
<b>5.303.1 Meters.</b> Separate meters shall be installed for the uses described in Sections 5.303.1.1 and 5.303.1.2.			
<b>5.303.1.1 New buildings or additions in excess of 50,000 square feet.</b> Separate submeters shall be installed as follows:	<input type="checkbox"/>		
1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.			
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:	<input type="checkbox"/>		
a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s)	<input type="checkbox"/>		
b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s)	<input type="checkbox"/>		
c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW)	<input type="checkbox"/>		
<b>5.303.1.2 Excess consumption.</b> A separate submeter or metering device shall be			
<b>A5.303.2.3.1 Tier 1 – 12-percent savings.</b> A schedule of plumbing fixtures and fixture will reduce the overall use of potable water within the building by 12 percent shall be		<input type="checkbox"/>	
<b>A5.303.2.3.2 Tier 2 – 20-percent savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent			<input type="checkbox"/>
<b>A5.303.2.3.3 25-percent savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 25 percent shall (Calculate savings by Water Use Worksheets)			<input type="checkbox"/>
<b>A5.303.2.3.4 Nonpotable water systems for indoor use.</b> Utilizing nonpotable water (such as captured rainwater, treated graywater, and recycled water) intended to supply closets, urinals, and other allowed uses, may be used in the calculations demonstrating or 25-percent reduction. The nonpotable water systems shall comply with the current <i>California Plumbing Code</i> .		<input type="checkbox"/>	
<b>Water conserving plumbing fixtures and fittings.</b> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:	<input type="checkbox"/>		
<b>5.303.3.1 Water closets.</b> 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.	<input type="checkbox"/>		
<b>Note:</b> The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.			
<b>5.303.3.2 Urinals.</b> The effective flush volume of urinals shall not exceed 0.5 gallons per flush.	<input type="checkbox"/>		
<b>5.303.3.3 Showerheads.</b>	<input type="checkbox"/>		
<b>5.303.3.3.1 Single showerhead.</b> Showerheads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.	<input type="checkbox"/>		
<b>5.303.3.3.2 Multiple showerheads serving one shower.</b> When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons	<input type="checkbox"/>		
<b>A5.303.3 Appliances and fixture commercial application.</b> Appliances and fixtures shall meet the following:			
1. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the <i>California Code of Regulations</i> .		<input type="checkbox"/>	<input type="checkbox"/>
2. Dishwashers shall meet the criteria in Section A5.303.3(2)(a) and (b).		<input type="checkbox"/>	<input type="checkbox"/>
3. Ice makers shall be air cooled.		<input type="checkbox"/>	<input type="checkbox"/>
4. Food steamers shall be connectionless or boilerless.		<input type="checkbox"/>	<input type="checkbox"/>
5. [ BSC] The use and installation of water softeners that discharge to the community sewer system may be limited or prohibited by local agencies if certain conditions are met.		<input type="checkbox"/>	<input type="checkbox"/>
6. Combination ovens shall not consume more than 10 gph (38 L/h) in the full operational mode.		<input type="checkbox"/>	<input type="checkbox"/>
7. Commercial pre-rinse spray valves manufactured on or after January 1, 2006 shall function at equal to or less than 1.6 gpm (0.10 L/s) at 60 psi (414 kPa) and			
a. Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate			

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<p><b>5.303.3.4 Faucets and Fountains</b></p> <p><b>4.1 Nonresidential Lavatory faucets.</b> Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.</p> <p><b>4.2 Kitchen faucets.</b> Kitchen faucets shall have a maximum flow rate of not more than 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><b>4.3 Wash fountains.</b> Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches)] at 60 psi.</p> <p><b>4.4 Metering faucets.</b> Metering faucets shall not deliver more than 0.20 gallons per cycle. <b>5.303.3.4.5 Metering faucets for wash fountains.</b> Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches)] at 60 psi.</p> <p><b>Note:</b> Where complying faucets are unavailable, aerators or other means may be used</p>			
<p><b>5.303.4 Areas of additions or alteration.</b> For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 shall apply to new fixtures in additions or areas of alterations to the building.</p>	<input type="checkbox"/>		
<p><b>A5.303.5 Dual plumbing.</b> New buildings and facilities shall be dual plumbed for potable and recycled water systems for toilet flushing when recycled water is available as determined by the</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>5.303.6 Standards for plumbing fixtures and fittings.</b> 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</p>	As applicable <input type="checkbox"/>		
<b>Outdoor Water Use</b>			
<p><b>5.304.1 Water budget.</b> A water budget shall be developed for landscape irrigation use.<sup>3</sup> Applies to additions or alterations.</p>	<input type="checkbox"/>		
<p><b>5.304.2 Outdoor potable water use.</b> For new water service, separate meters or submeters shall be installed for indoor and outdoor potable water use for landscaped areas of at least 1,000 square feet but not more than 5,000 square feet, separate submeters shall be installed for outdoor potable water use. Applies to additions or alterations.</p> <p><b>A5.304.2.1 Outdoor potable water use.</b> For new water service not subject to the provisions of <i>Water Code</i> Section 535, separate meters or submeters shall be installed for outdoor potable water use for landscaped areas of at least 500 square feet but not more than 1,000 square feet (the level at which Section 5.304.2 applies).</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>Irrigation design.</b> In new nonresidential projects with at least 1,000 square feet but not more than 2,500 square feet of landscaped area (the level at which the MLO applies), install irrigation controllers and sensors which include the following criteria and meet manufacturer's recommendations. Applies to additions or alterations.</p> <p><b>3.1 Irrigation controllers.</b> Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:</p> <ol style="list-style-type: none"> <li>1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.</li> <li>2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.</li> </ol>	<input type="checkbox"/>		
<p><b>A5.304.4 Potable water reduction.</b> Provide water-efficient landscape irrigation design that reduces the use of potable water beyond the initial requirements for plant installation and establishment in accordance with Section A5.304.4.1 or A5.304.4.2. Calculations for the reduction shall be based on the water budget developed pursuant to Section 5.304.1.</p> <p><b>A5.304.4.1 Tier 1</b>—Reduce the use of potable water to a quantity that does not exceed 60 percent of ETo times the landscape area.</p> <p><b>A5.304.4.2 Tier 2</b>—Reduce the use of potable water to a quantity that does not exceed 55 percent of ETo times the landscape area.</p> <p><b>Note:</b> Methods used to accomplish the requirements of this section shall include, but not be limited to, the items listed in A5.304.4.</p> <p><b>A5.304.4.3 Verification of compliance.</b> A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.304.5 Potable water elimination.</b> Provide a water-efficient landscape irrigation design that eliminates the use of potable water beyond the initial requirements for plant installation and establishment.</p> <p>Methods used to accomplish the requirements of this section shall include, but not be limited to,</p>		<input type="checkbox"/>	<input type="checkbox"/>

(continued)

APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>1</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<b>A5.304.6 Restoration of areas disturbed by construction.</b> Restore all areas disturbed during construction by planting with local native and/or noninvasive		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.304.7 Previously developed sites.</b> On previously developed or graded sites, restore or protect at least 50 percent of the site area with native and/or noninvasive		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.304.8 Graywater irrigation system.</b> Install graywater collection system for onsite subsurface irrigation using graywater collected from bathtubs, showers, bathroom wash basins and laundry water. See <i>California Plumbing Code</i> .		<input type="checkbox"/>	<input type="checkbox"/>
<b>Water Reuse</b>			
<b>A5.305.1 Nonpotable water systems.</b> Nonpotable water systems for indoor and outdoor comply with the current edition of the <i>California Plumbing Code</i> .		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.305.2 Irrigation systems.</b> Irrigation systems regulated by a local water efficient ordinance or by the California Department of Water Resources Model Water Efficient Ordinance (MWELO) shall use recycled water.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Material Conservation and Resource Efficiency</b>			
<b>Efficient Framing Systems</b>			
<b>A5.404.1 Wood framing.</b> Employ advanced wood framing techniques or OVE, as permitted by the enforcing agency.		<input type="checkbox"/>	<input type="checkbox"/>
<b>Material Sources</b>			
<b>A5.405.1 Regional materials.</b> Select building materials or products for permanent installation on the project that have been harvested or manufactured in California or within 500 miles of the project site, meeting the criteria listed in Section A5.405.1.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.2 Bio-based materials.</b> Select bio-based building materials per Section A5.405.2.2. <b>A5.405.2.1 Certified wood products.</b> Certified wood is an important component of building strategies and the California Building Standards Commission will continue to a standard through the next code cycle. <b>A5.405.2.2 Rapidly renewable materials.</b> Use materials made from plants harvested ten-year cycle for at least 2.5 percent of total materials value, based on estimated cost.		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.3 Reused materials.</b> Use salvaged, refurbished, refinished or reused materials for at least 5 percent of the total value, based on estimated cost of materials on the		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.4 Recycled content.</b> Use materials, equivalent in performance to virgin materials, with a total (combined) recycled content value (RCV) of: <b>Tier 1.</b> The RCV shall not be less than 10 percent of the total material cost of the project. <b>Tier 2.</b> The RCV shall not be less than 15 percent of the total material cost of the project. <b>Note:</b> Use the equations in the subsections for calculating total		<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.405.5 Cement and concrete.</b> Use cement and concrete made with recycled products and complying with the following sections: <b>A5.405.5.1 Cement.</b> Cement shall comply with one of the following standards: 1. Portland cement shall meet ASTM C 150. 2. Blended hydraulic cement shall meet ASTM C 595. 3. Other Hydraulic Cements shall meet ASTM C 1157. <b>A5.405.5.2 Concrete.</b> Unless otherwise directed by the Engineer of Record, use concrete manufactured with cementitious materials in accordance with Sections A5.405.5.2.1 and A5.405.5.2.1.1, as approved by the enforcing agency. <b>A5.405.5.2.1 Supplementary cementitious materials (SCMs).</b> Use concrete made with one or more of the SCMs listed in Section A5.405.5.2.1. <b>A5.405.5.2.1.1 Mix design equation.</b> Use any combination of one or more SCMs, satisfying Equation A4.5-14. <b>Exception:</b> Minimums in mix designs approved by the Engineer of Record may be lower where high early strength is needed. <b>A5.405.5.3 Additional means of compliance.</b> Any of the following measures shall be permitted to be employed for the production of cement or concrete, depending on their availability and suitability, in conjunction with Section A5.405.5.2: <b>A5.405.5.3.1 Cement.</b> The following measures may be used in the manufacture of cement: <b>A5.405.5.3.1.1 Alternative fuels.</b> Where permitted by state or local air quality standards. <b>A5.405.5.3.1.2 Alternative power.</b> Alternate electric power generated at the		<input type="checkbox"/>	<input type="checkbox"/>



APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<p><b>A5.408.3.1 Enhanced construction waste reduction—Tier 1 [BSC].</b> Divert to recycle or salvage at least 65% of nonhazardous construction and demolition waste generated at the site.</p> <p><b>A5.408.3.1.1 Enhanced construction waste reduction—Tier 2 [BSC].</b> Divert to recycle or salvage at least 80% of nonhazardous construction waste generated at the site.</p> <p><b>A5.408.3.1.2 Verification of compliance.</b> A copy of the completed waste management report or documentation of certification of the waste management company utilized shall be provided.</p> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. Excavated soil and land-clearing debris</li> <li>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</li> <li>3. Demolition waste meeting local ordinance or calculated in consideration of local</li> </ol>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Life Cycle Assessment</b>			
<p><b>A5.409.1 General.</b> Life cycle assessment shall be ISO 14044 compliant. The service life of the building and materials assemblies shall not be less than 60 years.</p> <p><b>A5.409.2 Whole building life cycle assessment.</b> Conduct a whole building life assessment, including operating energy, showing that the building project achieves at least a 10-percent improvement for at least three of the impacts listed in Section A5.409.2.2, one of which shall be climate change, compared to a reference building.</p> <p><b>A5.409.3 Materials and system assemblies.</b> If whole building analysis of the project is not elected, select a minimum of 50% of materials or assemblies based on life cycle assessment of at least three for the impacts listed in Section A5.409.2.2, one of which shall be climate change.</p> <p><b>A5.409.4 Substitution for prescriptive standards.</b> Performance of a life cycle assessment completed in accordance with Section A5.409.2 may be substituted for other prescriptive provisions of Division A5.4, including those made mandatory through local adoption of Tier 1 or Tier 2 in Division A5.6.</p> <p><b>A5.409.5 Verification of compliance.</b> Documentation of compliance shall be provided as follows:</p> <ol style="list-style-type: none"> <li>1. The assessment is performed in accordance with ISO 14044.</li> <li>2. The project meets the requirements of other parts of Title 24.</li> <li>3. A copy of the analysis shall be made available to the enforcement authority.</li> <li>4. A copy of the analysis and any maintenance or training recommendations shall be included in the operation and maintenance manual.</li> </ol>		<input type="checkbox"/>	<input type="checkbox"/>
<b>Building Maintenance and Operation</b>			
<p><b>5.410.1 Recycling by occupants.</b> Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.<sup>3</sup></p> <p><b>5.410.1.1 Additions. [A]</b> All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30 percent or more in floor area, shall provide recycling areas on site.</p>	<input type="checkbox"/>		
<p><b>Commissioning. [N]</b> For new buildings 10,000 square feet and over, building commissioning for all building systems covered by Title 24, Part 6, process systems and renewable energy systems shall be included in the design and construction processes of the building project. Commissioning requirements shall include items listed in Section 5.410.2.</p> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. Unconditioned warehouses of any size</li> <li>2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses</li> <li>3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1.</li> <li>4. Commissioning requirements for energy systems covered by the <i>California Energy Code</i>.</li> <li>5. Open parking garages of any size, or open parking garage areas of any size, within a structure.</li> </ol> <p><b>5.410.2.1 Owner's Project Requirements (OPR). [N]</b> Documented before the design phase of the project begins the OPR shall include items listed in Section 5.410.4.</p>	<input type="checkbox"/>		
<p><b>5.410.2.2 Basis of Design (BOD). [N]</b> A written explanation of how the design of the building systems OPR shall be completed at the design phase of the building project to cover the systems listed in Section</p> <p><b>5.410.2.3 Commissioning plan. [N]</b> A commissioning plan describing how the project will be shall include items listed in Section 5.410.2.3.</p> <p><b>5.410.2.4 [N]</b> Functional performance testing shall demonstrate the correct installation and operation of component, system and system-to-system interface in accordance with the approved plans and</p> <p><b>5.410.2.5 Documentation and training. [N]</b> A Systems manual and systems operations training are required.</p> <p>representative and facilities operator and shall include the items listed in Section 5.410.2.5.1.</p> <p><b>5.410.2.5.2 Systems operations training. [N]</b> A program for training of the appropriate each equipment type and/or system shall be developed and shall include items listed in Section 5.410.2.5.2.</p> <p>and construction phases of the building project shall be completed and provided to the owner or</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<p><b>A5.504.4.7.1 Resilient flooring systems, Tier 2 [BSC].</b> For 100 percent of floor area to be scheduled to receive resilient flooring, install resilient flooring shall meet at least one of the following:</p> <ol style="list-style-type: none"> <li>1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;</li> <li>2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010;</li> <li>3. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria Interpretation for EQ 7.0 and 7.1 (formerly EQ. 2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or</li> <li>4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's &amp; Schools Program).</li> </ol> <p><b>A5.504.4.7.2 Verification of compliance.</b> Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.</p> <p><b>A5.504.4.8 Thermal insulation, Tier 1 [BSC].</b> Comply with the standards listed in Items 1 through 3.</p> <p><b>A5.504.4.8.1 Thermal insulation, Tier 2 [BSC] Thermal insulation, No-added Formaldehyde.</b> Install thermal insulation which complies with Tier 1 plus does not contain any added formaldehyde.</p> <p><b>A5.504.4.8.2 Verification of compliance.</b> Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission limits.</p> <p><b>A5.504.4.9 Acoustical ceilings and wall panels.</b> Comply with Chapter 8 in Title 24, Part 2 and with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its High Performance Products Database.</p> <p><b>A5.504.4.9.1 Verification of compliance.</b> Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.</p> <p><b>Note:</b> Products compliant with CHPS criteria certified under the Greenguard Children &amp; Schools program may also be used.</p> <p><b>A5.504.5 Hazardous particulates and chemical pollutants.</b> Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.</p> <p><b>A5.504.5.1 Entryway systems.</b> Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors as listed in Items 1 through 3 in Section A5.504.5.1.</p> <p><b>A5.504.5.2 Isolation of pollutant sources.</b> In rooms where activities produce hazardous fumes or chemicals, exhaust them and isolate them from their adjacent rooms as listed in Items 1 through 3 in Section A5.504.5.2.</p> <p><b>5.504.5.3 Filters.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a MERV of 8. MERV 8 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.</p> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. An ASHRAE 10-percent to 15-percent efficiency filter shall be permitted for an HVAC unit meeting the 2013 <i>California Energy Code</i> having 60,000 Btu/h or less capacity per fan coil, if the energy use of the air delivery system is 0.4 W/cfm or less at design air flow.</li> <li>2. Existing mechanical equipment.</li> </ol> <p><b>5.504.5.3.1 Labeling.</b> Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.504.5.3.1 Filters, Tier 1.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 11.</p> <p><b>A5.504.5.3.1.1 Filters, Tier 2.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at</p>			
<p><b>5.504.7 Environmental tobacco smoke (ETS) control.</b> Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows where outdoor areas are provided for smoking and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University or campus of the University of California, whichever are more stringent.</p>	<input type="checkbox"/>		
<b>Indoor Moisture and Radon Control</b>			
<p><b>5.505.1 Indoor moisture control.</b> Buildings shall meet or exceed the provisions of <i>California Building Code</i>, CCR, Title 24, Part 2, Sections 1203 and Chapter 14.1.<sup>3</sup></p>	<input type="checkbox"/>		
<b>Air Quality and Exhaust</b>			
<p><b>5.506.1 Outside air delivery.</b> For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 of the <i>California Energy Code</i> and Chapter 4 of CCR, Title 8 or the applicable local code, whichever is more stringent.<sup>3</sup></p>	<input type="checkbox"/>		
<p><b>5.506.2 Carbon dioxide (CO<sub>2</sub>) monitoring.</b> For buildings or additions equipped with demand control ventilation, CO<sub>2</sub> sensors and ventilation controls shall be specified and installed in accordance with the requirements of the <i>California Energy Code</i>, CCR, Section 120(c)(4).<sup>3</sup></p>	<input type="checkbox"/>		

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APPLICATION CHECKLIST FOR BSC	MANDATORY	VOLUNTARY <sup>4</sup>	
		CALGreen Tier 1	CALGreen Tier 2
<b>Environmental Comfort</b>			
<p><b>A5.507.1 Lighting and thermal comfort controls.</b> Provide controls in the workplace as described in Sections A5.507.1.1 and A5.507.1.2.</p> <p><b>A5.507.1.1 Single-occupant spaces.</b> Provide individual controls that meet energy-use requirements in the <i>California Energy Code</i> by Sections A5.507.1.1.1 and A5.507.1.1.2.</p> <p><b>A5.507.1.1.1 Lighting.</b> Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.</p> <p><b>A5.507.1.1.2 Thermal comfort.</b> Provide individual thermal comfort controls for at least 50 percent of the building occupants by Items 1 and 2 in Section A5.507.1.1.2.</p> <p><b>A5.507.1.2 Multi-occupant spaces.</b> Provide lighting and thermal comfort system controls for all shared multi-occupant spaces.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.507.2 Daylight.</b> Provide daylight spaces as required for toplighting and sidelighting in the <i>California Energy Code</i>. In constructing a design, consider Items 1 through 4 in Section A5.507.3.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>A5.507.3 Views.</b> Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" above finish floor for building occupants in 90 percent of all regularly occupied areas.</p> <p><b>A5.507.3.1 Interior office spaces.</b> Entire areas of interior office spaces may be included in the least 75 percent of each area has direct line of sight to perimeter vision glazing.</p> <p><b>A5.507.3.2 Multi-occupant spaces.</b> Include in the calculation the square footage with direct line of perimeter vision glazing.</p>		<input type="checkbox"/>	<input type="checkbox"/>
<p><b>5.507.4 Acoustical control.</b> Employ building assemblies and components with STC values determined in accordance with ASTM E 90 and ASTM E 413 or OITC determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.</p> <p><b>5.507.4.1 Exterior noise transmission, prescriptive method.</b> Wall and floor-ceiling assemblies exposed to the noise source making up the building envelope shall have exterior wall and roof-ceiling assemblies meeting a composite STC rating of at least 50 or a composite OITC rating of no less than 40 with exterior windows of a minimum STC of 40 or OITC of 30 in the locations described in Items 1 and 2. Also applies to addition envelope or altered envelope.</p> <p><b>5.507.4.1.1 Noise exposure where noise contours are not readily available.</b> Buildings exposed to a noise level of 65 dB <math>L_{eq}</math>-1Hr during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30). Also applies to addition or alteration exterior wall.</p> <p><b>5.507.4.2 Performance method.</b> For buildings located as defined in Sections A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (<math>L_{eq}</math>-1Hr) of 50 dBA in occupied areas during any hour of operation. Also applies to addition envelope or altered envelope.</p> <p><b>5.507.4.2.1 Site features.</b> Exterior features such as sound walls or earth berms may be utilized as appropriate to the project to mitigate sound migration to the interior. Also applies to addition envelope or altered envelope.</p> <p><b>5.507.4.2.1 Documentation of compliance.</b> An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> or <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
<b>Outdoor Air Quality</b>			
<p><b>5.508.1 Ozone depletion and global warming reductions.</b> Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.</p> <p><b>5.508.1.1 CFCs.</b> Install HVAC and refrigeration equipment that does not contain CFCs.<sup>3</sup></p> <p><b>5.508.1.2 Halons.</b> Install fire suppression equipment that does not contain Halons.<sup>4</sup></p> <p><b>A5.508.1.3 Hydrochlorofluorocarbons (HCFCs).</b> Install HVAC and refrigeration equipment that does not contain HCFCs.</p> <p><b>A5.508.1.4 Hydrofluorocarbons (HFCs).</b> Install HVAC complying with either of the following:</p> <ol style="list-style-type: none"> <li>1. Install HVAC, refrigeration and fire suppression equipment that do not contain HFCs or that do not contain HFCs with a global warming potential greater than 150.</li> <li>2. Install HVAC and refrigeration equipment that limit the use of HFC refrigerant through the use of a secondary heat transfer fluid with a global warming potential no greater than 1.</li> </ol>	As applicable <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p><b>5.508.2 Supermarket refrigerant leak reduction.</b> New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.</p> <p><b>Exception:</b> Refrigeration systems containing low-global-warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO<sub>2</sub>), and potentially other refrigerants.</p>	<input type="checkbox"/> As applicable		
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1. Green building measures in this table may be mandatory if adopted by a city, county, or city and county as specified in Section 401.7.
  2. Required prerequisite for this Tier.
  3. These measures are currently required elsewhere in statute or in regulation.
- This application checklist is non-regulatory, intended only as an aid to the user and may not contain complete code language. Refer to

*[See attachments A, B & C for CALGreen Verification guidelines checklist for Mandatory Checklist, Tier 1 Checklist and Tier 2 Checklist]*

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