

**AGENDA ITEM 2b HEAT ISLAND EFFECT SHADE TREE  
DRAFT INITIAL EXPRESS TERMS  
FOR PROPOSED BUILDING STANDARDS  
OF THE CALIFORNIA BUILDING STANDARDS COMMISSION  
REGARDING THE 2022 INTERVENING CODE ADOPTION CYCLE,  
CALIFORNIA GREEN BUILDING STANDARDS CODE  
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11  
CALIFORNIA GREEN BUILDING STANDARDS (CALGreen)  
([RULEMAKING FILE #])**

The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific (Government Code Section 11346.2(a)(1)).

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If using assistive technology, please adjust your settings to recognize underline, strikeout and ellipsis.

**LEGEND for EXPRESS TERMS (California only codes - Parts 1, 6, 8, 11, 12)**

- Existing California amendments appear upright
- Amended or new California amendments appear underlined
- Repealed California language appears upright and in ~~strikeout~~
- Ellipsis ( ...) indicate existing text remains unchanged

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**INITIAL EXPRESS TERMS**

**ITEM [Insert Item #]**

**APPENDIX A5 NONRESIDENTIAL VOLUNTARY MEASURES, DIVISION A5.1 –  
PLANNING AND DESIGN, SECTION A5.106 SITE DEVELOPMENT**

[Rationale: Minor edits to Section A5.106.11 to accommodate shade tree voluntary regulations and provide clarity]

**A5.106.11 Reduction of Heat island effect.** Reduce nonroof heat island by requiring Section A5.106.11.1 Hardscape alternatives, and roof heat islands by Section A5.106.11.2 Cool roofs, or Section A5.106.11.3 Shade trees.

**A5.106.11.1 Hardscape alternatives.** Use one or a combination of strategies 1 and 2 for 50 percent of site hardscape or put 50 percent of parking underground.

1. Use light colored materials with an initial solar reflectance value of at least 30 as determined in accordance with American Society for Testing and Materials (ASTM) Standards E1918 or C1549.
2. Use open-grid pavement system or pervious or permeable pavement system.

[Draft rationale: No change to existing cool roof code language, except Section title change and renumber section A5.106.11.3 to be appropriately placed in Section

A5.106.11.2, subsection 4]

**A5.106.11.2 Cool roof for reduction of heat island effect.** Use roofing materials having a minimum aged solar reflectance and thermal emittance complying with Sections A5.106.11.2.1 and A5.106.11.2.2 or a minimum aged Solar Reflectance Index (SRI) complying with Section A5.106.11.2.3 and as shown in Table A5.106.11.2.2 for Tier 1 or Table A5.106.11.2.3 for Tier 2.

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**A5.106.11.3 2.4 Verification of compliance.** If no documentation is available, an inspection shall be conducted to ensure roofing materials meet cool roof aged solar reflectance and thermal emittance or SRI values.

[Draft rationale: BSC is proposing a new voluntary measure for shade trees. Many jurisdictions have local ordinances, municipal or zoning code regulations for shade trees, but some do not. BSC has received calls from a few local jurisdictions asking if they can amend Title 24, via a local ordinance, to include shade tree regulations and use the DSA mandatory regulations found in Section 5.106.12. DSA proposed and the commission approved these regulations for inclusion in the 2018 code cycle.

HCD also has voluntary shade tree regulations for residential occupancies that local jurisdictions can adopt.

Cite CNRA extreme heat report and coordination with CDPH on extreme heat and heat island effect. During discussions with Caltrans, they strongly recommended shade tree regulations has significant impact on reducing heat island effect.]

**A5.106.3. Shade trees. [BSC-CG] In the absence of a local shade tree ordinance, comply with mandatory Section 5.106.12 Shade trees.**

[DSA's mandatory Section 5.106.12 Shade tree, shown for reference.]

**5.106.12 Shade trees. [DSA-SS]** Shade trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2 and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6.

**5.106.12.1 Surface parking areas.** Shade tree plantings, minimum No. 10 container size or equal, shall be installed to provide shade over 50 percent of the parking area within 15 years.

**Exceptions:** Surface parking area covered by solar photovoltaic shade structures or shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree plantings.

**5.106.12.2 Landscape areas.** Shade tree plantings, minimum No. 10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years.

**Exception:** Playfields for organized sport activity are not included in the total area calculation.

**5.106.12.3 Hardscape areas.** Shade tree plantings, minimum No. 10 container size or equal shall be installed to provide shade over 20 percent of the hardscape

area within 15 years.

**Exceptions:**

1. Walks, hardscape areas covered by solar photovoltaic shade structures or shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree plantings.
2. Designated and marked play areas of organized sport activity are not included in the total area calculation.

**Notation:**

Authority: [Insert statutory authority]

Reference(s): [Insert statutory reference(s)]

DRAFT