

not less than two spaces, shall be designated as preferred parking for low emission, hybrid, and *electric vehicles*.

## SECTION 408 HEAT ISLAND MITIGATION

**408.1 General.** The heat island effect of building and building site development shall be mitigated in accordance with Sections 408.2.

**408.2 Site hardscape.** In climate zones 1 through 6, as established in the *Energy Conservation Code*, not less than 50 percent of the site hardscape shall be provided with one or any combination of options described in Sections 408.2.1 through 408.2.4. For the purposes of this section, site hardscape shall not include areas of the site covered by solar photovoltaic arrays or solar thermal collectors.

**408.2.1 Site hardscape materials.** Hardscape materials shall have an initial solar reflectance value of not less than 0.30 in accordance with ASTM E1918 or ASTM C1549.

**Exception:** The following materials shall be deemed to comply with this section and need not be tested:

1. Pervious and permeable concrete pavements.
2. Concrete paving without added color or stain.

**408.2.2 Shading by structures.** Where shading is provided by a building or structure or a building element or component, such building, structure, component or element shall comply with all of the following:

1. Where open trellis-type, free-standing structures such as, but not limited to, covered walkways, and trellises or pergolas, are covered with native plantings, the plantings shall be designed to achieve mature coverage within 5 years; and
2. Shade provided onto the hardscape by an adjacent building or structure located on the same lot shall be calculated and credited toward compliance with this section based on the projected peak sun angle on the summer solstice.

**408.2.3 Shading by trees.** Where shading is provided by trees, such trees shall be selected and placed in accordance with all of the following:

1. Trees selected shall be those that are native or adaptive to, the region and climate zone in which the project site is located. *Invasive plant species* shall not be selected. Plantings shall be selected and sited to produce a hardy and drought resistant vegetated area;
2. Construction documents shall be submitted that show the planting location and anticipated ten year canopy growth of trees and that show the contributions of existing tree canopies; and
3. Shading calculations shall be shown on the construction documents demonstrating compliance with this section and shall include only those hardscape areas directly beneath the trees based on a ten year growth canopy. Duplicate shading credit shall not be

granted for those areas where multiple trees shade the same hardscape.

**408.2.4 Pervious and permeable pavement.** Pervious and permeable pavements including open grid paving systems and open-graded aggregate systems shall have a percolation rate not less than 2 gallons per minute per square foot (100 L/min × m<sup>2</sup>). Pervious and permeable pavement shall be permitted where the use of these types of hardscapes does not interfere with fire and emergency apparatus or vehicle or personnel access and egress, utilities, or telecommunications lines. Aggregate used shall be of uniform size.

## 408.3 [Reserved]

## SECTION 409 SITE LIGHTING

**409.1 Light pollution control.** Uplight, light trespass, glare, and color temperature shall be limited for all exterior lighting equipment as described in Sections 409.2, 409.3, and 409.4. The provisions of this section shall only apply to new construction and Level 3 *alterations* complying with the applicable requirements of the *Existing Building Code*.

**Exceptions:** Lighting used for the following exterior applications is exempt where equipped with a control device independent of the control of the non-exempt lighting:

1. Specialized signal, directional signage, and marker lighting associated with transportation or premises way-finding.
2. Signage that complies with lighting requirements set forth in regulations adopted pursuant to the *Sign Legislation*.
3. Lighting integral to equipment or instrumentation and installed by its manufacturer.
4. Theatrical purposes, including performance, stage, film production, and video production.
5. Athletic playing areas where lighting is equipped with hoods or louvers for glare control, provided that they are fully shielded and emit no light above the horizontal plane of the hood.
6. Temporary lighting.
7. Lighting for industrial production, material handling, transportation sites, and associated storage areas where lighting is equipped with hoods or louvers for glare control, provided that they are fully shielded and emit no light above the horizontal plane of the hood.
8. Theme elements in theme and amusement parks.
9. Roadway lighting required by governmental authorities.
10. Lighting used to highlight features of public monuments and registered landmark structures.
11. Lighting classified for and used in hazardous areas.