

## CHAPTER 5 SITE SUSTAINABILITY

**501.1 (5.1) Scope** This section addresses requirements for *building projects* that pertain to site selection, site development, mitigation of heat island effect, light pollution reduction, and mitigation of transportation impacts.

**501.2 (5.2) Compliance.** All of the provisions of Chapter 5 (Section 5) are mandatory provisions.

**501.3 (5.3) Mandatory Provisions.**

**–501.3.2 (5.3.2) Predesign Site Inventory and Assessment** A predesign inventory and assessment of the natural resources of the *building project site* shall be submitted with the *site design* and *construction documents*. The inventory and assessment shall include all of the following:

- a. Location of any prohibited development areas identified in Section 501.3.1.2 (5.3.1.2) that are located on or adjacent to the *building project site*.
- b. Identification of *invasive plant* species on the *site*.
- c. Identification of *native plant* species on the *site*.
- d. Identification of *site* features designated for preservation.

**501.3.4 (5.3.4) Stormwater Management** Stormwater management systems, including, but not limited to infiltration, evapotranspiration; rainwater harvesting, collection and use shall comply with current temperature development code.

**501.3.5 (5.3.5) Mitigation of Heat Island Effect**

**501.3.5.1 (5.3.5.1) Site Hardscape** At least 50% of the *site hardscape* that is not covered by *solar energy systems* shall be provided with one or any combination of the following:

- a. Existing trees and vegetation or new *biodiverse plantings* of *native plants* and *adapted plants*, which shall be planted either prior to the final approval by the *AHJ* or in accordance with a contract established to require planting no later than 12 months after the final approval by the *AHJ* so as to provide the required shade no later than ten years after the final approval. The effective shade coverage on the *hardscape* shall be the arithmetic mean of the shade coverage calculated at 10 a.m., noon, and 3 p.m. on the summer solstice.
- b. Paving materials with a minimum initial *solar reflectance index (SRI)* of 29. A default *SRI* value of 35 for new concrete without added color pigment is allowed to be used instead of measurements.
- c. *Open-graded (uniform-sized) aggregate, permeable pavement, permeable pavers, and porous pavers (open-grid pavers)*. *Permeable pavement and permeable pavers* shall have a percolation rate of not less than 2 gal/min-ft<sup>2</sup> (100 L/min-m<sup>2</sup>).
- d. Shading through the use of structures, provided that the top surface of the shading structure complies with the provisions of Section 501.3.5.3 (5.3.5.3).
- e. Parking under a building, provided that the *roof* of the building complies with the provisions of Section 501.3.5.3 (5.3.5.3).
- f. Buildings or structures that provide shade to the *site hardscape*. The effective shade coverage on the *hardscape* shall be the arithmetic mean of the shade coverage calculated at 10 a.m., noon, and 3 p.m. on the summer solstice.

**Exception:** Section 501.3.5.1 (5.3.5.1) shall not apply to *building projects* in *Climate Zones* 6, 7, and 8.

~~**501.3.5.2 (5.3.5.2) Walls** Above-grade building walls and retaining walls shall be shaded in accordance with this section. The building is allowed to be rotated up to 45 degrees to the nearest cardinal orientation for purposes of calculations and showing compliance. Compliance with this section shall be achieved through the use of shade providing plants, man-made structures, existing buildings, hillsides, permanent building projections, on-site renewable energy systems, or a combination of these, using the following criteria:~~

- ~~a. Shade shall be provided on at least 30% of the east and west above-grade walls and retaining walls from grade level to a height of 20 ft (6 m) above grade, or the top of the~~

~~exterior wall, whichever is less. Shade coverage shall be calculated at 10 a.m. for the east walls and 3 p.m. for the west walls on the summer solstice.~~

~~b. Where shading is provided by vegetation, such vegetation shall be existing trees and vegetation or new *biodiverse plantings* of *native plants* and *adapted plants*. Such planting shall occur prior to the final approval by the AHJ or in accordance with a contract established to require planting no later than 12 months after the final approval by the AHJ so as to provide the required shade no later than ten years after the final approval. Vegetation shall be appropriately sized, selected, planted, and maintained so that it does not interfere with overhead or underground utilities. Trees shall be placed a minimum of 5 ft (1.5 m) from and within 50 ft (15 m) of the building or retaining wall.~~

~~**Exceptions:**~~

~~1. The requirements of this section are satisfied if 75% or more of the opaque wall surfaces on the east and west have a minimum SRI of 29. Each wall is allowed to be considered separately for this exception.~~

~~2. East wall shading is not required for buildings located in *Climate Zones* 5, 6, 7, and 8. West wall shading is not required for buildings located in *Climate Zones* 7 and 8.~~

**501.3.5.3 (5.3.5.3) Roofs** Building and covered parking roof surfaces for building projects in Climate Zones 0 through 3 shall comply with Section C402.3 of the City Energy Code (IECC).

**501.3.6 (5.3.6) Reduction of Light Pollution**

**501.3.6.1 (5.3.6.1) General** Reduction of light pollution shall comply with Tempe Zoning Development Code.

1.  
1.

**501.3.7 (5.3.7) Mitigation of Transportation Impacts.**

**501.3.7.1 (5.3.7.1) Pedestrian and Bicycle Connectivity.**

**501.3.7.1.1 (5.3.7.1.1) Pedestrian Walkways** Each *primary building entrance* shall be provided with a pedestrian walkway that extends to either a *public way* or a transit stop. Walkways shall not be less than 5 ft (1.5 m) in width and shall be clearly delineated. A public-use walkway shall be provided along the length of the adjoining public-way frontage of the *building project site*, and such walkways shall connect to adjacent public-use walkways.

**501.3.7.1.2 (5.3.7.1.2) Bicycle Paths** On-site bicycle paths shall be designed to connect bicycle parking areas to existing and planned off-site bicycle paths adjacent to the *building project*.

**501.3.7.2 (5.3.7.2) Bicycle Parking**

**501.3.7.2.1 (5.3.7.2.1) Minimum Number of Spaces** Bicycle parking *spaces* shall be provided for at least 5% of the *occupant load* of each building but not less than two parking *spaces*. Occupants who are nonambulatory, under restraint, or under custodial care need not be included in the total *occupant load* for the building. *Building projects with dwelling units* shall be provided with at least 0.5 bicycle parking *spaces* per bedroom for each building but not less than two parking *spaces*.

**Exceptions:**

1. *Building projects with dwelling units* that provide each unit with a private garage or private, locked storage *space* of sufficient size to store a bicycle.
2. The number of bicycle parking *spaces* shall be allowed to be reduced subject to *AHJ* approval of a transportation plan, prepared by a *design professional*, that demonstrates the likelihood that building occupants will use public transportation and/or walk to the *building project site*.

**501.3.7.3 (5.3.7.3) Site Vehicle Provisions** Where parking is provided for a building that has more than 50 parking stalls, a minimum amount of parking spaces shall be designated as EV Charging Station, EV Capable, EV-Ready Spaces based on the table below.

Use	EV Charging Station	EV Capable Spaces	EV-Ready Spaces
Multifamily	2%	10%	25%
Hotels	2%	10%	20%
Higher Education	2%	10%	20%
Hospital Health	2%	10%	20%
Office	2%	10%	20%
Parking Garages	2%	10%	20%
Manufacturing	N/A	N/A	1 Spot
Resaurants	N/A	N/A	1 Spot
Retail	N/A	N/A	1 Spot
Warehouse	N/A	N/A	1 Spot
Firestaions/Police	N/A	N/A	1 Spot
All Other	2%	10%	20%
Parking used < 6 hours	0%	0%	0%

**EV Charging Station:** Are the conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

**EV Capable:** A designated parking space or spaces that are provided with conduit from the parking space to a building electrical room with sufficient physical space in the electrical room to accommodate the future installation of type 2 charging equipment (EVSE) to those parking spaces. The ampere and volt minimums described above can be modified with administrative approval to allow for advances in industry standards.

**EV Ready:** means a designated parking space which is provided with electrical panel capacity and space to support a minimum 40-ampere, 208/240-volt branch circuit, and the installation of raceways, both underground and surface mounted, to support the future installation of EVSE to serve the parking space. The ampere and volt minimums described above can be modified with administrative approval to allow for advances in industry standards.