

CHAPTER 4 - MICROCLIMATE AND OUTDOOR COMFORT

300

304.06 HARDSCAPE



INTENT

To reduce absolute urban temperature thereby reducing the cooling demand and improving the pedestrian comfort.

REQUIREMENT

For all new buildings, 50% of the hardscape of the development must achieve at least one of the following:

1. Demonstrate a Solar Reflectance Index (SRI) of at least 29.
2. Use an open grid pavement system.
3. Be shaded by vegetation.
4. Be shaded by materials with an SRI equal to or greater than those specified in Table 304.01 (1).

SIGNIFICANCE

Heat islands are created by dark, non-reflective surfaces used for parking, roads, roofs, walkways and other hardscapes that absorb the sun's warmth and radiate heat. Other contributing factors include vehicle exhaust, air conditioners and street equipment. Buildings and narrow streets may also reduce airflow and exacerbate the effect.

Properties of urban materials, in particular solar reflectance, thermal emissivity and heat capacity, also influence urban heat island development, as they determine how the sun's energy is reflected, emitted, and absorbed. Surfaces with a low solar reflectance are usually dark in colour and absorb a high fraction of incoming solar radiation.

Mitigating heat island effects can have multiple benefits that include improved human health and comfort, reduced energy costs and lower greenhouse gas emissions. Strategies include increasing vegetative cover or creating green-roofs, reducing hardscape and incorporating high-SRI materials for pavements and shaded parking (sample shaded parking is provided in fig. 304.06(1)).