

1.1 Executive Summary

This report aims to qualify the impact of shadow being cast onto a space in terms of illumination levels measured in lux.

Through measured data it is demonstrated that although the area cast in shadow may be perceived as dark relative to adjacent areas exposed to direct sunlight, the Illuminance levels required to function within the shadowed area are far in excess of the requirements of the Australian standard 1158.1.1:2005 'Lighting for Roads and Public Spaces'.

1.2 Measuring Units Light Level – Illuminance

Light Level or Illuminance, is the total luminous flux incident on a surface, per unit area.

Illuminance is measured in lux where one lux is one lumen of light density per square metre.

Measurements were taken on 18th September 2009 using a Topcon IM-2D Illumination meter. At the time of measurement (10:00am) weather conditions were sunny with moderate passing cloud cover. Measurements were taken in the shadow of a building adjacent to a glass façade. The measured illuminance was approximately 8,000 lux.

1.3 Common Light Levels Outdoor

Common light levels outdoor at day and night can be found in the table below:

Condition	Illumination (Lux)
Full Daylight	10,000-20,000
Overcast Day	1,000-10,000
Very Dark Day	100-500
Twilight	10-20
Full Moon	0.1

1.4 Modeling within the through site corridor

Through modeling the through site corridor it has been calculated that during worst case conditions on an overcast day during winter, the illuminance will range between 80 and 500lux. The average will be in the order of 250lux across the space. This does not take include any borrowed light from adjacent retail and lobby areas.

Artificial lighting will be provided at high level within this space for lighting the space at night. It is possible that this could be switched on via a photoelectric cell when the illuminance within the space drops below a specified level

1.5 Minimum Illuminance for AS1158.1.1:2005 'Lighting for Roads and Public Spaces'

The most stringent of the AS1158.3.1:2005 lighting subcategories is P1.

Under P1, a minimum Illumination of 2 lux is required. This is far exceeded during daylight hours even within an area cast under the shadow of an adjacent building.