

# External Lighting Strategy

## 210557 NORTH SYDNEY PUBLIC SCHOOL UPGRADE

**Client:**  
Department of Education

**Revision:**  
P5

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16/03/2022



## REPORT INFORMATION

<b>Project</b>	North Sydney Public School Upgrade
<b>Title</b>	External Lighting Strategy
<b>Client</b>	Department of Education
<b>Revision</b>	P5
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## REVISION SCHEDULE

Revision	Date	Issue Name	Author	Authorised
P1	16/08/2021	Draft for SSDA	FY	DDC
P2	17/08/2021	SSDA Submission	FY	DDC
P3	25/08/2021	Updated for SSDA Submission with inclusion of Signage requirements	FY	DDC
P4	10/03/2022	Final SSDA Submission	FY	DDC
P5	16/03/2022	Final SSDA Submission	FY	DDC

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# 1 Introduction

LCI has been engaged by Department of Education to prepare an external lighting strategy report for the proposed upgrades to North Sydney Public School.

This report intends to address condition B11 – Outdoor Lighting, for the State Significant Development Application (SSDA) 11869481.

## 1.1 Project Description

This SSDA seeks consent for alterations and additions to the existing North Sydney Public School. The proposal entails:

- Demolition of the existing hall (building B), Haven building (building C) and 6 temporary buildings;
- Construction of a three storey building comprising:
  - staff administration rooms;
  - 16 home bases
  - a new library;
  - hall;
  - out of school hours care facilities;
  - covered outdoor learning area;
  - bicycle parking and end of trip facilities for staff; and
  - services, amenities and access.
- New entry gate and forecourt from Bay Road;
- Internal refurbishment of building G ground floor from the existing library to 3 homebases;
- Capacity for an increase in student numbers from 869 to 1,012; and
- Associated tree removal, landscaping and excavation.

The proposal maintains:

- The gates and fence of former Crows Nest House including the entrance from Pacific Highway and Bay Road;
- Existing gate along McHatton Street;
- The outdoor play area to the east of Building A;
- Existing covered outdoor learning area adjacent to Building A;
- The basketball courts and staff carpark in the western portion of the site;
- The significant tree planting on all school boundaries;
- Buildings A, D and F noting minor internal refurbishments are being undertaken outside of the SSDA scope of work (exempt development) to improve student amenities and canteen; and
- Building G noting ground floor internal refurbishment is proposed in the SSDA.

## 2 External Lighting Strategy

### 2.1 General Approach

External lighting will be provided around the building entry and perimeter pathways to provide a safe environment for users of the facility after hours. This will include:

- Wall lighting in the entry blade walls to illuminate the proposed new gate entry
- Lighting in the entry awning roof structure to illuminate the entry stairs and landings
- Lighting to illuminate the entry ramps which are façade mounted
- Wall lighting along the face of the building to illuminate the service paths adjacent to Building J
- Awning or wall lighting for the external perimeter walkways along Building I

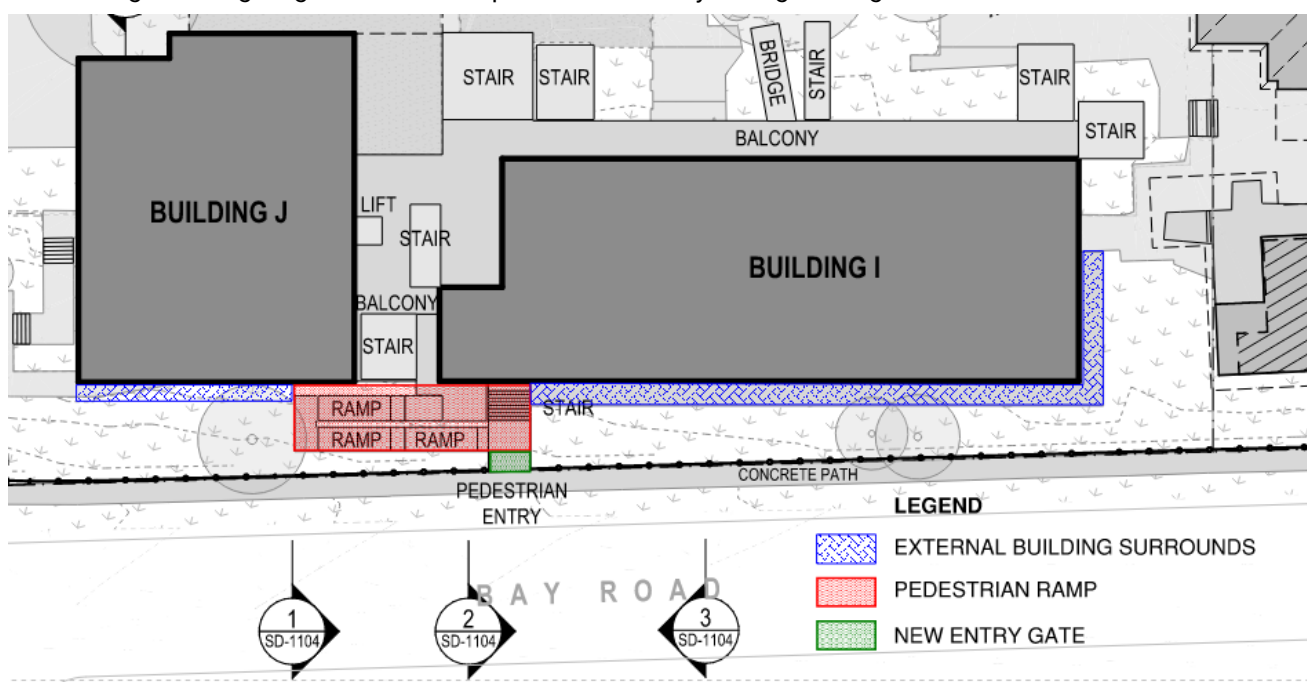


Figure 1 Propose external lighting zones

### 2.2 Design Criteria

In order to address SEARs item 4.2, the external lighting design will give due consideration to the following:

- safe movements of pedestrians
- integration with the architectural design intent and to compliment the overall aesthetics of the building and surrounds
- minimisation of obtrusive light spill and glare to surrounding properties
- security lighting

The operation of these lights will be managed through a timer system and will be limited to suit the school's operational requirements. External lighting will only be required after normal operational hours (typically 0700-1900) in the event the school is hosting a Community Event.

### 2.2.1 Standards

External lighting will be designed to comply with the following standards:

Standards	
AS/NZS 1158.3.1 - 2005	Lighting for roads and public spaces Pedestrian area (Category P) lighting – performance and design requirements
AS/NZS 4282 - 2019	Control of the obtrusive effects of outdoor lighting
AS/NZS 3000 - 2018	Electrical Installations “Wiring Rules”

### 2.2.2 Light Spill Minimisation

All new external lighting will comply with AS/NZS 4282 – Control of the obtrusive effects of outdoor lighting. External lighting will be designed with due consideration of lighting spillage to adjacent properties and sensitive receivers. A preliminary investigation into light spill has identified the following factors:

#### Effects on residential properties

There are residential properties along Bay road within close proximity to the development. Spill light from the new school entrance and buildings will be carefully designed to ensure limited obtrusive effect to the neighbouring properties.

### 2.2.3 Direction of Light

The aiming angle of the artificial light has a direct impact on the amount of obtrusive lighting. Reducing artificial skyglow can be achieved by ensuring that light shines below the horizontal plane.

Up lighting and bare floodlights will not be used in this project to ensure that the lighting will not interfere with the surrounding properties. Upward lighting will not be used unless it is intended to up light an undercover area.



### 2.2.4 Illuminated Signage

There are two illuminated signs proposed for the project which will need to be considered for obtrusive lighting effects:

- New digital sign located near the Pacific Hwy and Bay Road junction to replace an existing school sign
- Awning signage at the new building

The technical parameters of illuminated signage, including control strategy for dimming or switching off during curfew times will be specified by the signage provider and shall comply with relevant requirements from AS/NZS

4282 and the NSW Government SEPP 64 guidelines, and any additional requirements from the local council if applicable.

This includes compliance to AS/NZS 4282 tables 3.2, 3.3 and 3.5 for maximum values of lighting technical parameters for the luminaire within an environmental classification zone A3 or A4 (medium to high district brightness in suburban areas in towns and cities, or town and city centres and other commercial areas).

## 2.3 General Luminaire Types

Luminaires will be selected during detailed design. The light source will be high-quality, efficient LED type to minimise energy consumption. A warm white colour temperature (3000K) is proposed for external lighting in entrance and circulation areas to provide a warm, welcoming environment. To minimise light spill, luminaires will generally be low-cut off, aero screen style to minimise up light.

To provide the appropriate weatherproof and impact resistance, the outdoor luminaires are to have the following minimum ratings:

- IP65 and IK07 (if mounted at or above 2700mm AFFL)
- IP67 and IK08 (if mounted below 2700mm AFFL)

## 2.4 Entry Gate

Lighting to entry blade walls to wash light over the new gates will be provided. Further coordination with the architect will be required to refine the design and intent of this element of façade decorative lighting.

## 2.5 Under-awning Entrance

As the main entrance of the building, it is proposed that the area to be illuminated to a higher level to provide the hierarchy of lighting, being the most brightly lit area in the external lighting design.

Category	Classification
Type of road or pathway	Circulation
Basic operating characteristics	Pedestrian
Pedestrian/cycle activity	Medium
Fear of crime	Medium
Need to enhance amenity	Yes
Applicable lighting subcategory	PA3

The Under Awning Area will adopt the following lighting parameters:

Parameter	Value
Average horizontal illuminance	7 lux
Point horizontal illuminance	2 lux
Illuminance (horizontal) uniformity Cat. P	8
Point vertical illuminance	2 lux

## 2.6 Ramp & Stairs

Based on AS/NZS 1158.3.1, ramps and stairs are to be illuminated to PE2 category, which is to be equivalent to the highest lighting category adjacent to the area.



Therefore, values equivalent to the PA3 category are to be provided at the ramps and stairs.

Category	Classification
Type of road or pathway	Public Activity Areas
Basic operating characteristics	Pedestrian / Ramp & Stairs
Pedestrian/cycle activity	(equivalent to highest level adjacent)
Fear of crime	(equivalent to highest level adjacent)
Need to enhance amenity	Yes
Applicable lighting subcategory	PA3

The building entrance and Under Awning Area will adopt the following lighting parameters:

Parameter	Value
Average horizontal illuminance	7 lux
Point horizontal illuminance	2 lux
Illuminance (horizontal) uniformity Cat. P	8
Point vertical illuminance	2 lux

## 2.7 External Building Surrounds

The pedestrian footpaths and access pathways surrounding the external perimeter of the building are to be illuminated to PP3 category:

Parameter	Value
Average horizontal illuminance	3.5 lux
Point horizontal illuminance	0.5 lux
Illuminance (horizontal) uniformity Cat. P	5
Point vertical illuminance	0.1 lux



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