

If a building becomes architecture, then it is art. Clearly, if a building is not functionally and technically in order, then it isn't architecture either - it's just a building.
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Sustainable Design
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LIGHTING DESIGN

STEENSEN VARMING



SCS Weigall Sport Complex - Lighting Design SEARs Report

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1.0 Executive Summary

This report has been prepared for the Sydney grammar School – Weigall Sports Complex, in response to the SSDA General Requirement 4.0 – Built and Urban Form, with particular reference to item O) “Lighting strategy and measures to reduce spill light into the surrounding sensitive receivers.”

This report provides an overview of how the external lighting shall be approached and the strategies applied to mitigate potential spill light.

A successful external lighting strategy will be holistic in its consideration of both public and private use with consideration to the human experience, and the impact on local wildlife, sustainability and considers the built architectural form.

The external lighting will focus on key elements including the external carpark, connecting pedestrian pathway, building transition points from external to internal and subtle façade lighting.

2.0 Project Background

The scope of the project is as follows:

a) Demolition of the following existing structures and buildings (which are not heritage significant) at the southern edge of the SGS Weigall Playing Fields:

- Multipurpose/tennis courts and associated fencing;
- Barry Pavilion;
- The existing cricket nets off Alma Street; and
- Paved car park near Neild Avenue.

b) Construction of the SGS Weigall Sports Complex comprising the following:

- Building 1 accommodating the following facilities:
 - Ground floor: Main pool, programme pool, terrace/assembly facing Weigall, entry foyer, offices, change rooms back of house and five car parking spaces and loading
 - First floor: Multipurpose sports hall 01 - basketball, Multipurpose sports hall 02 – Cardio, cardio, weights, taekwondo; changerooms; storage and services
 - Level 2: Multipurpose room 04; Multipurpose sports hall 03 – Cardio, cardio, weights, taekwondo and services
- Driveway entry from Neild Avenue (comprising potential relocation of existing driveway southwards with existing driveway potential retained for maintenance access)
- Building 2 comprising a new car park accommodating 118 spaces over 2-3 split levels, accessed from Alma Street (located on the existing cricket nets site)
- Landscaping of the site including tree removal/replacement, fencing and lighting
- Building identification signage.

c) Use of the completed building as an educational establishment with external/community use of the proposed facilities that coordinate with the programming of the SGS.

The proposal does not include any classrooms or an increase in the existing student population.

2.1 Site description

The State Significant Development Application (SSDA) site is part of the Weigall Playing Fields located on Neild Avenue at Rushcutters Bay.

Weigall is bordered by:

- Neild Avenue to the west (Neild Avenue is classified as a collector road and also forms part of the State Road MR625 managed by Roads and Maritime Services)

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- State Rail land and the Eastern Suburbs Railway viaduct to the north
- White City (Hakoah Club and Maccabi Tennis Club), SGS Edgecliff Preparatory School, Vialoux Avenue, Alma Street and residential development to the south
- Residential development to the south and north-east
- A Sydney Water stormwater channel which traverses the site
- A right of way from Alma Street, benefiting the site, which crosses the site formerly known as White City.



Image: Weigall Sports Complex Site Plan

3.0 Introduction

3.1 Response to SEARs

The Sydney Grammar Sport Complex SEARs Report is required by the Secretary's Environmental Assessment Requirements (SEARs). This table identifies the relevant SEARs requirement/s and corresponding reference/s within this report.

Table 1 – SEARs and Relevant Reference

SEARs Items	Project Response to DGR
4. Built Form and Urban Design O) Include a lighting strategy and measures to reduce spill into the surrounding sensitive receivers	Lighting to be designed in consideration of minimising obtrusive light. Whilst a spill light assessment and obtrusive light calculations will not be formally undertaken, the design is to consider implementation of mitigation measures in line with the intent of AS4282 including mounting orientation of light sources, direction of light, fitting selection with good optical control and a lighting control system to automate the timing of the installation and allow adjustment of intensity at different times.

4.0 Lighting Approach

Lighting aims to support the user journey at night time, facilitating wayfinding and orientation and to direct people from the sports complex to the carpark assisting in the creation of a safe environment.

The lighting strategy should consider use of light in conjunction with other architectural aspects rather than solely light levels on the walking surface. By good design, that embraces light and shade and subtle contrasts, it is more likely to achieve a safe design solution than the mere distribution of light across the ground.

The lighting design should respond to the following objectives:

- Create a welcoming atmosphere
- Support the identity of the school and architecture
- Be flexible to meet the changing requirements throughout the evening
- Facilitate wayfinding and orientation
- Preserve and protect the night -time environment by minimising upward waste light contributing to sky glow
- Support the transition from exterior to interior spaces
- Be sustainable and energy efficient through selection of fittings, lighting control and minimising maintenance requirements.

Consideration should be given to:

- Lighting of main entries and key façade elements to create focal points and a night time hierarchy
- Layered lighting approach
- Appropriate scale for the users of the external spaces
- Daytime visual impact of luminaires and equipment
- Careful selection and placement of lighting equipment to not cause discomfort or glare or intrude on important vistas
- Careful consideration of vistas and views from adjacent properties
- Placement and installation of luminaires to minimise damage to flora
- Use of warm lighting with reduced blue and UV wavelengths to reduce risk of disturbance to fauna

The lighting should be of a high quality, considering light colour, rendering and distribution to maximise the impact of the areas night-time appearance.

The external lighting will focus on key elements including the external carpark, connecting pedestrian pathway, building transition points from external to internal and subtle façade lighting. Where internal lighting contributes to the external appearance of the building, this will provide a more subtle night-time atmosphere for adjacent external spaces, in turn reducing the extent of outdoor lighting required.

4.1.1 Measures to reduce spill light

The lighting design is to be developed in consideration of minimising obtrusive light.

Whilst a spill light assessment and obtrusive light calculations will not be formally undertaken, the design is to consider the implementation of mitigation measures in line with the intent of AS4282 to reduce spill light on sensitive use areas including:

- Selection of luminaires with appropriate distribution for the task
- Where lighting horizontal surfaces, luminaires to have minimal upwards light ratio
- Mounting orientation of light sources
- Direction of light
- Fitting selection with good optical control
- Minimisation of direct visibility of light sources (no omni-directional luminaires)
- The use of any uplighting shall be carefully positioned and aimed to the underside of architectural canopies, reducing upward spill light
- Use of shields and louvres where appropriate
- Use of lighting control system to dim/ control lighting and automate the timing of the installation to allow adjustment of intensity at different times
- Consideration of sight lines and different viewing angles in design to minimise glare

4.1.2 Lighting Control

To reduce energy consumption and create an appropriate night-time environment that considers surrounding properties, the use of dimmable lighting and a lighting control system is recommended.

A timed light-level approach is recommended, where by through the use of PE Cells and timers, the lighting intensity shall be dimmed at different times of the evening to minimise the effects of spill light to not only neighbouring properties but also to mitigate the effects of light pollution. After curfew hours and outside of normal operation hours, when less people are using the space, light intensity may be reduced, and some lighting elements turned off.

For the carpark rooftop, consideration is to be given to the use of motion sensors to reduce the lighting intensity outside of peak usage hours.

The hours of operation for the external lighting shall be discussed and agreed with the client to ensure brief requirements are met.