Light is really the source of all being... all materials in nature are made of light which has been spent, and this crumpled mass called material casts a shadow, and the shadow belongs to light. Louis Kahn Mechanical Engineering Lighting Design Sustainable Design Electrical Engineering Copenhagen London Sydney Hong Kong New York

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# **Consultant Advice Note**

Project Name:	Sydney Opera House Front of House	Document No	Sr051
Project No:	15829	Revision	01
Subject	Lighting Design Statement for DA submission for 'Under the Steps', 'Creative Learning Centre' and 'Southern Foyers'		

Sydney October 24, 2016 Project No. 15829

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# 1.0 Sydney Opera House DA Submission Lighting Design Statement

## 1.1 DA Submission Requirements

For the Sydney Opera House, Front of House Development DA submission for the 'Under the Steps', 'Creative Learning Centre', and 'Southern Foyers , the Department of Planning have requested the following:

- 1. Identify the location, design and luminescence specifications for all lighting proposed on-site.
- 2. Measures to mitigate light spill and potential impacts on the amenity of sensitive receivers surrounding the site, including the residential and commercial premises at Circular Quay.

# 1.2 Lighting Description

The following descriptions relate to the proposed new architectural lighting and do not include comment on theatrical lighting or AV installations as these do not form part of our scope.

#### Under the Steps

Proposed new lighting to the Under the Steps area consists of;

- Replacing existing concrete beam floodlights with new luminaires; no change proposed to the existing design intent.
- Replcaing existing surface mounted downlights with linear carraiges in a similar style to the existing fittings in the Entry Foyer. We anticipate new carriages will be mounted between concrete beams and contained within the footprint of the beam itself.
- Replacing existing uplighting above pre-cast wall panels to a more efficient LED light source; no change proposed to the existing design intent.

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#### **Creative Learning Centre**

Proposed new lighting to the Creative Learning Centre consists of;

- Internal linear luminaires for general lighting following architectural lines; these sit at a high level in the ceiling above the line of the solid stone façade.
- Intergrated LED uplighting above wall panels to reflect lighting response in similar spaces.
- Theatrical spotlights for playful lighting effects; these sit at a high level in the ceiling above the line of the solid stone façade. (only for daytime use)
- Lighting integrated behind wall panels in joinery
- Replacement of existing downlights in awning structure
- Recessed linear lighting within bathrooms
- Lighting installation to internal lobby space (not visible from exterior)
- New lighting to internal lobby and stair

#### **Southern Foyers**

Proposed new lighting to the Southern Foyers consists of;

- Integrated and concealed lighting within architectural bar joinery and rear brushbox timber walls
- Potential replacement of pedestal luminaire to more efficient and concealed source
- Potential to upgrade lighting to Dolphin Canopy for a more even and uniform coverage.
- Potential to upgrade handrail lighting to increase uniformity of light for safe passage.

### 1.3 Lighting Design Statement

- The 'Under the Steps', 'Creative Learning Centre', and 'Southern Foyers' have internal lighting works only, contained within the actual spaces; there are no external lighting or façade lighting works. Therefore, there is no lighting directed into the night-sky (light pollution) or direct impact on external properties or vistas.
- The lighting to these three areas is contained within the boundaries of the building or building structure in the 'Under the Steps' and is manily concealed or integrated; therefore there is no direct visibility of light sources and luminous surfaces from the external properties or vantage points in question.
- The only visible elements from outside will be light/ a glow through glazing or any spill light along the boundaries. It is noted that this spill light from downlight within entries and UTS is limited to approximately 2 meters outside the boundaries and will not impact on any residences or properaties nearby. Indirect light to the structural beams within the UTS projects is fairly soft and the reflected light is expected to be contained within a few meters off the boundary.
- The nature of the materials lit, such as the UTS structural beams is matte and non-reflective, therefore eliminating any direct reflections. The diffuse reflections and lighting effect is therefore very soft and will not cause glare when looking at the lit surfaces.

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• All lighting is dimmable and can be adjusted to reduce any possible impacts.

### 1.4 AV Design Statement

The following design statement has been provided by Tom Brickhill at Arup to address the visual impact of the proposed new digital art screens in the 'Under the Steps' area.

The Digital Art Walls under the Monumental Steps are proposed to be made up of a commercial LED screen product. This product will have the ability to control the brightness in order to adjust surface light output during the course of the day/night. The light output requirement during the day is likely to be much higher than the evening, due to the contrast between the screen and the ambient light. While screens will not be visible from the forecourt, I suggest that if there is any concerns, a sightline study is undertaken to measure how much of the wall is visible from locations to the east and west.