

When I'm working on a problem,  
I never think about beauty. I think  
only how to solve the problem. But  
when I have finished, if the solution  
is not beautiful, I know it is wrong.  
**Richard Buckminster Fuller**

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Sustainable Design  
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LIGHTING DESIGN

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# Design Statement

Sydney, August 21, 2019  
Project No. 197096

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<b>Project Name:</b>	Sydney Opera House Lower Concourse Improvements	<b>Document No</b>	197096
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<b>Project No:</b>	197096	<b>Revision</b>	02
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<b>Subject</b>	Sydney Opera House Lower Concourse Improvements – Lighting Design
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## 1.0 Background

This design statement has been prepared to provide documentary support to the Sydney Opera House Trust, to provide information on the design intent and design approach for Lighting at the Lower Concourse, particularly in response to relevant items under the Secretary's Environmental Assessment Requirements issued by the Department of Planning and Environment relevant to this development application.

We note that the following are requested:

- *identify the location, design and luminescence specifications for all lighting proposed onsite.*
- *identify the measures to mitigate light spill and potential impacts on the amenity of sensitive receivers surrounding the site.*

## 2.0 Lighting Design for the Lower Concourse

### 2.1 Design Intent

The Lower Concourse of the Sydney Opera House is an important public space with a unique character. Lighting within this space plays an important role both as a destination itself and also as a key transitional space, as well as being part of external vistas from various directions. Mindful of the sensitive and significant nature of the space that is part of the scope of this project, Lighting design intent for this development will build on the principles and methods that have previously been applied in this area. Lighting consists of various elements to suit the needs of the use of the various parts of this space. Some lighting elements are concealed within the built fabric, some provide indirect, reflected light, others have a direct illumination towards a feature or specific area to complement and attain a balance between visual aesthetics, vistas to and from the site and support a safe and comfortable environment.

### 2.2 Design Methodology

Lighting design methodology in the project considers the contribution of the existing lighting that exists onsite and takes a minimalist approach to introduction of any new sources of illumination. Where additional lighting is considered integration of these elements within the existing or proposed structures has been achieved. The below provides further details with regards to lighting that is proposed to be included in this project.

### 2.3 Location, Design and Luminescence Specifications

Proposed changes to lighting in the Lower Concourse is illustrated in Steensen Varming Drawings 197096 Rev2 L1000, L1001, L3000, L30001, L3002 and L3003. These documents show the location, quantity and composition of lighting elements that are proposed for the project. The lighting specification documents; Luminaire Datasheets 197096 Rev2 incorporated in this package outline the design specifications of the proposed equipment in detail,

## 2.4 Measures to Mitigate Light Spill

### Lighting proposed for the shade structures

Proposed shade structures are illustrated in architectural documentation package and the corresponding lighting solution is detailed in the above mentioned Steensen Varming documents Steensen Varming Drawings 197096 Rev2 L1000, L1001, L3000, L30001, L3002 and L3003. Lights in these shading structures provide indirect and reflected light that provides a soft, glare-free, diffused and comfortable light for the patrons, as well as for the passers-by. The visible light transmission characteristics of the shade fabric matches the existing umbrellas and effectively reflect most of the light downwards minimising upwards spill. Mounting locations are identified as the structural elements for the shading structures. The lights sit within the profile of these elements and do not project beyond. All lighting equipment and their associated control gear are situated and concealed within the structure.

Luminous openings of the lights are not visible from below and the light output is entirely encircled by the shade fabric. This prevents uncontrolled light spill, providing a physical barrier to block the light reaching the surrounds, nearing properties or impacting on any of the water traffic. In addition, these lights are dimmable and tuneable.

### Lighting proposed for the Exterior Bar Area

The solution for the lighting of the exterior bar area uses the new shade structures, as also shown on Steensen Varming drawing Steensen Varming Drawings 197096 Rev2 L1000, L1001, L3000, L30001, L3002 and L3003. A series of downlights are mounted to the underside of the shade structure to light directly on to the bar. These lights incorporate a high degree of optical control to provide lighting where it is needed only and not spill beyond the immediate vicinity of the bar. They incorporate a high degree of glare control and there is no upward light spill. These lights are dimmable.

### Existing Heritage Soffit Lights in the Lower Concourse

There are no alterations proposed for the locations, design or luminescence characteristics of these luminaires. There is no concern of obtrusive light spill associated with these items.

### Existing Lighting within the Handrails

There are no alterations proposed for the locations, design or luminescence characteristics of these luminaires. These lights are fully concealed within the handrail profile and there is no concern of obtrusive light spill associated with these items.

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### **Existing Interior Lighting (Various Areas)**

There are no alterations proposed for the locations, design or luminescence characteristics of these luminaires. Also, these spaces are deeply recessed into the lower concourse and is well under the concrete forecourt structure, this provides excellent coverage to keep the illumination within the area, avoiding obtrusive light spill. The elevated nature of the Sea Wall provides added blockage of any sideway spill towards the harbour. No light source is aimed outwards towards public circulation area or surrounds.