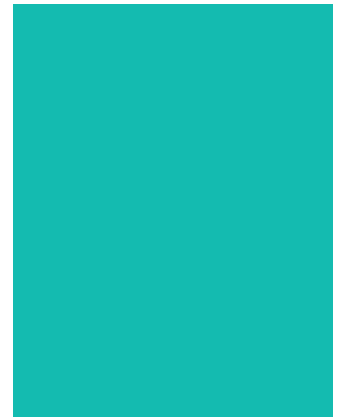


Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP)



Hotel

Sustainability Report for (SSDA6)

SYDNEY CONVENTION, ENTERTAINMENT AND EXHIBITION
PRECINCT (SICEEP) – ICC HOTEL August 2013



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1.0 INTRODUCTION

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Application (referred to as SSDA6) seeks approval for construction of the International Convention Centre (ICC) Hotel component of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) at Darling Harbour.

This SSDA follows SSDA1, which seeks approval for the core convention, exhibition and entertainment facilities of the SICEEP Project; SSDA2, a staged application that sets out a Concept Proposal for a new mixed use neighbourhood at Darling Harbour known as 'The Haymarket'; and a number of detailed proposals (SSDA3, SSDA4, and SSDA5) for use of development plots within The Haymarket. SSDAs 1 and 2 were submitted to the Department of Planning and Infrastructure (DoPI) in March 2013, and the SSDAs 3-5 were submitted in May 2013.

The ICC Hotel forms part of the SICEEP Project, which will deliver Australia's global city with new world class convention, exhibition and entertainment facilities and support the NSW Government's goal to "make NSW number one again".

1.1 Overview of Proposed Development

The proposal relates to a SSDA for the ICC Hotel component of the SICEEP Project. The hotel is located at the northern end of the precinct and comprises a single building with up to 656 keys. The hotel is being developed by Lend Lease and is consistent with Darling Harbour Live's Preferred Precinct Plan.

More specifically, this SSDA seeks approval for the following components of the development:

- Demolition of existing site improvements;
- Associated tree removal and replanting;
- Construction and use of a single hotel tower providing for up to 656 keys and including guest facilities, restaurant and ballroom;
- Public domain improvements including integration with existing / proposed works; and
- Extension, realignment and augmentation of physical infrastructure / utilities as required.

1.2 Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of the Sydney International Convention, Exhibition and Entertainment Precinct.

Following an extensive and rigorous Expressions of Interest and Request for Proposals process, a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless was announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Precinct Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;

- Over 8,000m² of meeting rooms space, across 40 rooms;
 - Overall convention space capacity for more than 12,000 people;
 - A ballroom capable of accommodating 2,000 people; and
 - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct, immediately adjacent to the new International Convention Centre.
 - A vibrant and authentic new neighbourhood at the southern end of the precinct, called 'The Haymarket', including apartments, student accommodation, community facilities, shops, cafes and restaurants.
 - Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park.
 - Improved pedestrian connections linking to the proposed Goods Line (formerly Ultimo Pedestrian Network) drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pymont and the City.

1.3 Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the Light Rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south. The SICEEP Site has been divided into three redevelopment areas – Bayside, Darling Central and The Haymarket.

The ICC Hotel Site (refer to Figure 1):

- is located within the northern end of the Bayside precinct;
- is bound by Harbourside Shopping Centre to the north and east, the International Convention Centre to the south and Darling Drive to the west; and
- occupies an area of approximately 3,730m².



Figure 1 – Aerial Photograph of the SICEEP Site and Redevelopment Areas

1.4 Planning Approvals Strategy

The SICEEP Project will result in the lodgement of numerous SSDAs for the various components of the redevelopment project. SSDAs have already been lodged for the PPP component of the SICEEP Project (comprising the convention centre, exhibition centre, entertainment facility and ancillary commercial premises and associated public domain upgrades), the Stage 1 Concept Proposal for The Haymarket, and the Stage 2 detailed proposals for three of the development plots within The Haymarket. Future applications will be lodged for the remaining development plots within The Haymarket Site.

This Application relates to a SSDA6 for the ICC Hotel component of the SICEEP Project and is consistent with Darling Harbour Live's Preferred Precinct Plan.

2.0 ESD PRINCIPLES

The proposed ICC Hotel will be designed to be capable of achieving sustainable outcomes through good design principles resulting in reduced operational energy consumption, reduced potable water use, minimisation of waste to landfill and appropriate materials selection while at the same time maintaining a high level of indoor environmental quality through appropriate mechanical design, façade configuration and materials selection.

The project will be designed to be capable of achieving a high level of energy efficiency through efficient mechanical ventilation, heating and cooling design as well as good levels of control for lighting and equipment throughout the hotel including guest rooms. Greenhouse gas emissions may be significantly less than existing hotels with similar attributes. Subject to further design development, initiatives could be incorporated which are expected to a reduction of up to 45%.

Potable water consumption will be reduced via the selection of water efficient fixtures and fittings, high efficiency chilled water plant and use of rainwater where possible. Water consumption in a hotel is largely influenced by guest behaviour, however the introduction of sustainable design features will reduce consumption when compared to existing hotels with similar attributes. Subject to guest use, improvements in consumption could be between 10 and 40%.

3.0 WHOLE OF PRECINCT ESD PRINCIPLES

Lend Lease has undertaken an integrated approach to sustainability across the total SICEEP site. In addition to the building based initiatives, a number of whole of precinct initiatives will be delivered. While the ICC Hotel does not incorporate the adjoining site precinct initiatives, the community will benefit through the following:

3.1 Enhanced connections and public transport links

The master plan design for the precinct lays out a connected and enhanced navigation through the site; enticing the local community as well as visitors through improved walkability and innovative interactive way finding, making public transport the easy and obvious choice for people providing affordable, green and safe travel options;

3.2 Car Share Network

Car Share networks reduce the cost of car ownership and minimise embodied carbon. Electric vehicles reduce carbon emissions and local air pollution. Lend Lease is partnering with GoGet to establish Australia's first Electric Car Share Network for use by the community within the precinct and beyond;

3.3 Passive Signage

Simple material that indicates the sustainability attributes of key items. This could include:

- Labelling of key materials that indicate what it is, where it is from, how much embodied carbon it contains and how it may be recycled – “This bench is made from plantation spotted gum from North Queensland and has absorbed 100kgs of carbon dioxide from the atmosphere”;
- Design attributes that support sustainable outcomes – “this landscaped area treats stormwater runoff to reduce pollution into the harbour”;
- Directional information such as links to public transport;
- Heritage and Indigenous references to the precinct's past;

3.4 Dynamic Informatics Systems and Technology

- Online and mobile phone applications that provide more detailed information about the sustainability credentials of the precinct that can be automatically activated by proximity or scanning QR codes with a smartphone;
- Digital pods in the public domain that offer Wi-Fi hotspots;
- Interactive signage and lighting, in combination with augmented visuals on smart devices, to highlight physical building elements; and

4.0 BUILDING DESIGN

4.1 Overall Development Description

The proposed development of the ICC Hotel located to the north of the SICEEP site, will include:

- Up to 656 Guest rooms
- Restaurant
- Bar
- Ballroom
- Meeting centre
- Club lounge
- Health club / gym
- Pool

4.2 Building Envelope

The typical guest room floors are glazed on all external sides to maximise natural light, and outlook from guest rooms. To ensure that good indoor environmental quality and energy efficiency is achieved a system consisting of a high performance glazing and a good level of visual transmittance is proposed.

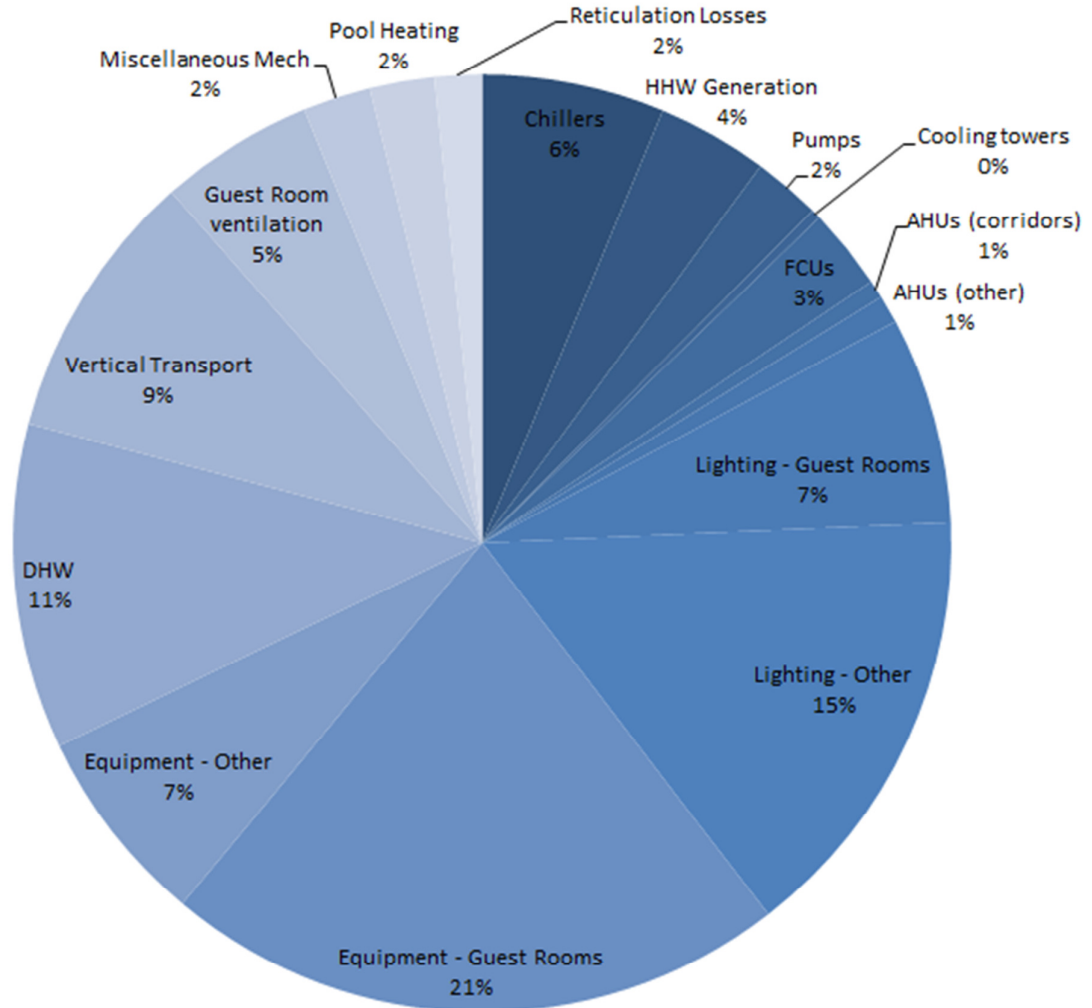
Key design features include vision glass area which is maximised at each level combined with performance glazing technology. A typical vision glass height of 2005mm is proposed with a nominal sill height.

A typical guest room floor plan has been analysed to confirm that the proposed façade will meet the necessary energy efficiency performance requirements. The proposed façade will ensure that a good level of energy efficiency is achieved whilst maintaining the architectural intent and a high level of amenity for occupants.

4.3 Energy Efficiency and Greenhouse Gas Emissions

The chart below shows the potential percentage contribution of energy uses throughout the building to the total annual emissions predicted. As can be seen, the majority of emissions are likely to result from equipment within guest rooms and lighting. Given this it will be important to ensure that any specified AV equipment, appliances and light fittings are selected with energy efficiency as a selection criteria and good design principles are applied to minimise energy consumption.

Greenhouse Gas Emissions by End Use



The following are technologies essential to ensure that the hotel will be capable of achieving a high level of energy efficiency and result in a significant greenhouse gas emission reduction when compared to existing hotels with comparable facilities.

- **High efficiency chilled water plant:** High efficiency chillers will be selected to ensure high coefficient of performance is achieved throughout the year.
- **High efficiency motors:** All central pumps, air handling units, return air fans and larger miscellaneous fans will be specified with high efficiency motors.
- **Fan and pump selections:** Minimum performance will be set for all equipment.
- **Variable air volume (VAV) air distribution:** Air handling units serving common area corridors, function rooms, restaurant etc will be VAV controlled. The VAV system temperature will be controlled to make maximum use of

high efficiency chilled water plant while avoiding reheat. Controls will be configured to maximise the benefit of economy cycle cooling when ambient conditions are appropriate.

- **Efficient Lighting:** Lighting is designed to minimise the heat load on the base building cooling plant. House lighting will also be designed to minimise energy consumption through the appropriate selection of fittings and controls. LED lighting will be utilised wherever appropriate.
- **High Façade Performance:** Analysis has been undertaken to ensure that the proposed façade will exceed current BCA requirements for façade performance. The façade will adequately reduce heating and cooling loads and ensure thermal comfort for occupants whilst allowing good natural light.
- **Heating / Boilers:** Heating will be provided by a heating hot water plant utilising efficient gas boilers. There will not be any electric heating used in the development.
- **Energy and water metering:** Energy and water metering will be provided to monitor energy and water use and a system for monitoring consumption by building element will be provided to enable building management to monitor the building's performance. This will enable the building management team to focus their attention and assist in their maintenance of energy efficiency targets.
- **Guest Room Control:** Guest room lighting and air conditioning will be automatically switched off when the guest room is not occupied, significantly reducing energy consumption.

4.4 Water Minimisation

Potable water consumption will be minimised via reducing demand and then by using alternative water sources. Potable water demand will be reduced throughout the hotel through the selection of fittings and fixtures with flow rates as low as practically possible. In addition the high efficiency water cooled chilled water plant will minimise heat rejection requirements to reduce associated water consumption.

Given the height of the proposed building and relatively small roof area, the collection of rainwater and reticulation throughout for toilet flushing is not appropriate given that the volumes of rainwater that could be collected would not provide a significant reduction in potable water use for toilet flushing. Instead a rainwater tank will be provided in the rooftop plant room to collect rainwater from the tower roof. Captured rainwater will be used to irrigate landscaped areas near the external pool terrace.

In addition a tank will be provided to ensure that fire services test water can be re-circulated minimising the consumption of potable water.

4.5 Management

Lend Lease has a proven track record in the management of sustainability in its projects. Performance is directly related to the way in which the project is delivered and Lend Lease Building have in place the necessary controls and procedures to achieve the outcomes targeted. Examples of initiatives include:

- **Sustainability Professional.** It is standard practice on Lend Lease projects to have a sustainability consultant engaged throughout the design and delivery of a project. This is essential to ensure that principles are set early, and included within the project.
- **Commissioning.** The design consultants will provide documentation that outlines the design intent and contractors will be required to demonstrate the systems are commissioned in accordance with the appropriate standards.
- **Environmental Management.** The construction team will operate the site using a Site Environmental Management Plan which is accredited/recognised against industry best practice, such as the NSW Environmental Management System Guidelines 2007 and ISO 14001.
- **Waste Management.** The construction team will aim to recycle at least 80% of construction and demolition waste using a waste contractor that can sort and direct waste for recycling.

4.6 Indoor Environment Quality

The building will target to provide a high level of indoor environmental quality. Examples of some initiatives that may be considered include:

:

- **Thermal Comfort:** Thermal comfort will be achieved through a combination of the mechanical air distribution system and high performance façade. A high performance façade including appropriate glazing will ensure that thermal comfort impacts of the façade are minimised. The mechanical air distribution system will be appropriately sized, designed and commissioned to ensure comfortable conditions can be maintained throughout the space for all climatic variations experienced.
- **Air Quality:** Air quality will be addressed through careful selection of finishes to minimise the quantity of pollutants into the space. Finishes will be selected to ensure that volatile organic compounds and formaldehyde emissions are minimised. In addition ventilation air to common and function areas will be controlled via CO2 sensors to ensure it is adequate at all times to remove both CO2 and other pollutants. The distribution of ventilation air throughout the space will also be carefully considered to reduce the age of air within the space. Fresh air is provided to each hotel guest room at a rate which exceeds minimum requirements and there is no recirculated air provided to guest rooms.
- **Acoustics:** The building services design and the overall building will be designed to achieve a high level of acoustic comfort to minimise noise transfer into guest rooms.
- **Lighting:** Lighting will be designed to ensure adequate uniform light is provided which does not cause flicker or glare. Internal curtains / blinds will be provided to enable guests to manage glare. In addition the proposed façade and glazing selection will ensure that a good level of natural light is provided to guest rooms.
- **Views:** The proposed façade design maximises vision glass area to ensure views are maintained from all guest rooms. External views are essential to ensure a high level of amenity within guest rooms and connection to the outdoors.

4.7 Materials

In addition to providing waste recycling facilities, where possible, materials will be specified and selected to target a minimal environmental impact. Alternative materials will be employed wherever practical. Examples of initiatives include:

- **A waste storage area** is provided and sized to be sufficient to enable the storage of both general waste and recyclables. Advice regarding required areas and access has been provided by a specialist waste consultant to ensure the volume of waste generated from the hotel operations which can be recycled is maximised.
- **The reduction of Portland cement** is being considered which will reduce the embodied carbon associated with the development.

- **Steel** will be sourced from 'responsible steel makers' wherever possible in accordance with Green Building Council of Australia (GBCA) requirements. In addition reinforcement steel will be procured from a supplier who produces steel using energy reducing processes during its manufacture.
- **PVC products** will utilise PVC that complies with the Green Building Council Best Practice guidelines wherever possible, or potentially use alternatives to PVC.
- **All timber** to be used on the project will be targeted to either be certified under the FSC or PEFC schemes, or be reused timber.

4.8 Emissions

Emissions from the ICC Hotel will be minimised as far as possible. By using environmentally friendly refrigerants and insulation and eliminating light spill any negative impact of the building may be significantly reduced. The following summarises proposed initiatives that may be considered:

- **Refrigerant ODP.** The air-conditioning units will utilise refrigerants with zero ozone depleting potential. These HFC based gases are controlled substances which, if accidentally leaked, will not damage the ozone layer. The refrigerants associated with the project are located within the district cooling plant.
- **Insulant ODP.** The fabric and services insulation specified at The Haymarket will be of a type that does not use any material with Ozone Depleting Potential in its manufacture or composition.
- **Light Pollution.** The design of the external lighting system will ensure that light does not spill upwards to the sky or beyond the boundary. This can be a nuisance to adjacent properties, particularly residential neighbours.

4.9 Public Transport and Pedestrian Strategy

The proposed ICC Hotel is situated in an ideal location close to public transport to ensure that transport associated emissions will be minimised. The light rail station is located immediately adjacent to the hotel and offers hotel guests connections to both the city and airport (via central station). The hotel also benefits from good pedestrian connections to the city and surrounding area. Future bus routes and stops in the SICEEP precinct also provide bus transport options for guests.

5.0 CONCLUSION

The proposed ICC Hotel will be designed to be capable of achieving sustainable outcomes through good design principles resulting in reduced operational energy consumption, reduced potable water use, minimisation of waste to landfill and appropriate materials selection while at the same time maintaining a high level of indoor environmental quality through appropriate mechanical design, façade configuration and materials selection.

The project will be designed capable of achieving a high level of energy efficiency through efficient mechanical ventilation, heating and cooling design as well as good levels of control for lighting and equipment throughout the hotel. Greenhouse gas emissions associated with operating the hotel may be significantly reduced when compared to existing hotels with similar attributes. Subject to further design development, initiatives as described could be incorporated which may lead to a reduction of up to 45% when compared to existing hotels.

Potable water consumption will be reduced via demand reductions through selection of fixtures and fittings, high efficiency chilled water plant and use of rainwater where possible. These initiatives are expected to reduce water consumption when compared to existing hotels with similar attributes.