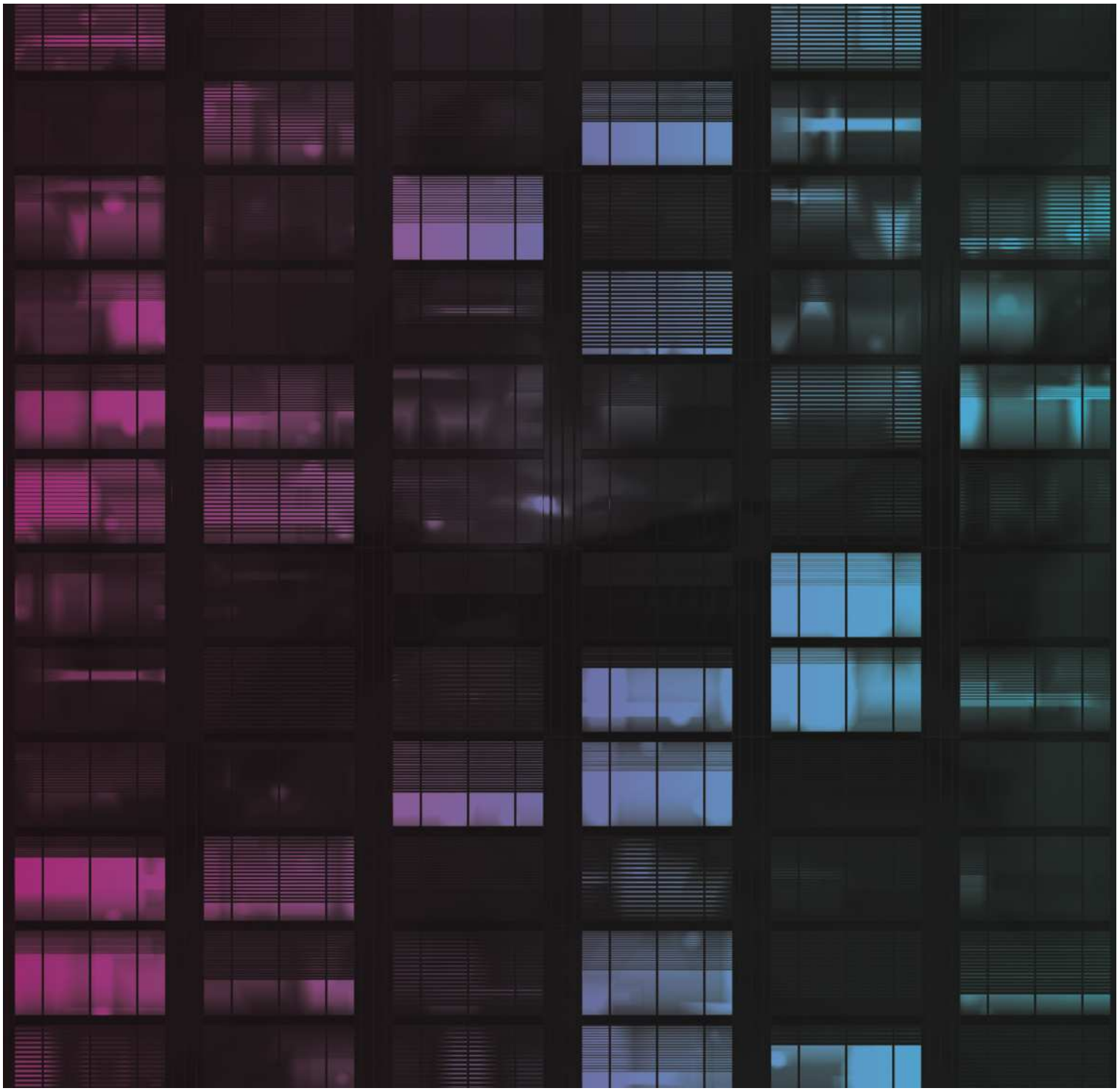
JBA

29 July 2010

Sydney Southwest Private Hospital

Infrastructure, ESD and Acoustics – Authorities Submission



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Infrastructure, ESD and Acoustics – Authorities Submission

Prepared for

JBA

Prepared by

AECOM Australia Pty Ltd
Level 11, 44 Market Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8295 3600 F +61 2 9262 5060 www.aecom.com
ABN 20 093 846 925

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Quality Information

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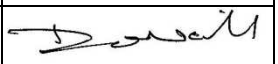
03	28-Jul-2010		David O'Neill	

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1.0 Introduction

The project is a major extension to the existing Sydney Southwest Private Hospital comprising two basement car parks, four clinical levels one Medical Consulting level and one plantroom level with provision to add a future two further levels..

The departments are:

Level 1 – Operating Suites and consulting suites

Level 2 – medical/surgical inpatient Unit

Level 3 – Mental Health Inpatient Unit

Level 4 Medical Consulting Suites

Level 5 – Plantroom

Standards/Guidelines

The engineering services will be designed with reference to the following:

- The Australasian Health Facilities Guidelines (In the absence of any standards in AHFG TS 11 will be utilised)
- Relevant Australian Standards;
- The Building Code of Australia;
- Government Department's Regulations.
- Authorities and Councils such as:
- The requirements of Liverpool Council;
- Sydney Water ;
- Integral Energy;
- NSW Fire brigades;
- Environmental Protection Authority.

2.0 Electrical Services-Infrastructure

2.1 Guidelines and Standards

The electrical services shall be designed and constructed in accordance with the requirements of the Building Code of Australia.

NSW Fire Brigades' Requirements; NSW Local Government Act; Local Area Health requirements and Integral Energy Supply Authority requirements and as a minimum, the following Australian Standards:-

AS/NZS 3000 – Wiring Rules

AS/NZS 3008 – Electrical Installations – Selection of Cables

AS 3439 – Low Voltage Switchgear and Control Gear Assemblies

AS 3009 – Emergency Power Supplies in Hospitals

AS 3013 – Classification of the Fire and Mechanical Performance of Wiring Systems

AS/NZS ISO/IEC 14763.3 – Implementation and Operation of Customer Premises Cabling – Part 3

AS/ACIF S008 – Requirements for Authorised Cabling Products

AS/ACIF S009 – Installation Requirements for Customer (Wiring Rules)

2.2 Electrical Supply

Energy Provider: Integral Energy.

The electrical supply characteristics of the power supply to the site are:

- 11kV, 50 Hz incoming supply to the Site;
- 400V 50 Hz within the building facility;
- MEN earthing throughout;

The existing supply to the facility originates from a kiosk substation which supplies an existing main switchroom in the existing building. This will remain unchanged.

A new 1200kVA kiosk substation is required for the extension with associated new switchroom. The proposed location for the kiosk is the Northwest corner of the site on Bigge Street.

3.0 Hydraulic Services-Infrastructure

3.1 Scope of works

General - Based on the Lockley Land Title Solutions (Registered Surveyors) drawing 33031DT the following was established.

Sewer - The proposed sewer pipe work shall connect to the existing Authority sewer main, located in the Goulburn serviceway.

Sanitary Plumbing - The system will be installed in accordance with AS 3500.2 – 2003, and the NSW Code of Practice 2006. Materials will be Poly Ethylene and / or cast iron tube and fittings.

Trade Waste Plumbing - Fixtures and equipment that generate grease and/or high temperature discharges will be treated on site to the requirements of the Liverpool City Council trade waste policy. Materials will be high density polyethylene (HDPE) tube and fittings.

Potable Cold Water - The proposed potable cold water will be connected to the Sydney Water mains and reticulated to all fixtures and equipment that requires cold water. Fixtures and equipment that may present a source of contamination will be fitted with a backflow prevention device suitable for the hazard rating of the procedure.

Stormwater - Surface water drainage will discharge by gravity into the storm water system in the Goulburn Serviceway via an onsite detention tank.

Gas – The new extension will be provided with gas from the existing supply in Bigge Street

3.2 Standards and Regulations

- AS3500.1 -4 National Plumbing Code all parts;
- AS2845 Water Supply Backflow Prevention Devices and Atmospheric vacuum breakers;
- NSW Code of Practice (Plumbing and Drainage);
- Local Council Regulations and Ministerial approval conditions;
- New South Wales Local Government Act;
- Building Code of Australia 2010;
- Safety and occupational health: The requirements of the New South Wales Work Cover Authority and New South Wales Occupational Health and Safety Act;
- Liverpool Council;
- NSW Fire brigades;
- Environmental Protection Authority.

4.0 ESD (Environmentally Sustainable Design)

4.1 General

Hospitals inherently use large amounts of resources to, operate and service. It is the intention of the project team that the new extension will be designed and constructed to provide an efficient building targeting the equivalent of a 4 Star Greenstar rating.

4.2 Thermal efficiency

The new extensions preliminary plans are favourable to admittance of natural lighting and views and connectivity to outside which will be beneficial for patient well-being and recovery times, which is the core value of a hospital.

In addition to the passive solar design principles, during the design development high levels of thermal performance will also be achieved through careful selection of materials for their insulating and thermal mass properties.

4.3 Energy efficiency

Some of the initiatives, which have been considered in the concept design stage. and will be developed further, include:

- Separate Air conditioning systems for areas with different operating times to avoid wasting power
- Thermal zoning on each air conditioned floor to allow energy efficient operation
- Energy efficient mechanical system including outdoor air economy cycle where appropriate, heat recovery options, pressure sensing filters, Variable Speed Drives
- Power Factor Correction on the mains supply
- Energy efficient lighting
- Lighting control system and switching arrangements to minimise energy use
- CO monitoring of Carpark mechanical ventilation to minimise wasteful operation.

A smart building management system will be provided for assisting in the following:

- Optimal start/stop time for air conditioning unit operating time
- Possibility of Economy cycles and night purge
- Consideration will be given to cooling and heating lockouts, based on outdoor conditions to minimise energy wastage
- Set Indoor temperature set-point based on its functionality and adjust seasonally
- Monitor lighting consumption for undue use.

4.4 Other ESD initiatives

Other ESD initiatives to be investigated during the development of the design and implemented if appropriate are;

- Material selection for quality of air and reducing pollutants. Low-VOC carpets, finishes, solvents and particle boards
- Storage for recyclable waste
- Sub-metering of water and electricity
- Building Tuning to maintain efficient operation
- Recycling of fire System test water.

5.0 Acoustics

The acoustics objectives of the project are;

- Establish and implement appropriate environment noise criteria for all environmental noise emission based upon the measured background noise level the Department of Environment, Climate Change and Water's requirements and/or Liverpool City Council requirements. Of particular importance is the location of the extension within a residential area. All noise generating equipment will be contained within plantrooms or where this is not possible provided with suitable attenuation.
- Establish and implement the appropriate internal noise levels and reverberation times for various spaces in accordance with AS/NZS 2107:2000 "Acoustics – Recommended design sound levels and reverberation times for building interiors". Advise the Architect of suitable building envelope treatment to prevent external traffic noise break-in.
- Identify and implement acoustic requirements for speech privacy within sensitive areas of the development such as mental health Inpatient Wards and medical consulting suites.
- Identify and implement acoustic requirements for external traffic noise, particularly at night for patient wards.

6.0 Attachments

The following attachments are a record of discussions with the various Authorities.