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Attention: Vivienne Goldschmidt

SUB: ESD - PART 3A MHICU DIRECTOR GENERAL REQUIREMENTS

Please find below initiatives in response to the Director General requirements for application MP 10_0131 at the Randwick Health Campus, Avoca Street, Randwick relevant to the Ecologically Sustainable Design.

DG Requirement 5 – ESD (Item 1)

The project will be designed to comply with the deemed-to-satisfy provisions of Section J - Energy Efficiency of the Building Code of Australia 2010.

The development will incorporate ESD principles in the design. The design will be implemented as part of the construction by the selected contractor. The ongoing operation phases of the building will be managed by the hospital in accordance with the maintenance manuals.

DG Requirement 5 – ESD (Item 2)

The development will be considering the following ESD initiatives which will assist to minimise the buildings ongoing energy use and assist with the energy management of the building:

ELECTRICAL SERVICES:

1. All sub-mains servicing distribution boards, mechanical boards and other major control cabinets shall be metered and be linked to the building management system (BMS) for energy auditing, energy monitoring and troubleshooting.
2. Cross-Linked Polyethylene (XLPE) and Low Smoke Zero Halogen (LSZH) cables shall be used in the electrical distribution systems in place of traditional PVC type cabling.
3. Motion sensors, timers and daylight sensors shall be used where appropriate to control the internal artificial lighting in the development to reduce energy usage. Lighting circuits shall be designed to provide high flexibility and not control large/multiple areas with one switch.
4. The building management system will have the ability to control lighting circuits within the major corridors of the extension building to allow the hospital to switch off lighting that is not specifically required at any point in time.
5. The lighting system shall incorporate energy efficient lamps, use of luminaires with high light output ratios, and be coupled with lighting controls in selected common spaces to reduce energy consumption.

6. External artificial lighting shall be designed to minimise light spillage and shall incorporate day light sensors.
7. Emergency lighting within the hospital will make use of long life LED fittings

MECHANICAL SERVICES

The following mechanical services initiatives are being considered for this project:

- Centralised and zoned variable refrigerant volume/variable refrigerant flow (VRV/VRF) air conditioning systems; one (1) to operate during office hours and one (1) dedicated to operate 24 hours a day, 7 days a week.
- Heat recovery on individual air conditioning units which will allow the indoor units to be capable of simultaneous heating and cooling and thus reducing the dependence on outdoor condenser and overall energy consumption.
- The use of efficient refrigerants that have low ozone depletion potential and low global warming potential
- Some passive cooling techniques are considered to reduce the overall air conditioning load for areas in which comfort cooling only is required. Some passive cooling techniques include:
 - Selective shading of windows to prevent solar penetration in summer but allow it in winter.
 - Suitable building mass and insulation combinations.
 - Possible use of double glazed windows in key areas.
- Implementation of Building Management System (BMS) to schedule and optimise plant to maximise efficiency.

HYDRAULIC SERVICES

- 3 Star WELS rated water closets, having an average volume per flush of 4 litres.
- 3 Star WELS rated urinals, having an average volume per flush of 2 litres.
- 3 Star WELS rated tapware, having a flow rate of 9 litres per minute.
- 3 Star WELS rated showers, having a flow rate of 9.0 litres per minute.
- 50,000 Litres of rainwater storage and non potable water supply for irrigation.
- Gas boosted solar hot water system which provides 50% annual contribution.

ARCHITECTURAL

- Efficient facade treatments which will provide shading and improve thermal performance.
- Provision of energy efficient glazing to improve thermal transmittance as required.
- Daylight glare control treatments such as blinds.
- The internal planning locates primary patient and open work spaces to the perimeter to maximise opportunities for natural light. Enclosed spaces have been located in the centre of the plan.
- Opportunity for patient and office areas to have access to external views.
- The site is not of ecological value having previously been a quarry.
- There will be no cut and fill and minimal removal of top soil would be undertaken.
- Landscape planting will be appropriate to site and climatic conditions.
- Where possible all timber and composite timber products will be sourced from sustainable timber supplies.

STRUCTURAL

The main structural ESD initiatives include the following:

Concrete

- Replacement of Ordinary Portland Cement (OPC) with supplementary cementitious materials.
- Use of at least 20% slag aggregates.
- Timber formwork to be from re-used timber, post consumer recycled timber or Forest Stewardship Council (FSC) Certified timber.

The use of recycled aggregates is generally not practical for structural applications and as such this initiative will not be pursued.

Steel

- Maximise use of high strength steel grades.
- 60% or greater of the fabricated steelwork to be supplied by a steel fabricator accredited to the Environmental Sustainability Charter of the Australian Steel Institute (Currently there are very few accredited fabricators in NSW. So this may not be practical to achieve).
- 60% of reinforcing steel to be produced using energy reducing processes in its manufacturer such as Polymer Injection Technology (Currently reinforcing steel is produced only by OneSteel. Once again this may not be practical to achieve).

The above steel initiatives are based on the current Green Star requirements. But it should be noted that to achieve any Green Star points with this system, at least 95% of the steel for a project must be sourced from a steel maker with a valid ISO 14001 Environmental Management system and be a member of the World Steel Association Climate Action Program (WSA CAP). Currently in Australia, only OneSteel and BlueScope comply with these requirements.

DG Requirement 5 – ESD (Item 3)

The environmental performance of the new development will be assessed by using the Environmental performance tool for government buildings, developed by the NSW Government.

The Environmental Performance Guide for Buildings (EPGB) is a high environmental performance guide for NSW Government Buildings developed by the Policy Services Division of the NSW Department of Public Works and Services.

As per TS-11, it is a mandatory regulatory requirement for all government buildings to provide an Environmental performance report (EPR) at the end of each design stage, in the form of an electronic Excel file. This will be undertaken by the project team.

For the proposed MHICU development, EPGB performance reporting would address all of the five categories:

- Resource consumption
- Environmental loadings
- Quality of indoor environment
- Functionality
- Wider planning issues

Yours sincerely



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