

Aurecon Australasia Pty Ltd
ABN 54 005 139 873
Level 2, 116 Military Road
Neutral Bay NSW 2089
PO Box 538
Neutral Bay NSW 2089
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com



18 December 2014

Tino Uchino
Design Manager
Brookfield Multiplex Australasia
Level 22
135 King Street
Sydney
NSW
2000

Dear Tino

UNSW Biological Sciences Project, State Significant Development – SSD 6674 Architectural Design Report – Electrical Building Services Commentary

“Detail how services, including but not limited to, waste management, loading zones, mechanical plant are integrated into the design of the development.”

Aurecon, as Electrical Consultant for the development advise the following:

The Building Services Electrical Brief and concept design review for the development identifies the following:

1. LV Power Supply System including consumers mains, metering, main switchboard(s), surge protection system, submains, electrical distribution boards, final subcircuits and related earthing systems including clean communication and functional earthing, power monitoring installation, associated networks and containment. Connection for portable diesel generator. Power factor correction provided at high voltage 11kV.
2. Diesel generator, including protective devices, isolators, switchboards, acoustic louvres, ducting, generator control and auxiliary panel, radiator, attenuators, fuel pipework, cabling, containment, trenching, controls, 2-off battery starter systems (duty and standby), 1000L day tank, and mounting equipment. Acoustic attenuation of the generator room as per acoustic report requirements. Air cooled generator utilising a shaft driven radiator fan. Permanent partial load bank for automatic connection to prevent low load operation of the generator. Facility for connection of additional portable loadbank for the full load testing of the generator.
3. Fuel supply system, including above-ground bulk fuel tank sufficiently sized for minimum 12-hours running time at generator 100% load, all pipework, pumps, valves, headers, controls, vents and fill-points to ensure a fully functional system complying with all relevant Australian and international standards and current trade practices. Fuel polishing system to circulate and filter fuel store.
4. Fuel leak detection system in all generator areas, pump rooms, fuel risers, pipe headers, bulk tanks and day tanks
5. All power wiring to mechanical/hydraulic MCC's and to major mechanical and hydraulic plant
6. Space for future UPS. Provide UPS infrastructure.
7. Emergency power off including contactors, alarms, monitoring, stop/reset buttons, signage, DB configurations

8. Cable reticulation including tray, ladder, conduits, cast in conduits, access chambers, trenching and making good for power, communications and controls cabling
9. Outlets and accessories including single and multiphase socket outlets, switching systems, single and multiphase permanent connections, lighting outlets and luminaires
10. Audio visual installations as per the room data sheets, and in consultation with the UNSW CATS AV advisors.
11. Power supplies to all goods and passenger lifts and hoists
12. Power supplies to all hydraulic panels and individual plant equipment (including but not limited to hot water heaters, boiling water units/chilled water units including all accessories and isolators where required)
13. Power supplies to all fire equipment, including all accessories and isolators where required
14. Internal and external general and emergency lighting system including luminaires, controls, supports, scheduling, graphical user interfaces, monitoring, testing
15. Exterior luminaire supply and installation including automatic lighting controls to landscape architects details and UNSW guidelines
16. Lightning protection system including air terminations, down conductor systems, surge suppression at each Lab and communications room DB's, bonding systems and ground terminations.
17. Communications installations as documented by UNSW ICT.
18. Security systems including intruder detection, closed circuit television, and access control systems. All cameras, reed switches, electronic locking devices, push buttons, break glass, proximity card readers, intercoms, accessories, ups systems and isolators. Provide power to all security systems.
19. All interfaces with the BMCS
20. EMF assessment and shielding as required

The Electrical Building Services are integrated into the design:

1. By the allocation of dedicated electrical rooms/risers:
 - a. Main LV Switchroom
 - b. Comms UPS Room
 - c. Main Electrical Risers x 2
 - d. Secondary Electrical Riser Cupboard
 - e. Bulk Diesel Fuel Store
 - f. Diesel Pump Room
 - g. Diesel Fuel Riser
 - h. Diesel Fuel Fill Point
 - i. Diesel Generator Test Loadbank Connection Panel
 - j. Portable Generator Connection Panel

- k. Security Equipment (located within Floor Communications Room)
 - l. Audio Visual (located within joinery)
 - m. Building Main Communications Room
 - n. Floor Communications Room
 - o. Head End Equipment Room
 - p. PV Solar Cells – spatial provision
 - q. Suitable horizontal reticulation zones
2. By considering safety-in-design :
- a. Safe for installation – suitable equipment access routes
 - b. Safe operation – restricted access for nominated personnel only
 - c. Safe maintenance – clearance around equipment to safely maintain
 - d. Safe removal – ability to remove and then replace equipment

The Electrical Building Services have been integrated into the design of the development by coordination with other building services and the building form.

The Electrical Building Services are nominated to Australian Standards, NCC and to the function specified by the client, UNSW.

Yours sincerely



Jason Corbett

Technical Director