

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation and Science Portfolio
2017 - 2018 Budget Estimates
31 May – 1 June 2017

AGENCY/DEPARTMENT: DEPARTMENT OF INDUSTRY, INNOVATION AND SCIENCE

TOPIC: Australian Astronomical Observatory - Sydney facilities

REFERENCE: Written Question – Senator Carr

QUESTION No.: BI-99

1. In terms of the AAO base in Sydney, what facilities are operated by the AAO?
2. What is the cost to DIIS of these facilities?

ANSWER

1. The AAO operates the following facilities at its base in North Ryde, Sydney:

<u>Facility</u>	<u>Floor area</u>
Offices, workshops and laboratory spaces	1571m ²
Meeting Rooms (17 m2, 19m2 and 48m2)	84m ²
Library	150m ²

In particular, the laboratory and workshop facilities are as follows:

<u>Facility</u>	<u>Floor area</u>
Mechanical Workshop Main	237m ²
Electronics Lab (Clean Room)	7m ²
Electronics Lab (Store Room)	23m ²
Electronics Lab (Wet Room)	5m ²
Electronics Lab (Main)	64m ²
Electronics Lab (Dark Room)	8m ²
General Storage	5m ²
Metrology Lab	23m ²
Mechanical Assembly Lab	31m ²
Integration Lab	55m ²
Optics Lab	106m ²
IT Laboratory	55m ²
IT Project Room	14m ²
IT Communications	7m ²

Notes:

- The AAO offices, housing astronomers, engineers, instrument scientists and corporate staff, are equipped with standard computer workstations and internet connections, connecting to the departmental network through Citrix and VPN token.

- The mechanical workshop houses a Computer Numerical Control (CNC) machine and a variety of software based design and analysis packages, to design, analyse components and fabricate complex parts, along with a range of standard metal working machinery and tools to create jigs and fixtures for telescopes and instrumentation.
- The electronics labs are used for all control electronics and detector-related work.
- The metrology lab is used for precision measurements, including a Coordinate Measuring Machine that enables measurements of parts to micron precision using laser technology.
- The mechanical assembly lab is used to assemble various sub-systems together in a clean environment, rated to Class 10,000 or ISO 7 specification.
- The integration lab is used to build large instruments in a clean environment also rated to Class 10,000 or ISO 7 specification, and includes a 2-tonne ceiling crane to haul large components into place for assembly and integration. Instruments fabricated and assembled at North Ryde are transferred to either the Anglo-Australian Telescope near Coonabarabran for commissioning (if locally funded) or to a foreign telescope if funded as such.
- The optics lab is used for optical alignment and simulations, houses 3-dimensional printing machines to fabricate complex parts and components to precise tolerances, and features vibration isolation tables to enable the most precise measurements to be made.
- The IT group manages all the scientific hardware (computers and peripherals) and the software end user licenses for various analysis packages. The IT Laboratory includes a remote observing room, managed by the IT group, which enables astronomers to control remotely located telescopes for night time viewing.

2. In 2016/17, the costs to the department to operate the AAO facilities at North Ryde are:

Expenditure Item	Cost
2016/17	(\$'000)
Rent	978
Outgoings	140
Security	80
Electricity	104
Cleaning	69
Minor maintenance work	117
Miscellaneous	11
Total	1,499

These costs are allocated to AAO as 20 per cent of the total facility operating costs for the department's premises at North Ryde, which accommodate both the AAO and the National Measurement Institute (NMI).