



# Fleet Air Arm Museum

Taking off to a new benchmark in retrofitting with efficient, high performance lighting products



## PROJECT AT A GLANCE

Project Type  
Major lighting upgrade

Location  
Royal Australian Navy Fleet  
Air Arm Museum, Nowra, NSW

Solution Overview

- High-efficiency fluorescent luminaires
- Occupancy-based lighting control scheme

## CUSTOMER BENEFITS

- Energy saving of 70,587 kWh or \$10,587 per annum
- Greenhouse gas savings of 103.55 tonnes per annum
- 48% power reduction in the lighting load
- Dramatically improved viewing conditions



In 2010 the Department of Defence aimed to identify and implement energy saving measures across multiple sites and buildings. ECS, in partnership with Stowe Australia, completed a major lighting upgrade to the Royal Australian Navy Fleet Air Arm Museum, located adjacent to HMAS Albatross in Nowra, New South Wales.

The goal set by the client was to identify savings initiatives that met ambitious payback periods. The installation is on track to meet this goal with forecasts of energy and cost savings of over 70,000 kWh and \$10,000 per annum respectively, while providing a number of additional benefits.

The museum has a half-hectare exhibition space and is located within an ex-aircraft hangar.

Prior to the upgrade, the aircraft, signage and display cases were illuminated by 400 W metal halide highbay luminaires. There were also high-wattage halogen spotlights, which were suspended at an average of 12 metres above the floor level.

In the museum's exhibition space and offices, the lighting was previously engaged during opening hours, regardless of occupancy.



“The goal set by the client was to identify savings initiatives offering good payback periods.”

— Philip Kenny, ECS



### Introduction of Products

Throughout the display area, ECS introduced our own 4 x 54 W Altitude T5, high efficiency fluorescent highbay replacement luminaires, controlled by a mixture of Microlite 20 metre and Long Range 60 metre microwave motion detectors. Elsewhere in the building, a mixture of Microlite microwave, Ultralite ultrasonic detectors and timer units were employed.

The installed energy efficient lighting products have a long lifespan and functionality, including daylight harvesting, dimming and motion control.

### Results

In the main exhibition hall, the immediate benefit of the lighting replacements was the 48% power reduction in the lighting load. This was due to the increased efficiency of the replacement luminaires.

Replacing the discharge lighting technology with fluorescent lamps also brings additional benefits and opportunities. The introduction of motion sensor control became feasible because fluorescent lighting does not suffer from the lengthy warm up and restriking delays common to discharge lighting. This measure provided an estimated 70% reduction in running time for the lighting in the space.

Additionally, the superior white light and balanced distribution provided by the ECS Altitude T5 fittings have dramatically improved viewing conditions to a point where supplementary spotlighting has since been switched off, as it is considered redundant.



*ECS Altitude T5 fittings have dramatically improved viewing conditions, to the point that the supplementary spotlighting has since been switched off.*



> improved lighting levels at ground-level

Technical Curator of the museum, Ian Chorley, was so impressed with the improvement in lighting, especially in relation to colour rendering and the removal of multiple shadows, that he extended the project to have Altitude T5 fittings installed as replacement fittings in the adjacent workshop.

‘our promise, you’ll save’