



THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

R E P O R T

relating to the proposed construction of a

SCIENCE BLOCK

at the

ROYAL AUSTRALIAN AIR FORCE ACADEMY,

POINT COOK, VICTORIA.

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SCIENCE BLOCK, ROYAL AUSTRALIAN AIR FORCE ACADEMY,
POINT COOK, VICTORIA.

REPORT

His Excellency the Administrator in Council referred to the Parliamentary Standing Committee on Public Works for inquiry and report to the House of Representatives, the proposal to erect a Science Block at the Royal Australian Air Force Academy, Point Cook. The Committee have the honour to report as follows:-

General

1. The Committee toured the R.A.A.F. Station at Point Cook, viewed the site for the proposed Science Block and inspected existing classroom and living accommodation at the Academy.

Historical

2. A scheme of cadet training was first undertaken at Point Cook in 1923, nine years after the area was occupied as a Central Flying School. Until the outbreak of World War II, 500 cadets had undertaken training.

3. During the last war, Point Cook was a centre of training in the R.A.A.F. and up to the cessation of hostilities 2,700 pilots graduated from the Station. A signals school, established during the war, trained 7,137 pupils.

4. Composition of Point Cook. - The changing circumstances and requirements of the R.A.A.F. have been reflected in the composition of Point Cook which now comprises R.A.A.F. Headquarters, Point Cook;

Base Squadron; R.A.A.F. Academy; R.A.A.F. Institute of Aviation Medicine; R.A.A.F. School of Languages; No. 1 Basic Flying Training School; Officers Training School, and A.R.D.U. (Pan Climatic) Section. There are 86 officers, 448 other ranks and 39 civilians employed.

5. To meet the changing needs and added scope and functions of the R.A.A.F., the R.A.A.F. College was formed in 1948 for the sole purpose of training cadets for a career in the Air Force.

6. The professional scope of the syllabus at the College was designed to provide the cadet with a liberal education in the arts and sciences and a knowledge of basic service subjects for later specialisation in that branch of the R.A.A.F. to which he may graduate. Cadets were trained to approximately second year level of the Bachelor of Science degree course.

7. More recently the course of instruction has been intensified and the name of the establishment changed to the R.A.A.F. Academy.

The R.A.A.F. Academy

8. To maintain the officer establishment of the R.A.A.F. which is at present 2,162, including 835 posts in the General Duties Branch, the following sources are used to compensate for the annual wastage of 100 to 120: Cadets from the Academy and Flying Training School, direct entrants, undergraduate scheme, graduate entrants, commissioning from other ranks and the diploma training scheme.

9. An average of approximately 15 graduated annually from the R.A.A.F. College during the period from 1951 to 1957.

10. Committee of review. - The report in December 1957 of a Committee set up to review the R.A.A.F. College made the following recommendations:-

The name of the R.A.A.F. College be changed to the
R.A.A.F. Academy.

Point Cook be the permanent location of the Academy.

The object of the course should be to provide instruction, experience and incentive to each cadet so that he will graduate with the knowledge and the qualities of leadership required in a junior officer of the R.A.A.F. and with a basis of continued development throughout the lifetime of service to his country leading to readiness for responsibilities as an air commander.

The programme of instruction at the Academy should include:-

- (i) Courses of study leading to the degree of Bachelor of Science
- (ii) Flying Training to the basic stage
- (iii) Physical, military, humanities and leadership training.

The length of the course at the Academy should be four years. A further six months advanced flying training would be undertaken after the Academy course.

Pilot graduates of the Academy would complete their pilot training at No. 1 Applied Flying Training School.

The minimum entrance standard should be the equivalent of the matriculation requirements of the University of Melbourne and include mathematics and physics.

11. Those recommendations have been adopted and present planning is designed to permit cadets who commenced their training in 1961 to enter the third year of the science degree course in 1963.

12. Level of training. - Under Academy conditions cadets on graduation will hold a degree of Bachelor of Science and will have received instruction in the humanities, applied science and military studies. A course of basic flying training will also have been completed.

13. The need for higher academic instruction arises from the requirement for an increasing number of officers able fully to understand the role and uses of both manned aircraft and guided missiles. The increasing rate of technological change has decreed that the R.A.A.F. train officers with the ability to comprehend not only the military problems of modern warfare but also the technical details of modern weapons which will play an increasingly important part in future R.A.A.F. planning. The need of the R.A.A.F., therefore, is to train more people who could fulfil these requirements.

Existing laboratory and classroom accommodation

14. The buildings at present in use by the Academy are wartime huts which have been converted into laboratories, classrooms and bedroom-studies. They provide only the barest services and fitments for instructional purposes, are reaching the end of their economic life and many are in poor condition.

15. Concern was expressed during the hearing of evidence about the need to install, in 1962, new equipment for the second year class in buildings which permit dust seepage and in which vibration is difficult to control. These conditions are not suitable for delicate and valuable equipment.

The need for the science block

16. One of the conditions required by the University of Melbourne in agreeing to the granting of a science degree at the R.A.A.F. Academy was that adequate staffing and facilities for teaching and research were to be provided to the satisfaction of the Faculty of Science.

17. Professor Hopper, Professor of Physics at the Academy, who gave evidence on behalf of the University of Melbourne, expressed the view that existing facilities are quite unsuitable for a university degree course and that the University could not be expected to carry on for any long period under conditions as they now exist.

18. The need for a new Science Block arises, therefore,

not only in order to provide better teaching accommodation than that described but also because no space exists to establish laboratories and other facilities necessary to give instruction at the third year science degree level.

19. The Committee are quite satisfied that an urgent need exists to erect the proposed building. Such action will do away with the need to make use of inadequate and inferior buildings for university undergraduate training. More importantly the building is needed to permit the third year of the Science degree course to be taught at the Academy and construction as a matter of urgency is recommended.

The site.

20. We agree that Point Cook is the logical permanent location for the R.A.A.F. Academy. It has an aerodrome, is close to a university and a main centre of population and the Academy can be established there with less cost than at other acceptable sites. The claims of Point Cook are strengthened by the traditional association it has had with cadet training since 1923.

21. The placement of the Science Block, which will be the first of the permanent buildings, will determine to a large extent, the layout of the rest of the Academy.

22. Master plan. - The Science Block is to be located in the space reserved for it in the master plan and will be one of the buildings which ultimately will form a hollow square. The other buildings, to be erected in the future, are a research laboratory, applied science building, administration building, arts and military studies building and chemistry building. These buildings will be near the main entrance to Point Cook.

23. The parade ground, assembly hall, kitchen, mess and sleeping quarters will be separate from the group of instructional buildings.

24. Witnesses were questioned about the position of the buildings as shown in the master plan with the thought that some change may give the Academy more identity and provide more spectacular surroundings during parade ground ceremonial occasions.

25. The evidence reveals that the Department of Air is well satisfied with the master plan and that the Department of Works representatives believe that the scheme proposed is worthy of the Academy. The President of the Royal Victorian Institute of Architects told the Committee that the best use is being made of the concept of an Academy and, having regard to the public funds available, he thought the best had been done.

26. The Committee therefore agree with the proposed location of the Science Block within the Academy area.

The proposed building.

27. The proposal before the Committee is to erect a two storey building providing accommodation and teaching facilities for physics and mathematics to a standard which will qualify cadets for a university degree in science.

28. The design. - The building is to be a two storey structure of concrete one-bay steel frame with reinforced concrete floors and stairs.

29. Laboratories and lecture rooms are to be located on the eastern side of the building and lecturers offices, common room, library, tutorial room, store, plant room and toilets on the western side. Where necessary, louvres will give protection against the sun.

30. Building materials and finishes. - The eastern wall of the building will be faced externally with a partial curtain wall in aluminium and glass with enamelled aluminium spandril panels. The western wall will be finished with face brickwork and, as already mentioned, adjustable sun louvres will be fitted. The roof will be constructed with steel trusses and covered with zinc deck roofing.

31. The main lecture room, which will be used as a theatrette and assembly hall, will have plywood panel walls and decorative lining board ceilings while the smaller lecture room will be of struck brickwork. Both will be acoustically treated.

32. Floors generally will be covered with vinyl tiles, classroom and laboratory walls will be plastered and finished painted and all ceilings will be acoustically treated.

33. Demountable partitions will be used for easier alteration if internal changes are ever necessary. Toilet blocks generally will have ceramic tiled floors, terrazzo partitions and glazed tile walls.

34. Classrooms and laboratories. - The teaching facilities will include the following:-

Physics lecture theatre No. 1: To cater for lectures to combined classes and to act as assembly hall and theatrette until an assembly hall building is provided. The seating will be tiered and will provide for 60 cadets at lectures and approximately 100 persons at assembly. It will be fitted with lecture demonstration bench, blackboards, film projector room and screen.

Physics lecture theatre No. 2: A smaller lecture theatre with tiered seating to accommodate 40 cadets. It will be fitted with lecture demonstration bench, blackboards, mounting for projector on the top tier of the theatre and a screen.

Physics Part I laboratory: To accommodate 20 cadets with provision for laying out at least 15 physics experiments at any one time. Provision is also made for an acoustically treated room for aerodynamics experiments, a room for optics experiments, a space for sound experiments, two vibrationless mountings for ballistic galvanometers, vibrationless balance table and four laboratory sinks.

Physics Part II laboratory: This laboratory provides for three sections -

General physics, including atomic and nuclear experiments,
D.C. electricity and magnetism,
A.C. electricity,

and provides, in all, twenty-seven working spaces, together with demonstrators office and work room.

Physics Part III laboratory: This consists of several areas -

Electricity section,

Nuclear physics section,

Electronics section,

and provides for some twenty-two working spaces together with demonstrators office, work room, students writing up area, X-ray and photographic dark room. Associated generally with this laboratory is the advanced optics section which is designed to provide for Part II and Part III experiments.

Main physics store and work room: The main function of this store is to provide storage and preparation space for the demonstration equipment required in the lecture theatres and physics laboratories. It will be readily accessible to these areas. A service hoist has been provided to take equipment to first floor laboratories. A work bench 22 feet long with gas, water and power for the testing of equipment will be provided.

Mathematics classroom No. 1: Accommodates 30 cadets under normal classroom conditions. It will be fitted up with dais, blackboard and storage cupboard.

Mathematics classroom No. 2: Accommodates 40 cadets under normal seating conditions for tutorial practice classes, or 65 cadets for examinations. It will be fitted up with dais, blackboards and notice boards for mathematical charts.

Library: The library will provide space for reference text books and scientific periodicals required by the physics and mathematics department and by the staff for research work.

Staff common room: This room provides accommodation for the whole of the teaching staff of the Academy and will accommodate from 25 to 28 persons.

Offices and precis store: Various administrative accommodations have been provided on each floor for professional and lecture staff, etc.

35. Consultation with university authorities. - The extent of the accommodation and facilities to be provided has been arrived at after discussion and collaboration with authorities of the University of Melbourne. Evidence was given that the proposed layout of the Science Block is suitable for instruction in the physics course to degree standard.

36. Engineering services. - Engineering services will provide a heating system, mechanical ventilation, hot water supply, bottled gas storage and reticulation, a two-way intercommunication system in the large lecture theatre, electric light three-phase and single-phase A.C. power, 230 volts D.C. power, an amplified 1,000 cycle P.M.G. signal and high amperage D.C. current.

37. Provision has been made for an electric service hoist connecting the ground floor store with the laboratories above.

38. Fire protection. - A thermal type fire alarm system as well as the usual fire hydrant hoses and hand extinguishers will be provided.

39. Future needs. - Evidence was given that although there may be enough suitable applicants to admit a larger number of cadets in the foreseeable future, the present requirement is for an intake of 30 each year. The building has been designed to accommodate approximately 100 cadets but the number could be increased to 120 without difficulty.

40. Taking wastage into account, and on the basis that an increased number of cadets would be catered for by having more classes rather than larger ones and using rooms more often during the day, the Committee agree that the building will make adequate provision for the future.

41. The Committee recommend construction of the building to the size, design and layout proposed.

42. Construction time. - From the date instructions to proceed are given 16 weeks will be required to call public tenders. Work should be able to commence 8 weeks later and the construction time is estimated to be a maximum of 52 weeks.

43. The decision has been taken to raise the standard of the Academy's instruction to the Bachelor of Science degree. Any delay in the construction of the proposed Science Block will result in a deferment of the implementation of this higher level of training for R.A.A.F. cadets and the Committee urge that efforts be made to ensure that the building is ready in February 1963 for the beginning of the academic year.

44. Estimates of cost.- The estimated cost of the proposed building is £190,000 made up as follows:-

Building work (including blinds, floor coverings and fixed benches and fittings)	£132,200
Mechanical works	19,000
Electrical services	16,800
Electrical reticulation and sub-station	7,000
Hydraulics	7,000
Civil engineering works	6,000
Landscaping	2,000
	£190,000

Other accommodation.

45. The higher standard of the Academy course will make greater demands on cadets. The rooms provided for combined living and study are of poor standard and the Committee direct attention to the need for cadets to be able to study in more modern, better furnished and less cramped bedrooms.

Summary of recommendations and conclusions

46. The Committee's recommendations and conclusions, arrived at after studying the evidence and material submitted, are set out below. The paragraph quoted alongside each recommendation and conclusion refers to the relevant portion of the report.

	<u>Paragraph in report</u>
(1) The Academy is operating in converted wartime huts which provide only the barest services and fitments for instructional purposes and which generate conditions unsuitable for delicate and valuable instruments	14, 15
(2) There is an urgent need to erect a science block at the R.A.A.F. Academy	19
(3) Point Cook is the logical permanent location for the R.A.A.F. Academy	20
(4) The evidence reveals that the science block will be correctly located in the Academy area	24, 25, 26.
(5) Adequate provision has been made to meet future needs	40
(6) Construction of the building to the size, design and layout proposed is recommended	41
(7) The building will need to be ready for use in February 1963	43
(8) The estimated cost of the proposed building is £190,000	44
(9) There is a need for improved bedroom - study accommodation for cadets.	45.



(Allen Fairhall)
Chairman.

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