



*Parliamentary Standing Committee on Public Works*

REPORT

relating to the

DEPARTMENT OF THE SENATE	
PAPER No.	1083
DATE PRESENTED	- 6 SEP 1983
<i>R. L. ...</i>	
Clerk of the Senate	

PROVISION OF AIR CONDITIONING  
TO MAIN INSTRUCTIONAL BUILDING,  
SCHOOLS OF TRANSPORT  
AND CATERING

Puckapunyal, Victoria

(First Report of 1983)

1983  
THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA  
PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

## REPORT

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# PROVISION OF AIR CONDITIONING TO MAIN INSTRUCTIONAL BUILDING, SCHOOLS OF TRANSPORT AND CATERING

Puckapunyal, Victoria

(First Report of 1983)

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

(Twenty-Seventh Committee)

Senator Dominic John Foreman (Chairman)

The Honourable Wallace Clyde Fife, M.P. (Vice-Chairman)

Senate

House of Representatives

Senator Gerry Norman Jones

David Bruce Cowan, Esq., M.P.

Senator Bernard Francis  
Kilgariff

Peter Hertford Drummond, Esq., M.P.

Leonard Joseph Keogh, Esq., M.P.

Eamon John Lindsay, Esq., M.P.

John Saunderson, Esq., M.P.

EXTRACT FROM

THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES  
NO. 13 DATED 26 MAY 1983

- 40 PUBLIC WORKS COMMITTEE - REFERENCE OF WORK - MAIN INSTRUCTIONAL BUILDING, SCHOOLS OF TRANSPORT AND CATERING, PUCKAPUNYAL, VIC. - PROVISION OF AIR CONDITIONING: Mr. Hurford (Minister for Housing and Construction), pursuant to notice, moved - That, in accordance with the provisions of the Public Works Committee Act 1969, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Provision of air conditioning to main instructional building, Schools of Transport and Catering, Puckapunyal, Vic.

Mr. Hurford presented plans in connection with the proposed work.

Debate ensued.

Question - put and passed.

C O N T E N T S

WITNESSES

Ainsworth, Major J.F., Officer Commanding/Chief Instructor, Army School of Catering, Milpo, Puckapunyal, Victoria

Cole, K.H., Esq., Associate Director, Projects Division, Department of Housing and Construction, Victoria-Tasmania Region, Tivoli Court, 239-241 Bourke Street, Melbourne, Victoria

Hanlin, Colonel D.W., Chief Engineer, Accommodation and Works, Army, Department of Defence, Russell Offices, Canberra, Australian Capital Territory

Larsen, J.M., Esq., Project Manager, Department of Housing and Construction, Victoria-Tasmania Region, Tivoli Court, 239-241 Bourke Street, Melbourne, Victoria

Roennfeldt, R.J., Esq., Chief Mechanical Engineer, Department of Housing and Construction, 470 Northbourne Avenue, Dickson, Australian Capital Territory

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PROVISION OF AIR CONDITIONING TO MAIN INSTRUCTIONAL  
BUILDING, SCHOOLS OF TRANSPORT AND CATERING,  
PUCKAPUNYAL, VICTORIA

R E P O R T

By resolution on 26 May 1983, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, the provision of air conditioning to the main instructional building, Schools of Transport and Catering, Puckapunyal, Victoria.

The Committee has the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the installation of air conditioning and other control measures in the main instructional building.

2. The elements of the work comprise:
- a new central air conditioning plant and ducting;
  - replacement of glazing with reflective glass to reduce solar heat gain; and
  - provision of transportable buildings to enable instruction to continue during alterations.

3. The estimated cost of the proposed work is \$2.26m at April 1983 prices.

#### THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and drawings from the Department of Defence and the Department of Housing and Construction. On 26 May 1983 the Committee resolved on a motion by Mr Saunderson that pursuant to Sub-section 11(1) of the Public Works Committee Act 1962, a Sectional Committee comprising Senator Foreman, Senator Jones and Mr Saunderson examine and report on the proposal to the Committee. The Sectional Committee conducted a public hearing at Puckapunyal on 9 June 1983 at which representatives of the Department of Defence and the Department of Housing and Construction gave evidence.

5. Following the public hearing the Committee referred certain passages in the transcript of proceedings to the Department of Finance for comment. The Committee also sought copies of documents mentioned in evidence from the Department of Defence.

6. Prior to the public hearing the Sectional Committee inspected the main instructional building, Schools of Transport and Catering at Puckapunyal.

#### BACKGROUND

7. Puckapunyal Military Area: The Puckapunyal military area, located near Seymour, 104 kilometres north of Melbourne, occupies 40,000 hectares of Commonwealth land. The majority of this land is used by the Army as a training area and firing range.

8. The small township of Puckapunyal, located within the military area, consists of married quarters, barrack blocks, training and support facilities and buildings for personnel and their dependents attached to the following Army units:

- the Army School of Transport
- the School of Catering
- District Support Group Puckapunyal
- 1st Armoured Regiment and Light Aid Detachment
- 21 Construction Squadron
- Puckapunyal Area Workshop
- 3 Camp Hospital
- Proof and Experimental establishment.

9. The military population of Puckapunyal varies from 3,500 to 4,000 during a year.

10. Previous Consideration by the Committee: In 1972 the Committee investigated and reported on an Army proposal involving the construction of a Royal Australian Army Service Corps (RAASC) Centre at Puckapunyal (Committee's 14th Report of 1972, Parliamentary Paper 81/1972).

11. At that time the RAASC Centre was responsible for training Army Supply and Transport personnel and personnel from other corps. The Australian Army Catering Corps (AACCC) was a Wing of the Centre. In 1972 the Centre had a staff of about 329 and a student population of 650.
12. The proposal, estimated to cost \$8.4m in 1972, comprised the construction of an instructional block, administrative and technical accommodation, living accommodation and extensions and alterations to a number of existing administrative and instructional buildings.
13. The various elements of the RAASC Centre were located at Puckapunyal and Bonegilla. Living and instructional/working accommodation at Bonegilla was inadequate, consisting of huts built during the Second World War. The standard of accommodation at Puckapunyal varied from buildings constructed in 1968, which provided living accommodation for a proportion of RAASC Centre personnel, to Second World War huts used for instruction/training and administration. The buildings constructed in 1968 were originally intended for an infantry battalion which was sent overseas before they were completed.
14. The proposal put to the Committee in 1972 was aimed at overcoming inadequate accommodation at Puckapunyal and to enable Bonegilla-based elements of the RAASC Centre to be located at Puckapunyal.
15. The Committee's report recommended construction of the works.
16. Main Instructional Building: A significant component of the 1972 reference was the construction of an instructional block for the RAASC Centre. This building, constructed from 1974 to 1976, contains classrooms, lecture theatres, syndicate rooms, instructional kitchens, administration areas, a resource centre and library.

17. The building design comprises three wings - administration, lecture theatre and classroom, and kitchen, linked by a glazed corridor and foyers at two levels. The building axis runs from the south-east to the north-west. The kitchen block, comprising twelve kitchens (four on each floor) is located at the south-western end of the building.
18. The overall design of the building was described to the Committee in fairly general terms by the then Department of Works. At the public hearing the Committee was assured by departmental officers that the final design was the result of a detailed study by a team of architects who had consulted with university authorities and Canberra education authorities. Consultants had not been used in developing the design and Department of Works witnesses stated the overall design was commended by people who had seen it.
19. Mechanical Services: At the 1972 public hearing the Committee was advised that mechanical engineering services to be provided in the proposed buildings were based on Department of Defence Services Scales and Standards of Accommodation where applicable, and on agreed policies for heating of sleeping quarters as appropriate.
20. Services to the instructional block were described as comprising ducted mechanical ventilation and heating systems to serve instructional areas such as classrooms, lecture theatres, training kitchens, assembly areas, resource centre and library.
21. In evidence provided in support of this reference the Department of Housing and Construction advised that existing environmental control systems in the building consist of:
- hot water radiator system in the administration wing with natural ventilation;

- ducted heating and ventilating system in the lecture theatre and classroom wings with full fresh air changeover for part cooling when outside air temperatures are suitable;
- heating with mechanical ventilation to the kitchen wing.

22. Present Occupants: The main instructional building is now occupied by the Schools of Transport and Catering which, following a reorganisation, were established in 1978. Both schools make extensive use of the building. Courses undertaken at the School of Catering range from basic cook courses to Army mess supervisor courses. The School of Transport conducts courses ranging from transport supervisor to drivers' courses. About 60 personnel work full time in the building and the annual throughput of students is about 1800.

#### THE NEED

23. The building was completed in 1976 at a cost of \$3.8m. In February 1977 complaints about conditions, in particular the training kitchen wing, were made by the occupants. Complaints centred around prevailing internal temperatures causing lethargy, dehydration and lack of concentration. Tests subsequently carried out showed:

- the temperature in a functioning instructional kitchen was 43°C when outside temperatures were 28.3°C;
- temperatures at the air inlet to grease filters, at ceiling level were 68.3°C;

- temperatures in classrooms ranged from 32-34°C when outside temperatures were 33°C;
- temperatures in glazed foyer areas ranged from 35-38°C when outside temperatures were 33°C.

24. At the public hearing it was mentioned that in the period 15 November 1982 and 15 March 1983 Puckapunyal experienced 56 days of temperatures over 36°C. Of those 56 days there were 35 days when temperatures in the training kitchens exceeded 37°C.

25. Severe disruption was caused by the high temperatures; it is understandable that students were not responsive to training.

26. Attempts to alleviate the severe discomfort by commencing training at 6.30 am have been demonstrated to be counter-productive over a period of time. Students do not compensate for the early start by adjusting sleep periods and the Committee was advised that this tends to weary staff and students.

27. Wherever possible the training program is adjusted on hot days. The sequence in which dishes are prepared can be changed so that salad-type dishes are prepared on hot days and cooked dishes are prepared on cooler days. Naturally, this affects the training program, especially during prolonged heatwaves.

28. Various ways of reducing the high temperatures in the training kitchens were considered by the Department of Housing and Construction. These options and the reasons why they are not acceptable are set out below:



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- reduce student numbers in the training kitchens - this would not produce the number of cooks required by the Army;
- install evaporative cooling - this would not lower temperatures sufficiently;
- use spot cooling devices - exhaust emissions would produce an additional buildup of heat;
- use heat recovery devices to reduce the refrigeration load - the greasy nature of kitchen exhaust would make this technically difficult.

29. The provision of air conditioning would be relatively expensive but it would be effective in bringing temperatures in the training kitchens to more acceptable levels.

30. An extensive area of glazing to foyers and administrative areas, covering several floors, faces north-east. In evidence, officers of the Department of Housing and Construction stated in the late 1960s and early 1970s there was a strong impression that dark coloured glass would cool buildings. The tests which measured internal temperatures in the foyer areas indicate the reverse. The foyers are high heat gain areas. It is obvious that the orientation of the glazing in relation to exposure to the sun is a factor significantly contributing to this.

31. The Committee was advised that in April 1981 the Auditor-General's Office, Victorian Branch, requested the Department of Housing and Construction to provide comments in relation to details of the cause of window leaks in the foyer areas and how the leaks were rectified. In reply, the Department of Housing and Construction stated:

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- the cause of window leaks had been traced to lack of adequate drainage relief and to the failure of sealants at the junctions of the main window frames and between the window frames and walls;
- the designers (the Department of Housing and Construction) and window manufacturers, depended heavily on the ability of flexible sealants, rather than traditional flashing methods;
- the contractor carried out remedial work to unsatisfactory sealants but the sealants have continued to deteriorate;
- for a permanent solution, drainage relief to glazing beads and flashings to windows should be provided.

32. During the inspection of the building the Sectional Committee saw signs of the effects of leaking windows. Carpets in a number of areas had perished and it appeared that water had damaged concrete floors.

33. Committee's Conclusion: During summer months temperatures in the main instructional building, Army Schools of Transport and Catering, are unacceptably high and measures aimed at reducing them to acceptable levels should be implemented. Measures aimed at sealing glazing and reducing heat gain in glazed foyers should also be implemented.

THE PROPOSAL

34. It is proposed to provide air conditioning to most of the occupied areas of the instructional building, to provide new glazing to the northerly facing foyer areas and to provide temporary accommodation for the School of Catering during the period of construction.
35. These measures are designed to bring the maximum temperatures within the learning and administrative areas to 26°C and in the working areas of the kitchen block to 29°C.
36. Plans: Elevations, and plans of a number of floors, illustrating the extent of the proposed work are at pages A-1 to A-5.
37. Kitchens: Each standard instructional kitchen will be provided with heating and cooling and all duct work above the ceilings will be rebuilt.
38. Capture hoods will be provided above cooking equipment to remove convective heat.
39. Acoustically treated fans and duct work will be provided for supply and exhaust air.
40. Classrooms: The existing duct work serving the classrooms will be fitted with supplementary cooling coils to provide summer cooling.
41. Lecture Theatres: The air handling plant serving these areas will be fitted with cooling coils. Supplementary local air handling plant will be provided for zone control for fluctuating populations.
42. Administration: Ducted air handling plants will be provided for this area.

43. Foyer Glazing: The large areas of heat absorbing glass in the foyers and walkways will be replaced with double glazed reflective glass. This measure is aimed at reducing solar heat gain in summer and heat loss in winter.
44. Central Plant: A new central plant room, for the refrigeration plant, will be located under the kitchen wing. Cooling tower equipment will be located at ground level at the rear of the kitchen wing. Chilled water will be reticulated to cooling coils located in air handling plants.
45. A new gas fired boiler will be provided for the heating of the increased air supply to the kitchen wing. This will be located in the central air handling plant room on the roof of the kitchen block.
46. Chilled water storage tanks will act to reduce the size of refrigeration machines necessary to cope with peak loads.
47. Temporary Accommodation: The Committee was advised that installation of the air conditioning is expected to take twelve months to complete. During that time some activities in the building will continue. It will be necessary, however, to provide alternative facilities for kitchen training. The proposal therefore includes the provision of temporary facilities to enable essential training to continue while the modifications are being carried out. These temporary facilities will comprise leased demountable buildings which will be brought to the site and located at an Army Reserve training area, about one kilometre north-east of the instructional building. The buildings will be fitted out to serve as training kitchens for the duration of the construction work.
48. External Services: The existing LP gas supply will be supplemented to supply fuel to the new boiler.

49. The existing electrical supply cables to the building are adequate but the electrical substation will be upgraded to cater for the new refrigeration equipment to be installed.

50. Services to the leased buildings will be provided by tapping into services existing at the proposed site.

51. Fire Protection: The instructional building is provided with thermal alarms, portable fire extinguishers and fire hoses. Each kitchen will be modified to provide separate fire zoning upon a fire alarm. Air exhaust systems will continue to operate in the kitchen wing.

52. The temporary accommodation will be protected by portable fire extinguishers and existing external hydrants.

53. Committee's Conclusion: The measures proposed to reduce temperatures during the summer months in the instructional building appear to be satisfactory.

#### BUILDING DESIGN FAULTS

54. The Sectional Committee devoted considerable time at the public hearing to establishing why a relatively new building, designed for a specific purpose, now requires extensive modifications to make it habitable. As a starting point it is relevant to question why the building was not provided with air conditioning in the first place.

55. Departmental witnesses stated considerable difficulties had been experienced in locating records of how and when key decisions concerning the building had been made prior to the 1972 hearing. Records of design development ranging from conceptual drawings to the design submitted to the Committee in 1972 were sparse.

56. A witness from the Department of Housing and Construction stated that the architect of the building had been contacted, and had advised that the building concept was based on the assumption that the building would be air conditioned but could offer no documentary evidence to support this view.

57. The Committee believes the massive nature of the building, its orientation and the vast expanse of northerly facing glass would certainly lend weight to this contention.

58. At the 1972 hearing, when questioned about the design of the building a Department of Works representative advised the Committee that:

- the design of the building was the result of detailed study by a team of architects who consulted with university and Canberra education authorities;
- cooking facilities at the William Angliss Trade School, Melbourne, were the subject of considerable investigations before designs were commenced;
- the design had been commended by people who had seen it; and
- consultants had not been used because "... we (the Department of Works) take rather a pride in this particular project and wanted to do it ourselves ... We flatter ourselves that, with the investigation we went into with the Department of the Army, we know as much about it as anybody is likely to know."

59. With such reassurances it is hardly surprising that the Committee recommended construction of the building as proposed.

60. Submissions presented by Departments in support of the present reference state that the then Department of Works considered the provision of air conditioning during the planning stage of the building. Air conditioning was considered to be warranted in the kitchens due to the release of heat from cooking equipment although it was not conventional practice to air condition such areas. Nevertheless, air conditioning was not included in any areas of the building because guidelines for air conditioning of Commonwealth buildings, contained in a report prepared by an Interdepartmental Committee (IDC) in 1965, specifically excluded Defence buildings. A subsequent Cabinet Decision arising from the IDC report did not say Defence buildings should not be air conditioned.

61. It is clear to the Committee from the evidence that in the formative stage of the design development of the RAASC Centre it was intended that the main instructional building be air conditioned. It is also clear that air conditioning was deleted as part of an overall cost cutting exercise which apparently encompassed the entire RAASC Centre project and as a consequence of uncertainties about the provision of air conditioning in Defence buildings.

62. Air conditioning was deleted prior to the proposal being referred to the then Treasury (Department of Finance) on 23 January 1970, i.e., two and a half years before the RAASC Centre was referred to the Committee.

63. The minutes of a meeting held in Canberra on or prior to 11 February 1970 attended by officers from the Department of Defence, the Department of the Army and the Treasury, reveal that the original scheme involving construction of the RAASC Centre had been estimated to cost \$11.0m. The Department of Works was

asked to review the standard of construction and the preliminary estimate of the project was then given as \$7m at November 1969 prices. It can only be inferred that air conditioning fell victim to this review.

64. In these circumstances it is again relevant to ask why a conceptual design, based on the provision of air conditioning, was persisted with to finality even when it was appreciated that the building would not be air conditioned. The explanation offered by the Department of Housing and Construction at the recent public hearing was that in the early 1960s and early 1970s fragmented reviews of designs took place. Architects and engineers examined buildings in terms of their own disciplines and not as part of a multi-discipline team. Minutes of a meeting held in Melbourne on 11 February 1970 (after the project brief had been referred to the then Treasury), convened to discuss the RAASC Centre, reveal that a Department of Works architect pointed out it would be wise to introduce at least an evaporative cooling system in the building to cope with Puckapunyal summers. This was agreed by the Chairman of the meeting who undertook to investigate the matter further, even with a view to recommending air conditioning, especially due to the fact that most class and lecture rooms were designed to be windowless.

65. These minutes show that the nature of the building, its design and local temperatures were recognised as justifying evaporative cooling at the very least.

66. There was, however, no suggestion made at the meeting that the design of the building be modified to provide passive cooling measures falling the provision of air conditioning or evaporative cooling. In any case it appears that in terms of decisions already taken, the suggestion to investigate and recommend the provision of air conditioning on 11 February 1970 came too late. A project brief which outlined the proposal was

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received by the Treasury on 23 January 1970. An annex to the brief summarised the facilities proposed which included instructional kitchens. The total estimated cost of the RAASC Centre proposal was \$7.0m at January 1970 prices. Finance recently advised the Committee as no case was made at the briefing stage for the requirement for air conditioning in any of the facilities planned, the matter was never an issue. From then on, it appears to the Committee, both the Department of the Army and the Department of Works committed themselves to proceeding with the design, without air conditioning knowing it to be potentially faulty. The Committee views this with concern.

67. Furthermore, the design was not only persisted with but described to the Committee in 1972 in a self-adulatory manner by departmental witnesses who, it can only be inferred from the evidence, must have known about the design shortcomings. This can be regarded as nothing more than contemptuous of the Committee and the staff and students who have occupied the building since it was completed. It also reflects in a highly negative manner on the professional competence and diligence of departmental officials responsible for the development of a project which involved expenditure of considerable public funds. Considerable public funds must now be spent on rectifying a situation which should never have developed, and about which the Committee in 1972 was kept ignorant.

68. Committee's Conclusion: The Committee recommends that in moving the expediency motion the Minister for Housing and Construction advise the House of the measures that have been implemented by his Department to prevent a recurrence of substantial modifications to completed buildings being immediately required to overcome design faults.

69. The Committee is also concerned about the inordinate time it has taken for measures designed to overcome high summer temperatures in the building to be put forward. There is no question that the occupants of the building suffer considerable

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discomfort during the summer months. Complaints about high internal temperatures during the summer months were made almost immediately the building was occupied, in 1977, six years ago. The Committee does not consider it unreasonable to suggest that implementation of work designed to rectify the high temperatures should have been given a higher priority than the record indicates.

ESTIMATED COST

70. The estimated cost of the proposed work is \$2.26m at May 1983 prices made up as follows:

	\$
Building work	220,000
Mechanical	1,540,000
Electrical	80,000
Temporary kitchens and )	420,000
New Glazing )	<u>          </u>
<b>TOTAL</b>	<b><u>2,260,000</u></b>

TIMING

71. Subject to approvals first tenders will be advertised in September 1983 with the objective of completing construction prior to the summer of 1985.

72. Committee's Recommendation: The Committee recommends the construction of the work in this reference.

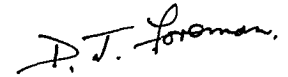
RECOMMENDATIONS AND CONCLUSIONS

73. The summary of recommendations and conclusions of the Committee and the paragraph in the report to which each refers is set out below.

Paragraph

1. DURING SUMMER MONTHS TEMPERATURES IN THE MAIN INSTRUCTIONAL BUILDING, ARMY SCHOOLS OF TRANSPORT AND CATERING, ARE UNACCEPTABLY HIGH AND MEASURES AIMED AT REDUCING THEM TO ACCEPTABLE LEVELS SHOULD BE IMPLEMENTED. 33
2. MEASURES AIMED AT SEALING GLAZING AND REDUCING HEAT GAIN IN GLAZED FOYERS SHOULD ALSO BE IMPLEMENTED. 33
3. THE MEASURES PROPOSED TO REDUCE TEMPERATURES DURING THE SUMMER MONTHS IN THE INSTRUCTIONAL BUILDING APPEAR TO BE SATISFACTORY. 53
4. THE COMMITTEE RECOMMENDS THAT IN MOVING THE EXPEDIENCY MOTION THE MINISTER FOR HOUSING AND CONSTRUCTION ADVISE THE HOUSE OF THE MEASURES THAT HAVE BEEN IMPLEMENTED BY HIS DEPARTMENT TO PREVENT A RECURRENCE OF SUBSTANTIAL MODIFICATIONS TO COMPLETED BUILDINGS BEING IMMEDIATELY REQUIRED TO OVERCOME DESIGN FAULTS. 68

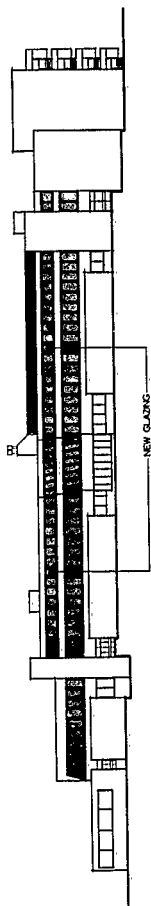
5. THE ESTIMATED COST OF THE PROPOSED WORK IS \$2.26M AT MAY 1983 PRICES? 70
6. THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF THE WORK IN THIS REFERENCE. 72



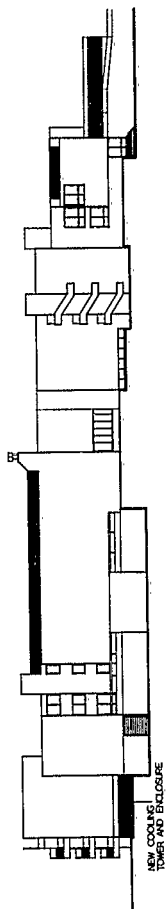
(D.J. FOREMAN)  
Chairman

Parliamentary Standing Committee  
on Public Works,  
Parliament House,  
CANBERRA A.C.T. 2600

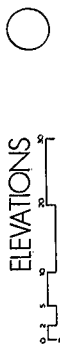
25 August 1983



NORTH - EAST ELEVATION



SOUTH - WEST ELEVATION

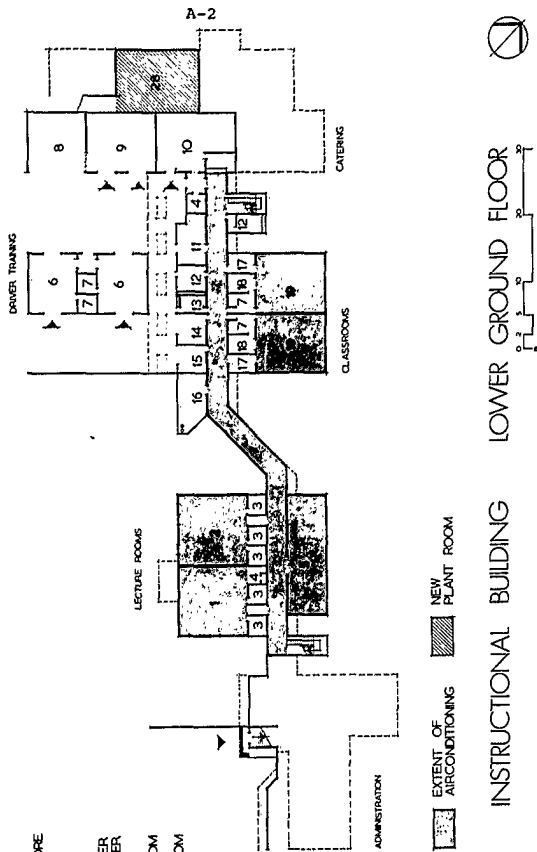


INSTRUCTIONAL BUILDING

ELEVATIONS

LEGEND

- 1 PUBLICATION CENTRE
- 2 PRECIS ASSEMBLY
- 3 STORE
- 4 HOST
- 5 RESOURCE CENTRE
- 6 DEMONSTRATION TRAINING STORE
- 7 SERVICE YARD
- 8 TRAINING AID STORE
- 9 RATION STORE
- 10 GARBAGE ROOM
- 11 MALE TOILETS
- 12 FEMALE TOILETS
- 13 L.V. TRANSFORMER
- 14 H.V. TRANSFORMER
- 15 PLANT ROOM
- 16 ROOF TOP PROJECTION ROOM
- 17 CLASSROOM
- 18 NEW PLANT ROOM
- 28



EXTENT OF AIRCONDITIONING

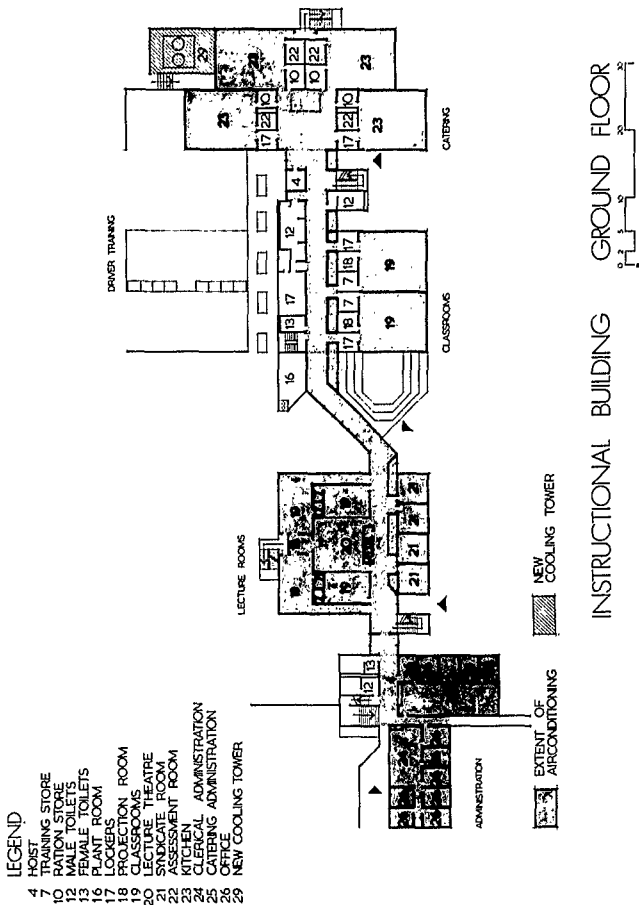
NEW PLANT ROOM

INSTRUCTIONAL BUILDING

LOWER GROUND FLOOR

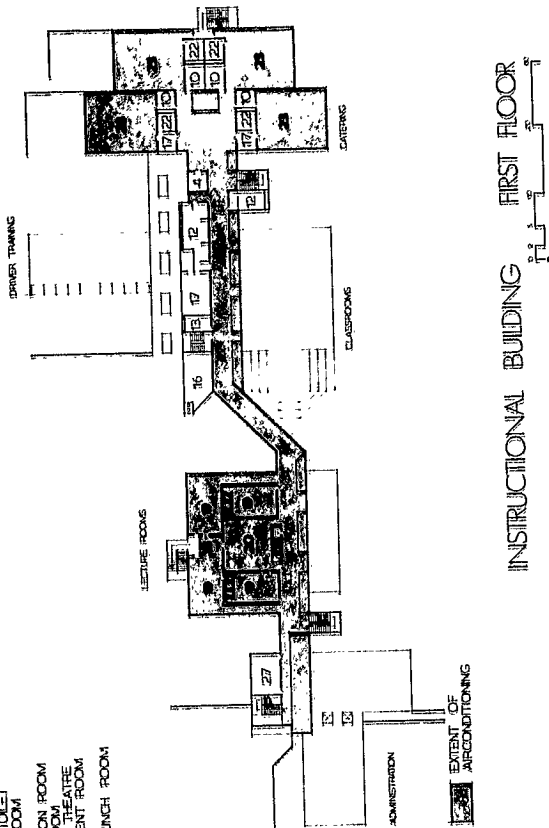






LEGEND

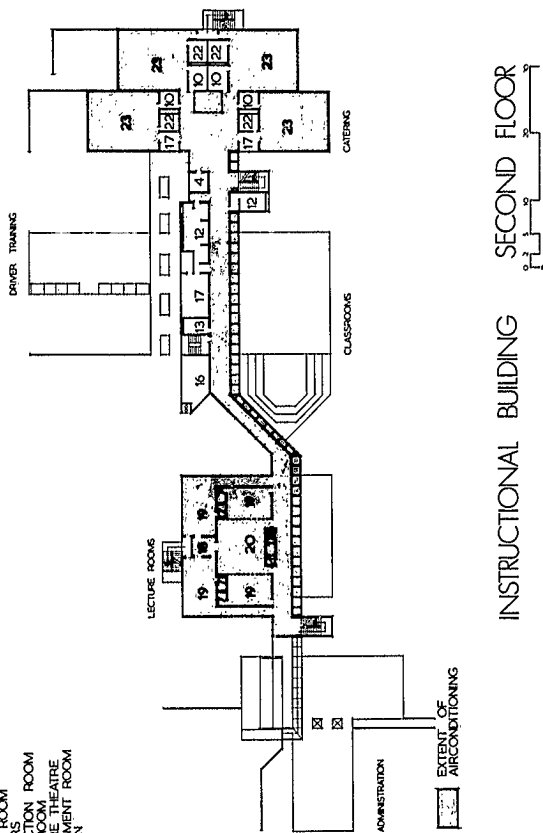
- 4 HOST
- 7 TRAINING STORE
- 10 RATION STORE
- 12 MALE TOILET
- 13 FEMALE TOILET
- 15 PLANT ROOM
- 17 LOCKER ROOM
- 18 COLLECTION ROOM
- 19 CLASSROOM
- 20 LECTURE THEATRE
- 22 ASSESSMENT ROOM
- 23 KITCHEN
- 27 STAFF LUNCH ROOM



INSTRUCTIONAL BUILDING FIRST FLOOR

## LEGEND

- 4 HOIST
- 7 TRAINING STORE
- 10 RATION STORE
- 12 MALE TOILET
- 13 FEMALE TOILET
- 16 PLANT ROOM
- 17 LOCKERS
- 18 PROJECTION ROOM
- 19 CLASSROOM
- 20 LECTURE THEATRE
- 22 ASSESSMENT ROOM
- 23 KITCHEN



INSTRUCTIONAL BUILDING SECOND FLOOR

