

Parliamentary Standing Committee on Public Works

REPORT

relating to the

PROVISION OF 50 REPLACEMENT HOUSES AT WOOMERA

(Fifth Report of 1986)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1986

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

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PROVISION OF 50 REPLACEMENT
HOUSES AT WOOMERA

(Fifth Report of 1986)

Canberra 1986

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(Twenty-Eighth Committee)

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- (1) Resigned 13 February 1986
(2) Appointed 18 February 1986

EXTRACT FROM THE
VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES
NO. 81 DATED THURSDAY, 20 MARCH 1986

- 2 PUBLIC WORKS COMMITTEE - REFERENCE OF WORK - REPLACEMENT
HOUSES, WOOMERA: Mr West (Minister for Housing and
Construction), pursuant to notice, moved - That, in
accordance with the provisions of the Public Works
Committee Act 1962, the following proposed work be
referred to the Parliamentary Standing Committee on
Public Works for consideration and report:
Provision of 50 replacement houses at Woomera.

Mr West presented plans in connection with the proposed
work.

Debate ensued.

Question - put and passed.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

PROVISION OF 50 REPLACEMENT HOUSES AT WOOMERA

R E P O R T

By resolution on 20 March 1986 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposal for the provision of 50 replacement houses at Woomera.

The Committee has the honour to report as follows:

THE REFERENCE

1. The work proposed under this reference comprises 50 transportable houses (45 3-bedroom and five 4-bedroom) fitted with ducted evaporative cooling and solar hot water units. Landscaping will include public areas, and existing power, water and sewerage lines will be replaced.

2. The estimated cost of the proposed work, \$4.1 million at January 1986 prices, is below the statutory limit of \$6 million examinable by the Committee under the Public Works Committee Act 1969.

3. The referral of this proposal to the Committee is a result of a request to the Minister for Housing and Construction. The Committee was advised some time ago of a proposal to provide up to 300 replacement houses at Woomera with an estimated cost in excess of the \$6 million limit. The referral of this proposal

to the Committee is a consequence of our general interest in Commonwealth and Defence housing. The reasons for the scope of the original proposal being reduced to 70 houses, 20 of which have already been constructed as part of a pilot study, are canvassed later in this report.

THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and supporting plans from the Department of Defence (Defence) and the Department of Housing and Construction (DHC) and took evidence from representatives of the two departments at a public hearing held at Woomera on 23 April 1986.

5. The Committee also received submissions and took evidence from representatives of the following organisations:

- Woomera Board;
- Woomera Women's Club;
- Association of Draughting, Supervisory and Technical Employees;
- Sigma Phi Beta Club;
- Woomera Trades and Labour Council;
- Bureau of Meteorology;
- Child, Adolescent and Family Health Services.

6. A number of private citizens also presented submissions at the public hearing.

7. A list of witnesses who appeared at the public hearing and the organisations which they represented is at Appendix A.

8. Prior to the public hearing the Committee inspected Woomera Village and a representative sample of old and new houses.

9. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

10. Location and Climate Woomera village is 494 kilometres by road from Adelaide and 174 kilometres north west from Port Augusta. It is situated in the arid zone of central Australia which offers few attractions for human settlement. When the township was first established the area provided an ideal location for rocket testing facilities.

11. Temperatures in the arid region are very hot in the summer and mild in winter. In summer, day temperatures often exceed 40 degrees Celsius, with night temperatures remaining high. In winter, night temperatures fall to low levels.

12. There is substantial variation in annual rainfall, the mean annual rainfall is 200mm.

13. In summer, the dominant winds are from the south, shifting to the north and west in the winter. Strong anti-cyclones produce strong, hot, dust-laden northerly winds in the summer.

14. History Construction work on Woomera village and the adjacent rocket range commenced in 1947 as part of the United Kingdom/Australia long range and guided weapons project. In 1949 the Woomera Prohibited Area was declared to prevent the entry of unauthorised personnel. The Woomera Prohibited Area covers an area of 130,000 square kilometres and comprises South Australian Crown land leased to pastoralists.

15. The period 1950-65 was one of intense activity, often referred to as the 'golden years of Woomera'. The population grew to about 6000 people. It was during this period that much of the infrastructure required to support a relatively large

population living in a remote and climatically harsh environment was constructed. The construction of flats, houses, mess and barrack accommodation and the establishment of township facilities all took place during this period. As well, extensive areas of the township were planted with trees.

16. The United States National Aeronautics and Space Administration (NASA) operated the Island Lagoon tracking station near Woomera Village during the period 1957-72.

17. During the late 1960s and early 1970s the Woomera range was used by the European Launcher Development Organisation (ELDO) for developmental firings of satellite launch vehicles. Further accommodation was provided to support this activity.

18. The Joint Defence Space Communications Station (JDSCS) at Nurrungar became operational in 1971. Nurrungar is 15 kilometres by road south of Woomera.

19. 1974-75 Close-Down The winding down of the United Kingdom/Australia joint project caused a decline in the population which was partially arrested by United States involvement in the area. The extent of the decline, especially during the period 1971-76, is shown in Table 1 below:

Table 1
Woomera Population 1961-83

<u>Year</u>	<u>Population</u>
1961	4808
1966	4749
1971	4089
1976	2958
1981	1658
1983	1800

20. The decline in the population required large areas of the township to be declared close-down areas. Large mess areas were closed down and the watering of extensive areas of tree plantings was withdrawn. Many of the prefabricated houses in close-down areas were disposed of by sale. Brick houses have been demolished due to structural problems. A report prepared by DHC in 1984 mentions that the close-down program was based on a continuing requirement to provide 550 accommodations on a cost-share basis divided between 256 flats and 294 houses, not including houses under the direct control of the United States.

21. Present and Future Role At present Woomera provides a residential base and support services for the JDSCS and for Australian Defence activities in the Woomera Prohibited Area. The Prime Minister re-affirmed the basis for Australia hosting the JDSCS in his statement to Parliament on joint defence facilities on 6 June 1984. Elements of the Department of Defence, including the RAAF and the Army, make use of air space, ground areas and instrumented ranges. Equipment trials are also conducted by the Defence Science and Technology Organisation. Defence agreed that were it not for the JDSCS the requirement for Woomera would be significantly diminished; Woomera would continue but at a reduced scale. The Committee was advised that the future of Woomera is assured well into the 1990s. Use by Australia of the Defence Support Centre Woomera (DSCW) to support trials, exercises and training by the Services is expected to grow gradually over the next 10-15 years. In particular RAAF use of the Woomera Prohibited Area is expected to increase steadily and therefore the DSCW will be needed to support that activity.

22. Population and Infrastructure The population of Woomera is currently about 1900 people. About half of the population comprises personnel and dependents associated with the JDSCS. These include about 500 United States citizens, and employees of Australian contractors sponsored by the United States Air Force.

The balance comprises staff and dependents of the DSCW, the South Australian Government, other Commonwealth agencies and private businesses.

23. The DSCW is the administrative unit responsible for the maintenance of Woomera Village, the technical area and airfield and the light industrial area at Woomera West. Operations of the DSCW, which has a staff of 230 people, are funded jointly by the Commonwealth and the United States. The cost of operating the DSCW in 1984-85 was \$9.203 million, of which Australia contributed 52 per cent.

24. Community services at Woomera village include municipal services, a hospital and commercial businesses. Staff for the Woomera Area School, the police station and the road maintenance depot, are provided by the South Australia Government. The Bureau of Meteorology operates an observing station at the airfield.

25. The population is housed in barracks, flats and detached houses. All permanent residents of Woomera are required to be sponsored by a project authority in order to obtain residential accommodation. Table 2, below, shows the extent of the accommodation inventory:

Table 2
Woomera Accommodation Inventory

	<u>Houses</u>	<u>Flats</u>	<u>Barracks</u>
Department of Defence (Australia)	306	217	400 (either in use or capable of ready activation)
USAF owned	81	-	-
USAF controlled	14	51	Capacity for 40 people

26. Normalisation In 1985 the Commonwealth and the South Australian Government agreed that a study should be made of the feasibility of normalising Woomera. This study has been completed and an initial draft report has been prepared and is being considered by the two Governments.

27. The aims of normalisation are to place responsibility for the administration and the provision of services on the same basis as for other townships in South Australia. Transfer of the hospital, school and police station/court house are part of this policy. It is envisaged that under full normalisation a local government authority would be established. Organisations with a presence at Woomera would assume responsibility for providing accommodation for their employees.

28. At the public hearing Defence advised that 89 of the 306 Australian-owned houses are occupied by US-sponsored personnel. The US has been asked to accept responsibility for these houses.

29. The Committee was advised that one of the first steps towards normalisation occurred in November 1985 when the Port Augusta to Woomera powerline was transferred to the control of the South Australian Government to facilitate the provision of electricity to the Olympic Dam mining venture, 80 kilometres north of Woomera. Defence advised that negotiations on the transfer of the Port Augusta to Woomera water pipeline to the South Australian Government are in progress.

30. Defence advised the following indicative timetable for the normalisation of Woomera:

- (a) By end of 1986
 - negotiation of Port Augusta - Woomera water pipeline transfer;
 - excision of Woomera Village from the Woomera Prohibited Area (timing is subject to negotiation of other variations to the Woomera Prohibited Area requested by the State);
 - initial survey of property to be transferred to the State;
- (b) By mid-1987
 - transfer of property (school, police compound) to the State;
- (c) By end 1987
 - transfer of hospital and emergency services to the State (dependent on resolution of industrial and financial matters);
 - complete survey of Woomera;
- (d) By end 1988
 - negotiation on setting up of Local Government Authority and related industrial matters, annual grant formula and incorporation of Local Government Authority.

THE NEED

31. Existing Houses Australian-owned detached housing stock in use at Woomera now comprises:

<u>Type</u>	<u>Number</u>
Brick	59
Prefabricated	227
New transportable	<u>20</u>
Total	<u>306</u>

32. Their allocation between the various employment categories is as follows:

Australia	
- Department of Defence	15
- DSCW	103
- other Commonwealth agencies	48
US Sponsored	
- Department of Defense	2
- Contractors	7
- Australian Department of Defence	7
- Australian contractors	73
South Australian Government	15
Churches	2
Private business	20
Other	4
Vacant	<u>10</u>
Total	<u>306</u>

33. Condition of Existing Houses Defence submitted that maintenance of solid construction and prefabricated houses is difficult and costly because of climatic factors and their age.

The unsatisfactory housing situation was confirmed by a DHC technical survey carried out in 1981. The survey was conducted to:

- (a) establish the cost and economic feasibility of upgrading houses as far as practicable to the Interim Services Scales and Standards (ISSS);
- (b) to assess their structural stability; and
- (c) to detail maintenance work necessary to bring the houses to an acceptable standard of accommodation.

34. The report arising from the technical survey provided costings for two options. These options were first, extending the lives of houses meeting minimum ISSS floor space parameters by repairs, painting and the provision of floor coverings, and secondly, a more costly upgrading to achieve ISSS for higher military ranks without major structural alterations.

35. The report recommended that all houses be disposed of with the exception of 92 prefabricated houses which were considered marginally suitable for upgrading. Defence then prepared plans to provide up to 320 replacement houses.

36. Defence advised that records of annual expenditure on individual houses indicate large variations, e.g., considerable one-time expenditure on brick houses to repair cracks and the application of a five-year cyclical maintenance program. The average expenditure on each house is estimated at about \$3,000 per year.

37. A number of witnesses stated that existing standards had been accepted because the houses were well maintained and rents were low. Rents had been increased over recent years without any increase in the standard of housing.

38. It was pointed out that less than one-third of occupied houses meet the minimum floor area of Australian Government Housing Scales and Standards (1981).

39. Pilot Study It was against this background that in June 1983 a contract was awarded for the provision of 20 transportable houses as part of a pilot project to assess the most cost-effective way of providing houses to scales and standards. Subsequently, in August 1983, tenders were called for the upgrading of eight existing houses. Tenders received for the upgrading were higher than the cost of new houses and DHC recommended to Defence that the upgrading option be abandoned; all future housing requirements should be met by the provision of new transportable houses.

40. DHC provided the following cost comparisons for the two options:

Component	Pilot Study (20 houses)	Upgrade (8 houses)
	\$	\$
Lowest tender price	904,045	383,400
Average price per house and site costs	45,000	48,000
Site costs per house including fencing, carports, sheds, paths, tanks, landscaping	12,000	12,000
House costs only including evaporative cooling and electric heating	33,000	-
Upgrading house only	-	36,000

41. DHC pointed out that replacement of existing houses with new houses would result in recovery of \$3,000-\$5,000 as the disposal value of the existing house. Further disadvantages of upgrading the houses are:

- (a) a requirement for further major maintenance in 10-12 years time;
- (b) retaining inefficiencies of the house layouts;
- (c) retaining much of the building fabric such as roof sheeting, timber framing;
- (d) retaining existing external water and sewer services connections and much of the internal wiring;
- (e) external walls would remain uninsulated.

42. By contrast, new transportable houses are expected to have an economic life of 20 years against the upgraded houses of 10 years. Furthermore, new transportable houses could be more easily relocated to new sites and would have a greater residual value.

43. Woomera Planning Study In March 1984 DHC prepared a planning study in which mention is made of a proposal to provide 300 new detached houses, additional to the pilot study houses, to replace most houses with the exception of those controlled by the United States. The study addressed the need to prepare a master plan consistent with a reduced population, landscaping proposals, siting and design guidelines.

44. Requirement of New Houses The decision in 1985 that a study should be undertaken of the feasibility of normalising Woomera caused Defence to re-evaluate its housing requirements.

Defence adopted the view that in a normalised town the Department would not be responsible for funding the capital cost of all replacement houses. Instead, responsibility for providing housing for non-Defence personnel would need to be assumed by those usually responsible - Commonwealth Departments and agencies, the State and the private sector.

45. The United States has been requested to arrange provision of housing for those residents whom it sponsors - USAF Service personnel and the staff of contractors to the JDSCS. This request is under consideration by the US. Similarly, Australia Post, Telecom and the Bureau of Meteorology were asked to assume responsibility for housing their own employees from 1 July 1986. In the interim Defence will continue to maintain the existing housing stock in as good a condition as practicable whilst acknowledging that this will not improve basic scales and standards.

46. The Committee believes Defence should recover the full cost from employers of repairs and maintenance of houses occupied by employees of Commonwealth authorities from 1 July 1986.

47. The entry of the concept of normalisation into planning considerations has reduced the requirement for replacement houses from 320 to 70. Defence maintains that with the advent of normalisation its responsibilities will be limited to provide housing for Defence sponsored residents.

48. As a consequence, Defence has decided to rectify the housing situation in relation to its own personnel now, rather than to await the completion of negotiations and decisions on normalisation. Defence maintain that there is a need to provide 70 replacement houses (which include the 20 provided in the pilot program) to cater for all projected Defence needs after normalisation.

49. The requirement is therefore seen as follows:

Australian Defence Force	32
Defence Security	1
Australian Protective Services	17
20 key personnel out of the current total workforce of the 174 DSCW employees engaged on municipal type functions	20
	<u>70</u>

50. The Committee recognises that the need for an additional 50 replacement houses for Defence needs is predicated on the following factors:

- (a) Defence requirement for trials in the Woomera Prohibited Area to continue for the next 10-15 years; a gradual increase in the requirement is envisaged and Defence personnel need to be provided with adequate accommodation;
- (b) Continuation of the JDSCS which is a joint US-Australia facility;
- (c) The age, condition and annual repairs and maintenance costs of existing housing; the pilot study revealed the cost-benefits of replacement rather than upgrading the houses in the context of a 15-20 year design life.
- (d) The successful implementation of full normalisation under which responsibilities for providing housing and associated infrastructure development and maintenance not directly related to Defence activities would be assumed by the South Australian Government, a Local Government Authority, Commonwealth agencies and the private sector.

51. A number of witnesses representing broad-based community organisations recommended that all existing houses be replaced, that Defence revert back to the original plan to provide up to 300 replacement houses. Witnesses were especially apprehensive about the future of DSCW personnel and the employees of contractors. Whilst the Committee is sympathetic to the need to provide sufficient housing to an adequate standard, it would be imprudent for the Committee to recommend reverting back to the proposal to provide up to 300 replacement houses in circumstances where negotiations about normalisation are taking place.

52. Committee's Consideration It is clear from the evidence before the Committee that:

- the concept of normalisation has been agreed by the Commonwealth and the State, matters of detail are under consideration by both Governments;
- a timetable for normalisation has been established;
- the US has been asked to accept responsibility for attending to the housing needs of its employees and those of its contractors.

53. In this context, a situation of diminishing direct Defence involvement in Woomera, the Committee accepts the stand taken by Defence in providing replacement housing for personnel employed or sponsored by that Department.

54. To alleviate apprehension there is scope for the process of normalisation to be given a higher priority and to be expedited. The timetable for normalisation is obscure on the question of when the US will accept responsibility for attending to the housing needs of its employees and those of its contractors who occupy Australia-owned houses. It should be mentioned here that the standard of housing at Woomera was cited by a number of

witnesses as a factor contributing to difficulties which employers experience in attracting and retaining staff. Defence advised that there is a 30 per cent turnover in staff each year.

55. There would appear to be cost savings to Australia and the US if their needs were dealt with at the same time as Defence. The Committee believes, therefore, that all other Commonwealth Departments and statutory bodies should be required to upgrade their houses at the same time as Defence to achieve economies of scale. Similarly, the US Government should be encouraged to address their requirements in order to benefit from savings which would result from a larger project.

56. The Committee believes there should be no diminution in the level of repairs and maintenance to the existing housing stock between now and when normalisation is achieved.

57. Committee's Conclusion In the context of the program of normalisation there is a requirement for 50 replacement houses to be provided at Woomera for Department of Defence personnel. There would appear to be cost savings to Australia and the US if their housing needs were dealt with at the same time.

58. Committee's Recommendations It is recommended that:

- (a) the program of normalisation should be expedited;
- (b) all other Commonwealth Departments and statutory bodies be required to upgrade their houses at the same time as Defence to achieve economies of scale;
- (c) the US Government be encouraged to address their housing requirements for US personnel and the employees of contractors in order to benefit from savings which would result from a larger project;

- (d) from 1 July 1986 Defence should recover the full cost from employers of repairs and maintenance to houses occupied by employees of Commonwealth Departments and statutory authorities;
- (e) there should be no diminution in the level of repairs and maintenance to the existing housing stock between now and when normalisation is achieved.

THE PROPOSAL

59. The proposal put to the Committee is for the provision of 50 replacement houses.

60. Type of Houses The houses are to comply with Australian Government Employees Standards (AGES - civilian standards). These standards, promulgated by the Public Service Board in October 1981, set down requirements for detached family housing in terms of floor area, construction and the provision of fittings and furnishings.

61. The Committee questioned the adoption by Defence of AGES in view of the large number of service personnel which it is planned will occupy the houses. The Committee was advised that service personnel posted to Woomera, work for the Defence Science and Technology Organisation which is a civilian research arm of the Department of Defence. Accordingly, it was argued, that because the employing body is a civilian organisation, the houses should be designed in accordance with the civilian standards. The Committee sought a comparison between AGES and Interim Services Scales and Standards (ISSS - military standards) which apply to housing for service personnel.

62. Comparison of Civilian and Military Standards Climatic zones currently recognised under the two scales are as follows:

<u>Military</u>	<u>Civilian</u>
Temperate	Zone A - Temperate
Tropical	Zone B - Hot arid
	Zone C - Hot humid

63. The military standards provide seven categories based on rank groupings (stated as Army ranks - Navy and Air Force ranks are equivalent) comprising:

Group

- P1 - Private/Corporal
- P2 - Sergeant/Staff Sergeant
- P3 - Warrant Officer/Captain
- P4 - Major/Lieutenant-Colonel
- P5 - Colonel/Brigadier

Special A -) area requirements

Special B -) largely undefined

64. The civilian standards provide for two categories based on Public Service divisions:

3rd and 4th Divisions

2nd Division

65. Sizes of the proposed houses will comply with 3rd Division civilian standards area requirements applicable for lightweight framed construction houses in the hot arid climatic zone:

3-bedroom - 107 square metres

4-bedroom - 121 square metres

66. By comparison, under military standards for lightweight construction 3-bedroom houses in the 'Temperate' climatic zone the requirements applicable would range from 96 square metres (P1 - Private/Corporal) to 132 square metres (P5 - Colonel/Brigadier). The range for 4-bedroom houses would be 110 to 146 square metres.

67. It was suggested by Defence that the comparison between the two scales should be between the military 'Temperate' standard (because Woomera is not north of the Tropic of Capricorn) and the civilian 'Hot Arid' standard. The Committee believes such a comparison is not valid. Woomera does not have a temperate climate and an allowance should be made for this in any comparison between the two standards. The military 'Tropical' standard should be compared with the civilian 'Hot Arid' standard.

68. Table 3 below shows a comparison of area requirements between the two standards.

Table 3

Comparative sizes three and four bedroom houses
Tropical (Military) and Hot Arid (Civilian)

3-bedroom

Military	P1	P2	P3	P4	P5	Special Residences
Area sq.m.	107	112	121	132	141	Undefined
Civilian	3rd and 4th Divisions					2nd Division
	107					121

4-bedroom

Military	P1	P2	P3	P4	P5	Special Residences
Area sq.m.	121	126	135	146	155	Undefined
Civilian	3rd and 4th Divisions					2nd Division
Area sq.m.	121					121

69. It is obvious that there is a significant range in area specified between Group P1 (Private/Corporal) and Group P4 (Major/Lieutenant-Colonel). No such range is specified by the civilian standard. In terms of maximum floor space the civilian standard for 4th and 3rd Division officers is identical to P1 (Private/Corporal).

70. The Committee believes the replacement of 50 houses with transportable houses designed to comply with the civilian standard would provide a marginal improvement in living space over a number of existing house types. For example, existing 'Riley Newsome' houses have a floor area of 93.76 square metres; the civilian/P1 scales provides 107 square metres, an increase of 13.24 square metres

71. Replacement 3-bedroom 'consolidated' houses with new houses to civilian standards would produce no net benefit in terms of floor space. Three bedroom 'consolidated' houses have a floor area of 107.64 (split) and 108.54 (straight) square metres

72. Comparisons of other features Internal rooms provided for under military standards within the P3/P4 range and not provided for under the civilian standard include:

- separate dining
- family room

73. Comparisons of wardrobe space (square metres) specified under the two standards are as follows:

	<u>Military</u>	<u>Civilian</u>
3-bedroom	9.3	6.72
4-bedroom	11.75	9.3

74. A comparison of fixtures and fittings in kitchens shows that under the military standard 1.7 square metres is provided for refrigerator, freezer and mobile dishwasher while the civilian standard specifies 0.54 square metres for refrigerator plus unspecified space for a freezer.

75. Comparisons of kitchen cupboards (square metres) is as follows:

	<u>Military</u>	<u>Civilian</u>
P4/P5	4.95*	3**

* (pantry included)

** (separate pantry - no area specified)

76. Compared to the civilian standards, the military standards provide:

- separate dining room;
- family room;
- more available space;
- more refrigerator and freezer space;
- space for a mobile dishwasher;
- more kitchen cupboards space;
- single garage as opposed to a carport.

77. Recognising the diversity of prospective occupants, the relative sizes of existing houses which are to be replaced, climatic and isolation factors, the Committee believes there is a case for Defence providing houses within the P3/P4 military rather than the minimum requirement under civilian standards.

78. Cost Comparisons The estimated cost of providing 50 replacement houses at civilian standards is \$3.15 million at January 1986 prices, or \$62,800 each for the 45 3-bedroom and \$68,800 each for the five 4-bedroom houses.

79. DHC advised that the indicative cost of providing the same number within the P3/P4 military standards for tropical size is as follows:

3-bedroom \$71-79,000 - say \$75,000
4-bedroom \$77-85,000 - say \$81,000

80. The total cost of providing 45 3-bedroom and five 4-bedroom houses within the P3/P4 military standards is therefore \$3.780 million, compared with \$3.15 million. The Committee believes the additional cost to be justified having regard to the environment, isolation and living conditions at Woomera.

81. Description To overcome problems of remote area construction it is proposed that the houses be similar to the 20 pilot study houses, i.e., transportable/prefabricated. DHC advised the houses would have a 20-year design life before any major refurbishment is required. Construction typical of this type of house comprises structural floors, wall and roof framing with low maintenance external cladding and standard domestic finishes internally. Materials to be used include steel roofing, pre-finished steel or fibro cement wall cladding and aluminium framed windows. Internal finishes will comprise painted plaster-board walls and ceilings and vinyl or carpet finishes.

82. DHC advised that transportable/prefabricated houses have a number of advantages over site-built brick veneer houses; they are more economic and do not require a large workforce to erect.

83. Siting The Woomera Planning Study identified the need to consolidate residential areas and recommended future housing should partially surround the town centre in locations previously used for family housing to optimise the use of available engineering services. The location of the housing sites have been selected to take advantage of the more desirable aspects of the northern areas of the township.

84. Allotments DHC advised it is proposed to re-subdivide residential areas wherever possible within the constraints of the existing road system, provide some variation in allotment size and to reduce rigidity and uniformity of the layout. The Committee believes that the main determinant of orientation of the houses should be to minimise the effects of heat in the summer. In view of the increase in the sizes of the houses recommended by the Committee, the sizes of allotments should be increased proportionately.

85. Houses will be sited in various locations within allotments to obtain correct orientation and a varying streetscape. Generally minimal front garden areas and large private spaces and utility spaces in the rear are proposed.

86. Landscaping DHC advised that landscaping to individual allotments will be provided. All landscaping materials, including drip irrigation and mulch materials, will be provided to DSCW arboretum staff who will arrange and co-ordinate landscaping with each tenant. DSCW staff with special local knowledge will be consulted on the selection of plant species. Planting will be designed to give shade from the north and west wind and privacy screening. Lawn areas will be kept to a minimum useful size. Utility areas will be separated from living spaces, either by physical location or by planting.

87. Foundations The Committee noted during the inspection of a pilot study house that floor boards had developed cracks and separated from walls, leaving gaps which had been covered with masking tape to prevent draughts and the ingress of dust. DHC attributed the problem to the floorboards becoming wet during construction and subsequently shrinking. The Committee sought to establish if the cracking and separation of walls could be attributed to incorrect design of foundations.

88. DHC advised that soils at Woomera are subject to significant expansion and contraction due to changes in moisture content. Soils have been tested frequently to determine the most suitable footing systems. For the pilot study houses DHC provided details of structural requirements relating to soil characteristics and wind loadings in tender specifications. The successful tenderer's designs were assessed by consulting structural engineers. The assessment indicated the proposed footing system for the pilot study houses to be within parameters considered necessary. The Committee believes, however, that because soil characteristics may vary between locations, detailed soil analyses should be undertaken at each location, included in tender specifications and the design of footings of successful tenderers be assessed by an independent specialist. The Committee also urges DHC to carefully supervise construction work to ensure that foundations are provided in accordance with agreed specifications.

89. A number of witnesses suggested that ground level concrete floors should be provided. DHC advised that prefabricated/demountable houses are usually not provided with this type of flooring.

90. Heating and Cooling It is proposed to provide evaporative cooling and thermostatically controlled and fan assisted electric space heating in the new houses. Evaporative cooling, which pressurises houses, will provide some dust proofing.

91. The evaporative cooling system will comprise a packaged air cooler mounted outside houses serving all habitable rooms via concealed ductwork. Evaporative cooling would be ineffective for about 135 hours per year during periods of high temperature and high humidity.

92. This method of heating and cooling was selected because it complies with civilian standards for the hot arid zone. It is cheaper to operate, to maintain and to provide than reverse cycle air conditioning. DHC advised the following installation costs:

	<u>Evaporative Cooling and Electric Space Heating</u>	<u>Reverse Cycle Air Conditioning</u>
	\$	\$
Capital and Installation	3,150	5,200
Life Cycle Costing	6,750	10,529
Annual electricity charges	194	451

93. A number of witnesses requested that reverse cycle air conditioning be installed in the new houses. This request may in part stem from the fact that USAF-owned houses are equipped with reverse cycle air conditioning. The Committee understands that tenants of USAF-owned houses are not directly required to pay electricity charges. They are paid by the USAF.

94. It is clear that evaporative cooling and electric space heating is more economical than reverse cycle air conditioning. A survey carried out by DHC in 1983 showed that 39 out of a sample of 60 respondents indicated a preference for evaporative cooling. The Committee believes the provision of evaporative cooling and electric space heating is justified. Departments should nevertheless investigate the provision of additional portable heating.

95. Mix of Houses There were no 4-bedroom houses provided under the pilot study. The proposal comprises 45 3-bedroom and five 4-bedroom houses. The Committee questioned the basis of this mix. Defence advised that based on family projections the proposed mix would be adequate to meet the requirements of Woomera residents sponsored by Defence.

96. Following the public hearing Defence advised the following composition of family sizes, housing and flats allocated to these families and the allocation of the 70 new houses:

Table 4

Family Sizes - Houses and Flats allocated and
to be allocated to DSCW and Defence-sponsored
personnel - May 1986

No. of Occupants	No. of Houses	No. of Flats	Proposed Allocation 70 new houses
1	8	69	17
2	46	16	20
3	23	4	9
4	46 } four	1	19
5	18 } bedroom	-	5
6	1 } houses	-	-
TOTAL	<u>142</u>	<u>90</u>	<u>70</u>

97. It should be noted that 4-bedroom houses are 3-bedroom houses provided with detached sleepouts which are not air conditioned. Whilst they have been allocated to families with four or more members, it is unlikely that the 46 families with four members would make use of the sleepouts as bedrooms. There are 19 families with five or more members which would make use of the sleepouts. Of these 15 are occupied by DSCW personnel. Of the five 4-bedroom houses proposed, only two will be allocated to DSCW personnel. It is understood that any additional requirements would need to be met from the existing stock in the first instance. Given that when the houses are completed there will be 70 new houses, the Committee believes seven of the 50 houses comprising this reference should have 4-bedrooms to cater for current requirements and to provide flexibility.

98. Pilot Study Houses An independent study was carried out in March 1984 to establish the degree of satisfaction attained in the pilot study houses in meeting the needs of tenants. A number of items were identified as warranting inclusion in any houses provided subsequently. DHC advised the following features and measures relating to the standard of finish and the design of specific areas will be included in the proposed houses:

- (a) use of floor boards which do not shrink excessively;
- (b) use of washable vinyl paint;
- (c) capping provided to pre-painted fencing;
- (d) handrails and balustrading to front stairs;
- (e) damper plinths to be provided under washing machines to stop excessive vibration;
- (f) provision of carpet to assist with insulation and to reduce noise levels;
- (g) involvement of DSCW staff in arranging and co-ordinating landscaping of each house with tenants;
- (h) more careful selection of external cladding materials and fixing materials;
- (i) electric space heaters not exceeding required capacity and where possible broken down into two smaller units.

99. The Committee believes rectification work on the pilot study houses embracing items (a) to (f) above should be carried out as part of this project. The pilot study houses should also be upgraded to accord with current scales and standards.

100. Committee's Recommendations It is recommended that:

- (a) the 50 replacement houses should comply within the P3/P4 Military Tropical Scale (Warrant Officer/Captain to Major/Lieutenant-Colonel).

- (b) in view of the recommended increase in the sizes of the houses the dimensions of allotments should be increased proportionately.
- (c) detailed soil analyses should be undertaken at each location, the analyses included in tender specifications and the design of footings from successful tenderers should be assessed by an independent specialist.
- (d) DHC should carefully supervise construction work to ensure that foundations are provided in accordance with agreed specifications.
- (e) Departments should investigate the provision of additional portable heating.
- (f) rectification work on the pilot study houses embracing items (a) to (f) in paragraph 98 should be carried out as part of this project.
- (g) the pilot study houses should be upgraded to accord with current scales and standards.
- (h) seven of the 50 houses should have 4-bedrooms to cater for current requirements and to provide flexibility.

ENGINEERING SERVICES

101. Power Reticulation Power is supplied to Woomera by a high voltage transmission line from Port Augusta. DHC advised the supply is adequate. Maintenance of the distribution system in residential areas since the late 1970s has been limited to breakdown repairs. The system is considered by DHC to be unsatisfactory. In redeveloped areas, new reticulation will be provided to standards required by the Electricity Trust of South

Australia and located in road reserves.. A number of organisations representing community interests requested that underground power reticulation should be provided within the Village. The Committee believes the merits and relative costs of underground power reticulation should be further examined by DHC, especially in consequence of extensive tree plantings proposed.

102. Water Reticulation DHC advised there is adequate supply and sufficient storage capacity at Woomera to service the population. Water reticulation within occupied areas has been well maintained. The mains have been progressively replaced since the late 1970s.

103. Sewage Disposal Residential areas are served generally by branch sewers located at the rear of allotments. Waste is treated at a plant located about half a kilometre east of the township.

104. In redevelopment areas the original branch sewers will be replaced.

CONSULTATIONS

105. The Committee notes that the proposal has been the subject of extensive consultations with tenants of the pilot study houses and with the wider community. Feedback from surveys of tenants has been taken into account in developing the proposal.

106. The Committee urges DHC to obtain the views of prospective tenants on houses offered by the successful tenderer before construction work commences. This may require representatives of community organisations to travel to the factory of the successful tender.

COST AND TIMETABLE

107. Cost The estimated cost of the work when referred to the Committee was \$4.1 million at January 1986 prices comprising:

	\$m
House construction costs with connection to services	3.15
Upgrading engineering services, landscaping, fencing, etc.	<u>0.95</u>
Total	<u>4.10</u>

108. The estimated cost of work recommended by the Committee is \$4.499 million made up as follows:

	\$m
43 3-bedroom P3/P4 houses each costing \$75,000	3.225
Seven 4-bedroom P3/P4 houses each costing \$81,000	0.324
<u>Upgrading engineering services,</u> <u>landscaping, fencing, etc.</u>	<u>0.950</u>
Total	<u>4.499</u>

109. Timetable DHC advised that subject to the necessary approvals being obtained, it is proposed that construction of the works will commence in late 1986.

110. Committee's Recommendation The Committee recommends the construction of 43 3-bedroom and seven 4-bedroom replacement houses at Woomera in accordance with the P3/P4 military tropical scale and the upgrading of engineering services, landscaping, fencing, etc., at an estimated cost of \$4.499 million.

RECOMMENDATIONS AND CONCLUSIONS

111. The recommendations and conclusions of the Committee and the paragraph in the report to which each refers are set out below:

Paragraph

1. IN THE CONTEXT OF THE PROGRAM OF NORMALISATION
THERE IS A REQUIREMENT FOR 50 REPLACEMENT HOUSES
TO BE PROVIDED AT WOOMERA FOR DEPARTMENT OF
DEFENCE PERSONNEL. 57
2. THERE WOULD APPEAR TO BE COST SAVINGS TO
AUSTRALIA AND THE US IF THEIR HOUSING NEEDS
WERE DEALT WITH AT THE SAME TIME. 57
3. IT IS RECOMMENDED THAT: 58
 - (A) THE PROGRAM OF NORMALISATION SHOULD BE
EXPEDITED;
 - (B) ALL OTHER COMMONWEALTH DEPARTMENTS AND
STATUTORY BODIES BE REQUIRED TO UPGRADE
THEIR HOUSES AT THE SAME TIME AS DEFENCE,
TO ACHIEVE ECONOMIES OF SCALE;
 - (C) THE US GOVERNMENT BE ENCOURAGED TO
ADDRESS THEIR HOUSING REQUIREMENTS
FOR US PERSONNEL AND THE EMPLOYEES
OF CONTRACTORS IN ORDER TO BENEFIT
FROM SAVINGS WHICH WOULD RESULT FROM
A LARGER PROJECT;

(D) FROM 1 JULY 1986 DEFENCE SHOULD RECOVER THE FULL COST FROM EMPLOYERS OF REPAIRS AND MAINTENANCE TO HOUSES OCCUPIED BY EMPLOYEES OF COMMONWEALTH DEPARTMENTS AND STATUTORY AUTHORITIES;

(E) THERE SHOULD BE NO DIMINUTION IN THE LEVEL OF REPAIRS AND MAINTENANCE TO THE EXISTING HOUSING STOCK BETWEEN NOW AND WHEN NORMALISATION IS ACHIEVED.

4. IT IS RECOMMENDED THAT:

100

(A) THE 50 REPLACEMENT HOUSES SHOULD COMPLY WITHIN THE P3/P4 MILITARY TROPICAL SCALE (WARRANT OFFICER/CAPTAIN TO MAJOR/LIEUTENANT-COLONEL).

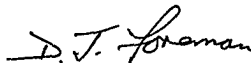
(B) IN VIEW OF THE RECOMMENDED INCREASE IN THE SIZES OF THE HOUSES THE DIMENSIONS OF ALLOTMENTS SHOULD BE INCREASED PROPORTIONATELY.

(C) DETAILED SOIL ANALYSES SHOULD BE UNDERTAKEN AT EACH LOCATION, THE ANALYSES INCLUDED IN TENDER SPECIFICATIONS AND THE DESIGN OF FOOTINGS FROM SUCCESSFUL TENDERERS SHOULD BE ASSESSED BY AN INDEPENDENT SPECIALIST.

(D) DHC SHOULD CAREFULLY SUPERVISE CONSTRUCTION WORK TO ENSURE THAT FOUNDATIONS ARE PROVIDED IN ACCORDANCE WITH AGREED SPECIFICATIONS.

Paragraph

- (E) DEPARTMENTS SHOULD INVESTIGATE THE PROVISION OF ADDITIONAL PORTABLE HEATING.
- (F) RECTIFICATION WORK ON THE PILOT STUDY HOUSES EMBRACING ITEMS (A) TO (F) IN PARAGRAPH 98 SHOULD BE CARRIED OUT AS PART OF THIS PROJECT.
- (G) THE PILOT STUDY HOUSES SHOULD BE UPGRADED TO ACCORD WITH CURRENT SCALES AND STANDARDS.
- (H) SEVEN OF THE 50 HOUSES SHOULD HAVE 4-BEDROOMS TO CATER FOR CURRENT REQUIREMENTS AND TO PROVIDE FLEXIBILITY.
5. THE ESTIMATED COST OF THE WORK WHEN REFERRED TO THE COMMITTEE WAS \$4.1 MILLION AT JANUARY 1986 PRICES. 107
6. THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF 43 3-BEDROOM AND SEVEN 4-BEDROOM REPLACEMENT HOUSES AT WOOMERA IN ACCORDANCE WITH THE P3/P4 MILITARY TROPICAL SCALE AND THE UPGRADING OF ENGINEERING SERVICES, LANDSCAPING, FENCING, ETC., AT AN ESTIMATED COST OF \$4.499 MILLION. 110



(D.J. FOREMAN)
Chairman

Parliamentary Standing Committee
on Public Works
Parliament House
CANBERRA

12 August 1986

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