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RESIDENTIAL DEVELOPMENT CONTROLS 4



DEPARTMENT OF PLANNING

THREE AND FOUR-STOREY MEDIUM/HIGH-DENSITY DEVELOPMENT

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ACKNOWLEDGMENTS

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RESIDENTIAL DEVELOPMENT CONTROLS STEERING COMMITTEE

Dr John Roseth (Convenor) **Department of Planning**, Stephen Alchin, Director **Western Sydney Regional Organisation of Councils**, Councillor Shirley Alexander **Hornsby Shire Council**, Ms Glennys James, Deputy Chief Town Planner **Blacktown City Council**, John Sidoti **IPM Pty Ltd**, Tim Schwager, Architect **Schwager, Brooks and James**, Danny Wiggins, Lecturer School of Town Planning **University of New South Wales**, Brian Wilson, Chief Town Planner **Manly Municipal Council**.

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Contents

Preface	v
How to Use This Development Control Document	vii
Explanatory Notes	ix
1. General Advice to Applicants	1
1.1 Aims and Objectives	1
1.2 Application of Controls	1
1.3 Development Applications	1
1.4 Building Applications	1
2. Residential Development Controls for Three and Four-Storey Medium/High-Density Development	2
2.1 Description of Residential Environment	2
2.2 Density	2
2.3 Site Requirements	3
2.4 Setbacks	3
2.5 Building Height	5
2.6 Open Space	5
2.7 Solar Access	6
3. General Provisions	7
3.1 Privacy	7
3.2 Noise	8
3.3 Views	8
3.4 Vehicular Access and Parking	8
3.5 Landscaping and Site Design	9
3.6 Facilities/Amenities	10
Appendix: Parking Standards	11
Definitions	16

Preface

Residential Development Controls for Three and Four-Storey Medium/High-Density Development is one of six documents that set out standards which may be used by councils to control residential development of varying densities. They are guidelines which councils may wish to follow when formulating development control plans, codes or policies which best suit their particular areas.

The controls are based on the assumption that the vast majority of residential areas in New South Wales fall into one of the following categories:

- one and two-storey low-density;
- two-storey medium-density;
- two-storey high-density;
- three and four-storey medium/high-density;
- three and four-storey high-density;
- over four-storey high-density development.

All controls are designed to be capable of adoption by councils, either in their present or in a modified form. They are therefore written in the language of most local residential flat codes. They have been developed from extensive research and analysis involving a study of the standards of 22 Sydney metropolitan councils. Some of the design principles in Technical Bulletins Nos 15, 16 and 18 have been incorporated into the controls. Moreover, a steering committee consisting of industry and local government representatives has endorsed the controls.

The standards used allow for both innovation in design and protection of residential environments. Their use should permit designers greater efficiency by standardising the terms used and the ways in which they are applied. This in turn should result in a simplification of the development control process for councils, the development industry and the community.

As already mentioned, the standards contained in this document are *guidelines* only, for the use of councils in preparing their own development controls. They have no statutory force and should not be used in the preparation of development applications. In this regard, prospective developers should consult their local councils.



How to Use This Development Control Document

While this control necessarily contains technical advice, it has been written to be easily understood by developers and the general public, while also allowing it to be easily implemented by councils. The document begins by describing the residential environment for which it is intended, and follows with performance standards. The control relates to the most essential aspects of residential development.

The standards used represent what the department considers to be reasonable for three and four-storey medium/high-density development. Councils may wish to use some or all of the performance standards contained within the control or to introduce additional standards relating to matters such as heritage conservation, soil erosion, bushfire hazard, urban stormwater run-off, etc. to suit local environmental conditions. However, newly introduced standards should consider the feasibility of carrying out development on the land.

It may be appropriate to apply this control to a specific area or zone. A balanced residential policy which applies the appropriate residential controls to the most suitable areas is desirable. Consideration should be given to applying a number of the controls to an area or specific precinct in order to encourage a mixture of densities and housing forms that promotes a heterogeneous population. In areas which councils believe to be inappropriate for the imposition of these controls, they may consider only adopting the principles and possibly the format of the document.

Councils may wish to adopt this control as a code or development control plan. However, the latter option is favoured because it rests more comfortably within the planning legislation and ensures a degree of public participation.

Explanatory Notes

The residential development controls reasonably correspond with existing council codes, development control plans (DCPs) and local environmental plans (LEPs).

All of the controls have a similar structure. They begin with an explanation and description of the residential environment they are intended for, and follow with design standards.

It is recommended that the general structure of the controls be retained by councils to make frequent usage easier. This structure is explained in the following.

General Advice to Applicants

'General Advice to Applicants' deals with the purpose of the controls, their general aims and objectives, and how they may be administered in the development control process.

Description of Residential Environment

This section gives examples of the types of development which could be built under the particular control. Emphasis is placed on the use of photos and diagrams to show what is intended under the control.

Density

This section provides the minimum site area per dwelling required for the particular type of development. Dwellings are divided into four sizes (small, medium, large and extra large), and varying areas of site are required for each size of unit. This density control generally corresponds to a floor-space ratio specified for extra large dwelling units.

The grouping of densities has been set in such a way as to embrace most controls currently used by councils. It is possible to substitute different figures, within the narrow site area ranges provided in most controls.

The density figures used are the result of testing and extensive research into the codes, DCPs and LEPs of 22 metropolitan councils. Furthermore, the individual figures for site area per dwelling unit have been checked in order to maintain a single floor-space ratio throughout the range, within any control. Testing has shown there is generally no overall floor-space advantage in designing for units of a particular size.

Site Requirements

For consistency with State Environmental Planning Policy (SEPP) No. 25, standards relating to minimum allotment size have been deliberately excluded. The subsection 'Site Frontage' removes any restriction on minimum frontage for multi-unit housing, except along arterial roads where it may be necessary to reduce the possibility of traffic problems.

Setbacks

The 8.0 m front setback has been adopted to allow adequate landscape screening, vehicular parking and a degree of stopping sight distance for street corner allotments.

In surveys of residential flat buildings conducted for the study, it was found that lack of privacy was the major problem with the design of many buildings erected in Sydney in the last 30 years. One solution is the adoption of zero setback in certain circumstances. This allows more flexibility in site planning, the removal of non-functional spaces between buildings on separate allotments, and encourages new forms of development.

Building Height

Building height is regulated in terms of the standard definition used in most LEPs and DCPs, and in accordance with generally adopted standards. Wall height is the basis for the definition.

Open Space

The open space standards are less stringent than many council requirements. However, it is not intended that landscaped open space be limited purely to setbacks. Generally the controls will require sufficient space for individual unit use, whether that be at ground or above-ground level. The controls allow for open space to be entirely for communal or entirely for private use, or a mix of both.

Solar Access

The general intention is to provide sufficient access to sunlight for all living rooms and open spaces. The sunlight standards incorporated within this section vary in each control.

The predominant feature is that access decreases as density increases. Research indicated that sunlight access standards have evolved through trial and error. These controls are an attempt to remedy that.

The minimum standards adopted relate to the winter solstice, which represents the 'worst case' situation. Variations in shadowing will occur as a result of allotment slope and orientation.

Shadow diagrams, prepared by a suitably qualified person, may be required in order to evaluate the degree of overshadowing.

Privacy

Some numerical indication of the standards that will ensure a reasonable, if not ideal, measure of privacy is stipulated. The main intention is to avoid overlooking from living room to living room, or living room to bedroom, by the careful positioning of windows, screening devices and general site planning.

Noise

This section deals with intrusive noise and the means by which noise within and between developments may be reduced. The standard adopted for these controls is the same as that adopted by Sydney City Council. The 3dBA limit is more stringent than the 5dBA limit of many councils. Nevertheless, councils have the discretion to vary the standard if it is deemed to be inappropriate.

Views

The protection of views is limited within these controls. Where possible, the controls advise developers to have concern for the views of neighbours, but this should not prejudice intended multi-unit housing.

Vehicular Access and Parking

Parking requirements are taken directly from the Traffic Authority (now the Roads and Traffic Authority (RTA) of NSW) guidelines. There is provision for reduced parking requirements having regard to those factors which may influence vehicle ownership. Details of the geometry of parking areas are appended with the permission of the RTA.

Landscaping and Site Design

'Landscaping and Site Design' outlines the general principles to be adopted in site planning and landscaping. It particularly notes that large areas of impervious surface are to be avoided wherever possible so as to minimise site run-off. Applicants are also reminded that tree preservation orders must be observed.

Facilities/Amenities

Miscellaneous facilities such as garbage, letterboxes and TV antennas are covered in this section.

1.0 General Advice to Applicants

1.1 Aims and Objectives

The aims of these residential development controls are to enhance and protect the amenity of new and existing residential areas by:

- providing design controls for residential development;
- setting reasonable environmental standards for solar access, privacy, noise, views, vehicular access, parking and landscaping.

1.2 Application of Controls

In assessing development proposals, council will consider all those matters specified in section 90(1) of the *Environmental Planning and Assessment Act 1979*, the provisions of these controls and other relevant planning instruments.

Council may refuse a development which does not comply with these controls, or may seek to modify a non-complying development by imposing conditions designed to make it comply. Council may also approve a development which does not comply with these controls where, in its view, a certain control or standard is not appropriate or relevant in that particular case.

Where an applicant departs from these controls, an explanation should be given.

1.3 Development Applications

1.3.1 General

A development application is to consist of:

- development application form;
- three copies of all plans;
- statement of environmental effects;
- application fee;
- written authority of the landowner where the applicant is not the owner.

Note: Users of these controls should consult with council prior to the preparation of plans.

1.3.2 Design

Applicants may find it preferable to use the services of a qualified architect to prepare the development plans and a qualified landscape architect to prepare landscaping plans. All drawings should bear the names of such people or firms.

1.3.3 Statement of Environmental Effects

Each application must be accompanied by a statement of environmental effects which:

- demonstrates that consideration has been given to the environmental impact of the development;
- sets out any measures taken to mitigate any likely adverse environmental impact.

1.3.4 Advertising

Applications will be advertised for 14 days.

1.4 Building Applications

Following development consent, a building application must be submitted and approved before building work may commence.

2.0 Residential Development Controls for Three and Four-Storey Medium/High-Density Development

2.1 Description of Residential Environment

This residential development control document provides design standards for three and four-storey multi-unit housing commonly known as flats.

Development under this control will produce a medium/high-density environment suitable for residential areas adjacent to employment zones, transport networks and retail/commercial centres.

2.2 Density

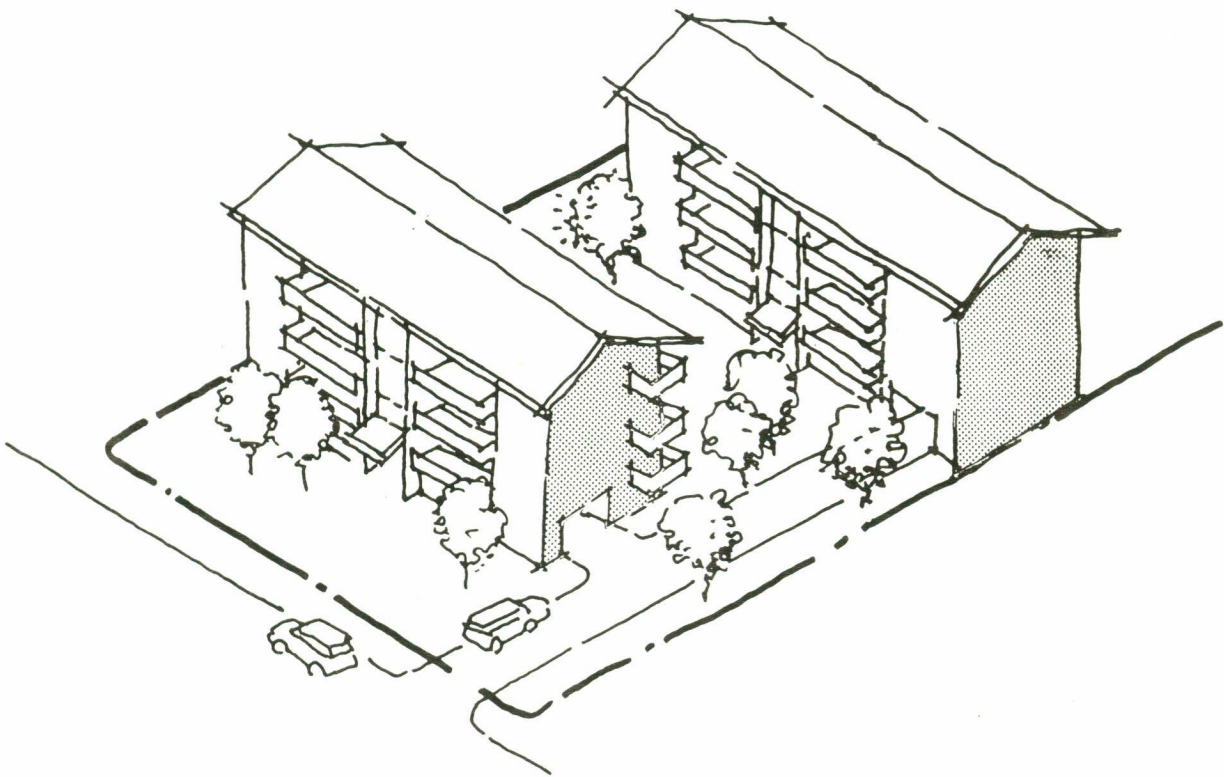
2.2.1 Aim/Objective

- to provide density controls for a variety of building forms which will achieve the desired character of the residential environment described in section 2.1.

2.2.2 Minimum Site Area per Dwelling

Table 1 indicates the appropriate density in site area (m^2) per dwelling or floor-space ratio (FSR) for small, medium, large and extra large dwellings.

Site area per dwelling is a measure of density. It is obtained by dividing the total site area by the number of dwellings.



Density/Environment

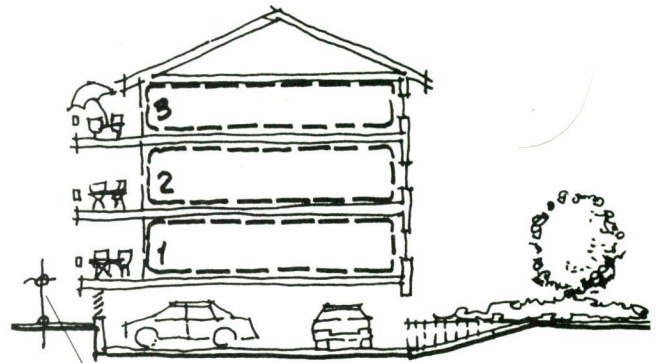
Table 1:

Dwelling Size	Minimum Site Area per Dwelling
Small <55 m ²	70 m ²
Medium 55–84 m ²	110 m ²
Large 85–125 m ²	160 m ²
Extra large >125 m ²	up to 0.9:1 FSR

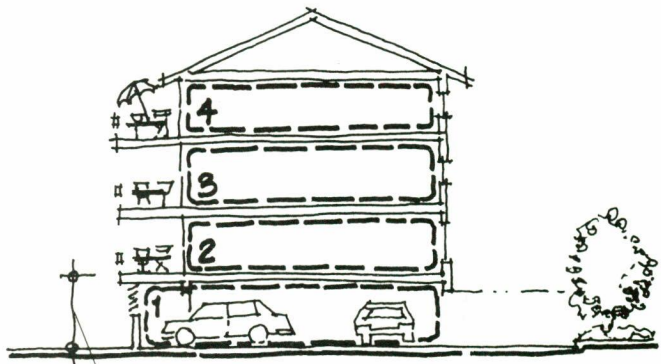
Parking under buildings is considered to be a storey if it is more than 1.0 m above natural ground level at any point.



Typical Three and Four-Storey Medium/High-Density Development



1.0 m maximum
above natural ground level



> 1.0 m maximum

Typical Sections

2.3 Site Requirements

2.3.1 Aims/Objectives

- to encourage variety by providing for a broad range of dwelling sizes, regardless of project size;
- to allow the development of small sites without the need for site amalgamation.

2.3.2 Site Frontage

Site frontage should be sufficient to permit vehicular access to the site.

Along arterial roads, where it may be necessary to reduce the number of vehicle access points, a minimum allotment frontage of 25.0 m is required.

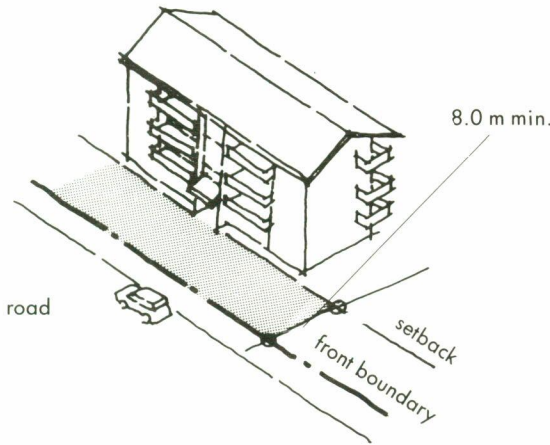
2.4 Setbacks

2.4.1 Aims/Objectives

- to permit flexibility in the siting of buildings;
- to minimise adverse impact on adjacent and adjoining properties.

2.4.2 Front

The minimum front setback should be 8.0 m for buildings, except where adjacent three or four-storey development is closer to the front boundary, in which case the setback may be similar.



Front Setback

2.4.3 Side or Rear

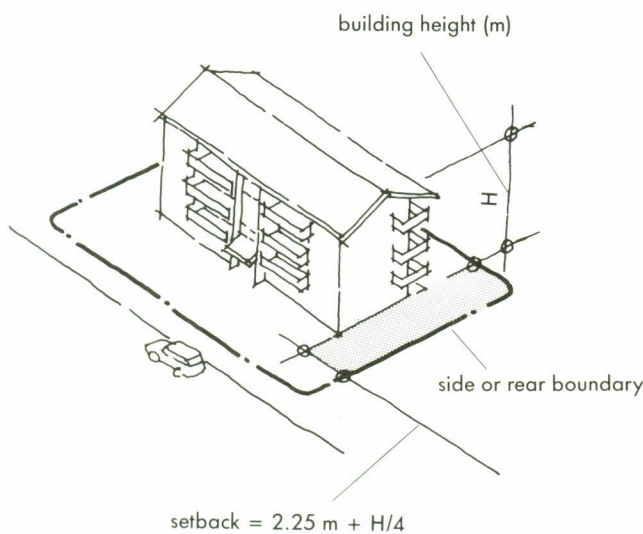
Generally

Side or rear setbacks are to be calculated from the formula:

$$\text{setback} = 2.25 \text{ m} + H/4$$

where H is the height of the ceiling of the topmost storey at any point above natural ground level.

As far as practicable, walls along boundary setbacks shall be broken or staggered to avoid the appearance of unduly massive or long walls.



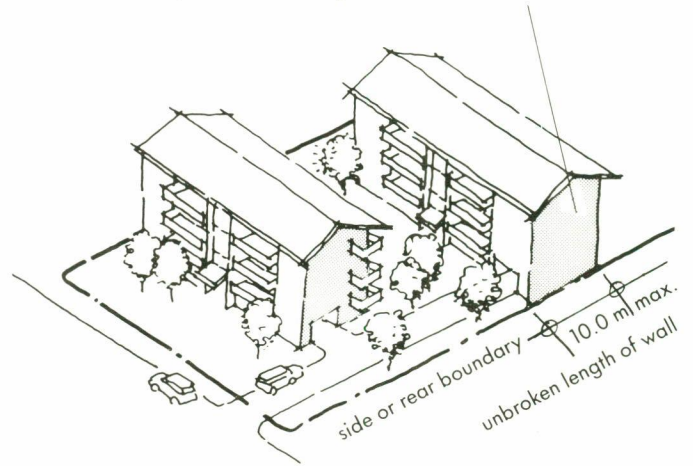
Side/Rear Boundary Setback

Building to Boundary

Subject to ensuring there is no unreasonable adverse impact on the privacy or solar access of adjoining properties, side or rear walls without windows may be built on the boundary.

No section of wall built within 3.0 m of a side or rear boundary should be longer than 10 m. Moreover, the total length of such walls should not exceed 33% of the length of the boundary.

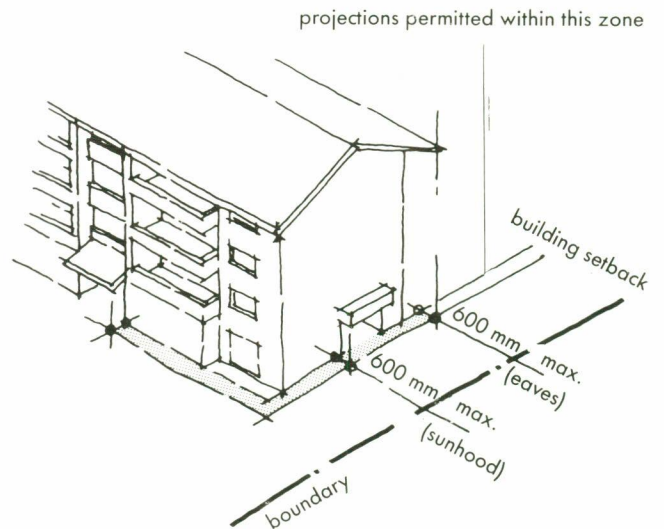
Total length of wall shall be less than $\frac{1}{3}$ length of boundary. No setback required if walls are windowless



Building to Boundary Setback

2.4.4 Projections into Setback Areas

The projections permitted into setback areas could include roof eaves, sunhoods, gutters, downpipes, chimney flues, light fittings, electricity or gas meters, and aerials, which may project 600 mm or up to the boundary, whichever is the lesser distance.



Projections into Setback Area

2.5 Building Height

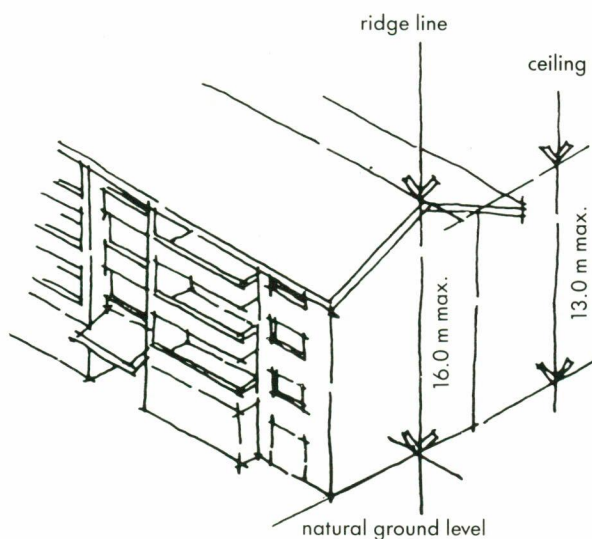
(In areas where there are many three and four-storey residential flat buildings, this section may be disregarded.)

2.5.1 Aims/Objectives

- to minimise the impact of multi-unit housing in areas where there is substantial detached housing;
- to preserve the amenity of adjoining development;
- to minimise streetscape impact.

2.5.2 Maximum Height

The maximum height of the building at any point shall be measured from the natural ground level to the ceiling of the topmost storey or the ridge of the roof. This height should not be more than 13.0 m to the ceiling of the topmost storey or 16.0 m to the top of the ridge.



Building Height

2.6 Open Space

2.6.1 Aims/Objectives

- to provide open space for recreation and for use by residents within multi-unit housing projects;
- to enhance the quality of the built environment by providing for landscaping.

2.6.2 Landscaped Open Space

Open space at ground level, suitable for landscaping, shall be provided on site in accordance with table 2. Any landscaped area having a width and depth less than 2.0 m shall *not* be counted as part of required landscaped open space.

Areas used for driveways, car parking, drying yards and service areas shall *not* be included as landscaped open space.

Table 2:

Dwelling Size	Landscaped Area per Dwelling
Small	40 m ²
Medium	50 m ²
Large	70 m ²
Extra large	70 m ²

'landscaped area per dwelling' is the total landscaped area on the site divided by the number of dwellings.

2.6.3 Private Open Space

At Ground Level

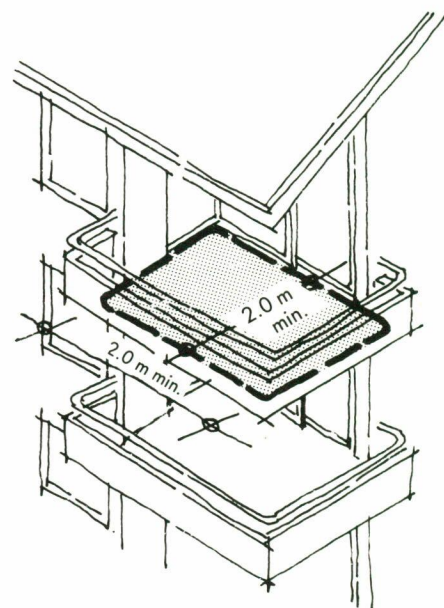
Where provided, private open space at ground level shall have a minimum width and depth of 3.0 m.

Enclosing screen walls or fences should be designed to ensure privacy, both from adjoining communal open space or accessways, and from dwellings and their courtyards.

Above Ground Level

In order to provide useable open space to dwellings above ground level, any balcony or terrace with a width and depth of 2.0 m or more may be included as part of the required landscaped open space.

However, in the calculation of the total required landscaped open space for any development, no more than 30% of above ground level open space may be included.



Private Open Space

2.7 Solar Access

2.7.1 Aim/Objective

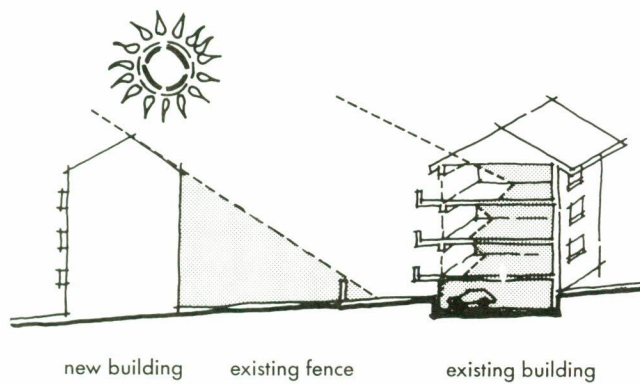
- to provide reasonable access to sunlight for living spaces within buildings and open spaces around buildings.

2.7.2 Sunlight Standards

Residential buildings shall be designed to ensure that adjoining residential buildings, and the major part of their landscaped open space, have at least three hours of sunlight between 9.00 a.m. and 3.00 p.m. on 21 June (winter solstice).

2.7.3 Shadow Diagrams

Council may require an applicant to prepare shadow diagrams showing the impact of a proposal on adjoining residential buildings and their landscaped open space. Such diagrams should be prepared by an architect or surveyor, and be based on a survey of the relevant site and adjoining development.



New buildings should not obscure sunlight to habitable rooms or open space of adjoining buildings in winter months

Sunlight Standards

3.0 General Provisions

3.1 Privacy

3.1.1 Aims/Objectives

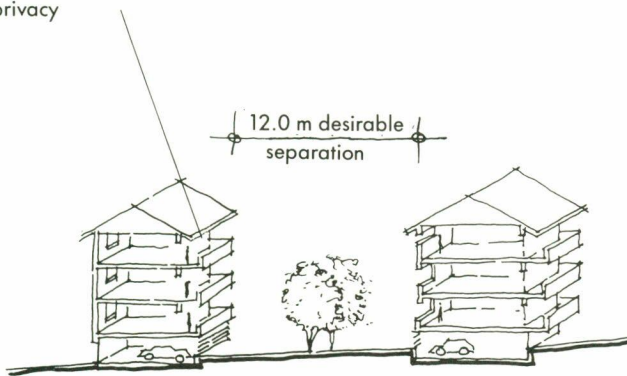
- to ensure privacy between dwellings;
- to avoid overlooking of living spaces in buildings and private open spaces.

3.1.2 Privacy

Visual privacy for adjoining properties and within development projects can be achieved by:

- using windows which are narrow, translucent or obscured;
- ensuring that windows do not face directly onto the windows, balconies or courtyards of adjoining dwellings;
- screening opposing windows, balconies and courtyards.

High level windows on upper floors opposite balconies will ensure privacy

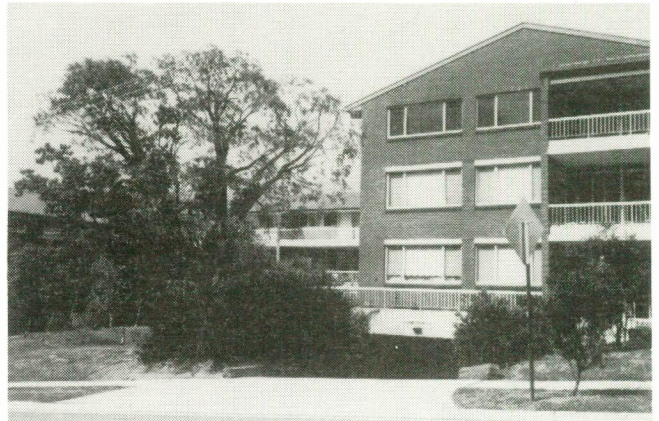


Ensure privacy between buildings by screen planting and offsetting window locations



An example of an unacceptable lack of privacy between buildings due to:

- inadequate distance separation between windows and balconies
- overlooking of communal driveways
- absence of landscape screen planting on boundary



An acceptable degree of privacy is ensured in this development by:

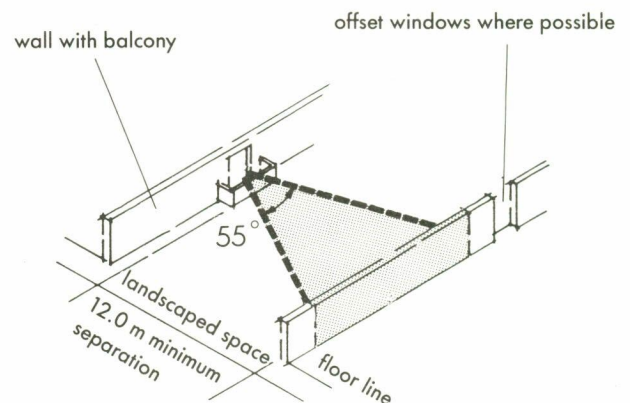
- good distance separation between windows and balconies
- well-landscaped passive open space
- separation of windows and balconies from communal driveway by change of level

3.1.3 Screening

Where windows or balconies of dwellings are within 12.0 m of windows or balconies of other dwellings, some form of screening or reduction in window areas shall be provided to ensure visual privacy.

3.1.4 Separation from Communal Areas

Windows and balconies of dwellings should be separated or screened from communal areas such as paths, driveways, active open space, etc. Screens could include courtyards walls, hedges and fences, whilst separation could be achieved either by distance or by changes in level.



Screen windows or avoid locating them in this zone if less than 12.0 m between buildings

3.2 Noise

3.2.1 Aim/Objective

- to contain noise within dwelling units or communal areas without unreasonable transmission to adjoining dwellings.

3.2.2 General

Special care should be taken to:

- locate active recreation facilities, such as swimming pools, away from the bedroom areas of adjoining dwellings;
- design communal courtyards and vehicle driveways to minimise reflected noise;
- make provision for operating plant or equipment that does not disturb neighbours;
- avoid noisy walking surfaces, such as suspended timber or metal decks, and reflective internal surfaces to hallways or other communal areas;
- eliminate plumbing noise between dwellings and between buildings.

3.2.3 Noise Standard

No electrical, mechanical or hydraulic equipment or plant shall generate a noise level greater than 3dBA above ambient L_{90} sound level at the boundaries of any allotment at any time of day.

3.3 Views

3.3.1 Aim/Objective

- to minimise, wherever possible, the obstruction of views from adjoining buildings.

3.3.2 View Analysis

Council may require an applicant to provide a survey showing the position of the proposal on its site, the location of adjoining buildings and the degree of view loss, if any, resulting from the proposal.

3.4 Vehicular Access and Parking

3.4.1 Aims/Objectives

- to provide off-street parking for residents and visitors within each development;
- to make provision for service vehicle access;
- to ensure vehicular and pedestrian safety;
- to encourage access design to form part of the overall landscape design.

3.4.2 Parking Requirements

The number of spaces to be provided is shown in table 3:

Table 3:

Dwelling Size	Spaces per Dwelling
Small	1.0
Medium	1.5
Large	2.0
Extra large	2.0
Visitor	1 per 4 dwellings

(Source: Roads and Traffic Authority of NSW)

3.4.3 Reduction in Required Parking

Council may reduce the parking requirements for any development as a result of:

- car ownership levels in the precinct/suburb/area;
- proximity and frequency of public transport;
- street width, traffic volume and parking capacity on the street.

3.4.4 Geometric Standards

All geometric standards applicable to site access and parking layout may be found in the Roads and Traffic Authority of NSW publication *Policies, Guidelines and Procedures for Traffic Generating Developments*. Copies of this publication can be obtained from:

Roads and Traffic Authority of NSW
PO Box K198
Haymarket NSW 2000

Relevant sections of this publication are reproduced in the appendix.

3.4.5 Access Design

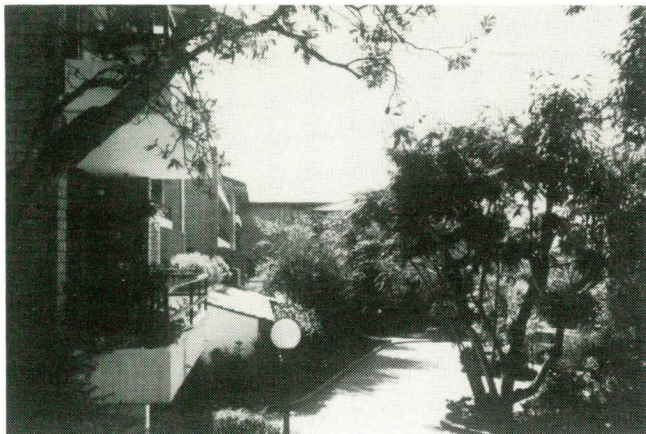
Long straight driveways are to be avoided and the use of decorative paving, e.g. brick, is encouraged.

In order to reduce the volume of rainwater run-off and increase the area of site available for landscaping, the area paved for vehicular access should be minimised.



An example of poor access driveway design which should not be repeated and which shows:

- excessive pavement width
- unimaginative design, creating a gun-barrelled effect
- lack of adequate landscape separation between driveway and building



Good design of vehicle accessway as part of the overall landscape treatment enhances the quality of the development. This example shows:

- minimum width of driveway
- impact of driveway minimised by design and effective planting

3.5 Landscaping and Site Design

3.5.1 Aims/Objectives

- to maintain and enhance the existing streetscape and landscape character;
- to enhance the setting of buildings;
- to provide for privacy and shade.

3.5.2 Design Guidelines

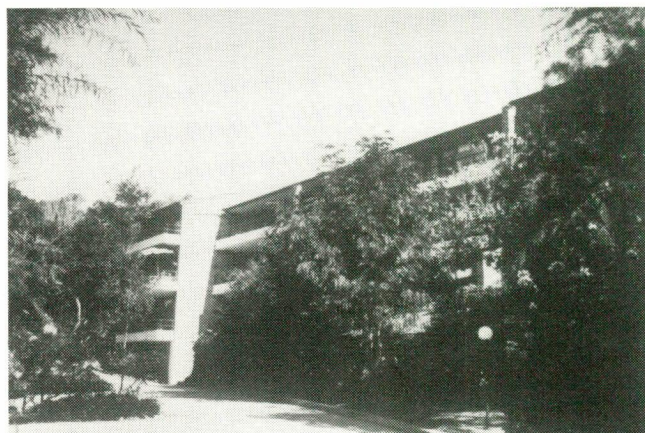
Landscaping work shall be designed to enhance the natural features of the site and of any unfenced adjoining areas. Care should be taken to preserve any existing landscape elements such as rock formations, vegetation or watercourses.

In established areas, landscaping should relate to the scale of other elements of the streetscape and the landscaping of adjoining development. Where possible, landscaped areas should adjoin the landscaped areas of adjacent allotments.

All parts of the site not built upon or paved shall be landscaped with grass, ground covers, shrubs and/or trees.

Regard should be given to the use of sun protection devices (i.e. verandas, pergolas, deciduous trees, etc.) along western-facing walls to produce a comfortable microclimate in and around dwellings.

Careful consideration of the layout of external and internal living spaces can increase the occupants' enjoyment of their dwelling. For example, a deck, terrace or balcony could provide an outdoor extension to an internal living room.



Landscape treatment, should:

- enhance the setting of the buildings
- relate well to other elements in the streetscape and adjoining developments
- respond to local landscape environments (e.g. bushland)

3.5.3 Tree Preservation Order

Council has in force a tree preservation order which requires council's consent for the removal or lopping of any tree covered by the order.

3.6 Facilities/Amenities

3.6.1 Aim/Objective

- to provide for essential amenities and facilities to be incorporated within residential developments.

3.6.2 Garbage

For developments of fewer than 15 dwellings on any site, an accessible, suitably paved and screened bin-standing area adjacent to the street alignment should be provided. A cold-water tap for cleaning bins shall be provided in or adjacent to the bin stand.

Where there are 15 or more dwellings proposed for a site, council may require special arrangements to be made.

3.6.3 Letterboxes

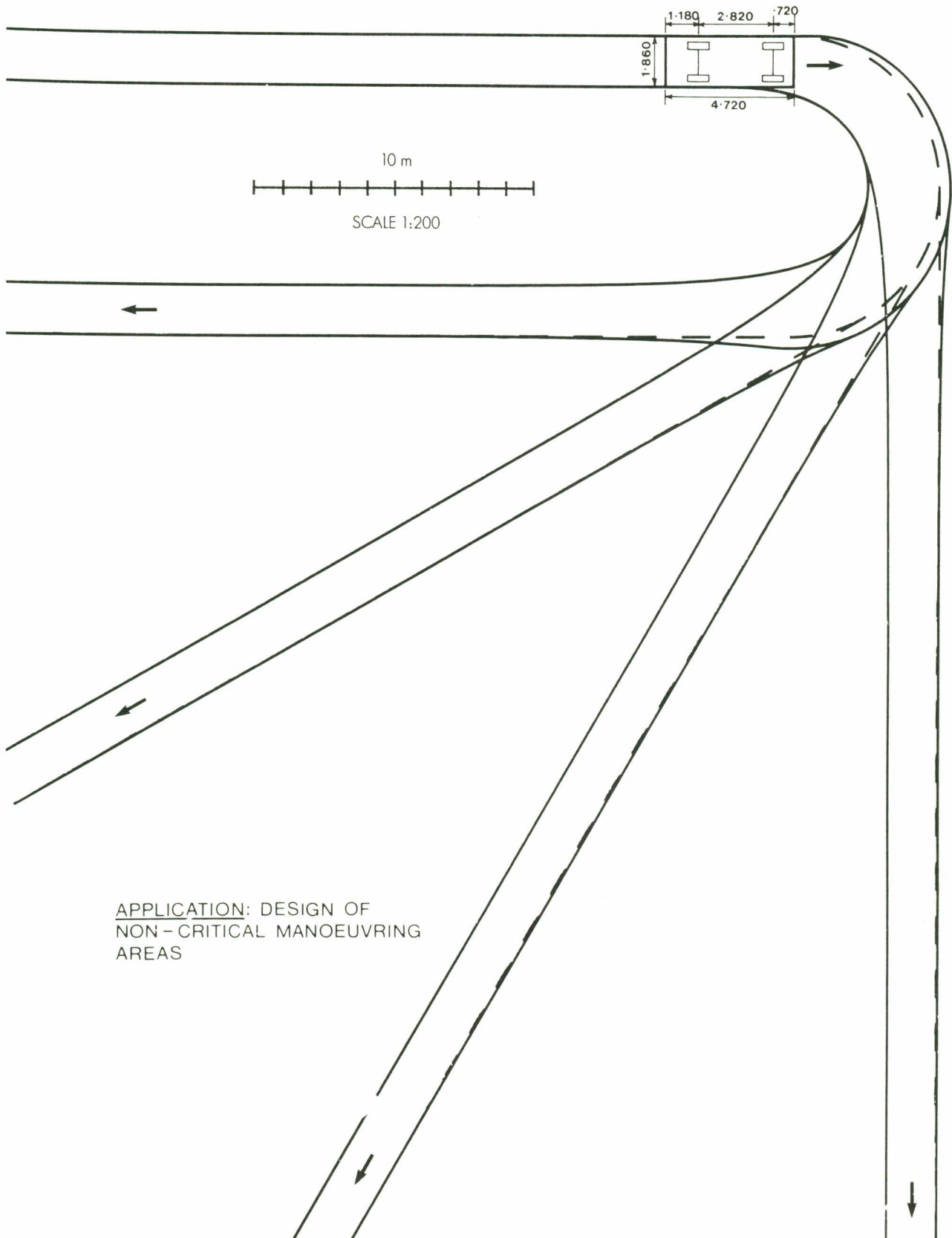
Letterboxes shall be provided in accordance with Australia Post's requirements as listed in its brochure *Requirements for the Positioning and Dimensions of Mail Boxes in New Commercial and Residential Developments*.

3.6.4 TV Antennas

A master antenna shall be provided for any development of more than two dwellings.

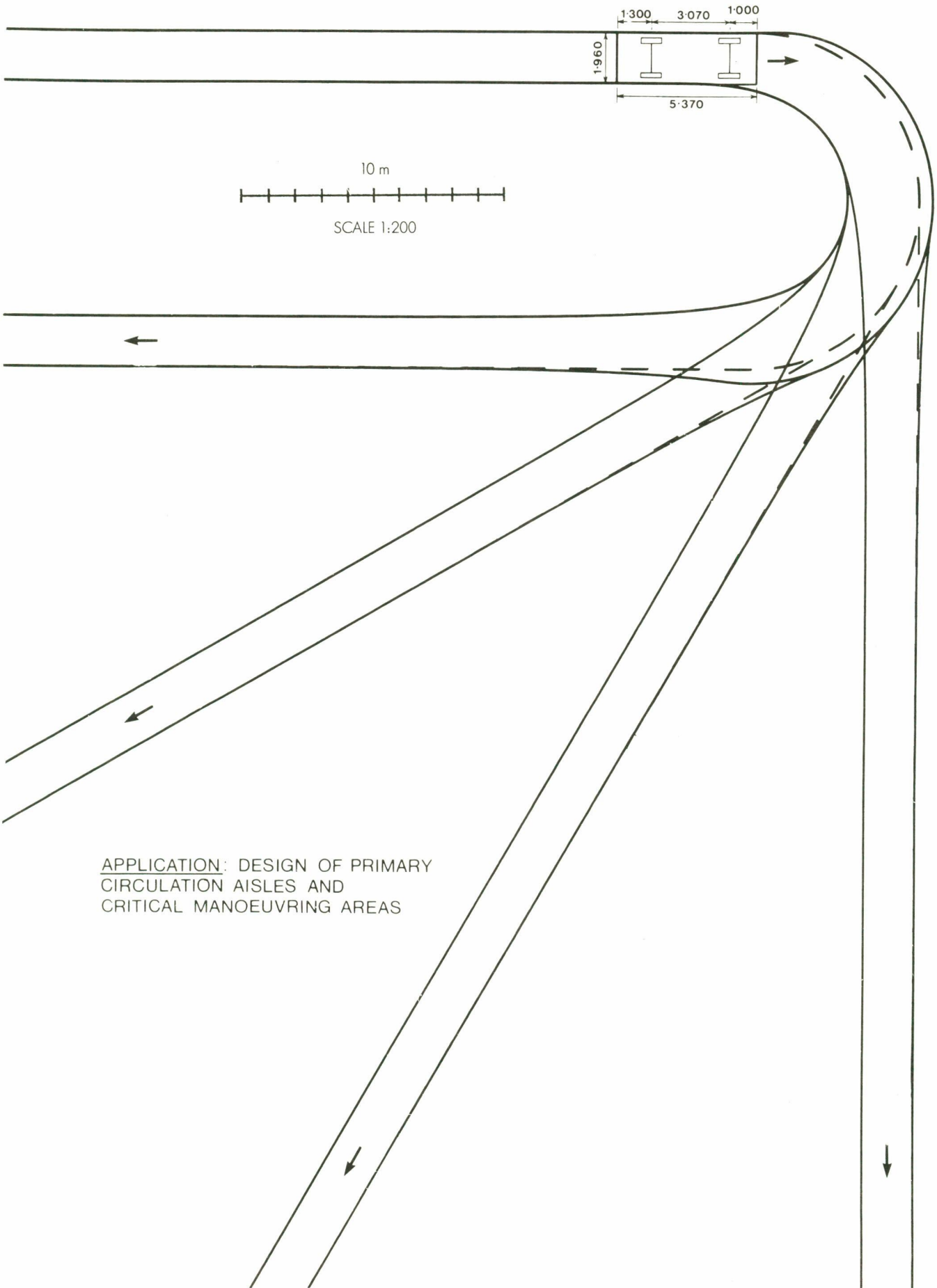
Appendix: Parking Standards

Figure A.3a 85% DESIGN CAR TURNING PATH
Minimum Turning Circle 11.0m



Information in this appendix is reproduced with the kind permission of the Roads and Traffic Authority of New South Wales. Extract taken from the publication *Policies Guidelines and Procedures for Traffic Generating Developments*.

Figure A.1a 99.8% DESIGN CAR TURNING PATH
Minimum Turning Circle: 12.9m



PARKING AREA DESIGN

B.1 INTRODUCTION

This Appendix recommends design criteria for parking facilities e.g. parking spaces, aisles and ramps based on the design vehicle characteristics presented in Appendix A.

Wherever physical restrictions occur within the parking facility, such as on access ramps, primary circulation aisles and entry and exit aisles, the design must cater for all vehicles likely to use the facility. The 99.8 percentile car is thus recommended as the basis for design in these circumstances. The 85th percentile car is recommended as the basis for design in less critical circumstances, such as for parking spaces and aisles providing access to parking spaces and on which temporary obstructions can be tolerated. Where special circumstances apply, designers should use the data in Appendix A as a basis for assessing their requirements.

With heavy vehicles the maximum dimension vehicle should in general be used as the design vehicle for each type. In some situations, the standard small rigid truck could be used as a design vehicle, if it is improbable that larger vehicles will use the facility.

Where older buildings are being renovated for a change in use, the constraints in achieving recommended design criteria are recognised. In these situations, a design to a lower standard than that recommended might be acceptable, provided the solution can be shown to be workable.

B.2 PARKING SPACES AND AISLES

B.2.1 Design Considerations

Parking space dimensions are a function of the design vehicle dimensions and door opening widths, as well as the manoeuvring area required for entry and exit to the space. Parking space and aisle dimensions are thus interdependent. Swept turning paths, based on the design vehicle's minimum turning circle, are not always suitable for determining space and aisle dimensions. Drivers can manoeuvre vehicles within much smaller dimensions than swept turning paths would suggest. A reduction in the aisle and space dimension, however, results in an increase in the number of manoeuvres made to park the vehicle, which may in turn cause congestion and delays. In parking areas where there is a high intensity of traffic generation and where parking turnover is high, it is recommended that vehicle[s] should be able to either enter or leave the parking space in two manoeuvres. (By definition, a reversing movement will require two manoeuvres). In some carparks with low traffic generation, a greater number of manoeuvres might be acceptable. Ease of access to and from the vehicle also needs to be considered.

Recommended minimum dimensions allow the following horizontal clearances outside the boundaries of the design car swept turning path:

- offside: 300mm
- nearside: 300mm

To summarize the relationship between design vehicles and movement areas:

Area	Design Vehicles
Critical	99.8% + 300mm clearance each side
Non-critical	85% + 300mm clearance each side

Space Lengths

Space lengths should be determined by the overall length of the 85 percentile car plus an allowance for clearance to obstructions at either end. This would yield a minimum space length of 5.3 metres. However, since the 1979 model LTD. vehicle is 5.4 metres long and as a result of the adverse consequence of a vehicle protruding into the circulating roadway disrupting vehicle circulation, a 5.4 metres long space is recommended. The recommended space length does not allow for rear opening doors such as on large station wagons.

Acute angle and parallel parking

Parking at angles smaller than 90° can reduce the required aisle width for one-way circulation, the minimum aisle width for one-way circulation being 2.8 metres for 30 degree parking. In the case of parallel parking, spaces should be longer than as recommended above.

Parking turnover

The minimum width of parking spaces varies depending upon the parking clientele served. Narrower spaces could be considered for car parks generating a low parking turnover, whereas car parks with a higher parking turnover should have wider parking spaces.

The minimum parking space width of 2.5 metres is recommended for parking facilities serving mixed patronage, i.e. short and long staying casual parkers.

Parking for the disabled⁽¹⁾

Special parking spaces for disabled persons should be provided, at the rate of one space per hundred spaces provided overall. A higher proportion of spaces might be appropriate at land uses where there are high volumes of sick and infirm visitors. It is essential that these spaces should be clearly signposted both for the convenience of disabled parkers and to discourage other parkers from using such spaces. The spaces are wider than the standard space width, to assist movement into and out of the parked vehicles. Additionally they should be located as close as possible to entrances, areas or facilities which are likely to be visited by disabled persons and should be connected by pathways or ramps that conform with Ordinance 70 of the Local Government Act, 1919 and with Australian Standard AS 1428 - 1977 'Design Rules for Access by the Disabled'.

B.2.2 Recommended Minimum Dimensions

Based on the foregoing the recommended minimum dimensions for parking spaces are as follows:

Cars

For angle parking the minimum parking space length of 5.4 metres is recommended. For parallel parking the recommended space length is 6.1 metres.

Figure B.1 summarises the recommended minimum parking space dimensions for angle and parallel parking. Note that these dimensions are based on the 85th percentile design car, for manoeuvring in non-critical areas.

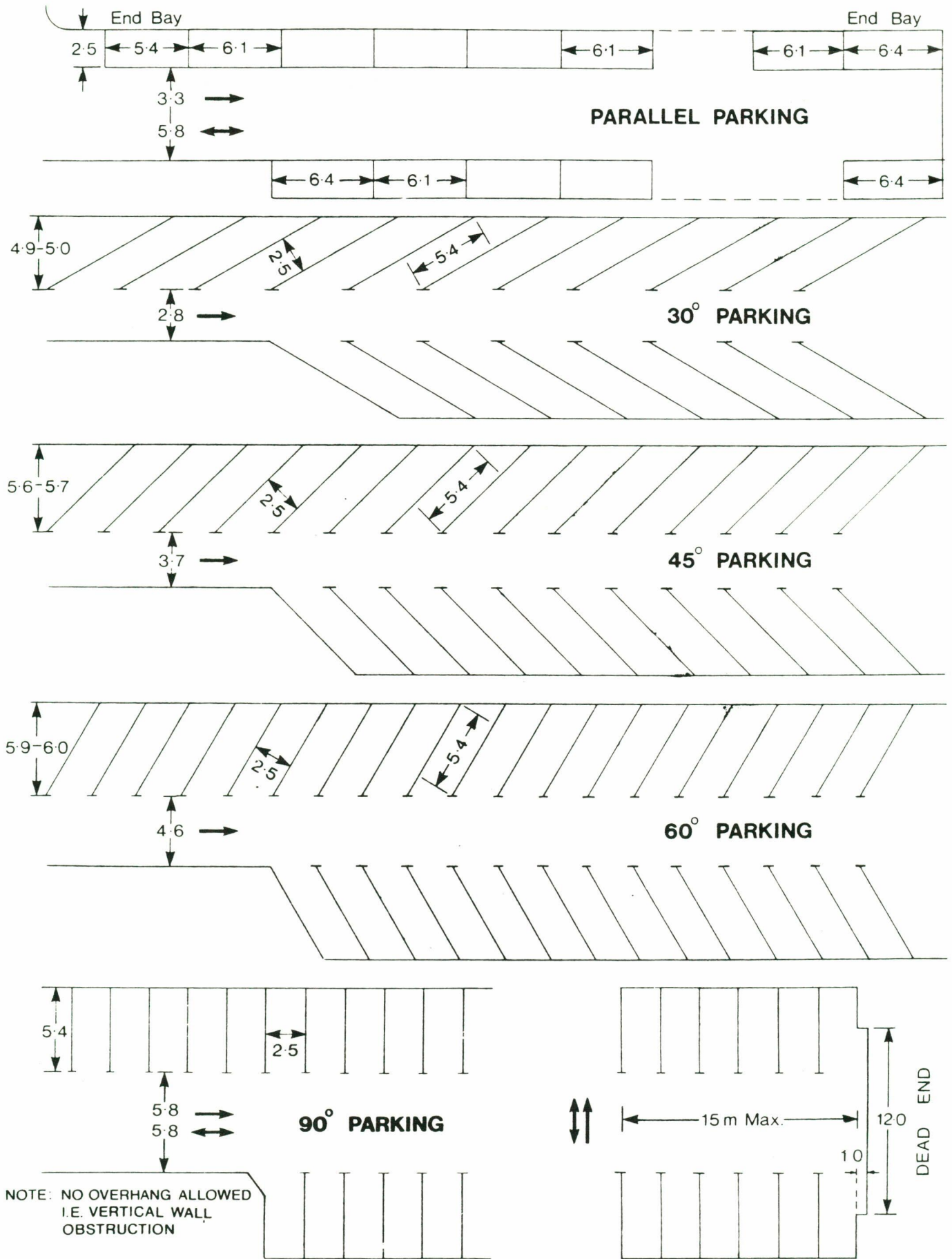
Parking Spaces for the Disabled

The recommended minimum widths of parking space for the disabled are 3.0 metres for angle parking and 2.5 metres for parallel parking. Parking space lengths for angle and parallel parking of 5.4 metres and 6.2 metres respectively are recommended.

Trucks

Parking dimensions for trucks should be determined by using the swept path templates as appropriate. Dimensions for truck service bays are discussed in Appendix B.4.

(1) Refer to Traffic Authority of New South Wales Parking for the Disabled – Guidelines – December 1981 for further information.



(All dimensions shown in metres)

Figure B.1 Recommended Minimum Parking Dimensions
For non-critical manoeuvring areas.

Definitions

adjoining development means that development which is closest or next to the subject development.

arterial road means:

- (a) a road shown on a map referred to in an environmental planning instrument by:
 - (i) a continuous or intermittent red line on white between firm black lines; or
 - (ii) a broken red band on white between intermittent black lines;
 - (iii) a continuous or intermittent heavy black line on white;
- (b) a road declared to be a main road under the *State Roads Act 1986*;
- (c) a road declared to be a secondary road under the *State Roads Act 1986*; and
- (d) a road declared to be a toll work under the *State Roads Act 1986*.

dwelling means a room or number of rooms occupied or used, or so constructed or adapted as to be capable of being occupied or used, as a separate domicile.

floor-space ratio means the ratio of the gross floor area of the building to the site area of the development which contains or comprises the building.

gross floor area means the sum of the areas of each floor of a building where the area of each floor is taken to be the area within the outer face of the external enclosing walls as measured at a height of 1400 mm above each floor level, excluding:

- (a) columns, fin walls, sun control devices, awnings and any other elements, projections or works outside the general lines of the outer face of the external wall; and
- (b) lift towers, cooling towers, machinery and plant rooms, ancillary storage space and air-conditioning ducts; and
- (c) car parking needed to meet any requirements of the council and any internal designated vehicular or pedestrian access thereto; and
- (d) space for the loading and unloading of goods; and
- (e) internal public arcades and thoroughfares, terraces and balconies with outer walls less than 1400 mm high and the like.

landscaped area means that part of the site area which is not occupied by any building and includes so much of that part as is used or to be used for swimming pools, recreation areas, lawns, gardens or other landscaping, but does not include so much of that part as is used or to be used for driveways, parking areas or drying yards.

site area, in relation to development, means the area of land to which an application for consent to carry out the development relates, excluding therefrom any land on which the development is not permitted by or under the local environmental plan or other environmental planning instrument.