



Parking facilities

Part 3: Bicycle parking



This Australian Standard® was prepared by Committee CE-001, Parking Facilities. It was approved on behalf of the Council of Standards Australia on 12 August 2015. This Standard was published on 3 September 2015.

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 - Australian Motorcycle Council
 - Austroads
 - Department of Territory and Municipal Services, ACT
 - Department of Transport and Main Roads, Qld
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-

This Standard was issued in draft form for comment as DR AS 2890.3:2015.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard[®]

Parking facilities

Part 3: Bicycle parking

Originated as AS 2890.3—1993.
Second edition AS 2890.3:2015.

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Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76035 229 5

PREFACE

This Standard was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee CE-001, Parking Facilities, to supersede AS 2890.3—1993.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

Changes of note in this revision include:

- (a) Introduction of a bicycle spacing envelope.
- (b) A new requirement for a minimum of 20% of ground level (horizontal) bicycle parking space in any bicycle parking facility.
- (c) Further guidance for off-carriageway and on-carriageway design requirements.
- (d) Updated typical bicycle dimensions.
- (e) Information about types and characteristics of various styles of bicycles and tricycles.
- (f) Additional guidance for clearance from kerb to parking facilities.
- (g) Guidance for ramp access to underground and above ground parking.

This Standard provides planners, especially those in local government, with a Standard that will enable them to provide safe, secure and convenient parking for bicycles to suit different types of users.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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FOREWORD

Cycling is an increasingly popular and important mode of travel. Many people are now riding for transport, exercise and recreation. Riding a bike can contribute to improving community health, easing road congestion and reducing atmospheric pollutants. Governments around the world, including all levels of government in Australia, are encouraging more people to ride a bicycle for their trips. The provision of secure bike parking at destination is an important factor that will encourage more people to ride.

The provision of parking spaces for bicycles needs to be carefully considered. There will often be a need for compromise to avoid over-supply of an expensive facility while encouraging bicycle use by the adequate provision of suitable facilities. This may require an assessment of future and suppressed demand. As the demand for parking increases, so should its provision. State and local government regulatory requirements will also need to be taken into account.

In public areas, especially in prominent locations, the community's expectations need to be considered, especially in the provision of convenient, attractive and well-designed facilities. The aesthetic appearance of bicycle parking facilities should not, however, override the requirements for security and ease of use.

Consideration should also be given to other potential users of the space, including pedestrians and especially visually impaired persons.

Bicycle parking which allows only one wheel to be locked to the device, or which supports the bicycle by one wheel only (e.g. wheel in slot), does not provide either proper support or security for the bicycle as a whole. It does not meet the levels of security for bicycle parking described in this Standard, and should not be used in new installations. It is recognized, however, that there are existing installations that do not meet these requirements. In order to meet the need for secure bicycle parking it is recommended that these parking facilities be progressively upgraded or replaced.

STANDARDS AUSTRALIA

Australian Standard Parking facilities

Part 3: Bicycle parking

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard provides a set of minimum requirements for the layout, design and security of bicycle parking facilities for planners and service providers.

It is suitable for the design of bicycle parking in all locations, e.g. on-street, off-street and within buildings.

This Standard is intended to apply to bicycle parking for the majority of two wheeled bicycles on the market, though not necessarily all bicycles.

This Standard is not intended to apply to domestic (up to three dwellings) and temporary facilities.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- 1428 Design for access and mobility
- 1428.1 Part 1: General requirements for access—New building work
- 1428.2 Part 2: Enhanced and additional requirements—Buildings and facilities
- 1742 Manual of uniform traffic control devices
- 1742.9 Part 9: Bicycle facilities
- 1742.11 Part 11: Parking controls

AS/NZS

- 1158 Lighting for roads and public spaces
- 1158.3.1 Part 3.1: Pedestrian area (Category P) lighting—Performance and design requirements
- 1428 Design for access and mobility
- 1428.4.1 Part 4.1: Means to assist the orientation of people with vision impairment—Tactile ground surface indicators
- 2890 Parking facilities
- 2890.6 Part 6: Off-street parking for people with disabilities

- Austrroads Guide to Road Design
- Part 6a: Pedestrian and Cyclist Paths
- Guide to Traffic Management
- Part 4: Network Management
- Cycling Aspects of Austrroads Guides

- VicRoads Cycle Notes No.21

1.3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

1.3.1 Aisle

A passageway free of obstacles within the bicycle parking facility used by bicycle riders to access bicycle parking devices.

1.3.2 Bicycle

A vehicle with two or more wheels that is built to be propelled primarily by human power through a belt, chain or gears (whether or not it has an auxiliary motor).

NOTE: The term 'bicycle' does not include a wheelchair, mobility scooter, wheeled recreational device, wheeled toy, or any vehicle with an auxiliary motor or motors capable of generating a total power output over 250 watts (whether or not any motor is operating).

1.3.3 Bicycle parking device (BPD)

A construction made of high security material designed to provide stability to bicycles placed in or against the device. Rails and racks are examples of bicycle parking devices.

1.3.4 Bicycle parking facility

An area that is equipped for the parking of bicycles. It may also be equipped with other useful rider conveniences such as lockers, change rooms, toilets and/or showers.

1.3.5 Bicycle spacing envelope

The design space of a standard bicycle, which allows for locking, and parking movements. The dimensions are 1800 mm × 1200 mm × 500 mm, as shown in Figure 2.1.

1.3.6 Cage

A secure bicycle parking facility which may be roofed and may be within other security walls and/or fences or facilities. Cages contain bicycle parking devices for users and access is limited to permitted persons with controlled security access devices such as keys, codes or swipe cards. See Table 1.1.

1.3.7 Direct surveillance

Constant surveillance, or at least consistent surveillance at critical times, by an interested person, e.g. a paid attendant as part of other regular duties and who has a view of the bicycle parking facility.

1.3.8 High security materials

Materials of a kind that cannot be quickly breached with non-powered hand tools.

1.3.9 Locker

A high security, enclosed lockable space designed to park one bicycle within it. Lockers are made of high security materials for protection against theft and the weather.

1.3.10 Locking device

Comprising a D-lock and a cable with a maximum length of 1200 mm, which together are capable of locking a bicycle frame and both wheels to a bicycle parking device.

1.3.11 Non-standard bicycle

A bicycle which does not meet typical dimensions or mass, such as power assisted bicycles, and bicycles with additional components such as storage bags and baskets.

1.3.12 Power assisted bicycle (E-bike)

A bicycle which has one or more auxiliary propulsion motors attached to assist the rider (see the definition of bicycle for power limitations).

1.3.13 Rack

A bicycle parking device for one or more than one bicycle.

1.3.14 Rail

A bicycle parking device for one or more than one bicycle, which provides support for a bicycle on one or both sides.

1.3.15 Road reserve

A legally described area within which facilities such as roads, footpaths and associated features may be constructed for public travel. Often called road.

1.3.16 Shall

Indicates that a statement is mandatory.

1.3.17 Should

Indicates a recommendation

1.3.18 Standard bicycle

A bicycle of typical dimensions based on the most common types of bicycle used for commuting and recreational purposes.

NOTE: Dimensions of the bicycle spacing envelope are specified for design purposes in Figure 2.1. See also Appendix A, for dimensions of various bicycle types.

1.3.19 Temporary facilities

Bicycle parking that is set up to service a specific event, or to operate over a specific period of time, and which will be removed following that event or the elapse of that time.

1.3.20 Static and dynamic (bicycle parking device)

- (a) *Static BPD* A parking device that contains no moving parts and is fixed in position.
- (b) *Dynamic BPD* A parking device that requires bicycles to be moved in order to create the minimum bicycle spacing envelope.

1.4 BICYCLE USERS

Bicycle users require different types of parking facilities depending on what they are doing and what kind of bicycle they are riding. Commuting riders who leave their bicycle at a transport hub have different security requirements to riders who park to shop or to briefly use an ATM.

Safe access to parking is needed, and a reasonable level of safety should be provided for riders when parking their bicycles. Consideration shall be given to other users of the area, including the provision of clear pedestrian pathways in accordance with AS 1428.1. Particular obligations are defined in the *Disability Discrimination Act 1992*.

In planning a bicycle parking facility consultation with potential users is advised and a full assessment of what is required and desirable for the facility should be undertaken.

1.5 CLASSIFICATION

Bicycle parking facilities are classified by the level of security provided for the parked bicycle as shown in Table 1.1.

NOTE: Examples are shown in Appendix B.

TABLE 1.1
BICYCLE PARKING FACILITY SECURITY LEVELS

Security level	Physical description	Safety features	Typical applications
A	An individual locker with a high security locking mechanism.	Facilities are highly visible, publicly accessible and are close to the modal change point. Facilities should be located in well-lit areas.	Transport hub or other locations where the highest level of bicycle security is desired.
B	A secure room or structure, protected from the weather, containing bicycle parking devices that allow users to lock the bicycle frame and both wheels. Users provided with security access devices such as keys, codes or swipe cards for communal cages. Users may provide their own locking devices for individual cages. Chain mesh fencing is not considered suitable. Entrance gates (to the secure bike area) are self-closing and self-locking.	Where available to the general public, or in large workplaces or institutions, some level of direct surveillance may be necessary to reduce the level of theft among users (e.g. CCTV). Facilities should be located in well lit areas, and where passive surveillance is likely. Facilities should be situated as close to the entrance/exit as practicable, e.g. lift core, workplace entrance, etc.	Destination parking—the cyclist works, lives or studies nearby and the facility is generally part of the destination. All day parking where the cyclist continues on to a nearby location, e.g. a workplace, school, university. Transport hub, e.g. railway station. Resident parking at multi-dwelling developments. Restricted access (non-public) compound for schools and workplaces.
C	A bicycle parking space, where the bicycle frame and both wheels can be locked to a bicycle parking device using the owner's own locking device.	Facilities should be located in well lit areas, and where passive surveillance is likely. Facilities should be located as close as practicable to the user's destination.	Short term parking on-street or off-street; retail, libraries, gyms, etc. NOTE: Not appropriate for long term parking (more than two hours).

NOTE: The level of security does not determine the standard of facility to be provided. Other factors including aesthetics and durability should be reasonable for the location.

SECTION 2 BICYCLE PARKING FACILITIES

2.1 GENERAL

This Section specifies requirements for bicycle parking facilities. Due to the relevant community's interaction with these facilities the representing government bodies may choose to specify their own and/or additional requirements, which may differ from this Standard.

Disability Discrimination Act 1992 compliance needs to be incorporated into the design for bicycle parking facilities.

Bicycle parking facilities shall be designed—

- (a) so they are safe for all users of the designated space, securely fixed and conveniently located for users;
- (b) to accommodate and support a standard bicycle with sufficient space so as to minimize damage while parked and during movement into or out of the parking space (see bicycle spacing envelope in Figures 2.1 and 2.2);
- (c) to suit the particular location, e.g. off-street, on-street, within buildings;
- (d) so that the facilities do not obstruct or hinder pedestrian access ways, bus stops, loading zones, post office boxes, public telephones, public help access points, taxi ranks, fire hydrants, fire escapes, traffic signals, areas adjacent to accessible car parking as required by AS/NZS 2890.6, and the like; and
- (e) to include a minimum of 20% of ground level (horizontal) BPDs in any bicycle parking facility.

NOTE: This is to provide for those riders unable to lift a bicycle to a hanging BPD, and for parking of non-standard bicycles.

Consideration of BPD location and spacing is paramount to achieving functional bicycle parking facilities. The bicycle spacing envelope helps ensure the overall functionality of a facility by minimizing clashes between users, parked bicycles, and bicycles entering or exiting a BPD or facility.

See Figure 2.2 for an example of the bicycle spacing envelope applied to a common type of bicycle parking device.

In accordance with the bicycle spacing envelope, the maximum bicycle parking capacity of an area can be determined by using the measurements of the spacing envelope, as specified in Figure 2.1, together with the appropriate access aisle width, as specified in Table 2.1. Exceptions are noted in Clauses 2.2.5 and 3.3.

Example 1:

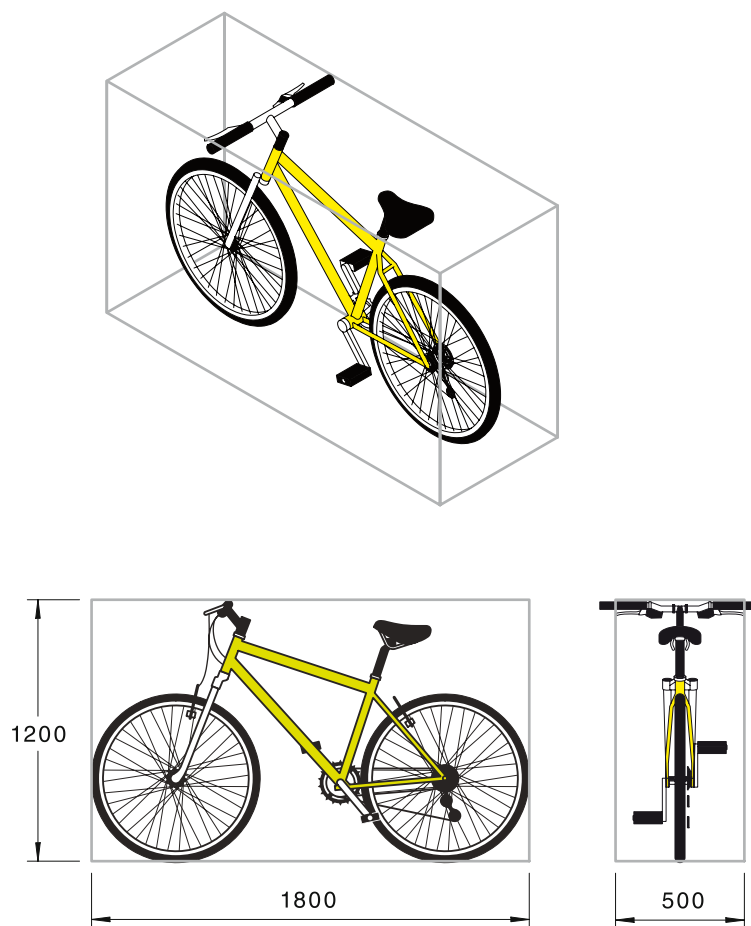
A space of 7200 mm width (a column bay) divided by 500 mm equals 14 bicycles.

Example 2:

A standard car parking space length is 5400 mm but the width is only 2400 mm, which will require angled parking to achieve maximum capacity. See Figure B6 for an example.

Other types of bicycle parking systems are available or in development, including but not limited to sliding parking and multi-tier counter-balanced parking. Safe and secure access based on the bicycle spacing envelope shall be applied to these systems, with regard to both the user and the bicycle itself.

Static racks shall comply with the bicycle spacing envelope. Dynamic racks shall not allow bicycles to touch at any point and shall comply with the bicycle spacing envelope at the point of bicycle insertion and removal.



NOTES:

- 1 The dimensions of the envelope are equivalent to those of a standard bicycle.
- 2 The bicycle spacing envelope does not apply to bicycle lockers or radially arranged vertical bicycle parking (Figures B1 and B8).
- 3 Handlebars will protrude beyond the envelope.

DIMENSIONS IN MILLIMETRES

FIGURE 2.1 BICYCLE SPACING ENVELOPE