White Paper

New Bicycle Parking Requirements - AS2890.3 (2015)

3 Steps to:
- Design Compliant Layouts
- Select Compliant Products
- Avoid Costly Mistakes

ABSTRACT

AS2890.3 (2015) was released in September 2015 and introduces significant changes to bicycle parking space and product requirements. To avoid Development Approval delays, loss of Green Star points, replacement of non-compliant bicycle parking products and monetary fines, new developments may be required to provide bicycle parking facilities and products that comply with the new AS2890.3 (2015) requirements.

This paper will provide the reader with the knowledge necessary to design compliant bicycle parking layouts, calculate the number of bicycle spaces possible in a given area, and specify compliant bicycle parking products.

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INTRODUCTION

AS2890.3 (2015) represents a significant change to the 1993 version by introducing new concepts, spacing requirements and definitions.

Across Australia, there is a renewed focus and emphasis on prioritizing bicycle use. The list of social and individual benefits resulting from increased bicycle use as both a form of sustainable transport and recreation includes health, economic and environmental benefits.

To facilitate increased bicycle use, many local governments have mandated the inclusion of bicycle friendly infrastructure for new developments.

End of trip facilities that provide safe and secure parking for bicycles are one component that may be required for new residential, commercial or industrial development approvals.

In addition, developments wishing to achieve Green Star ratings can earn Green Star points by providing compliant bicycle parking facilities.

Failure to provide compliant bicycle parking facilities may result in:

- development approval delays
- the requirement to provide additional space for bicycle parking
- the requirement to replace non-compliant product designs
- the loss of Green Star points
- monetary fines

Local government and Green Star rules rely on AS2890.3 to determine the requirements for compliant bicycle parking facilities.

Standards Australia has recently published **AS2890.3 (2015)** to supersede AS2890.3 (1993). This standard provides a set of minimum requirements for the layout, design and security of bicycle parking facilities for architects, planners, builders, property managers and service providers.

This paper provides a guide to planning bicycle parking layouts and selecting products that comply with the requirements of AS2890.3 (2015).

Do I Need to Provide Compliant Bicycle Parking Facilities?

The requirement to provide bicycle parking facilities will usually be determined by the local government responsible for providing development approval. It is important to check with the appropriate local government office to determine their current rules and avoid providing an expensive bicycle parking facility that is either not required, or that must comply with special rules.

If a project is seeking Green Star ratings, the provision of compliant bicycle parking facilities can contribute to Green Star points.

What is a Compliant Bicycle Parking Facility?

Most local government and Green Star rules will refer to AS2890.3 (2015) to determine the requirements for compliant bicycle parking facilities. This paper will focus on the layout and product design requirements of AS2890.3 (2015).

What is AS2890.3 (2015)?

Standards Australia published AS2890.3 (2015) in September 2015 to supersede AS2890.3 (1993). This standard provides a set of minimum requirements for the layout, design and security of bicycle parking facilities for architects, planners, builders, property managers and service providers. AS2890.3 (2015) represents a significant change to the 1993 version by introducing new concepts, spacing requirements and definitions. In addition, AS2890.3 (2015) includes clear requirements and criteria for selecting compliant bicycle parking products.

Cora Bike Rack is proud to have been an active participant and contributor to the development of AS2890.3 (2015)

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3 Steps to Creating a Compliant Bicycle Parking Facility

1. Determine the Number and Class of Bicycle Parking Spaces Required
2. Understand the Space Requirements
3. Understand Bicycle Parking Device Requirements

Step 1: Determine the Number and Class of Bicycle Parking Spaces Required

Local Government and Green Star rules will advise the Number and Class of parking spaces required for development approval and Green Star points.

AS2890.3 (2015) classifies bicycle parking facilities by the level of security provided.

The 3 Classification levels are:

- **Class A** – a parking space within an individual bicycle locker that provides a high security locking system.

- **Class B** – a Class C parking space within a secure room or structure that is accessed with devices such as keys, codes or swipe cards for communal areas. Entrance gates to a common area must be self-closing and self-locking. A cyclist's own locking device can be used to secure individual cages. Chain mesh fencing is not considered a suitable material for Class B facilities.

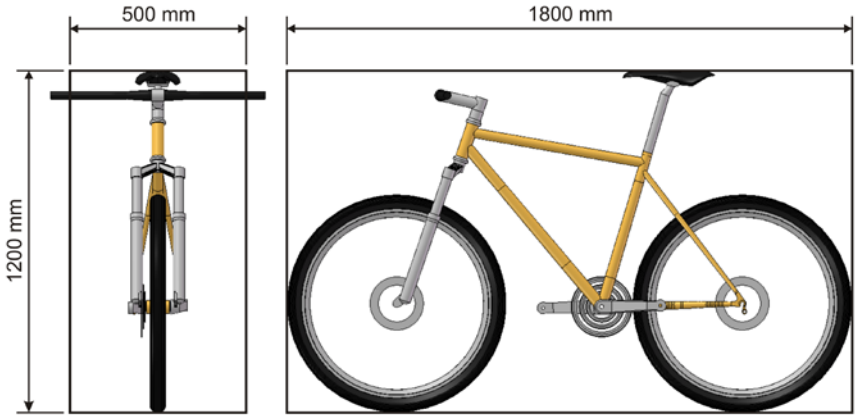
- **Class C** – a parking space that allows a bicycle frame and wheels to be locked to a *'Bicycle Parking Device'* using the cyclists own *'Locking Device'*. (See definitions in Step 3).

Step 2: Understand the Space Requirements

When designing a bicycle parking facility or determining the number of bikes that can be parked in a given area, AS2890.3 (2015) sets out minimum space requirements. 5 key points to consider are:

1. **Introduction of the *'Bicycle Spacing Envelope'* concept.**

   The Bicycle Spacing Envelope is the design space of a standard bicycle which allows for locking and parking movements. The dimensions of the Bicycle Spacing Envelope are 1800mm x 1200mm x 500mm:

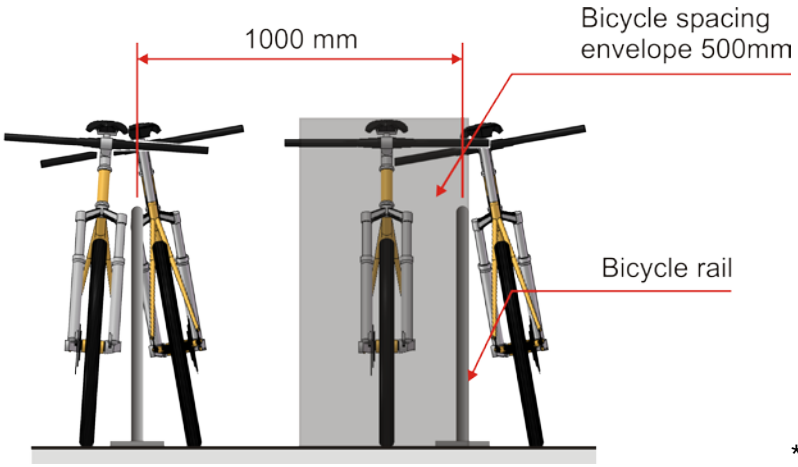


**Note - handlebars will extend beyond the envelope*

2. **Application of the *'Bicycle Spacing Envelope'***

   a. **Horizontal Parking**

   Where horizontal parking is used, allow 1800mm for the length of the bicycle and 500mm for the width:



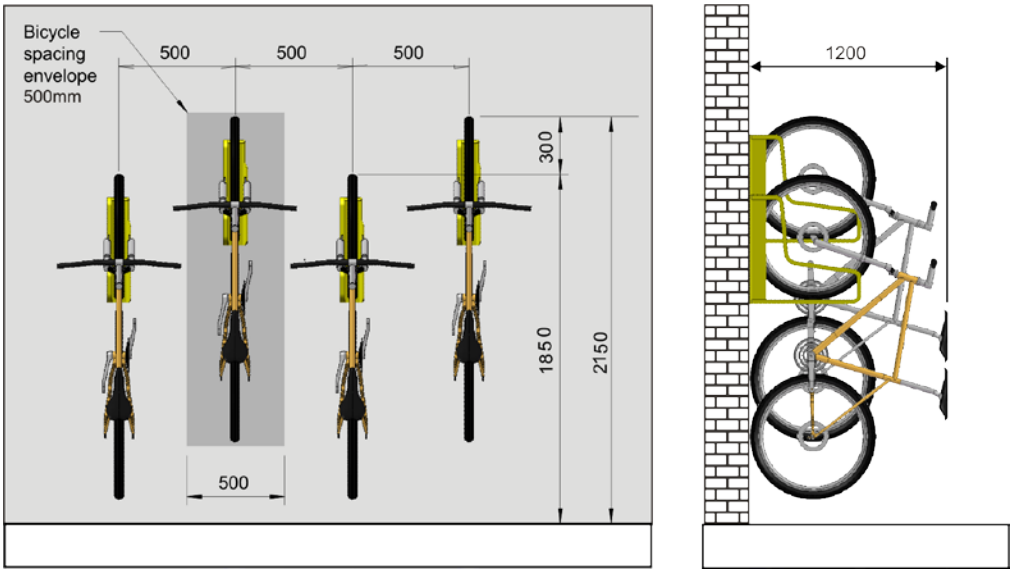
**Cora CBR1 shown*

b. Vertical Parking

i. Where vertical parking is used, allow 1200mm for the bike to extend from the wall or mounting post, and 500mm for the width – ***only if*** adjacent spaces are vertically offset by 300mm. Where vertical parking spaces are not offset, you must allow 700mm for the width.

ii. Bicycles should rest no more than 50mm above surface level to minimise the amount of lifting required. For offset installations, the upper level vertical position should allow bicycles to rest 350mm above surface level in order to provide the required 300mm height offset.

iii. Vertical devices that hold 2 bicycles must still allow for a width of 500mm for each Bicycle Spacing Envelope.



**Cora E3VR vertical bike rack shown. Consider if the vertical rack you select can accept bicycles with mud guards, such as Cora's E3VR-F.*

3. Special Requirements

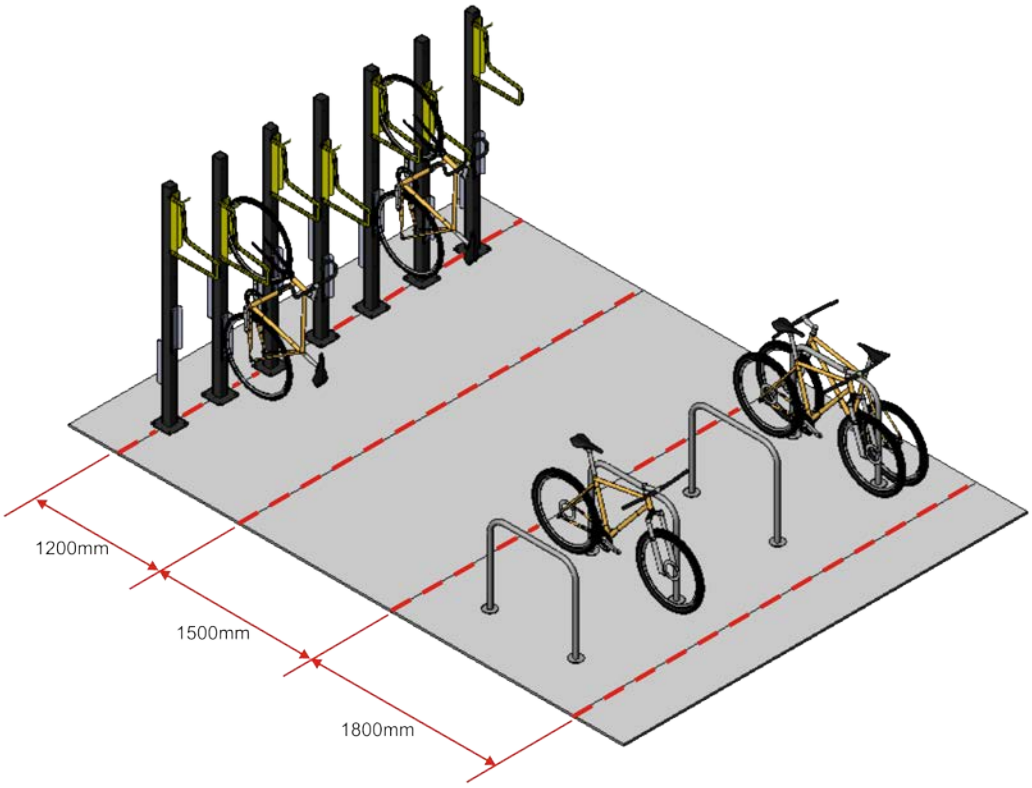
It is important to note that AS2890.3 (2015) has an additional requirement that a Bicycle Parking Facility must include a minimum of **20%** horizontal, ground level Bicycle Parking Spaces. This is to ensure access for users unable to lift a bicycle, and for the parking of non-standard bicycles.

4. Access Aisle

An Access Aisle is the passageway used by cyclists to access bicycle parking spaces. The Aisle must be obstacle free but does not have to be exclusive space. Aisle space can be shared space such as a common aisle between rows of parked bicycles, a walkway or driveway.

In addition to the required bicycle envelope space, allow the following minimum Aisle widths for each type of parking facility:

Horizontal parking	1500mm
Vertical parking	1500mm
Multi-tier parking	2000mm
Bicycle lockers	2000mm



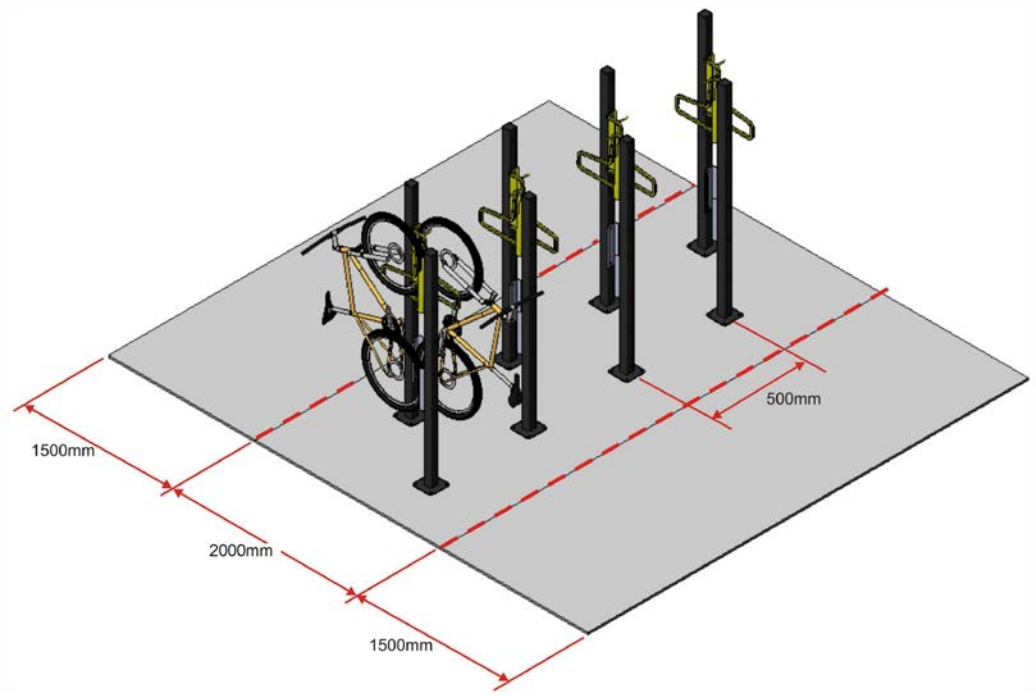
**Example of layout for vertical racks, horizontal racks, and a shared access aisle. Cora E3VR Vertical Post mounted racks and CBR1B parking rails shown.*

5. Exceptions to the Bicycle Parking Envelope

a. *'Dynamic Bicycle Parking Devices'* may be able reduce the Bicycle Spacing Envelope width to 400mm. (see definition in Step 3)

b. The Bicycle Spacing Envelope does not apply to bicycle lockers or radially arranged vertical parking

c. Staggered, back to back parking rows can overlap to reduce the horizontal Bicycle Spacing Envelope length by 400mm:



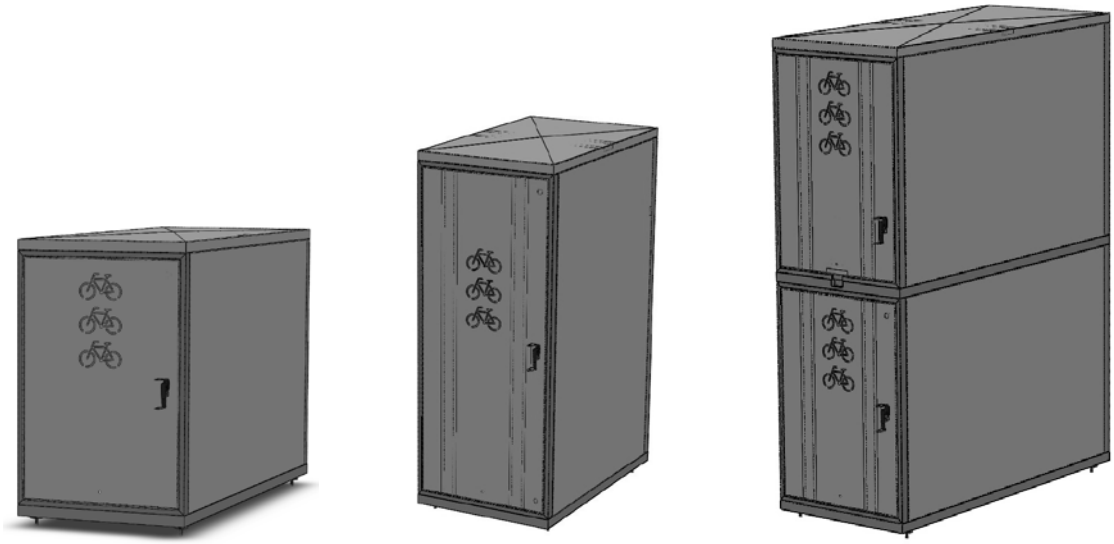
**Back to back, Cora E3VR vertical post mount racks shown in a staggered configuration reducing the combined bicycle envelope from 2400mm (2 x 1200mm) to 2000mm.*

**Double sided access of the Cora Expo Series rack uses overlapping wheels to reduce overall footprint.*

Step 3: Understand Bicycle Locker and Parking Device Requirements

Class A Bicycle Lockers are defined in AS2890.3 (2015) as “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”.

Bicycle lockers are available in different shapes and styles such as: single door lockers, double door lockers, vertical lockers and even double tier lockers (upper tier must have a lift assist mechanism). The locking mechanism can be operated by key, code, swipe or electronic access.



**Example of the Cora single door, vertical and 2 tier lockers.*

Class B and C Bicycle Parking Facilities require compliant Bicycle Parking Devices.

AS2890.3 (2015) defines a Bicycle Parking Device **(BPD)** as *“a construction made of high security material designed to provide stability to bicycles placed in or against the device”*.

Bicycle racks and rails are examples of a Bicycle Parking Device.

5 key points to consider are:

1. **Requirements for a compliant BPD include:**

- The ability to lock at least one wheel and frame directly to the BPD with the user's own D-lock. Both wheels and bike frame can be locked to the BPD using a *'Locking Device'* (a D-lock and cable no longer than 1200mm)

  * BPD's that rely on built-in cables or chains do not satisfy this requirement.

- BPD's must provide sufficient support to prevent a standard bicycle from falling over when properly secured.

- BPD's must be made with high security material that are resistant to cutting, bending and breaking.

- BPD's must be secured with tamper resistant fixings.

To encourage design innovation, AS2890.3 clearly states that illustrations of bicycle parking devices shown in the Standard are examples only. Any product design that fulfills the requirements set out in the Standard will be a compliant Bicycle Parking Device.

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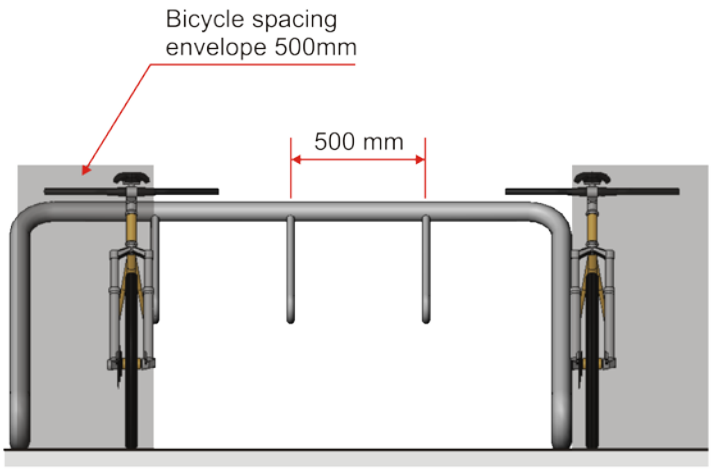
2. **Static BPD**

A Static BPD contains no moving parts and is fixed in position. These devices must allow for the minimum Bicycle Spacing Envelope.



**Cora Expo 2000 shown*

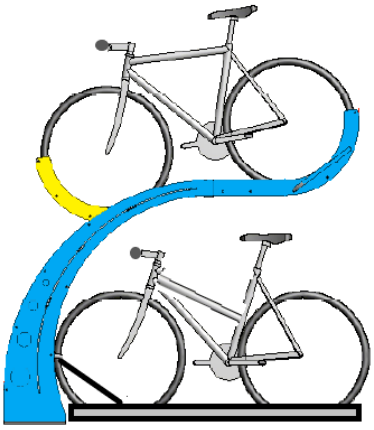
3. **Dynamic BPD**

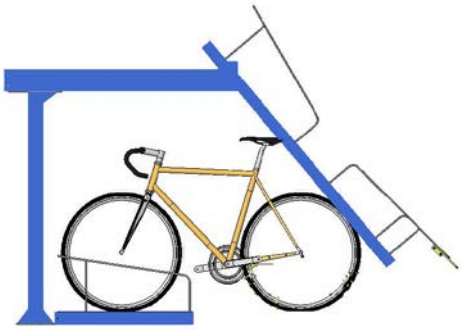
A Dynamic BPD requires bicycles to be moved to create the minimum Bicycle Spacing Envelope required for locking and parking movements.

The 'effective' width of the Bicycle Spacing Envelope may be reduced from 500mm to 400mm if, in addition to the standard requirements for a BPD, the following criteria are satisfied:

- The horizontal or vertical position of adjacent bicycles are offset by a minimum of 300mm, or head to tail positions are used; **and**
- The minimum width of 500mm can be created by moving the Dynamic BPD to allow locking and parking movements
- No more than 8 bicycles shall be required to be moved by the user in order to create the minimum Bicycle Spacing Envelope width of 500mm
- Multi-tier parking devices must include a lift assist mechanism to allow easy access to upper tier. Only Dynamic tiers can reduce their spacing to 400mm.

**Example of the Cora ST (upper) & GP (lower) dynamic racks. Upper tier has gas strut lift assist and uses 300mm offset heights. Lower tier uses head to tail parking and a pivot motion to create the minimum Bicycle Spacing Envelope. As a result, the width of each bicycle space may be reduced to a minimum of 400mm.*





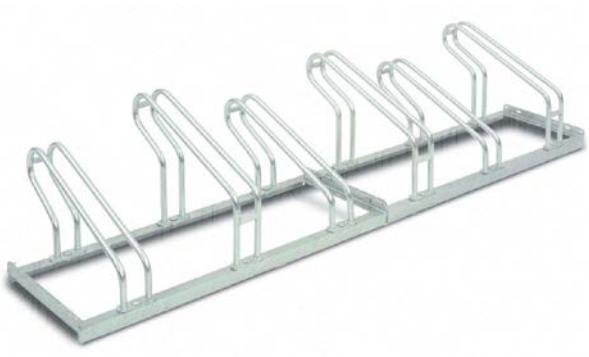
✗ If the lower tier parking spaces are static, minimum spacing for the lower tier must be 500mm – not 400mm, even if lower spaces use offset heights.

✗ If adjacent upper tiers are not offset by 300mm in height, they are not eligible to use the reduced 400mm spacing.

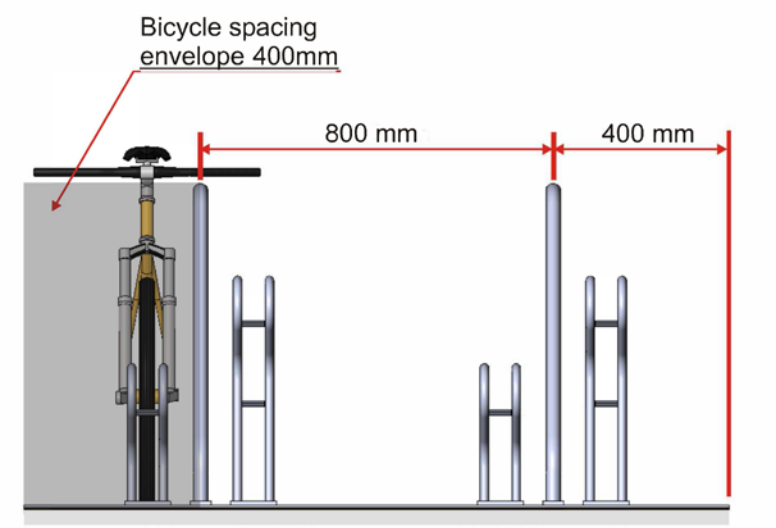
How to Determine if a BPD is Compliant

Standards Australia does not provide BPD product certification. As a result, the product specifier must become familiar with the concepts and criteria provided in AS2890.3 (2015) to determine the suitability of a particular product design.

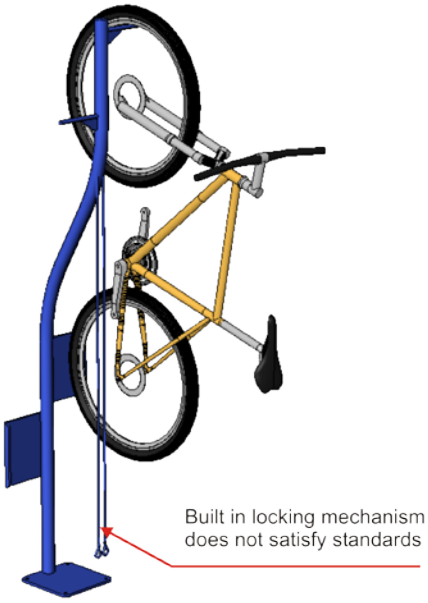
Below are examples of current designs on the market that may not comply. The specifier must critically analyse a product to determine if it satisfies the requirements listed in AS2890.3 (2015).



✗ Bicycle frame is not supported in a stable position
✗ Cyclist are unable to lock the bicycle frame and wheel with a D-lock



✗ The Bicycle Envelope width of 400mm is too narrow for this Static BPD design. Even with offset height capability, the minimum bicycle envelope width of 500mm must be satisfied.



✗ BPD's cannot rely on built-in locking mechanisms including cables or chains. This is to ensure cyclists can use their own locking device to secure the bicycle frame and wheel(s). A D-lock must be able to secure the bike frame and one wheel to the BDP.

✗ Are the BPD materials sufficient to provide reasonable resistance to cutting or breaking?

✗ Are all the accessible fixings tamper resistant?

Conclusion

AS2890.3 (2015) introduces significant changes to the space requirements for a bicycle parking facility and provides new requirements for bicycle parking products.

Failure to plan for and provide compliant bicycle parking facilities and products may result in:

- building approval delays
- the requirement to provide additional space for bicycle parking
- the requirement to replace non-compliant product designs
- the loss of Green Star points
- monetary fines

By understanding the new ***Bicycle Spacing Envelope*** concept and exceptions, together with the space requirements for ***Access Aisles***, you will be able to design a compliant bicycle parking facility and calculate the number of bicycles that can be parked in a given area.

By understanding the new requirements for a ***Bicycle Parking Device***, you will be able to specify compliant bicycle parking products or design your own!

Interested to learn more?

Formal CPD Course

Take our formal AS2890.3 CPD course available 24/7 from the comfort of your desk. Register here.

Contact

For more information and advice on compliant bicycle parking facilities, layouts and products, please contact the bike parking professionals at:

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Additional Resources

Please visit the following sites for further reading and research:

BIM/Revit files

Global GreenTag

Standards Australia

Green Building Council Australia