



DHW Technical Guideline

TG034 End of Trip Facilities

1. Purpose

This technical guideline provides a minimum set of requirements to ensure best practice for End of Trip (EoT) facilities in government non-residential building projects procured by Department of Housing and Works (DHW).

Provision of EoT facilities will:

- ensure appropriate, safe, secure and convenient facilities to support the needs of employees and visitors and, where applicable, students
- be designed to allow for future expansion if necessitated
- be provided in a manner which provides the State with the best value for money.

2. Background

The provision of quality EoT facilities supports people to commute via alternative forms of transport instead of choosing a vehicle or public transport. The lack of, or insufficient functional EoT facilities is one of the greatest barriers to commuting by bicycle, walking or running. Supporting these modes of transport assists to reinforce the enduring commitment by Government to address traffic congestion, pollution and health costs while improving the individuals' physical and mental health.

EoT facilities for employees or occupants of the building should include safe, convenient and secure bicycle parking, provision of showers, changing amenities, lockers and drying space.

Importantly, EoT facilities are not exclusive to those who cycle, walk or run as a means of travel, but also benefits a range of users for example those who commute by scooter, exercise around day-time work commitments, or need to change attire before or after work.

While EoT facilities are essential, they are a significant investment cost and difficult to alter post construction. Getting it right the first time is critical.

The quantity of EoT facilities required is likely to vary by location. Analysis should always be undertaken to determine if this Technical Guideline provides sufficient guidance for that specific application.

3. Provision of End of Trip Facilities

EoT facilities are:

- regarded as best practice for all new government non-residential buildings
 - requirements for students at primary and secondary schools are outlined in the Primary School Brief (PSB) and Secondary School Planning Guide (SSPG)
 - if EoT facilities are not included in the project brief, it is recommended to initiate a discussion with the Customer Agency to explore their potential inclusion
- to be considered
 - when upgrading and refurbishing existing non-residential government buildings
 - where EoT facilities do not meet the requirements of this guideline
- to be designed and constructed by suitably qualified people, which may include consultants such as traffic engineers, to suit the locality, needs of the end users and be fully integrated with the building.
- separated into 2 categories:
 1. visitors/short term users (less than 2 hours)
 - is limited to parking only
 2. staff/long term users ('all day parking')
 - parking
 - complementary facilities including:
 - shower
 - change rooms
 - lockers
 - airing/drying

4. Requirements for DHW Projects

4.1 General

When designing EoT facilities ease of access, privacy, security and ease of maintenance should be addressed.

Use materials which minimise the need for maintenance and retain acceptable appearance.

Facilities should be 'future proofed', enabling expansion as needs change, while not providing an oversupply.

Toilets, including universal access toilets with showers, do not count as change room facilities unless there is sufficient private space and disabled users are not compromised.

Conform to AS 2890.3:2015 *Parking Facilities* Part 3: Bicycle Parking. This Australian Standard provides functional guidance to provide safe, secure and convenient parking for bicycles, including:

Facility security levels A, B & C (refer Table 1.1 in AS 2890.3:2015)

- access
- signage
- lighting
- shelter
- bicycle types
- parking envelopes
- parking racks
- walk-way clearances

Refer to Austroads Research Report AP-R527-16 *Bicycle Parking Facilities: Guidelines for Design and Installation 2016* for any additional guidance not supplied in this Technical Guideline (if there is conflict, this Technical Guideline will take precedence over those Austroads Guidelines).

The *Bicycle Parking Facilities: Guidelines for Design and Installation* Austroads 2016, includes comprehensive additional guidance on:

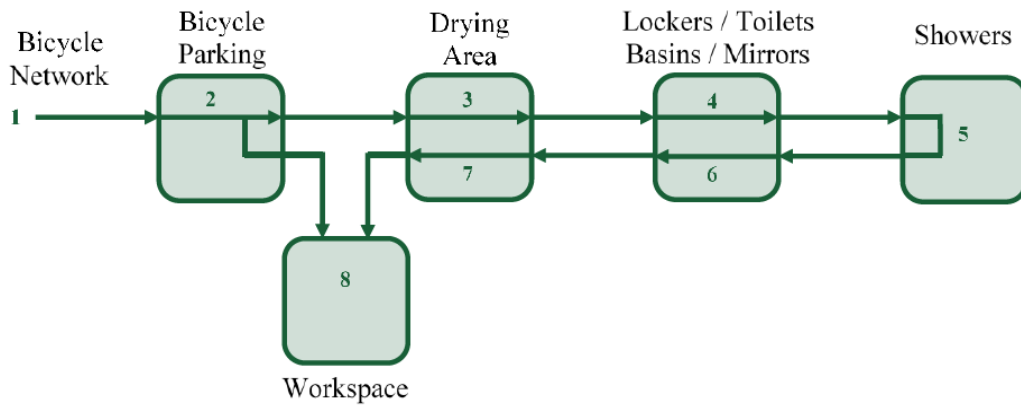
- choice of location and access for parking
- weather protection
- construction and installation
- lighting
- charging of electric bicycles

4.2 Facility Relationships

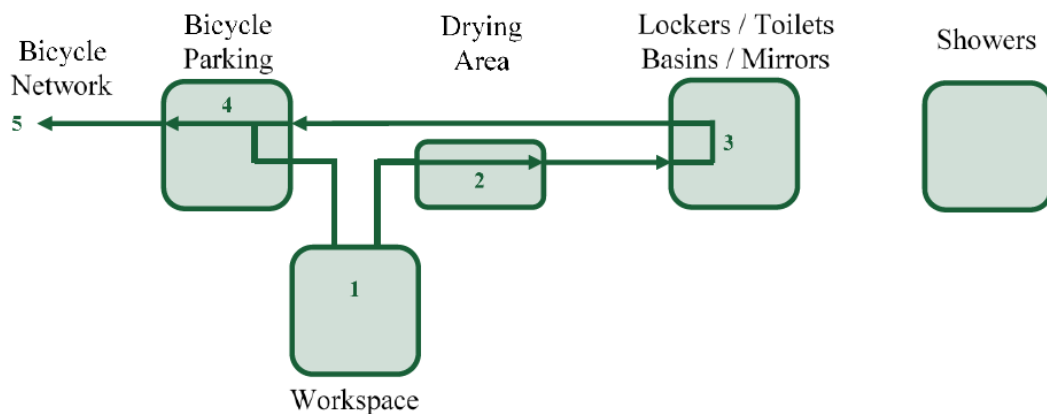
It is important that EoT facilities are located in a manner that makes the standard sequence of tasks quick and easy to perform while addressing privacy and safety.

Section 10.1 *Bicycle Parking Facilities: Guidelines for Design and Installation* Austroads 2016, provides the following workflow diagrams for the arrival and leaving sequences. Refer to the section in the Guideline for additional commentary.

Arrival



Leaving



Source: Austroads AP-R527-16 *Bicycle Parking Facilities: Guidelines for Design and Installation* (Austroads 2016)

Failure to locate facilities near each other in a way that enables use in this sequence will likely result in:

- users creating their own ad hoc solutions, potentially creating conflict with the facility's management (e.g. drying towels and airing shoes in multiple and more convenient locations)
- reduced participation commuting via bicycle or on foot.

4.3 Bicycle Parking

4.3.1 Parking: Primary and Secondary Schools

Staff and Students: Refer to the PSB and the SSPG.

4.3.2 Parking: All other building types

Safety, shelter, capacity and security are all critical elements of bicycle parking. These design elements are generally well addressed by AS 2890.3:2015. That Standard includes elements such as level of security (see Table 1.1 below), location, types of racks, and allocated space, but does not include the number of bicycle parking spaces. Refer to 4.3.3 *Capacity* for bicycle parking provision rates.

- Short Term Parking
 - conform to Security Level C
 - locate near the main entry
- Long Term Parking
 - conform to Security Level B as a minimum
 - Make provision for charging electric bicycles/scooters
 - To include student parking where not addressed in either the PSB or the SSPG

Extracts from AS 2890.3-2015 Table 1.1 (See Australian Standards for complete description)		
Security level	Description	Typical application
A	<i>“An individual bicycle locker with a high security locking mechanism”</i> which is in a highly visible location	Reserved for parking in high-risk areas
B	<i>“A secure room or structure (‘cage’) protected from the weather containing bicycle parking devices that allow users to lock the bicycle frame and both wheels”</i> <i>“Chain mesh fencing is not considered suitable”</i> (see Image 1)	Recommended for long term parking.
C	<i>“A bicycle parking space where the bicycle frame and both wheels can be locked to a parking device using the owner’s own locking device”</i> and <i>“Located in well-lit areas, and where passive surveillance is likely”</i>	Recommended for short term parking.



Image 1: Chain-link mesh fencing is not suitable for a bike cage (Optima 2018)

4.3.3 Capacity

When calculating bicycle parking provision rates all part numbers are to be rounded up. Refer to Section 5.5.3 Table 5.1 Bicycle parking provision rates, Austroads Research Report AP-R528-16 Bicycle Parking Facilities: Updating the Austroads Guide to traffic management (Austroads 2016). The table outlines provision rates for Short and Long term bicycle parking.

- Note this is a minimum. Consider site specific factors to determine actual number (e.g. cycling participation of workforce at current site or nearby buildings)

4.3.4 Access

“It is difficult to overstate the importance of location. An excellent facility will fail if it is in the wrong location. Determining the optimum location is often where projects succeed or fail.” Bicycle Parking Facilities: Guidelines for design and Installation (Austroads 2016)

The distance that a rider is required to walk while dismounted should be minimised.

- 0 - 5m is effective
- 5 - 30m is acceptable
- over 30m is compromised (that is, is inconvenient and may discourage cycle commuting or use of the facility)

Ensure the route is:

- safe and easy to ride with legible signage and,
- a direct route free of hazards that users can walk or ride their bicycle along.

Provide:

- appropriate levels of surveillance and lighting

- sufficient overhead clearance for mounted bicycle riders.

Avoid:

- conflict with vehicles and pedestrians
- interference with emergency access, loading bays or other infrastructure
- hazards such as bollards, speed humps, channelling, drainage grates and stairs
- the need to carry a bicycle.

If stairs must be tackled by the user, a wheel ramp or 'bicycle gutter' should be provided on both sides of the stairway and the gradient not excessively steep

- <250 is effective
- 250 to 300 is acceptable
- over 300 is compromised

4.3.5 Location

Bicycle parking facilities should be located to:

- protect bicycles from sun and rain
- provide good passive surveillance (i.e. overlooking by people)
- protect users and bicycles from motor vehicles
- avoid conflict with pedestrians
- keep away from rubbish bins and the like.

4.3.6 Layout

Refer to Section 8. Designing Parking Layouts, *Bicycle Parking Facilities: Guidelines for Design and Installation* (Austroads 2016).

4.4 Change Rooms

Design to maximise throughput and minimise congestion at peak times.

Change rooms must provide privacy and be well-ventilated with a high level of security preferably located in well-lit areas as close as practicable to bicycle storage areas and drying areas.

Change rooms:

- Should not be located on thoroughfares between building services e.g. along corridors between gymnasium and workstations or along corridors to staff and building occupant amenities.

- Should be directly adjacent to, or a component of, the shower cubicle.

The size of the change area should be fit for purpose. For example, police officers and firefighters should have enough space to change into or out of protective clothing or equipment.

Provide:

- separate, individual change facilities for males and females where more than one user can occupy the space at the same time
- hooks for temporary hanging of towels
- where lockers are not located in change area, shelving for temporary placement of clothes and toiletries
- well drained, non-slip surfaces
- adequate lighting
- hand basins (hot water optional)
- mirrors
- bench space with power outlets (for items such as hairdryers)
- seating to assist with dressing.

If lockers are provided within change rooms, ensure the use of these do not conflict with seating and benches leading to congestion.

If lockers are located outside change room, provide adequate hanging and shelf space for temporary storage.

Consider incorporating space and power to support ironing.

Ensure the ventilation system:

- provides adequate fresh air and minimises humidity for user comfort
- operates and can be maintained effectively and efficiently.

4.4.1 Showers

For the recommended shower provision rates for EoT facilities refer to *Section 5.6, Table 5.2 Bicycle Parking Facilities: Updating the Austroads Guide to Traffic Management* (Austroads 2016)

Number of Showers	Change Rooms ¹
One shower for the first five bicycle spaces or part thereof, plus an additional shower for each 10 bicycle parking spaces thereafter	One change room or direct access to a communal change room per shower

¹ The change room may be a combined shower/change room.

Note: In instances where more than one shower/change facility is required, there must be provision for separate male and female facilities. This is a requirement of the ACT Bicycle Parking General Code, 2008.

Source: *Bicycle Parking Facilities: Updating the Austroads Guide to traffic management (Austroads 2016)*

In the design:

- Ensure user privacy
- Hot and cold water are required
- Minimise the building's water and energy consumption e.g. high efficiency shower heads.

The demand for showers is typically heavily concentrated in the morning peak, with a secondary peak possible during the lunch period. Due to cost, simply providing more showers may not be an acceptable solution, design to minimise congestion and waiting times e.g. consider timers on taps.

4.4.2 Lockers

4.4.2.1 Supply

Lockers allow employees to keep toiletries and one or several changes of clothes. Some people daily carry a spare set of clothes while many will bring in a week's worth of work attire on one day, removing the accumulated used clothing at the same time. This results in at least some lockers being in continuous use for 7 days a week.

Locate lockers:

- close to
 - showers
 - change room
 - airing and drying
 - bicycle parking
- in a way that minimises potential for congestion

Inadequate availability or capacity of lockers is a primary disincentive for employees choosing to commute by bicycle or on foot. This can be addressed in both the initial design and the ongoing management. Close monitoring and effective ongoing management of locker utilisation is critical.

Sufficient number of lockers should also be available for people who, for example, may work or exercise during the day or are required to change clothes before or after work.

- When calculating number of lockers required consider commuters, people exercising around work hours and type of work.
- Provide a minimum of 2 lockers for every 1 long term bicycle parking space.
- Where minimum sizes are provided, consider higher ratio to enable a double locker provision where needed (see Management below)
- Allow for future additional lockers where minimum numbers provided, to meet anticipated increase in demand over lifetime of building operation.

4.4.2.2 Design

Ensure lockers are fit for purpose. This includes:

- Locating lockers close to shower and change facilities and where possible, close to bicycle parking
- Avoiding locations subject to high levels of pollution (e.g. unprotected within carparks)
- Providing space for:
 - hanging clothing such as dresses pants, jackets and shirts without creasing
 - multiple days' worth clothing
 - personal toiletries
 - cycling gear which may include helmet, gloves, glasses & electronics (also see 4.4.3 Drying and Airing)
 - backpack, handbag etc
- Interlocking L-shaped lockers (Image 2) offer good use of space and may be suitable for many users. Storing helmets, backpacks or sports bags in these may be difficult.



Image 2: An example of interlocking L-shaped lockers

- providing a variety of sized lockers may be considered where it can be demonstrated this would meet the unique needs of that place
- minimum dimensions

- full internal height of an individual locker to be no less than 1000mm
- internal width of an individual locker to be no less than 400mm (for L shaped lockers, measured at its widest point)
- well ventilated, secure and lockable
- lockers located at different heights to address accessibility

Storage of wet clothing, towels and footwear within lockers is not encouraged as ventilation tends to be inadequate. (See 4.4.3 Drying and Airing).

Where lockers do not adequately accommodate shoes, alternative solutions should be provided. Consider (with Facility Management agreement where possible):

- open shelving below lockers
- a flat surface to top of lockers (noting this is unlikely to be sufficient if L-shaped lockers are used)

4.4.2.3 Management

Managing the use of lockers can be challenging, however, to ensure they are allocated and used appropriately this becomes a critical task.

This could involve:

- provision of some larger lockers, for some high frequency users, or allocation of more than one locker per person
- requiring users to register locker use and re-register periodically to confirm use/need
- ensuring regular audits to confirm lockers are being used by persons with demonstrated need
- ensuring lockers are cleared and made available when users leave the organisation

4.4.3 Drying and Airing

Failure to adequately address airing and drying will:

- result in ad hoc placement of personal items which can result in conflict with Facility Management
- be a disincentive for employees choosing to commute by bicycle or on foot and some avoiding the commute on wet days

Facilities need to allow for the convenient airing and drying of:

- towels

- active wear clothing
- wet weather gear (e.g. jackets, leggings & overshoes)
- shoes.

Provide well-ventilated clothes lines and racks:

- in or adjacent to change rooms
- near lockers
- screened from general view

Consider dedicated drying cabinets to enable effective winter drying or where ambient ventilation is inadequate.

4.5 Optional Facilities

There are a wide range of additional EoT facilities that can help make cycling more attractive.

These might include:

- toilets in close proximity to showers
- towel service
- hairdryers
- irons and ironing boards
- washing machines and dryers
- bicycle tyre pump/tools
- power points for recharging bicycle accessories
- Sunscreen.

5. References

1. AS 2890.3:2015 *Parking facilities – Bicycle parking* <https://infostore.saiglobal.com/>
2. Austroads Research Report AP-R527-16 *Bicycle Parking Facilities: Guidelines for Design and Installation* (Austroads 2016) [AP-R527-16 | Austroads](#)
3. Austroads Research Report AP-R528-16 *Bicycle Parking Facilities: Updating the Austroads Guide to Traffic Management*, (Austroads 2016) [AP-R528-16 | Austroads](#)

Document Control				
ECM Reference	2025/04669/034 DOC 06163163			
Effective Date	June 2023			
Next Revision	October 2026			
Content Owner	Building Technical Services			
Enquiries	Consult with Content Owner or principal.architect@dohw.wa.gov.au			
Version	Revision Date	Author	Reason	Sections
V1.0	26/06/2023	BTS	Release V1.0	All
V1.1	12/03/2024	BTS	Minor edit Update to One Finance style guide	All
V1.2	October 2025	BTS	Update to DHW Section title amended EoT provision as best practice instead of a requirement AS2890 corrected Numbering added to sub clauses	All 3, 4 3 4.3.2 4.4.2

Document approval
<p>This guideline was endorsed and approved for use on 06/11/2025 by:</p> <p>Dean Wood, Principal Architect Department of Housing and Works</p>

Disclaimer.

The information in this publication is general and does not take into account individual circumstances or situations. While care has been taken in preparing this document, the State of Western Australia, its agents, or employees, accept no responsibility or liability for decisions or actions taken, or not taken, as a result of any data, information, statement or advice, expressed or implied, contained within. To the best of our knowledge, the content was correct at the time of publishing. The content within should not be relied upon as a substitute for independent legal and other professional advice.