

The Pocket Guide to: Bike Parking & Change Rooms

Architectural Design Guidelines



Australasia 1st edition





Other publications in this series:

*The Pocket Guide to: Modern Office Spaces –
Coming soon*

*The Pocket Guide to: Bike Parking & Change Rooms UK –
Coming soon*

*The Pocket Guide to: Bike Rooms & Fitness Centres North
America – Coming soon*



Contents

Key Principles **6**

Introduction **8**

Regulatory Requirements **9**

Entry, Circulation & Safety **10**

Front of House & Journey **12**

Ratios & Space Planning **18**

Meeting Demographic Demand Imbalance **19**

Rule of Thumb Numbers **20**

Project Principles **22**

Bike Parking **25**

Minimum Guidelines: Bike Room **26**

Circulation **28**

Bike Room Amenity **36**

A special note on 'E-bikes' **40**

Change Room **43**

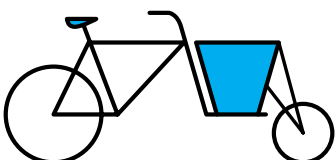
Minimum Guidelines: Changeroom & Amenities **45**

Minimum Guidelines: Lockers **48**

Locker Types **50**

User Amenity **55**

Contact Us **60**



Key Principles.

Five At Heart designs products for bike rooms, change rooms, and modern workplaces. **Our goal is to assist architects and designers create spaces that people and the planet deserve.** When designing these facilities, we consider the following principles critical:

- **Longevity + sustainability**
- **User amenity**
- **Connection to street**

Longevity and sustainability are part of our mission to reduce our burden on the earth. **We believe in building less and building better.** Joinery has traditionally contributed to significant amounts of CO₂ and waste in the construction industry. A space that has been designed with quality products, that responds to current and future needs, will last longer. A sustainable lifecycle is critical.

User amenity is important to encourage everyday use of bike room and change spaces. **These spaces need to be pleasant and accessible for all demographics.** They need to be a well designed space that is fit-for-purpose.

Successfully connecting these facilities with the rest of the building and the street scape increases convenience and safety. This contributes to healthier buildings, encourages active transport and better urban outcomes.



The purpose of this pocket guide is to inform clients and designers on best practice for bike room and change room facilities. Concepts of integrative street scapes, lobbies, accessibility, circulation, space planning, ratios and user amenity will be touched on. This guide should only be used as high level guidance - all projects are unique and will have specific requirements.

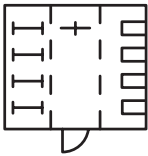


Five At Heart

Introduction.

Bike parking and change rooms, also known as End of Trips (EoTs), are spaces contained within commercial or government buildings that provide secure bicycle storage and amenities for building users.

These facilities are provided to promote a healthier lifestyle through increased use of cycling, running and other forms of exercise. This in turn can reduce the need for on site car parking.



Quality bike parking and change rooms should be well considered. Designs should include high quality, robust fixtures and materiality with robust detailing. Designs should be fit for purpose and in line with the brief of the client.

New buildings should have these facilities incorporated into the design from an early stage. This ensures sufficient area is allocated and budgets can support a good user outcome. It is recommended that these facilities are located on the ground floor and are easily accessible for all types of users. Bringing this typology front of house encourages healthy habits and contributes to active street scapes in our cities.

Retrofitting bike room and change facilities into existing buildings is often complex, and the final design will depend not only on the size of the facility but factors such as:

- The condition of existing building services and extent of rework required.
- Shape and location of the bike parking & amenities.
- The structural envelope or alterations required.
- Available budget.

Regulatory Requirements.

The following Australian regulatory requirements are usually applicable in bike parking and change room projects:

- **Australian Standards:** the facility is to comply with Australian Standard for Bicycle Parking AS2890.3 2015. This critical standard is often overlooked. It also serves as a good guide for designing spaces. **A helpful [summary of this code can be found on the FAH website.](#)**
- **NCC:** Advice is required from a a qualified consultant to ensure compliance of the facility with the National Construction Code (BCA). Engineered solutions are possible under this code.
- **DDA:** The Construction of these facilities is to comply with all current legislation for people with disabilities. The typical end of trip facility will require toilet and shower facilities for Ambulant and non-Ambulant users. The project will also typically require a review of the Accessible path from the main building entry, some upgrades may be required. Note: a DDA/Access report is recommended for existing buildings – this will determine the approach for Access for an existing building, which may result in an Alternate Solution being applied.
- **Green Star:** GBCA Green Star standards are to be considered for projects, where directed by the client. This criteria is likely to apply more to new buildings however existing buildings are to consider the requirements of the Green Star Performance tool. Its worth noting that performance pathways are available within Greenstar. This needs to be discussed with relevant consultants.
- **Rating tools:** Rating tools such as NABERS for Energy and Water are to be considered when designing the facility. Typically existing buildings will have existing performance standards, and EoT facilities can impact on the performance of the existing building.
- **WHS:** The design should comply with all relevant Work Health & Safety legislation.

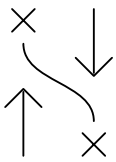
Entry, Circulation & Safety.

Entrance off the street is critical for safety, orientation and user experience. Bikes are capable of traveling at high speed and do pose a risk to pedestrians - this must be considered when designing entries and exits. In turn cars pose a huge risk for cyclists at these same points.

Safe, dedicated entry with easy swipe card access is important. Co-locating these entry points is a more welcoming experience for all building users.

If possible, treat the bike user the same as someone coming through the front door.

Design Matters



Consider user experience. Just as you would when designing all other aspects of a public building.



Pedestrian Entry / Exit

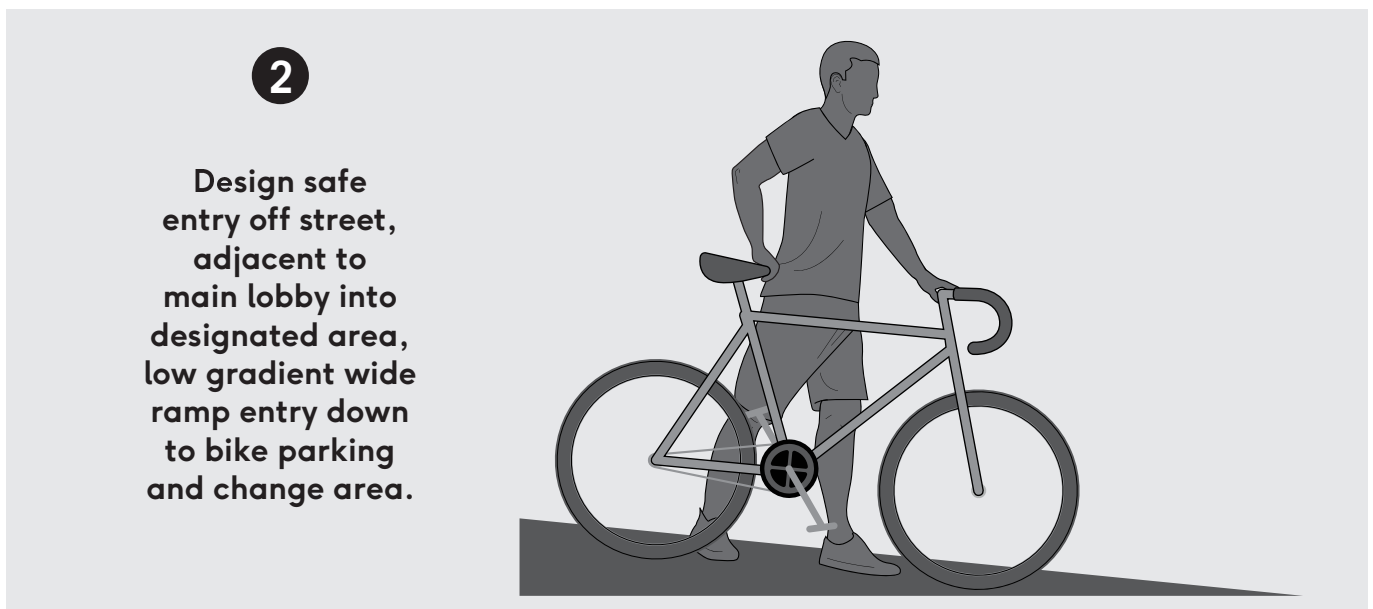
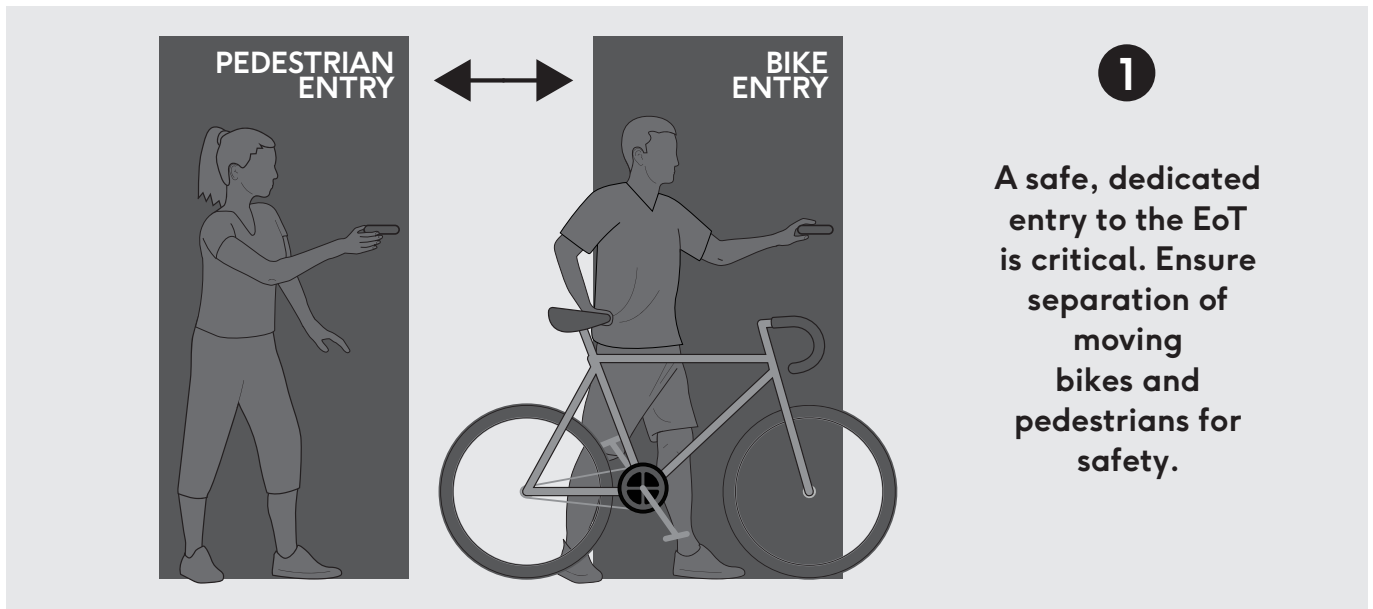


**Bike
Entry / Exit**

Front of House & Journey.

These diagrams depict a good sequence diagram from the street to the changeroom. Things to consider when designing:

- It is critical to manage pedestrian and bike separation. Bikes in busy pedestrian areas can be dangerous.
- Design ramps & walkway circulation, rather than stairs, down to bike rooms if possible. Ensure the ramp is wide enough to cope with peak hour 'traffic'.
- Water management is critical - bikes can track water deep into a building. Ensure that the flooring is non-slip, water resistant and durable - 'fit-for-purpose' is important.
- Note that fragile materiality may not be appropriate in these areas - especially in bike rooms. High wear durable materials are better.
- Ensure good visual and physical connections throughout the bike and change rooms.
- Ensure clear wayfinding through the spaces.



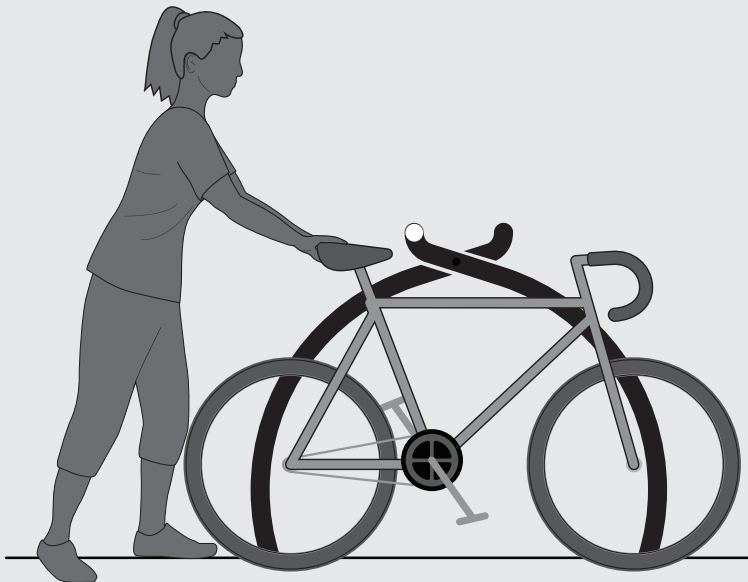
3

Consider grouping EoTs with Wellness facilities.



4

If possible, ensure easy connectivity bike store and changerooms. Within all these spaces, good circulation is important.



5

Consider a purpose designed arrival space to link your bike and changerooms. This is a cool down zone and will offer a moment of pause for the users.





A well considered entry and ramp/walkway down to the end of trip is important for users.



A quality arrival space and stair connection back into main lobby makes users feel welcome.



A high user amenity, generous circulation and good separation between wet and dry areas in the changeroom makes a space function well.



CHANGE ROOM ENTRY

Towel
Airing Store
Water

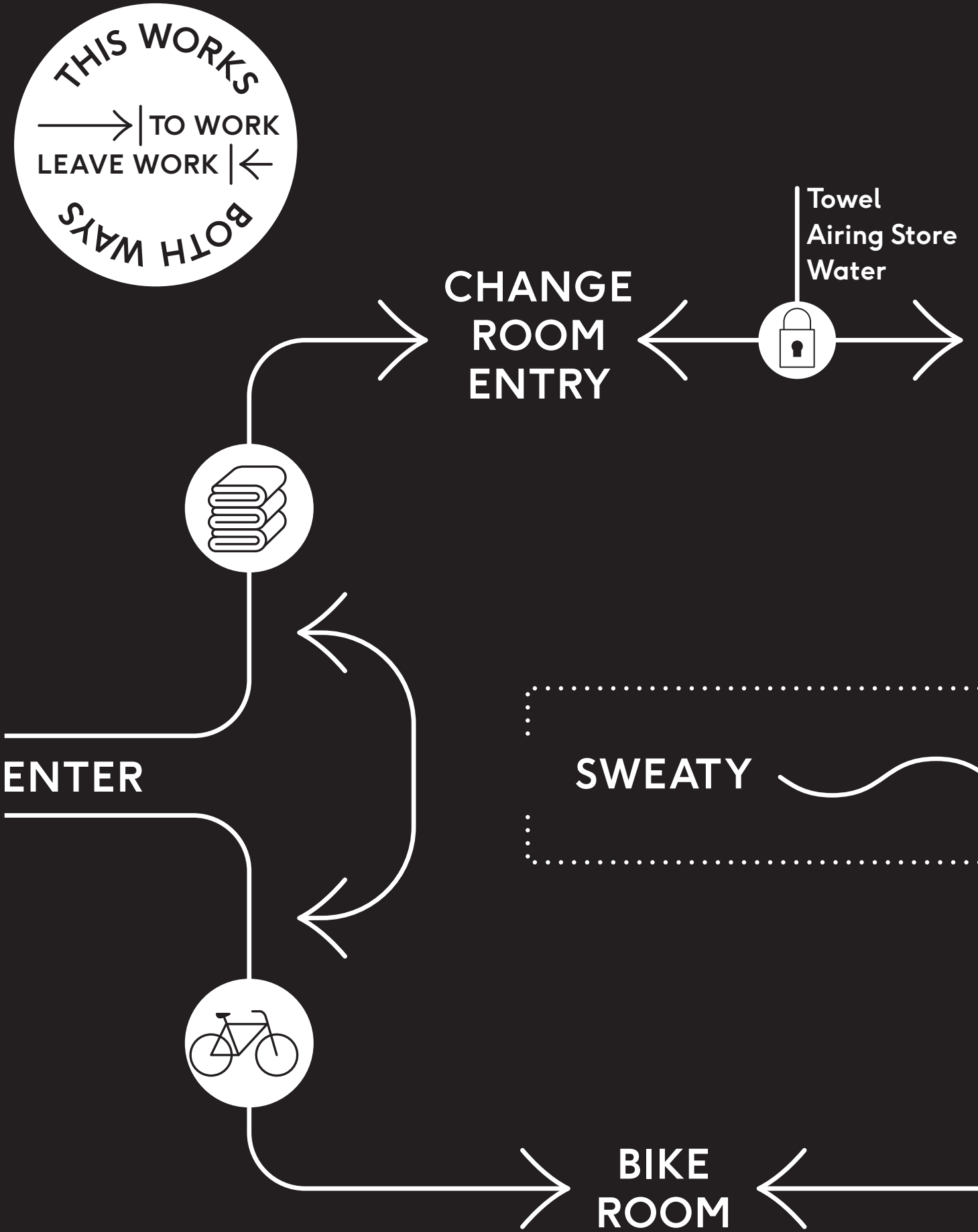


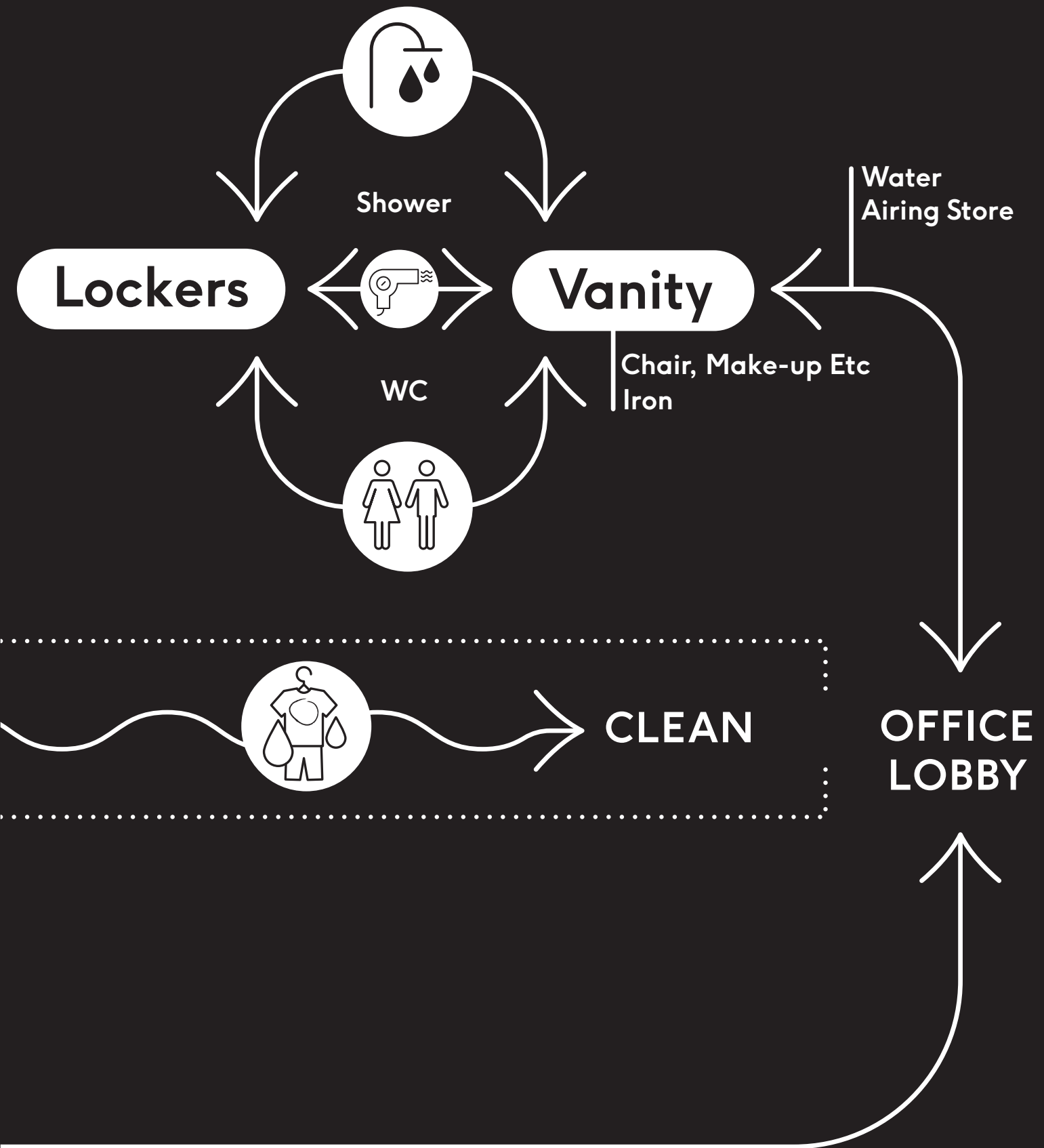
ENTER

SWEATY



BIKE ROOM





This diagram depicts flow from entry, through bike store, on to changeroom and on to the lobby.



















Ratios & Space Planning.

Different cities will have varying and often multiple planning and certification requirements. These will often be complex and sometimes confusing. It is critical that designers and clients understand which one relates to their project, as it will often have spatial impacts on any job. Having enough space allocated in an accessible position, at an early stage in the design phase will help create a quality outcome.

As well as considering local planning codes and green building performance pathways, **Five At Heart** considers user amenity and other project drivers in our assessment of capacity requirements to determine the best fit numbers that are 'in balance'. **As a rule of thumb, we recommend a ratio of 1:1.6 bikes to lockers.** This is to accommodate the other users of EoT spaces (such as runners, lunch time exercisers and people wishing to use the space to freshen up).

We can assist with benchmarking via our ['Project Portal'](#) on the FAH website.



	NLA	m ² per Tennant	 Bikes	%	 Lockers	%	 Showers	% (x10)
This Building								
Compliance: WELL	60000	10	300	0.50 	1200	2.00 	40	0.67 
Compliance: Greenstar			450	0.75 	540	0.90 	52	0.87 
What You Have (Current)			570	0.95 	1206	2.01 	67	1.12 
What Will We Aim For			570	0.95 	1158	1.93 	52	0.87 
What We Think			570	0.95 	988	1.65 	52	0.87 

Meeting Demographic Demand Imbalance.

Five at Heart tracks usage patterns by gender across census data and bikeway counts as well as swipe card access data and towel usage from existing facilities. The demand for bike parking and change room consistently tracks between 70-80% Male to 20-30% Female.

We think it is important to achieve both equality and meet the practical demands of users, to avoid over or under demand. We believe that factoring in flexibility is the best way to achieve this aim. The simplest way to reach some flexibility is the provision of lockers in common areas.

Wet area flexibility can be achieved with a percentage of spacious unisex showers and change rooms. We recommend building facility consider the ratio of 50% Male, 35% Female and 15% Flexible.

Providing such flexibility improves the effective amenity capacities and makes a facility that is more inclusive for all people.



Rule of Thumb Numbers.

Some basic ratios to help you get started when first designing your space.

Our thinking

This is how we approach bicycle parking and change room projects. Through years of experience in this space we have come up with our golden ratios.

Note: Read the 'Base Ratios' vertically. Read the Expanded Ratios horizontally.

ie: For every 10 bike spaces, allow 1 shower and 16 lockers.

For every 200 bike spaces, you should make sure that at least 40 of these are horizontal, you have 1 space for a cargo bike, and 1 maintenance station.

For every 5 showers, allow 1 WC, 1 towel station and so on.

Base Ratios

This is where we start thinking about space.



10
Bike Spaces



1
Shower



16
Lockers

Expanded Ratios

Expanding on our base ratios, use these additional ratios to get the mix of smaller things right.



200

Bike Spaces



40

Horizontal
Bike Spaces
(Minimum)



1

Alternative
Bike Spaces



1

Maintenance
Station



5

Showers



1

Toilet Facility



1

Towel Station



1

Airing
Cupboard



75

Lockers



1

Iron Station



1

Hair Dryer &
Straightener

Project Principles.

Our base project principals to create good bike parking and change rooms.

1.

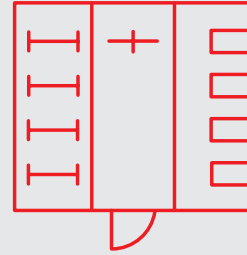
Get the numbers right up front using benchmarking and an understanding of how these spaces work.



2.

Good spaces have good ceilings. Before drawing anything, zone the ceiling height (incl. services) and make sure the locker spaces (and ideally the arrival space) get the best ceilings.

We think ceilings should be 2400mm or higher. Also test all your assumption onsite.



3.

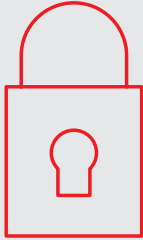
The best spaces flow well for all types of users.

- Cyclists and non cyclists should get intuitive and considered arrival to the space.
- The best change rooms have a generous, centralised arrival space from which users can enter either the toilet zone, the locker zone or the shower zone.
- Core amenities shared by all should be close (as much as possible) to the entry and exit of a space (e.g. repair station, airing station, towel station, irons, water cooler).



4.

Good showers are a minimum 1100mm by 1800mm and have a wet space and dry space in the cubicle.



5.

Lockers should be at least 300mm wide with 900mm hanging height in each door, and the top reaching point should never be over 2100mm.

6.

Having wet area services in a cluster within the site is generally good, as it reduces servicing cost and build complexity.

7.

On average, 75% of users of EoT spaces are male. Building with a 50/50 split is the primary cause of shower lines and waiting lists. Flexibility is the answer.

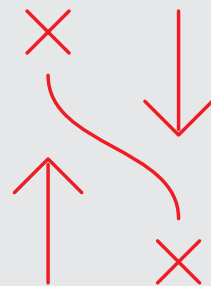


8.

A free towel service adds significant amenity to users.

9.

Ensure AS2890.3 compliant bike parking and a quality repair station is available for users.



10.

Minimum circulation you should allow is:

- **Normal Bike Space** – 1500mm
- **Double Tier Parking** – 2000mm
- **General Wet Areas** – 1300mm
- **Island Bench Seat Locker Spaces** – 2700mm (from locker face to locker face)



Bike Parking



Minimum Guidelines: Bike Rooms.

LOCATION

- Bicycle stores shall be co-located with good access to amenities, lifts and ideally the main lobby.
- Ensure that a safe path of travel is provided for bicycles from the building entry to bike stores. A minimum 2200mm clear height is recommended for bicycle users with helmets.
- Ensure that a good functional flow is provided between bike parking and amenities.
- Provide a bicycle dismount zone located away from traffic flow, with non-slip surfaces.
- Separate bicycle stores can be provided for specific tenants if required.
- Provide adequate wayfinding, regulatory signage, and environmental graphics as required.
- 2700mm minimum height for double tier parking.

SECURITY

- A secure perimeter enclosure is to be provided. As a minimum the enclosure is to be constructed from steel framing with metal/timber slats, or secure perforated panels.
- Entry to bike stores via automatic sliding doors is preferred. Hinged doors can be used in lieu of auto sliding doors, but these are less suitable for bike users – recommended for less than 50 bike parking capacity.
- Provide swipe card access to entry doors.

DESIGN

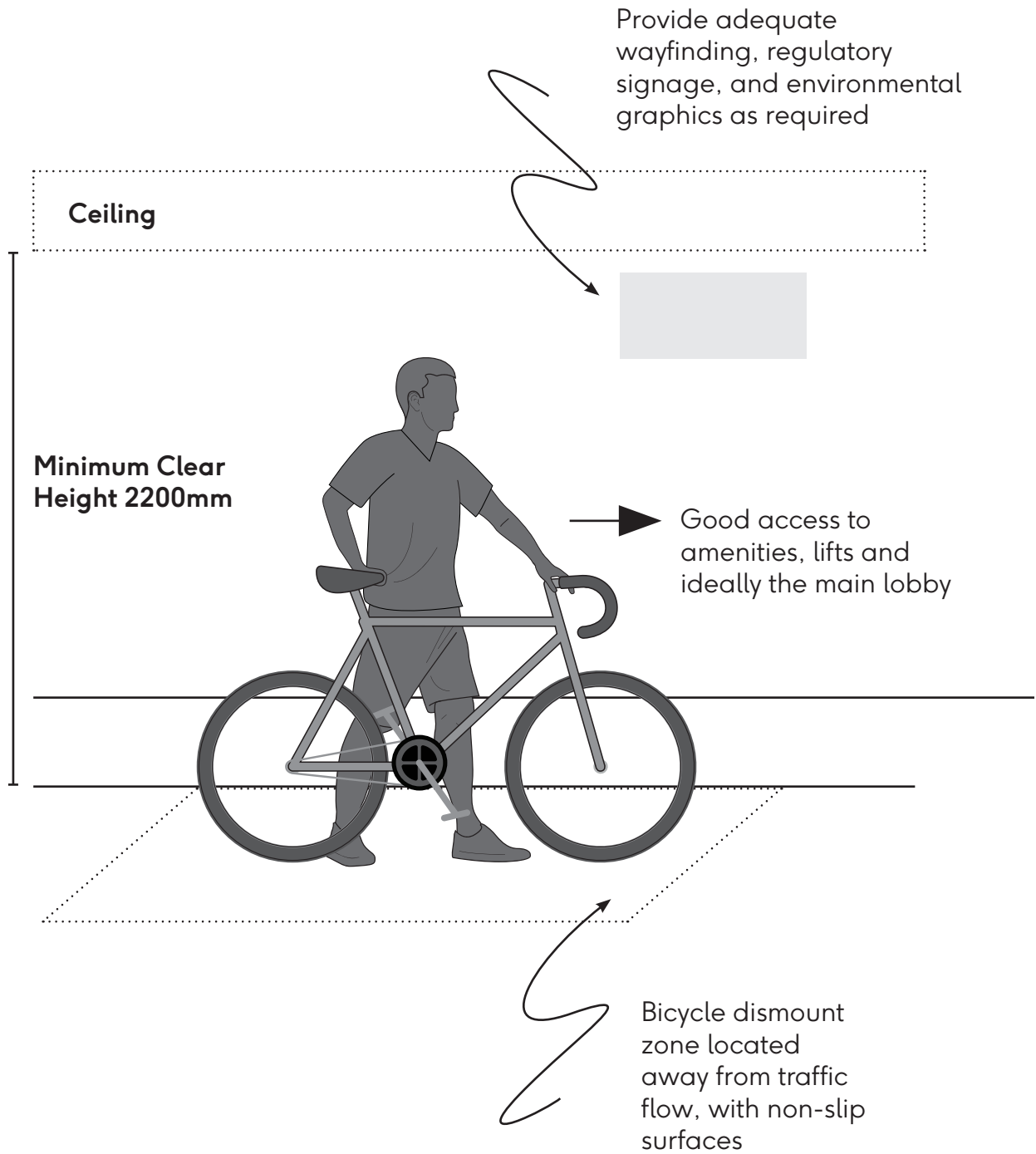
- Ensure that a minimum 20% of bikes are floor mounted (horizontal racks).
- Ensure minimum standard circulation space of 1500mm is provided in front of traditional bike parking and 2000mm in front of double tier, increase in main circulation areas.
- Comply with regional codes of accessibility.
- Rubber or composite rubber flooring is best for cyclists wearing cleats, and longevity in high traffic areas.
- Maintenance Station: provide a dedicated area with a footprint of 2m wide x 1m deep with a 1.5m aisle in front to perform bike maintenance with bike pump and tools. Provide power to this location.
- Provide lock bars for bike locks.
- Provide Water fountain for refilling bottles.
- Bike racks that minimise contact bicycle frame and wheel rims are preferred.
- Call **Five At Heart** designers if you have any questions! We're happy to help!

SERVICE

- Building management should look to provide bike maintenance/ service program at least quarterly.

Figure 1:

Access into bike room



Circulation.

Horizontal & vertical minimum requirements.



What aisle width do you provide for horizontal and vertical racks? How much space is needed?

We define the standard bicycle as having an envelope of:

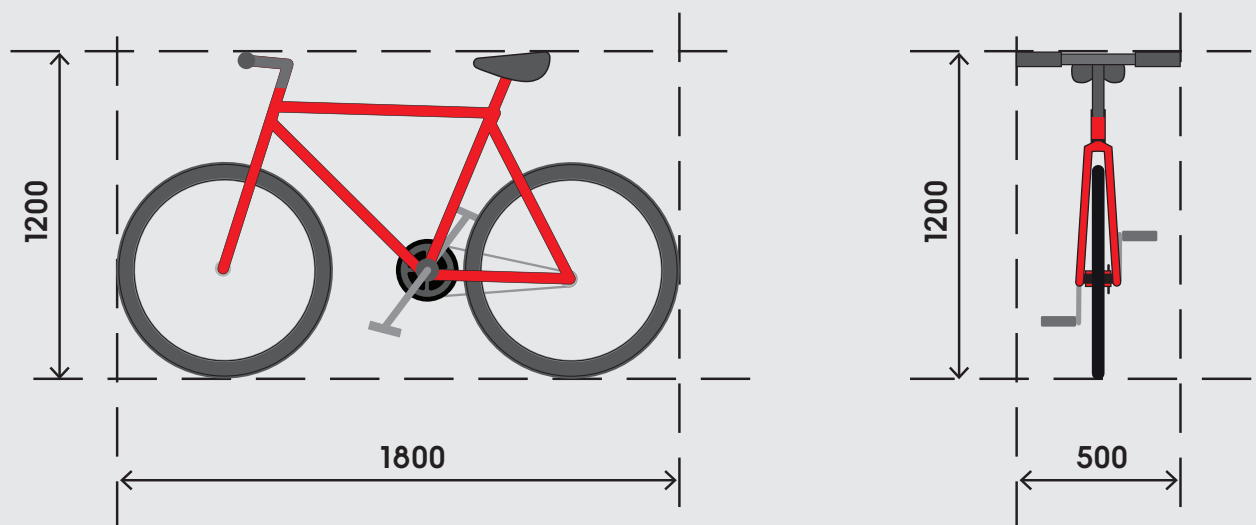
500mm x 1800mm x 1200mm
(Width x Length x Height)

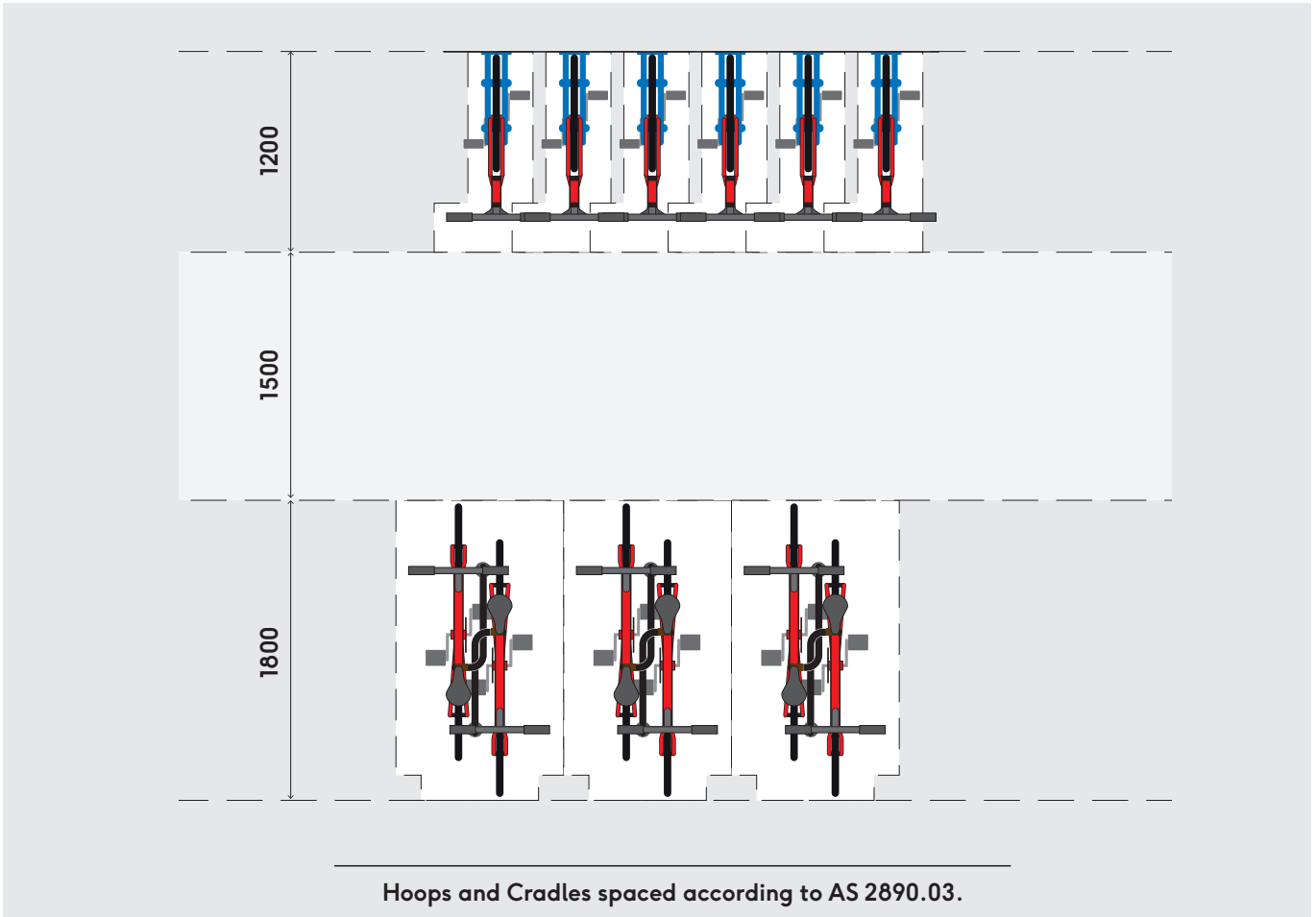
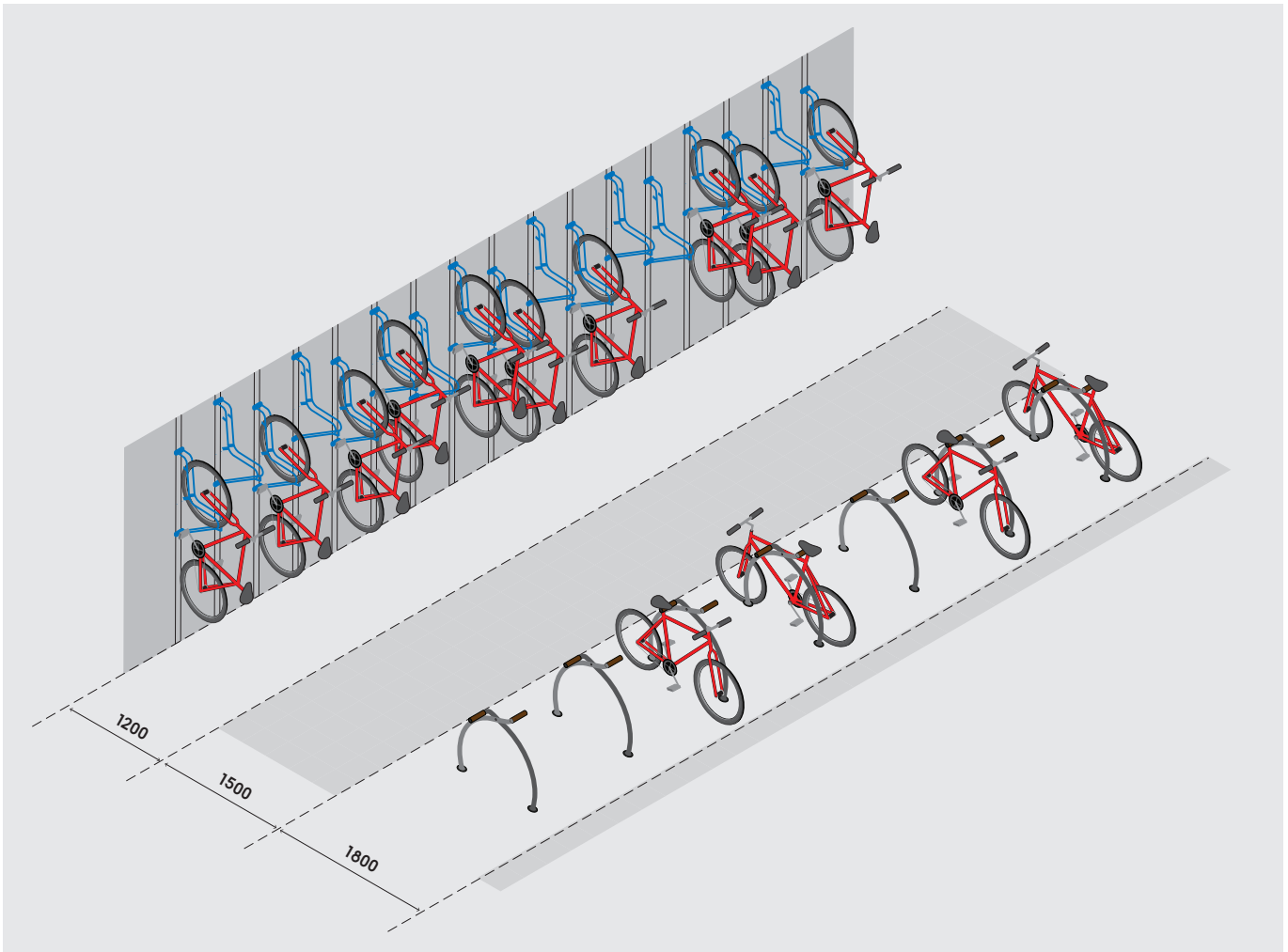
But there's not just the standard bicycle. Variety and style of bicycle varies as much as the users.

For us, it's never about the number of bike racks per se; rather the optimum number of racks that allow a space to function with absolute ease and harmony.

Providing variety, sufficient spacing and aisleways to accommodate bikes is critical for accessibility.

The aisle minimum in front of vertical and horizontal racks is 1500mm.





Circulation.

Double tier minimum requirements.



What aisle width do you provide for a double tier rack? How much space is needed?

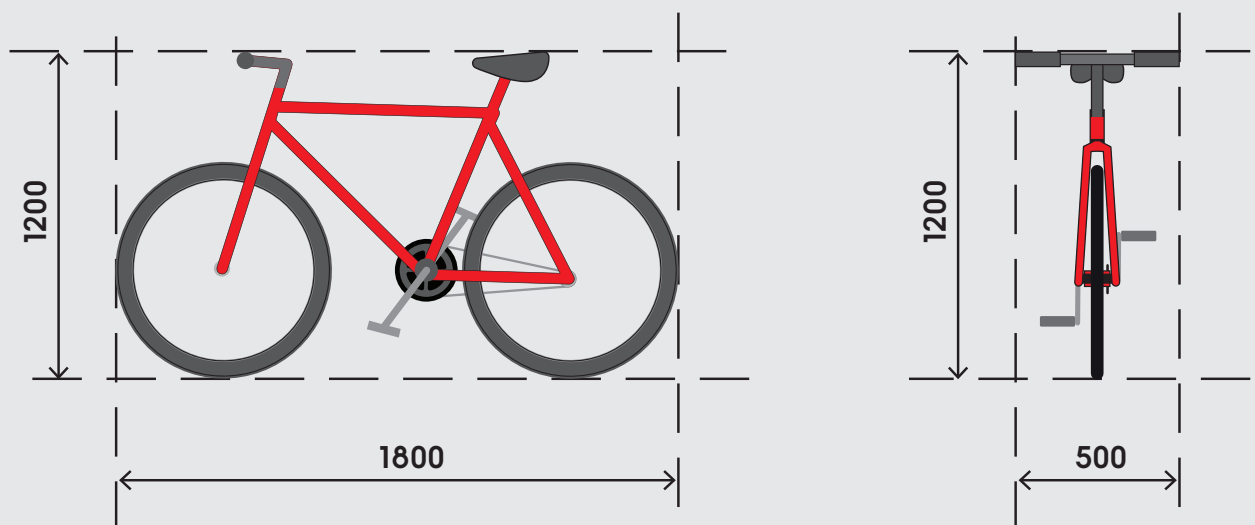
We define the standard bicycle as having an envelope of:

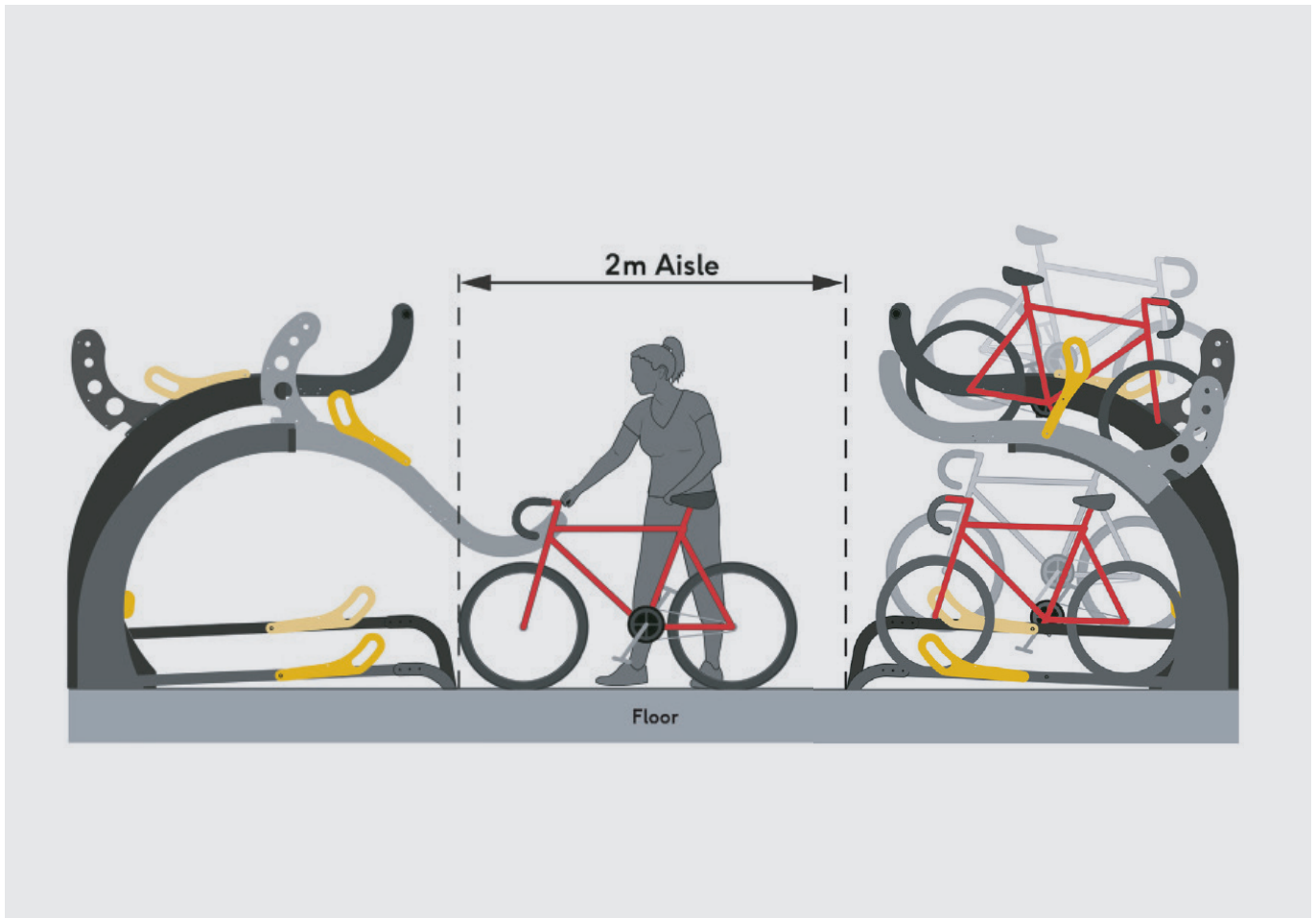
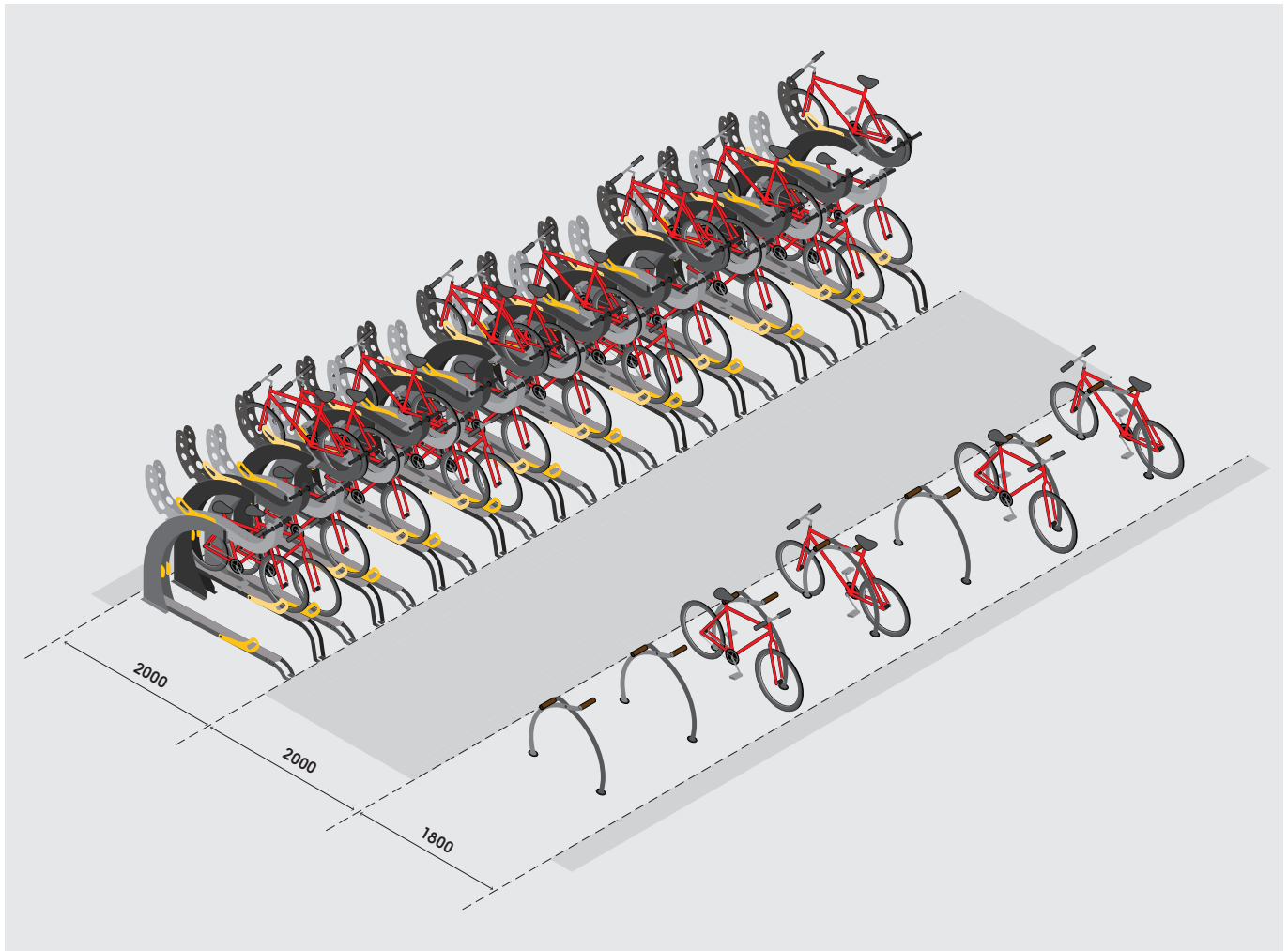
**500mm x 1800mm x 1200mm
(Width x Length x Height)**

Non standard bikes (cargo and recumbent) will not fit into double tier racks. Ensure enough standard horizontal is supplied for this reason. Providing variety, sufficient spacing and aisleways to accommodate bikes is critical for accessibility.

Double tier racks require more space in front of them to operate and allow circulation by others.

The aisle minimum in front of a double tier rack is 2000mm.



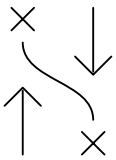


Circulation.

Path of travel and clearances



Before getting started, map out the paths between access points. Avoid structural columns. Thinking about how people will move around the space will not only drastically improve the usability, but make your life easier when planning out the space. Place your bike parking in the islands you create after setting out good paths of travel. Try to utilise all blank walls - leaving them blank is an inefficient use of space. The diagram adjacent is a good method for space planning a bike room.



Design Matters



A precedent of good circulation

Figure 1:

Diagrammatic bike parking islands (blue) and clear circulation around them (dashed arrows)

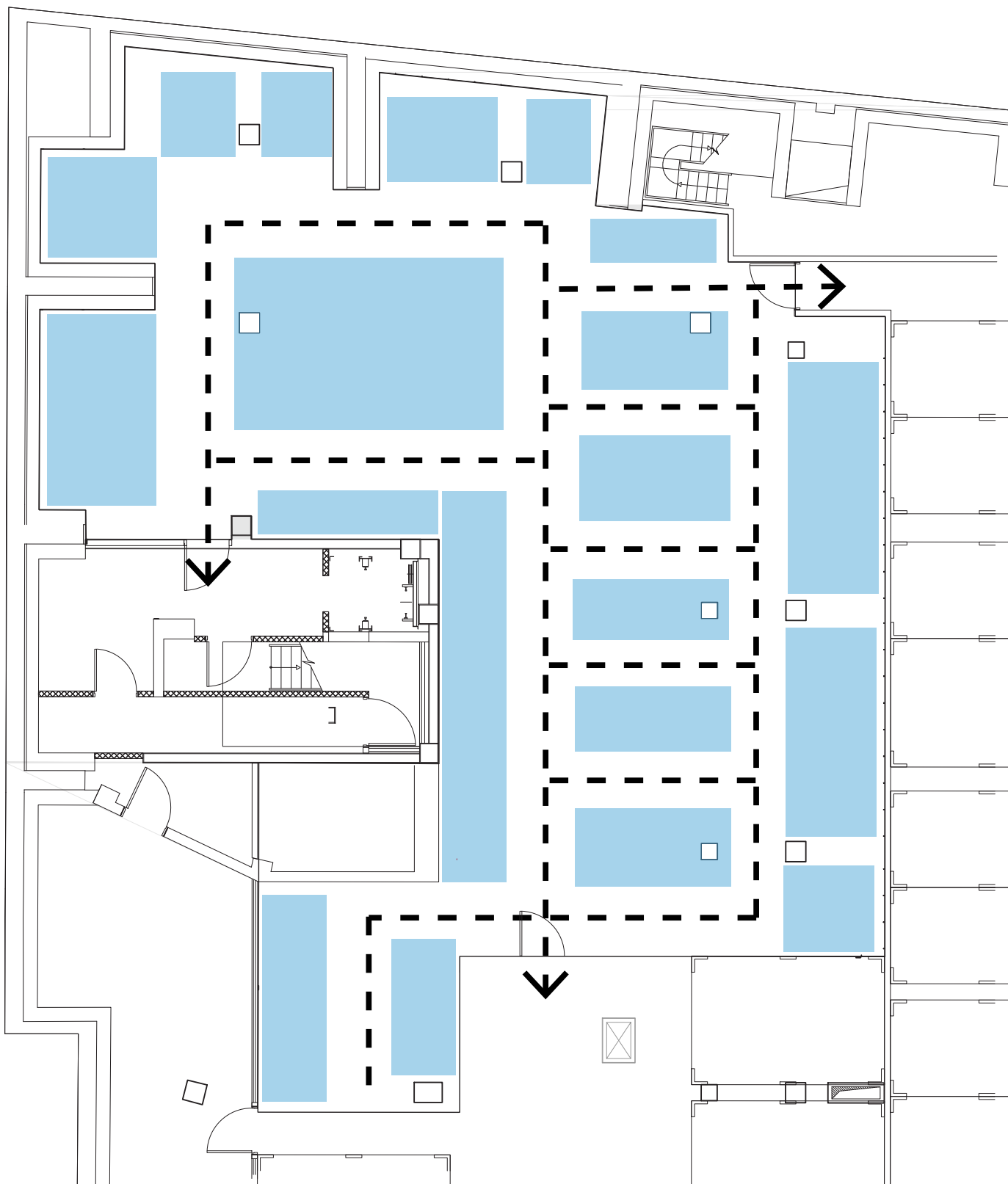
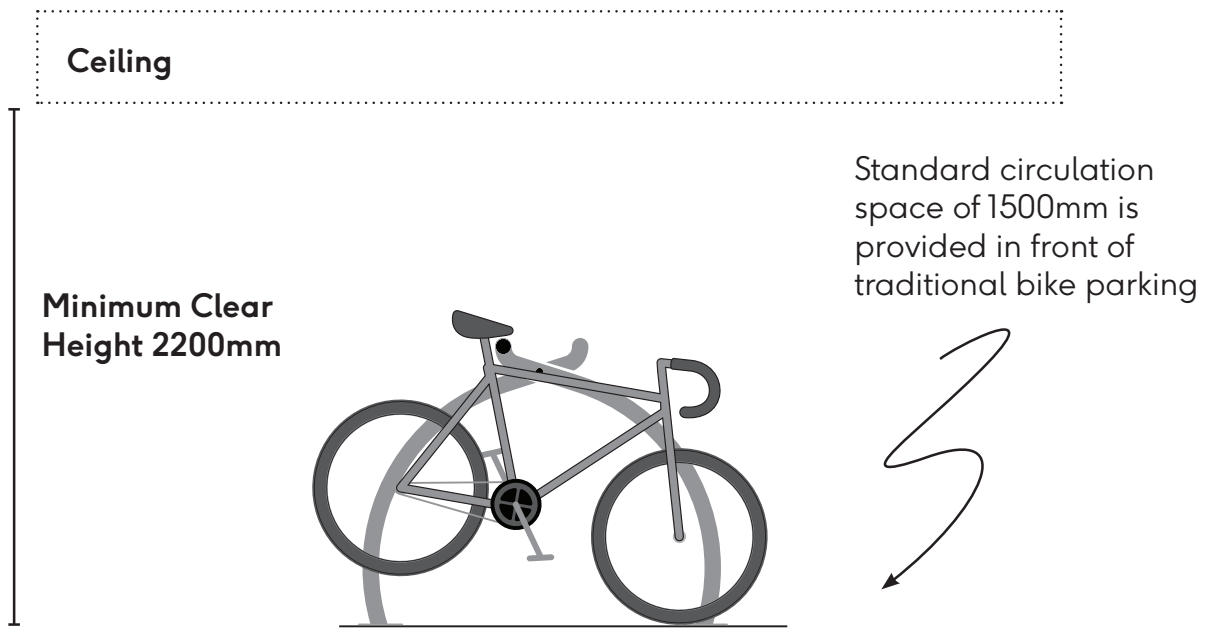
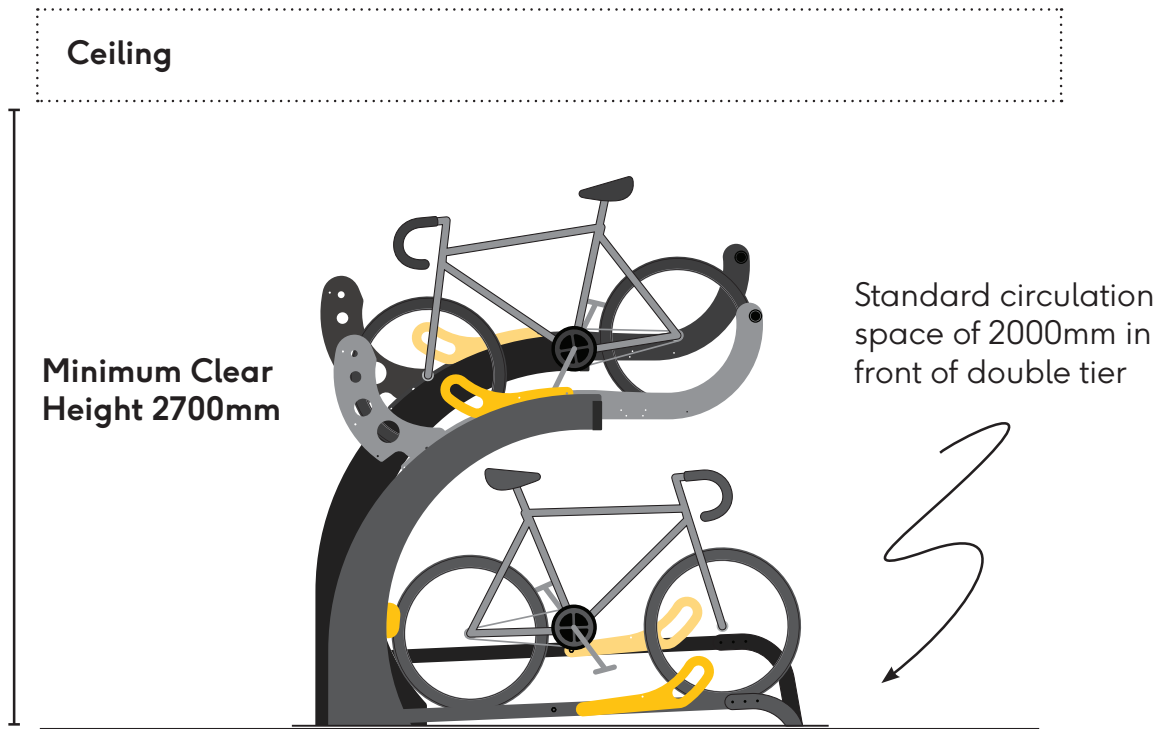


Figure 2:

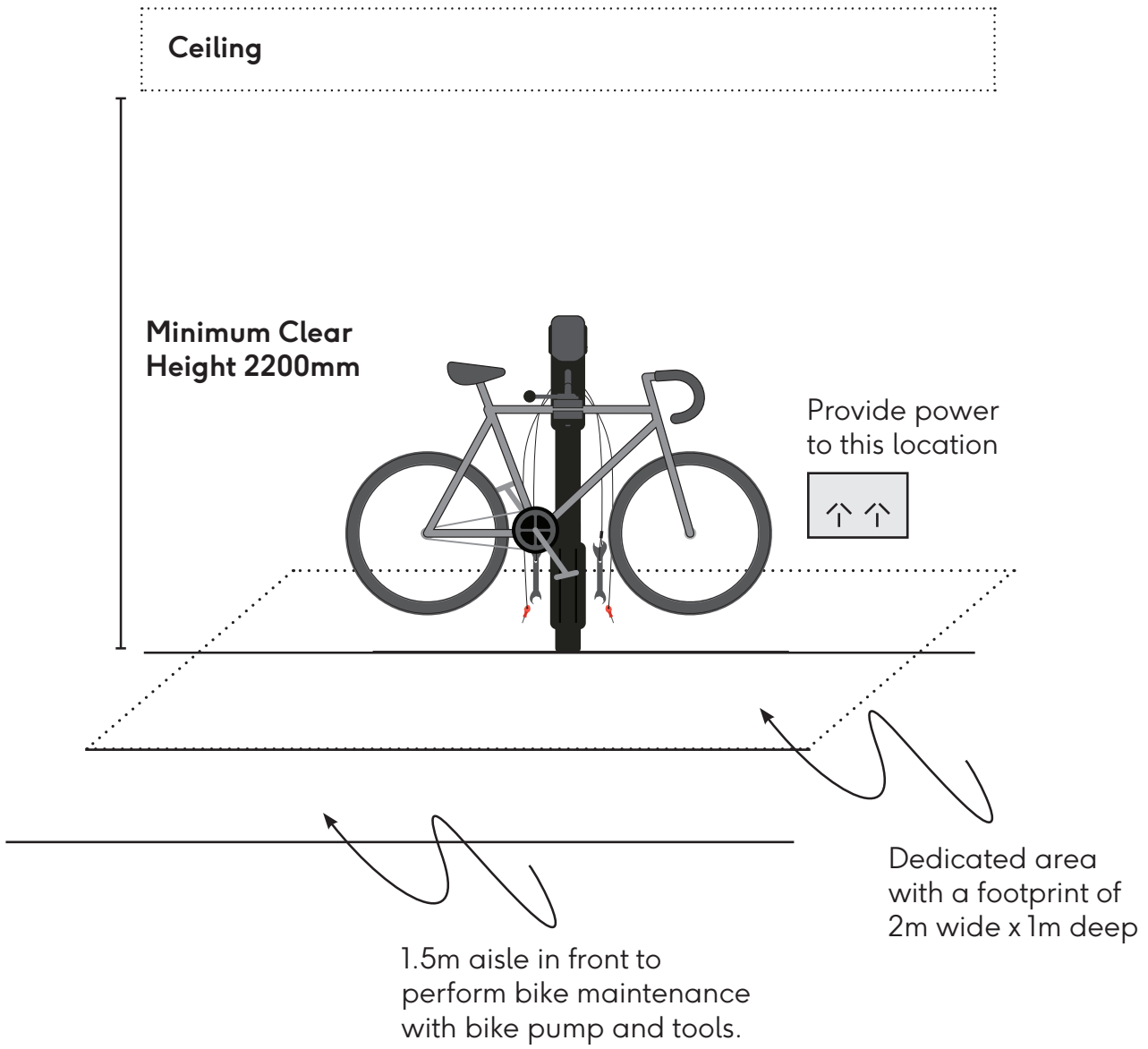
Clearances and ceiling heights



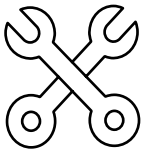
Minimum 20% of bikes are floor mounted (horizontal racks)

Figure 3:

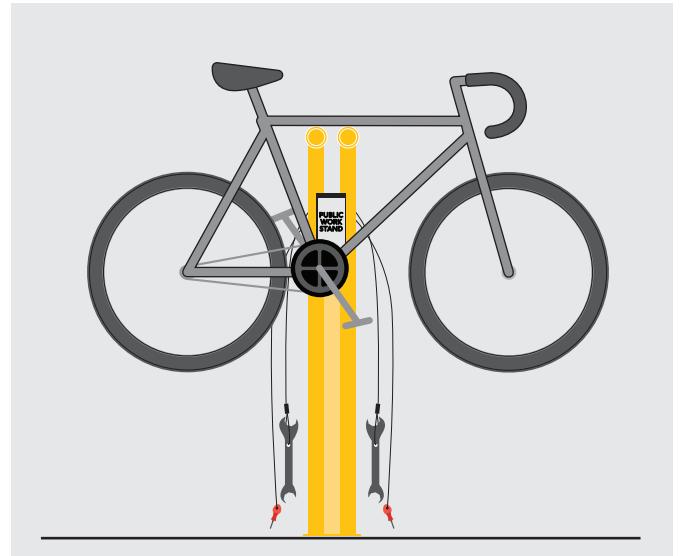
Maintenance Stations



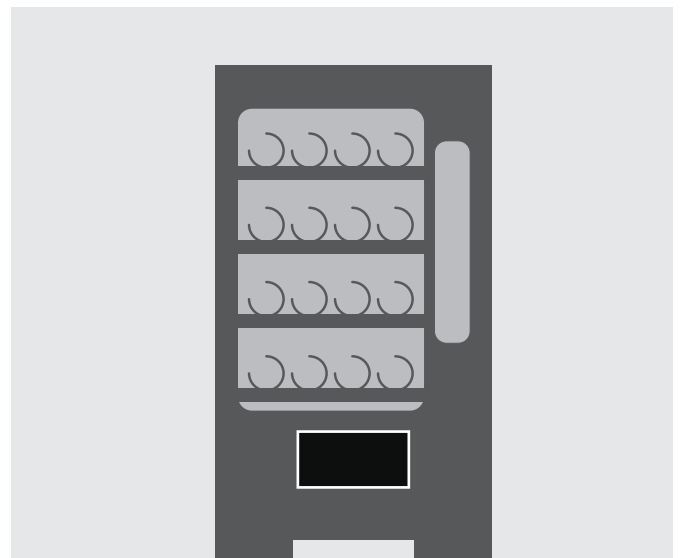
Bike Room Amenity.



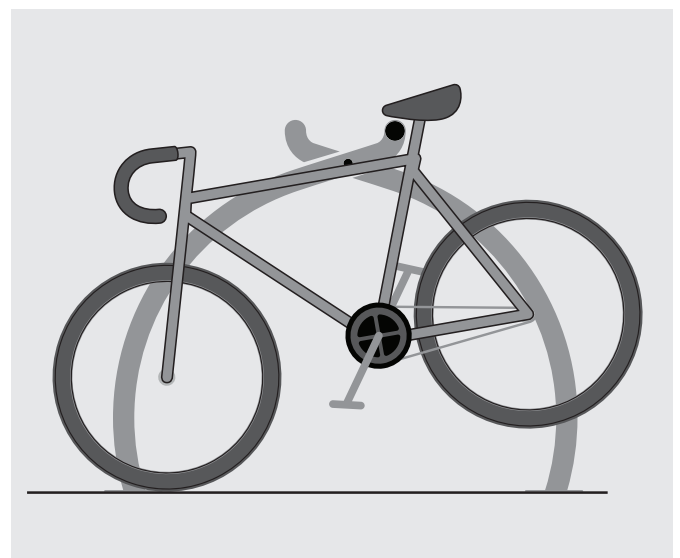
These are some of the quantifiable things you can do in the bike room to make a quality space that your users will love!



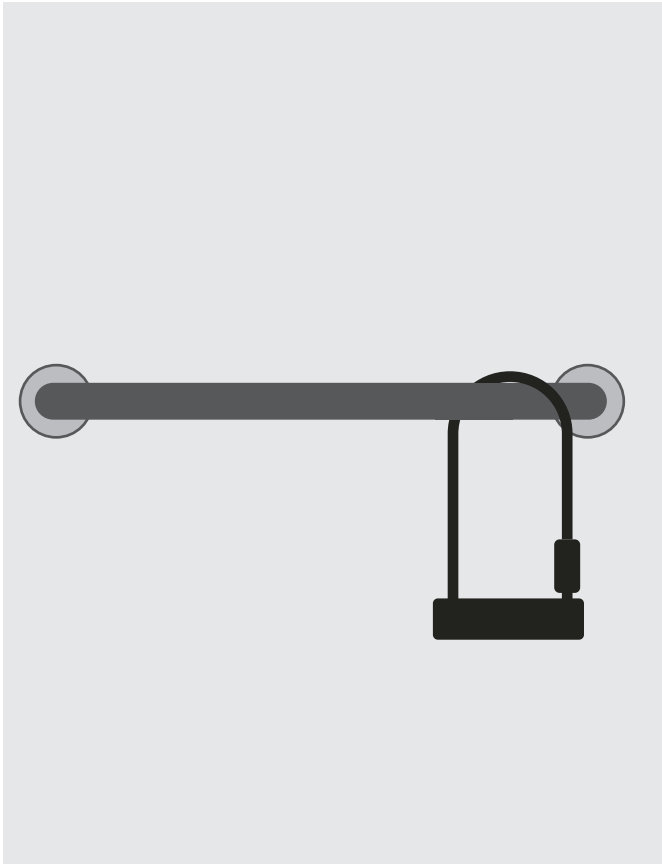
Repair stand with tools to support riders unexpected repairs



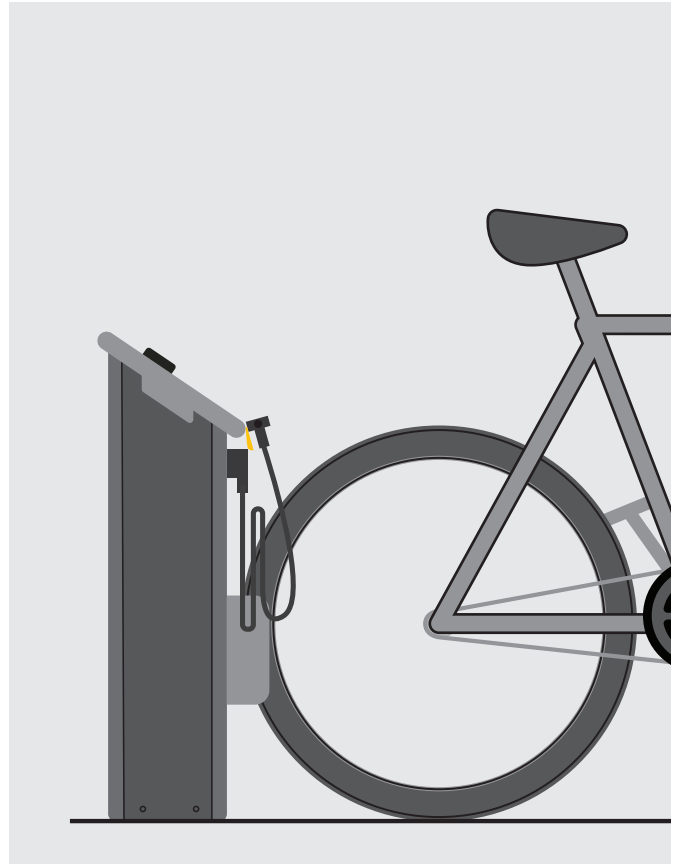
Vending Machine, ensure products are appropriate for all users



Minimum 20% horizontal bike racks as they are the most user friendly



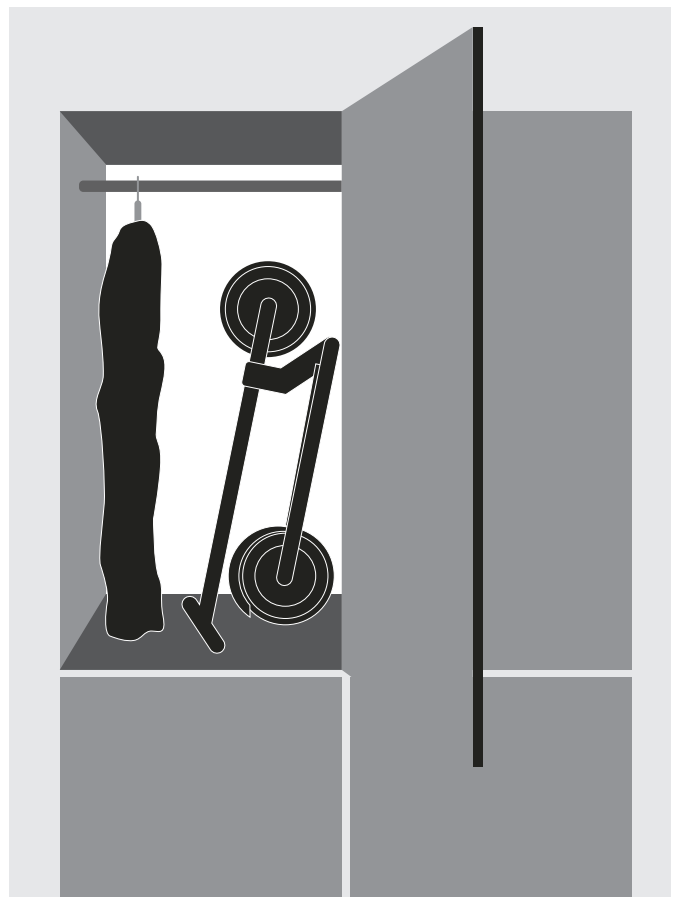
Bike lock bar so riders don't have to carry locks on their commute



Pump

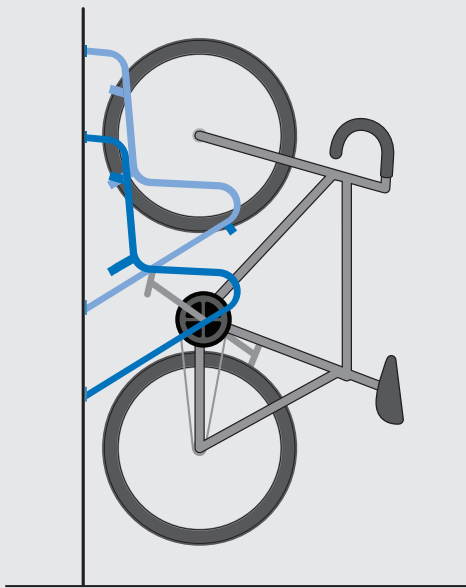


Water fountain

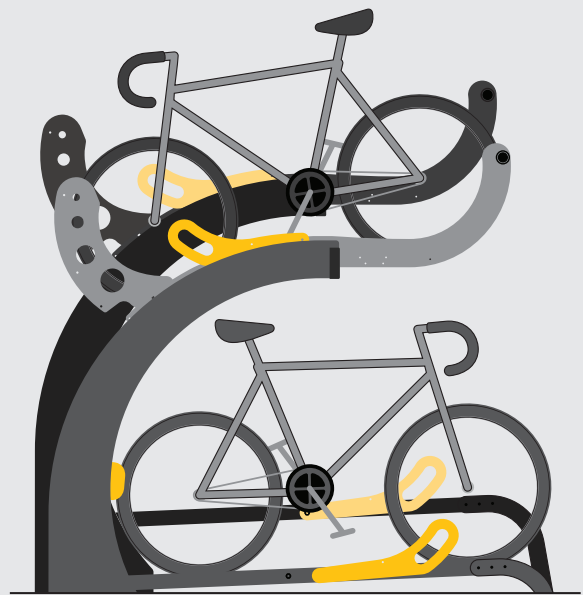


Flexible locker for scooters

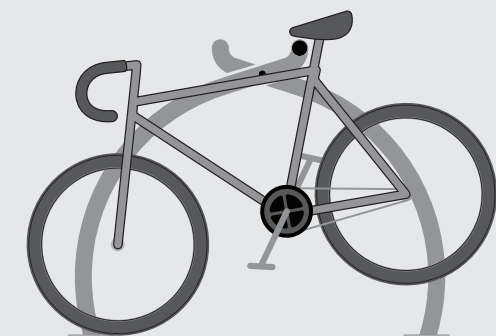
Available Pushbike rack and repair stand options pictured below



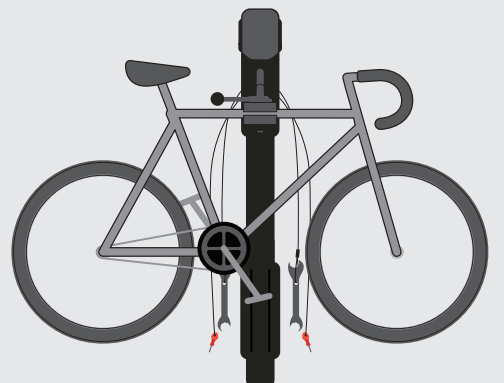
Cradle



Arc



Wishbone



Doc Brown



DeLorean

For more
information visit
fiveatheart.com



A special note on 'E-bikes'.

E-bikes are heavy. For this reason the only real practical way to park them is on traditional horizontal stands. (ie Hoops or FAH Wishbones). This is why we recommend the Australian Standard minimum of 20% horizontal parking - however the more the better, it is the most user friendly option.

E-bikes require charging. For this reason, a proportion of horizontal racks should be placed against a wall with adjacent GPOs available. As E-bikes develop, batteries are becoming smaller and removable. In this instance, an individual would most likely take the battery to their desk or locker to

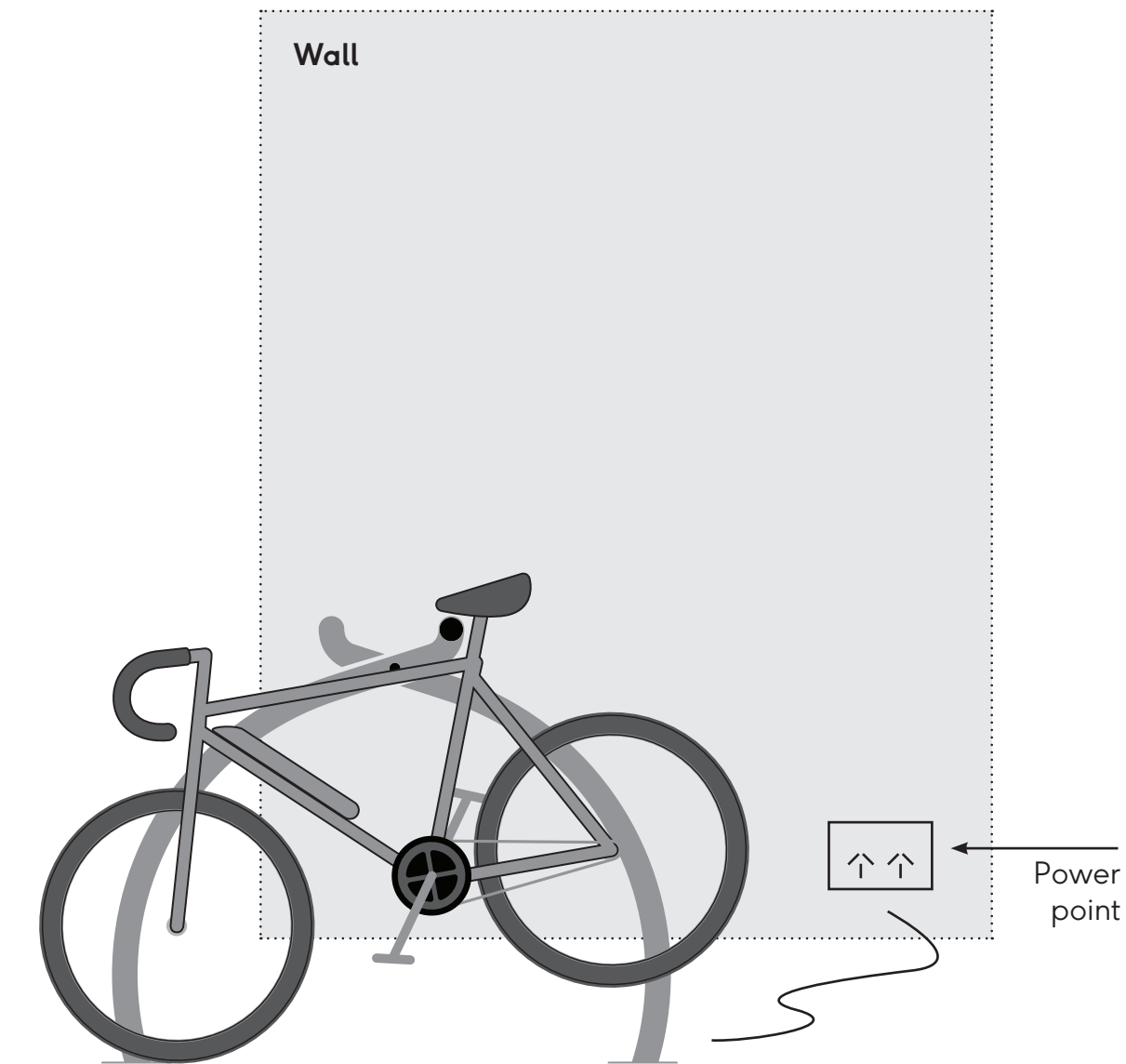
charge. Another example of why lockers are becoming increasingly important, especially in flexible, hotdesking workplaces.

Aim to get to 20% of your capacity to be E-Bike compatible by 2025.



Figure 1:

GPOs



Aim to get
20% E-bike
racks by 2025.



Change Room



Minimum Guidelines: Changerooms & Amenities.

AMENITIES / CHANGE ROOMS

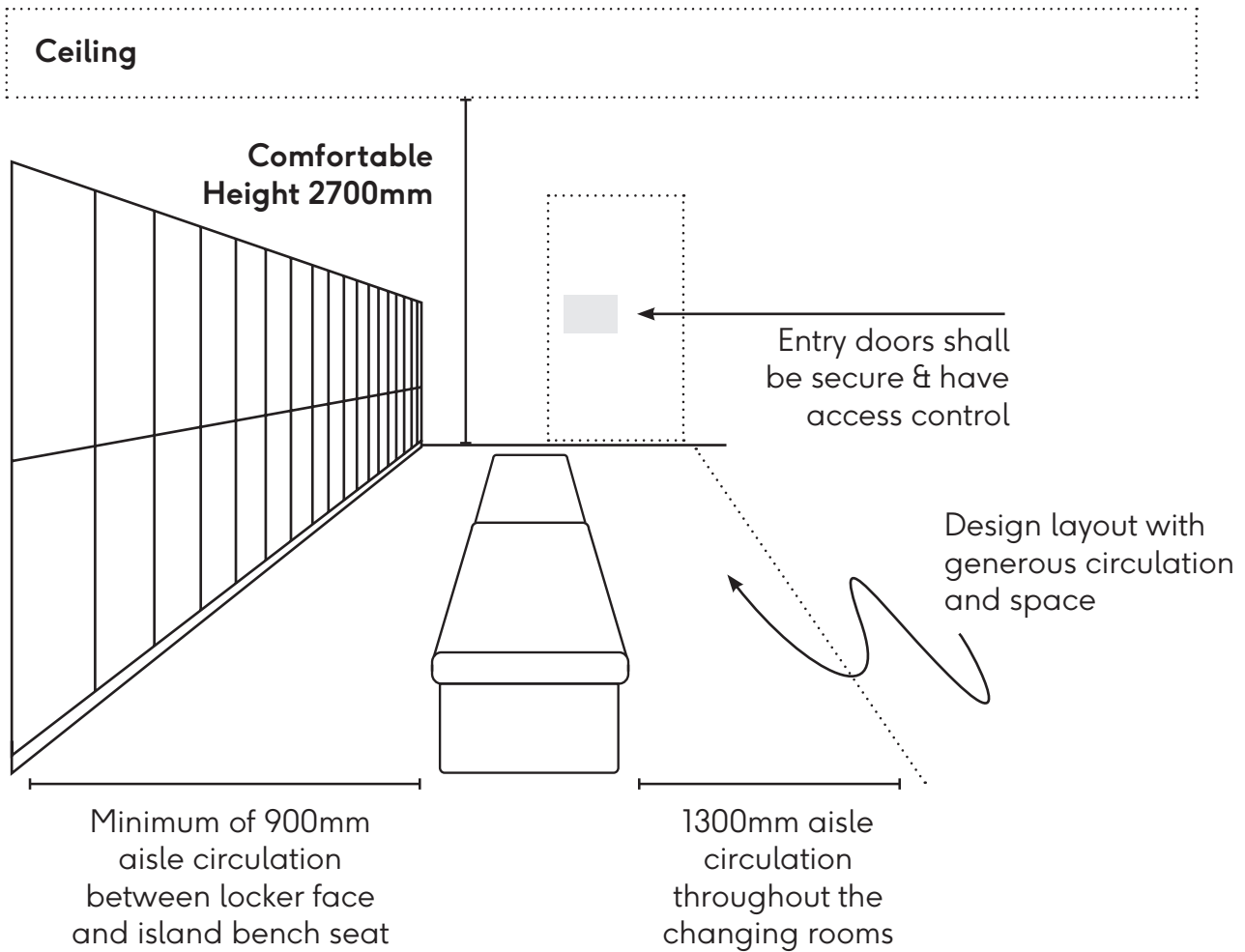
- All amenities and change rooms are to be fully air conditioned.
- Design layout with generous circulation and space – cramped facilities will not feel comfortable.
- Ensure minimum ceiling height of 2700mm is provided where possible. Ceiling heights of less than 2400mm are not recommended.
- Preferred ceiling is painted flush plasterboard. Alternate ceiling construction and exposed ceilings are permitted.
- Entry doors shall be secure & have access control.
- Amenities shall include one ambulant cubicle. Design including circulation, rails and toilet seats etc to comply with AS1428.1.
- Provide adequate vanity space with hand basins and shelves behind basins if possible. Hand drying to be co-located with vanities.
- Provide separate dry benches for preparation and make-up use: these benches to have higher lux levels and adequate amount of GPO's.
- Provide full length mirrors in change areas.
- Provide joinery for towel storage and disposal, and towel service.
- Provide airing/drying cupboards for users to leave clothes & shoes to dry. These cupboards are fitted with hanging rails & coat hangers for clothes, wire racks for shoes, and mechanically ventilated to provide airflow for drying. If drying cupboards are provided in common areas they are to be secure. Common drying rooms are not preferred. 1 cupboard per 5 showers is a good ratio.
- Ensure good water drainage is provided in amenities.
- Ensure no line of site from common areas into change rooms.
- 1300mm aisle circulation throughout the changing rooms.
- A minimum of 900mm aisle circulation between locker face and island bench seat.

Figure 1:

Change Rooms



All amenities and change rooms should be fully air conditioned. Humidity management is critical.

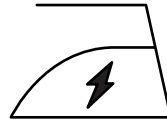


Note: Not to scale



SHOWERS

- Showers and toilets should be individual rooms constructed with full height partitions/walls to give a sense of added privacy and quality. Note that this will impact sprinkler systems and require coordination.
- Minimum size shower cubicle to be 1800mm deep x1100mm wide (including change area).
- Provide good quality shampoo, conditioner and soap dispensers in shower.
- Provide hanging hooks and bench seating in compartment.
- Shower rose should be fully height adjustable - ensure durable, high quality fitting.
- Provide DDA shower(s) and lockers to suit regulatory advice and Access report for the building.
- Floor finishes shall comply with Australian Standard for slip resistance.



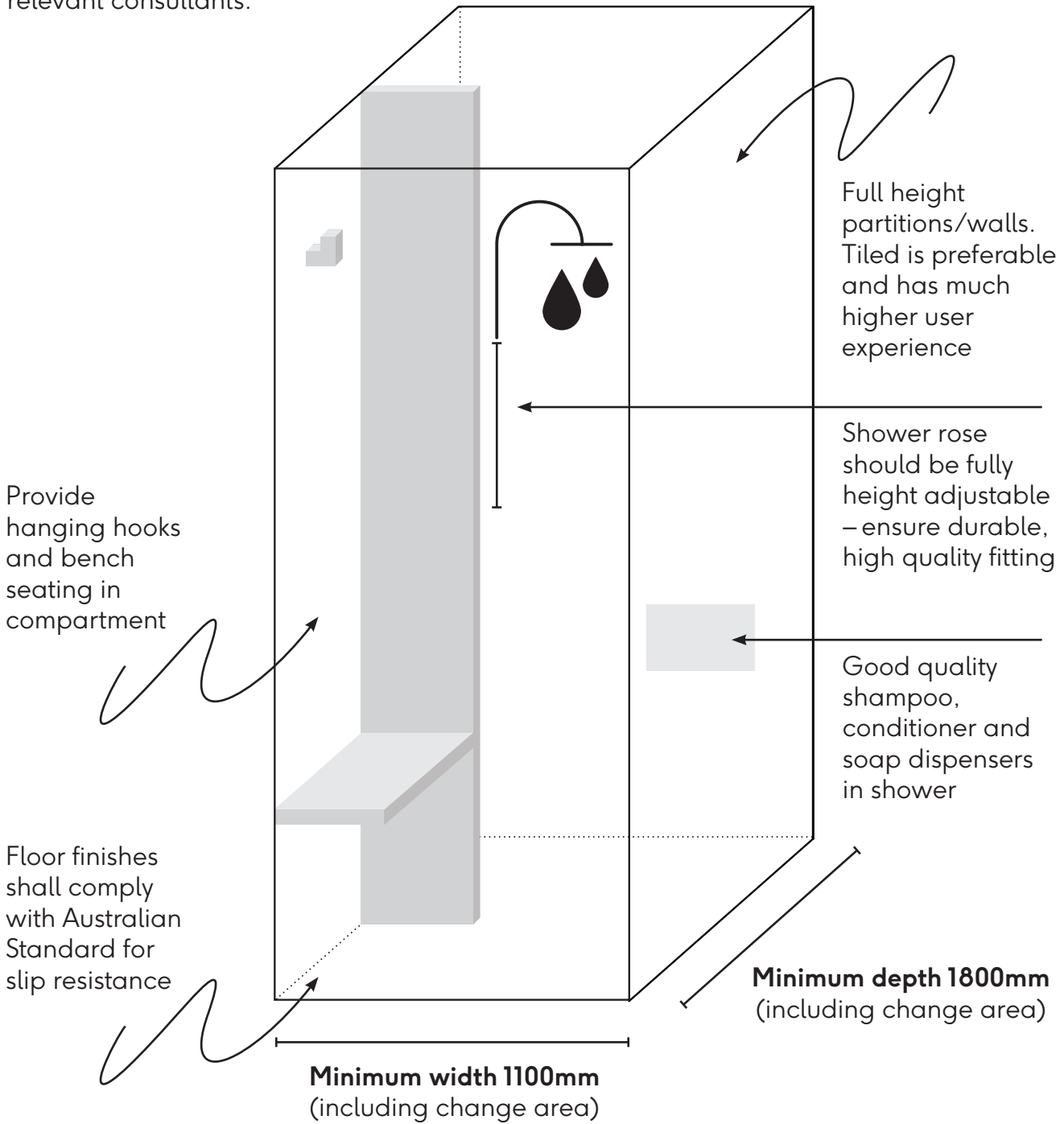
OTHER FF+E

- Provide minimum one fixed Ironing station and steamer per male/female per 100 lockers.
- Provide adequate hairdryers and hair straighteners in all changerooms.
- Provide sunscreen dispenser in common areas.
- Provide water fountains in male/female amenities or common amenity area.
- LCD screens connected to base building system – min one per male/female.
- Music streaming system.

Figure 2:

Showers

Nb: Having full height walls and door may mean a fire sprinkler system is required. Coordinate with relevant consultants.



Minimum Guidelines: Lockers.

LOCATION:

- Adjacent to or within changerooms.
- Common area lockers adjacent to segregated change rooms.
- Allow for some lockers to be located in bike stores – shoe and helmet lockers where the bike parking facilities are greater than 100m from the change areas – 50% of bike parking capacity.

SPECIFICATION:

- Minimum size to be, width 300mm with a minimum hanging space of 900mm. 600mm depth is preferred if space permits.
- A separate shoe storage should be included inside the locker if possible.
- Lockers should be box lockers, not the 'stepped' version with 'P' and 'd' shaped doors.
- Inclusions: hanging rail, shelf, ventilation.
- Finish: high quality laminate.
- Provide water resistant plinth underneath lockers
- Provide a fixed panel/hood above lockers to prevent personal items being left/stored on top.

- Island bench seating is preferred over integrated bench seating, to give users more usable space. It is also a more accessible option.
- Locking mechanism to lockers: as specified by client typically digital lock with permanent and timed release options to suit building management & service offer to tenants. Swipe card access preferred with easy building integration.

SUPPLIER:

Five At Heart.

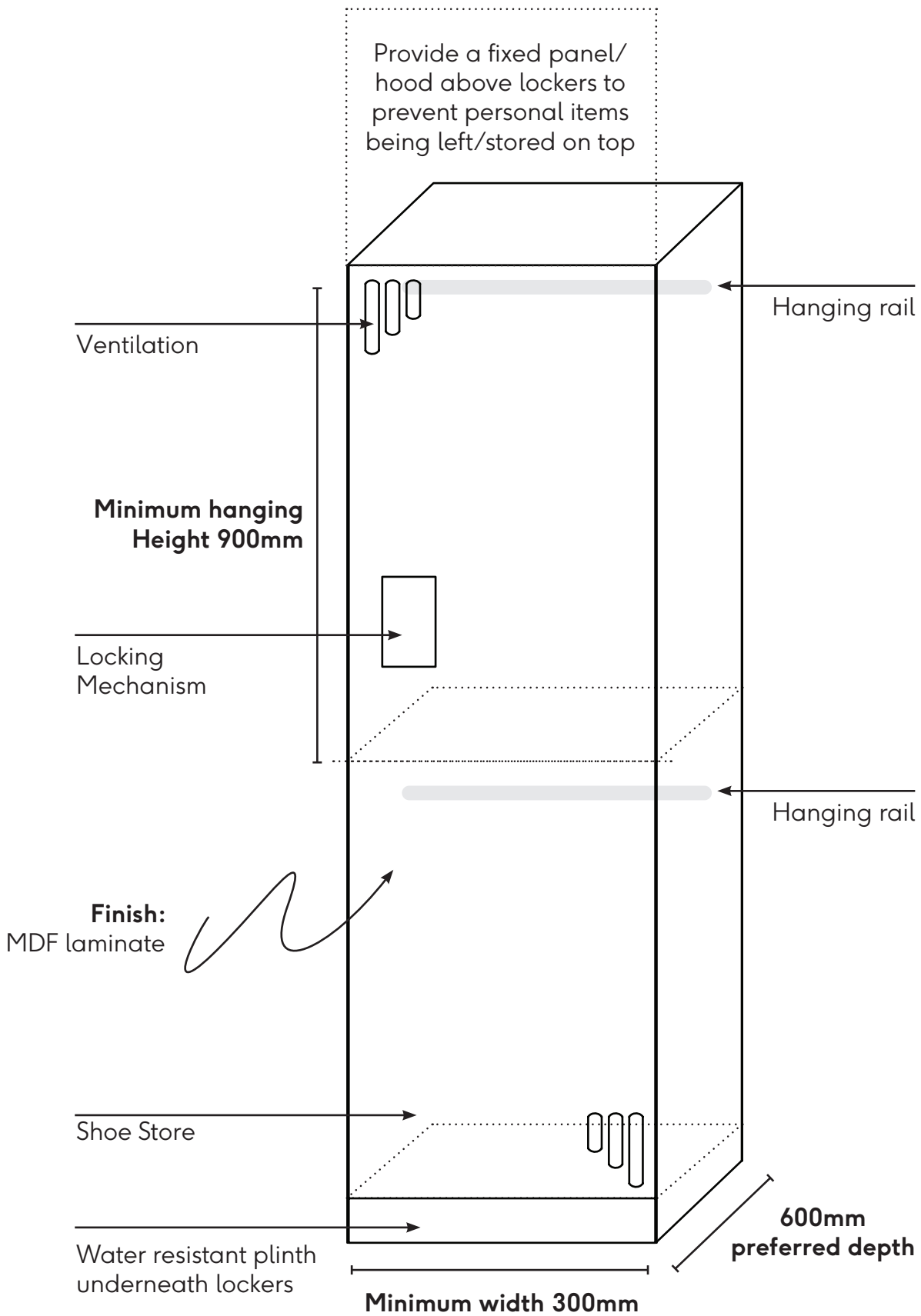
Suggested:

Pandora with Mustafa islands or architect self designed islands

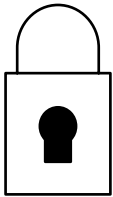
Note: Compact laminate is only recommended in wet area situations. It is not required for most commercial settings,

Figure 1:

Best Practice

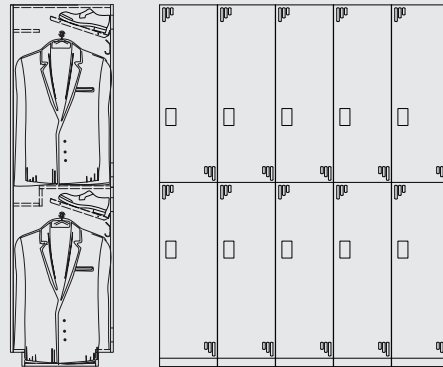


Lockers Types.



Different users types have different locker needs.

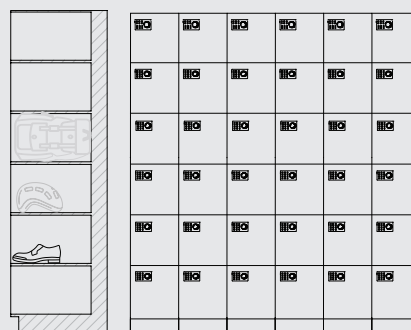
Adjacent are some user types identified, and some lockers that may suit them.



Day time sports and activity

The most user friendly locker type!

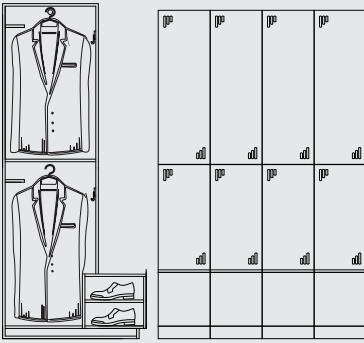
Needs = A good all rounder
Locker = 300w x 600d x 2100h
Location = Changeroom
5@H = [Pandora](#)



Short trip riders

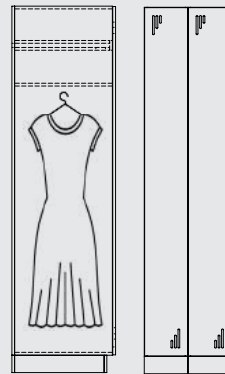
No changing/showering required

Needs = Store shoes/helmet/bag/charge
Locker = 300w x 600d
Location = Bike room/transitional space
5@H = [Easy Rider](#)



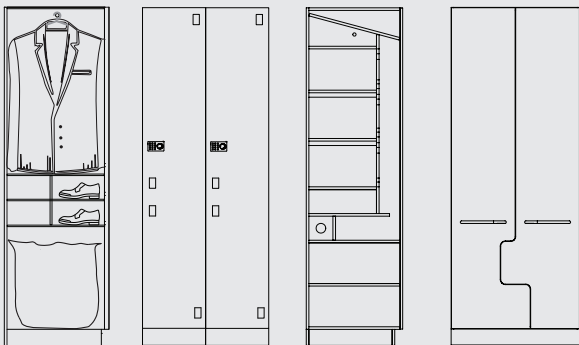
Sweaty Riders / Runners
Full time user, up to 5 days a week

Needs = Built in bench seating
Locker = 300w x 600d x 2100h
Location = Changeroom
5@H = [Maximus](#)



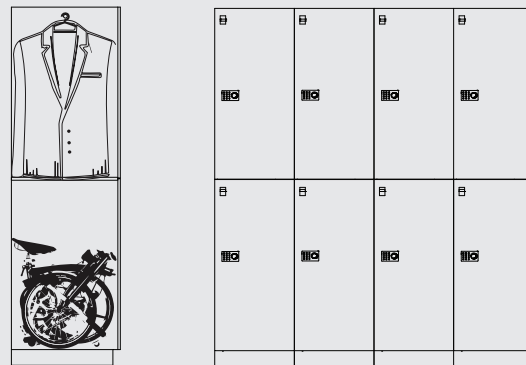
Freshening up / Going out
Casual users, long garment option

Needs = Less width
Locker = 250w x 600d 2100h
Location = Changeroom
5@H = [Tuni](#)



Executive
Top tenants need something special

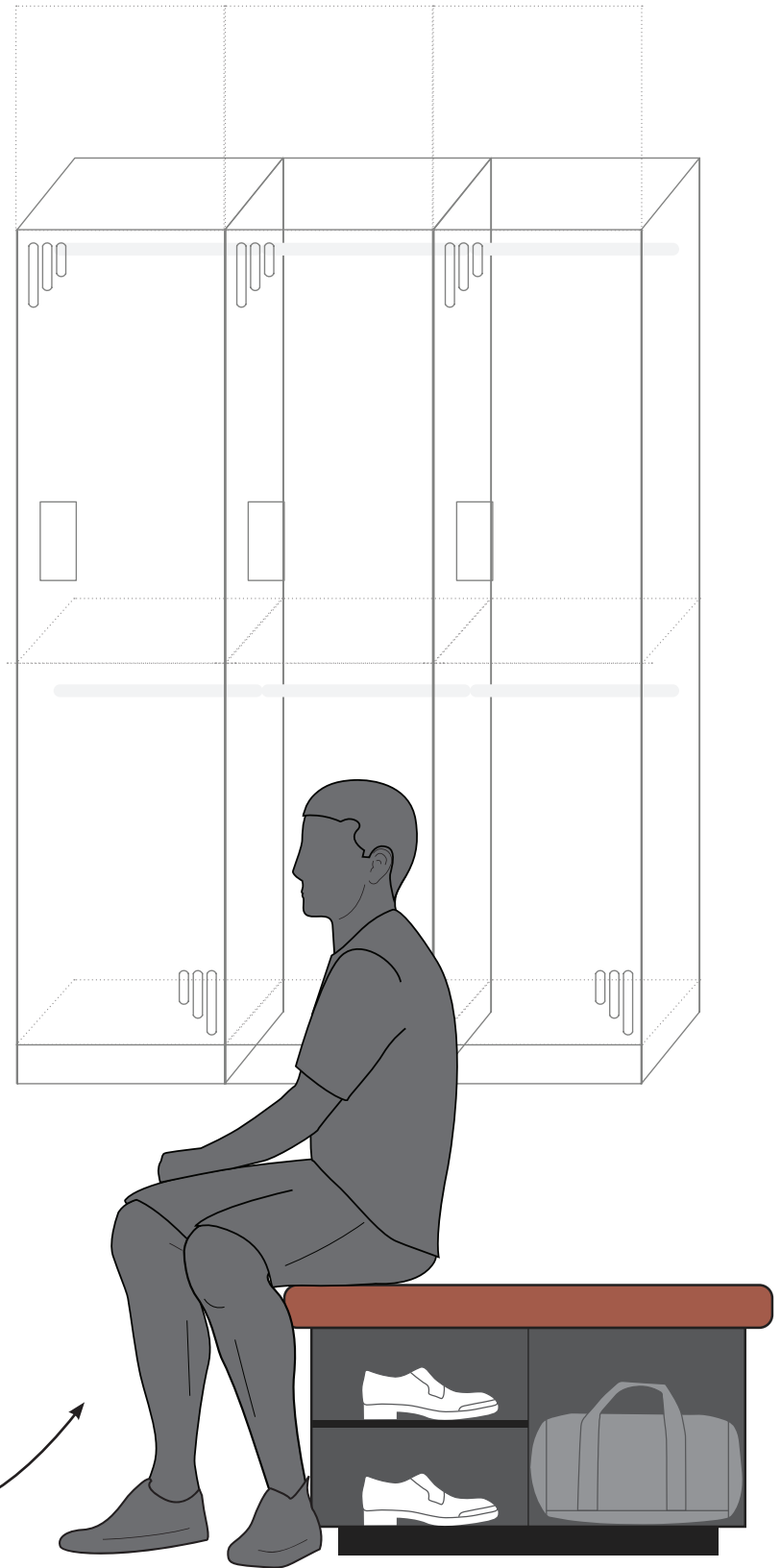
Needs = luxury, generous space
Locker = 400w x 600d x 2100h
Location = Changeroom
5@H = [Executive](#) / [Lumbergh](#)



E Scooter rider + other
No changing or showering required

Needs = Park/gear store/charging point
Locker = 3500w x 700d x 2100h
Location = Bike room/transitional space
5@H = [Flexible locker](#)

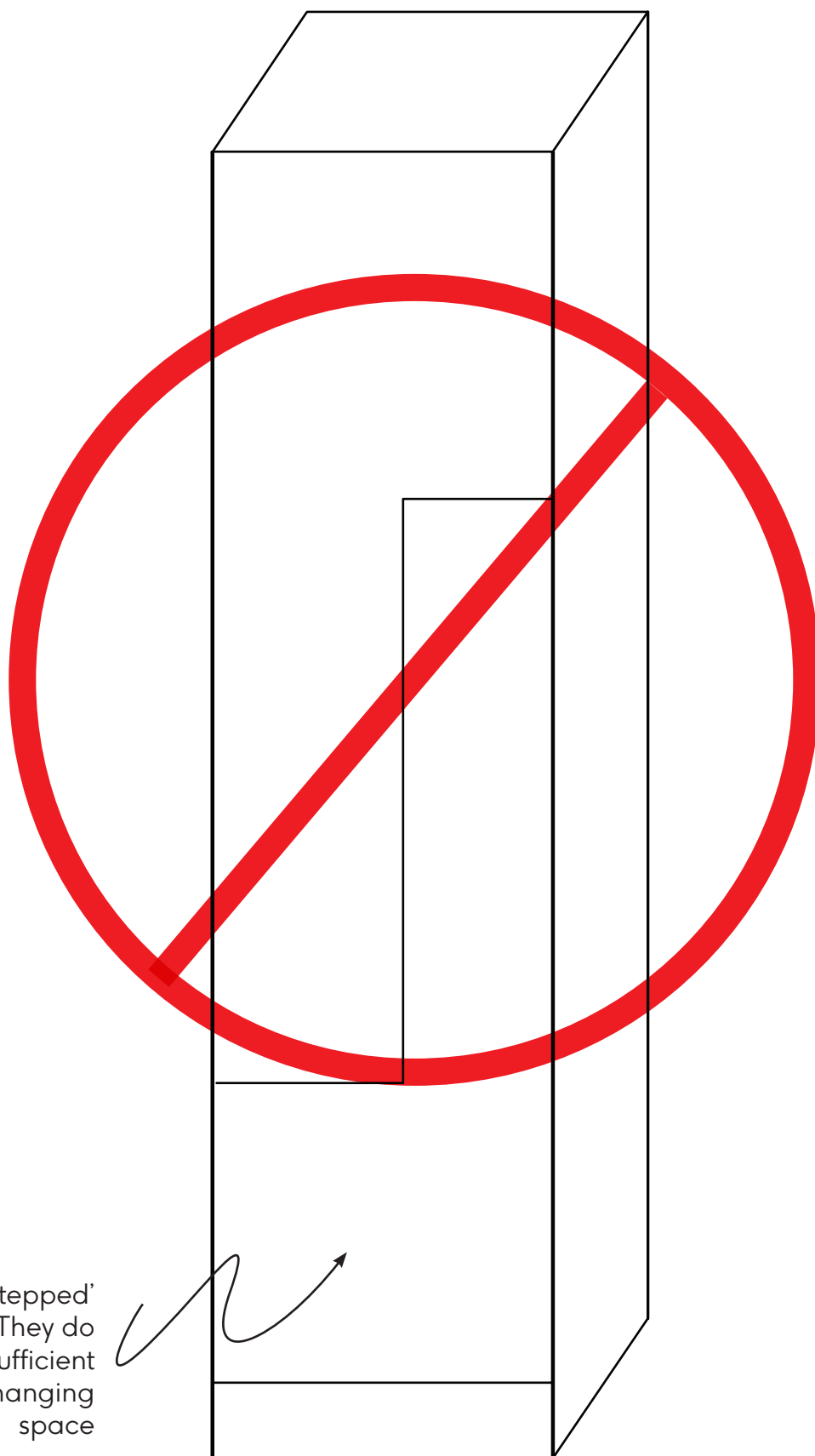
Figure 2: Island Bench Seating



Island bench seating is preferred over integrated bench seating, to give users more usable space. It is also a more accessible option

Figure 3:

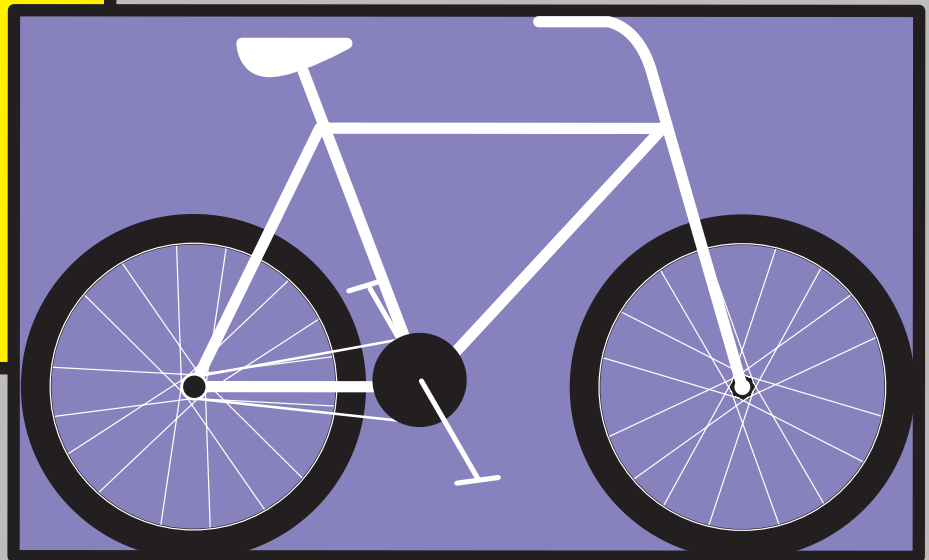
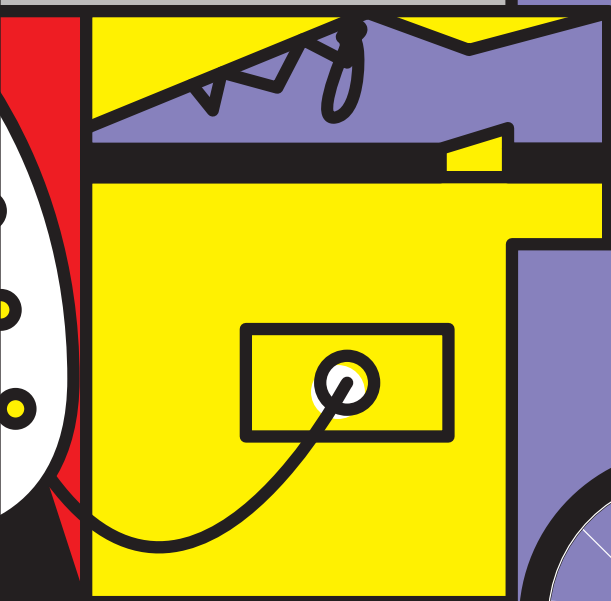
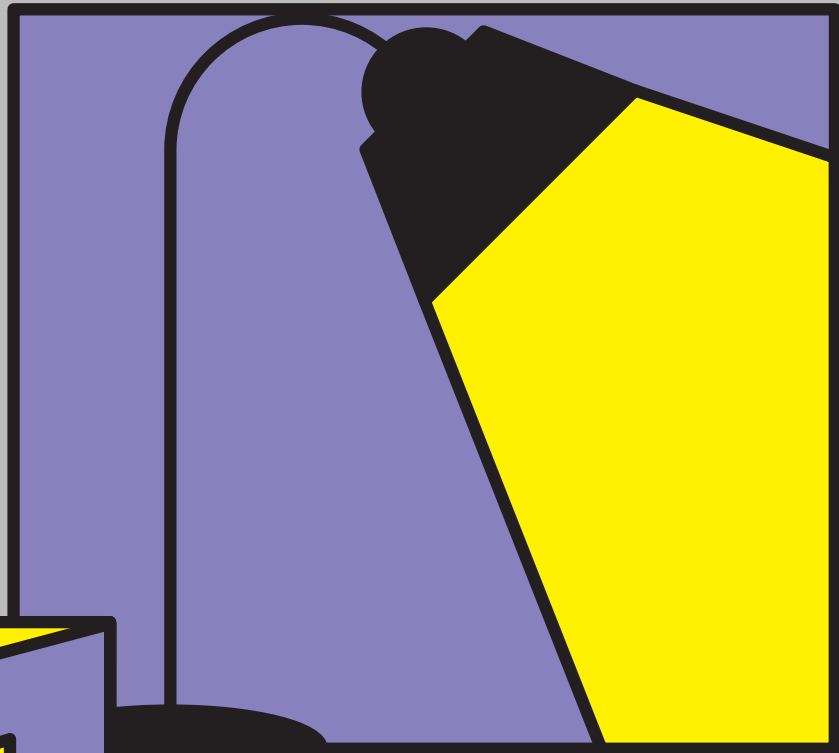
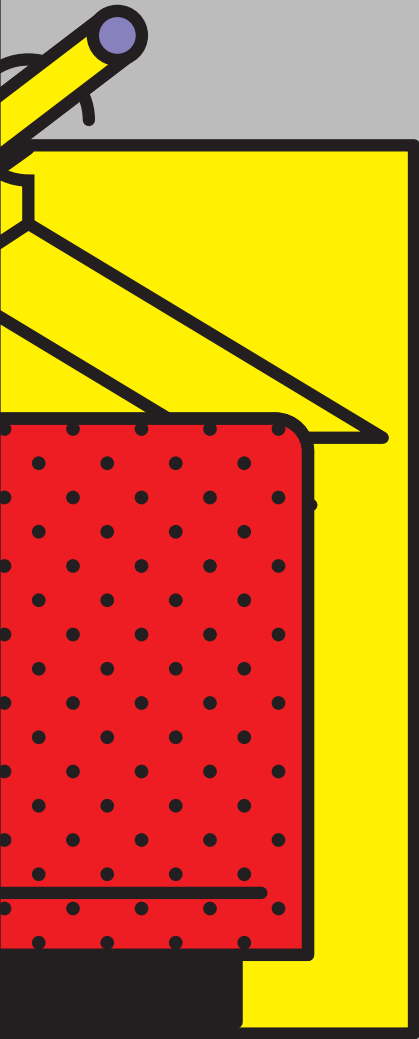
Don'ts. Step Lockers



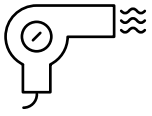
Avoid 'stepped' lockers. They do not have sufficient internal hanging space



User Amenity.



User Amenity.



These are some of the quantifiable things you can include in the changerooms to make a quality space that your users will love!

Design Matters



A free towel service.



Dry bench vanities and seating.



Provide steamers.



Ensure good quality, commercial ironing stations are installed.



Ensure showers are large enough (min 1100 x 1800mm) and have full height, tiled divisions. Ensure drainage in this high traffic wet area is sufficient .



Allow for a higher ratio of lockers to bikes (min 1:6) and ensure there is variety of locker types for all users.





Get in touch

Reach out to our team to learn more, ask us anything, or if you just want to chat.

au_info@fiveatheart.com

1300 769 332

Visit our website: **fiveatheart.com**



**Five
At
Heart**