

**CURTIN UNIVERSITY**  
**PROJECT DELIVERY GUIDELINES**

**CAMPUS LOGISTICS**  
**GUIDELINES**

**000337**



**Curtin University**

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# **1 INTRODUCTION**

This document provides guidance on logistics and access arrangements that ensure easy and efficient cleaning of buildings. Specifically, these relate to the building's cleanability and the provision of cleaning and waste facilities.

Throughout the life cycle of a typical tertiary education facility, cleaning is the most significant operating expense. A clean building is one of the most important factors in the building user's experience of the facility. Designing a building with cleanability in mind, where products and materials minimise the need for cleaning can reduce costs and minimise the environmental impacts that arise during cleaning operations. To deliver a successful building project the project team will need to consider 'cleanability' as an essential requirement of all design decisions at each of phase of the project.

## **2 CURTIN REQUIREMENTS**

### **2.1 DISABILITY ACCESS AND INCLUSION PLAN**

Curtin University believes in creating equitable and inclusive access for people with a disability to its facilities, services, events and academic programs on all its Western Australian campuses.

The *Universal Design Guideline* has been developed to reflect a commitment to equity and inclusion for all by embedding Universal Design principles into project planning, design and delivery guidelines. Consultant architects, designers and engineers should make themselves familiar with the particular requirements of the *Universal Design Guideline* before responding to a project brief.

### **2.2 HEALTH AND SAFETY**

Curtin University is committed to providing and maintaining high standards of health and safety in the workplace and will:

- ensure compliance with relevant legislation and the University's Health and Safety Management System
- promote an organisational culture that adopts health and safety as an integral component of its management philosophy
- ensure that health and safety is part of the business planning processes and that it is adequately resourced by all areas
- maintain an effective mechanism for consultation and communication of health and safety matters
- maintain an effective process for resolving health and safety issues and managing health and safety risks
- provide appropriate health and safety training
- regularly review health and safety performance to monitor the effectiveness of health and safety actions and ensure health and safety targets and objectives are met.

A copy of our Health and Safety Management Standards can be found at:

<https://healthandsafety.curtin.edu.au/local/docs/HManagementStandards.pdf>

### **2.3 SUSTAINABILITY AT CURTIN**

It is Curtin University policy that all new or refurbishment projects on site should support its status as Australia's first university to achieve a 5-star Green Star – Communities rating from the Green Building Council of Australia (GBCA). Designers should understand and incorporate the Green Star criteria into designs and specifications in order to maintain and enhance Curtin's Green Star status. Information on the criteria can be found in the *PDG Green Star – Communities Design Guidelines*.

### **3 CLEANABILITY**

Cleanability, or the ability for a building to be easily cleaned and minimise the cleaning needs, can significantly reduce running costs. Cleanability should remain an essential requirement of all design decisions at each of phase of the project.

To facilitate cleanability, the following are to be considered:

#### **3.1 BUILDING ENTRANCE(S)**

- Building entries shall have integrated, level floor matting, designed to minimise dirt, dust and sand from being brought in via foot traffic.
- The landscape design shall include elements to prevent dirt, dust and sand from blowing into the building.

#### **3.2 EXTERNAL FACADES AND WINDOWS**

- The choice of windows should assist with easy cleaning, such as using tilt and turn windows that can be cleaned from internal spaces.
- Where unable to use tilt windows or where not appropriate, consider incorporating a permanent fall injury prevention system.
- Where an elevated work platform is required to access any internal or external windows, allowances for this access must be included in the design.
- A methodology in relation to accessing windows for cleaning must be provided in the Building Operations and Maintenance documentation.

#### **3.3 LANDSCAPE AND BUILDING SURROUNDS**

- Trafficable pathways shall be suitable to enable an appropriately sized elevated work platform to access all external windows (weight-bearing minimum 10 tonne and a minimum width of 2.5 metres).
- Garden beds and building surrounds shall be designed to enable access for work from an elevated work platform.

#### **3.4 INTERNAL WINDOWS INCLUDING PARTITIONS**

- Where glass is prone to smudging and hand marks, access for routine cleaning should be considered.
- Standard internal glass partitions should be kept below a height of 2.2 metres (does not include feature glass).

#### **3.5 AMENITIES AND TOILETS**

##### **LAYOUT/DESIGN**

The following are cleanability requirements:

- Toilet facility walls shall be tiled floor to ceiling with minimum grout lines, with, preferably, coloured grout as staining is less noticeable.
- Urinal cisterns are to be located within a duct.

- Toilet cubicles shall be constructed from a laminated or an equivalent anti-graffiti material.
- Power outlets in toilet facilities shall be installed in accordance with the *000312 PDG Electrical Services Guidelines*.
- For wet areas, no timber or laminated timber products shall be used for bench tops.
- All gaps between fitout fixtures are to be sealed so there are no gaps that are too small to be cleaned by hand with a cloth (40 mm minimum).

#### **HAND WASHING AND DRYING FACILITIES**

The following are cleanability requirements:

- Easy to clean wall-mounted taps and spouts shall be installed with the spout protruding into the centre of the hand basin.
- Soap dispensers shall be installed where they will not drip on to floors or benches.
- Electric hand dryers shall be installed in all hand washing areas. Preference is for electric hand dryers as part of Curtin's commitment to reducing waste to landfill and cleaning costs.
- Where restricted space or noise is an issue, then standard electric hand dryers should be specified.

#### **TOILET PANS/URINALS**

The toilet pans/urinals shall be wall-mounted to a tiled wall to enable unrestricted cleaning of the floor, walls and bowls. (For fitment types, refer to the *000326 PDG Hydraulic Services Design Guidelines*.)

#### **DIMENSION OF CUBICLES**

- Where installing wall-mounted cisterns, the width of a toilet cubicle is to be a minimum of 1.1 m to accommodate either floor or wall-mounted sanitary bins.
- Where installing in-duct cisterns, the width of a toilet cubicle is to be a minimum of 1.05 m.

**Note:** Dimensions of current sanitary napkin disposal units are 320 mm wide x 220 mm depth x 850 mm high; however, confirmation of size is required before commencing planning.

#### **FITMENTS/FIXTURES/EQUIPMENT**

- The selection of fitments/equipment has been standardised to facilitate easy servicing and supply (including consumables) by Curtin. A list of these is shown in Appendix A.
- Toilet cubicles, fixings and hardware shall be of a commercial grade quality appropriate for a high usage public building.

### 3.6 FLOOR COVERINGS

The selection of floor covering and finishes should be suitable to meet the space requirements and be easily cleaned and maintained. Factors to consider include:

- safety
- foot noise attenuation
- anticipated traffic intensity
- appearance retention
- cost of cleaning
- the ability of the colour and design to disguise dirt and stains.

#### FOOT TRAFFIC

Foot traffic is defined as the number of pedestrian movements through the most heavily used part of the area, usually one of the doorways or a corridor accessing several busy rooms.

When working day pedestrian traffic regularly exceeds 5,000 passages per day, stock standard carpets, even when rated as 'contract extra heavy duty', are probably unsuitable. Hard-surface or resilient flooring such as vinyl, stone, ceramic or polished concrete should be considered.

#### TRAFFIC CLASSIFICATION

Light/Moderate Traffic	< 1,200 foot traffic
Heavy Traffic	1,200 to 2,500 foot traffic
Very Heavy Traffic	2,500 to 5,000 foot traffic
Ultra Heavy Traffic	> 5,000 foot traffic

#### FLOOR COVERING OPTIONS

All floor covering materials shall be permanently antistatic to the degree that objectionable body voltage discharges are not experienced under the driest anticipated indoor humidity for the building.

Below is a selection of floor coverings and preferences in regard to cleanability requirements:

Covering Type	Details
Vinyl	Preference is for sheet vinyl with welded joints fixed to the floor using adhesives, in accordance with the manufacturer's instructions. The flooring should be either covered up all walls, plinths and service pipes to a height of 100–150 mm or fitted with black PVC skirting.  Within lifts, the preference is for non-slip vinyl flooring.

Covering Type	Details
Carpet	Carpet should not be used in wet areas or under cold water drinking fountains. Provide an area of non-slip sheet vinyl flooring with a minimum plan distance from the drinking fountain of 1 metre.
Granolithic/Concrete	Both types of flooring tend to be noisy, cold and prone to dusting, which makes them difficult to clean. It is preferred to seal these floors with a semi-permanent sealant. Both types should be 'acid etched' prior to sealing to give better adhesion and durability.
Ceramic flooring	<p>Ceramic tiles should be used on floors of all toilet areas and showers including air-locks, and general use stairs. Floor tiles to toilet and shower areas should be a minimum 50 mm x 50 mm unglazed or semi-glazed tile, with the grout colour dark (charcoal or similar).</p> <p>Any existing installations of porous unglazed tiles should be replaced or cleaned and re-sealed as part of any refurbishment works.</p> <p>Minimum slip resistance ratings will be:</p> <ul style="list-style-type: none"> <li>• Coefficient of Friction Dry 0.80</li> <li>• Coefficient of Friction Wet 0.60</li> </ul>
Timber	<p>If parquetry floor is being considered, ensure thickness of wood pieces is no less than 12 mm.</p> <p>If plank flooring is being considered, ensure thickness of wood is no less than 8 mm.</p> <p>Please avoid products with factory-applied finishes as even though these floors are hardwearing, cleaning and maintaining can be very difficult.</p>
Entrance/Door mats	<p>Door mats shall be provided at normal access doors at ground level to the building on the inside of the door. Mats shall be formed by inserting into general carpet at doorways by overlaying and double cutting the door mat carpet and adhesive fixed to floor.</p> <p>Door mat extent: a least the width of the door opening x the first three metres inside the door.</p> <p>Door mats shall be provided in mat recesses at each access to the building. Mat recesses shall be formed by brass angles set into the concrete. Mat recesses for fire-isolated areas shall be external and shall be adequately drained if exposed to weather.</p>
Stairs – internal	<p>Stair tread nosings should be heavy duty, slip resistant metal extrusions and purpose-made for the application. Stair nosings on masonry stairs should be recessed so that the top of the nosing is flush with the tread.</p> <p>Stair risers should have a finish that is not conducive to marking with stair goings to be the same width through the stairwell.</p> <p>Finishes on stairs will depend on the purpose and location of the stairwell within the building but ease of cleaning should be considered.</p>

## **4 CLEANING FACILITIES**

### **4.1 CLEANERS' ROOMS**

Cleaners' rooms should contain the necessary items for them to be safe, functional and adequate for cleaning staff to perform their work activities. Considerations include the following items.

#### **ROOM**

- A lockable cleaner's room of sufficient size and ventilation (minimum 5.4 m<sup>2</sup>) to accommodate the storage of equipment and materials, including trolley carts, shall be provided on each level of the building.
- The cleaner's room is to be situated in an area within the building where there will be minimal or no disruption to the normal business or operation of the facility.
- If a building level is to be more than 1,500 m<sup>2</sup> gross floor area (GFA), then a second cleaner's room shall be provided to minimise manual handling and other OHS issues.
- The walls should be painted with an oil-based paint.
- The provision of a dedicated exhaust system – no return air into the HVAC system.
- The provision of fire sprinklers, where possible.
- Light fittings that are adequately protected from incidental damage.

#### **DOORS**

- The provision of double doors for machinery access, the biggest architecturally possible, and for the doors to open outwards to maximise usable space.
- Have lockable doors with kick-plate protection.
- The cleaner's room shall be keyed to Curtin University's security key system 'C' key.

#### **FLOORS**

- The floor of a cleaner's room shall be sealed with a waterproof membrane and be non-slip, non-porous, chemical resistant and be a hard surface. The floor fall must be away from doors.
- Floor waste discharge with bucket trap – a minimum discharge of 230 mm and 195 mm bucket – connected to the sewer and ideally located in the middle of the floor space.
- Waterproof curved/coved edge skirtings to a minimum 150 mm up the wall.

#### **FITTINGS/FIXTURES**

- Racking of no less than six linear metres is to be provided within each cleaner's room, with a cleaner's sink and hot and cold running water.
- Industrial size (ability to fit a mop bucket) stainless steel sink/slop hopper equipped with strainer, grate and splash guards on rear and sides – connected to the sewer.

- Four power outlets with RCD protection, a minimum 1 m above floor level.
- A network outlet is to be provided in selected rooms, and at least one per building.

#### **4.2 PROVISION OF POWER OUTLETS**

- All power outlets installed for the purpose of cleaning must be installed in accordance with the *000312 PDG Electrical Services Guidelines*.
- Sufficient accessible power outlets shall be provided in all areas for the dedicated use of cleaning staff, including for all corridors, stairwells, entrances and toilet facilities.
- In corridors, a power outlet is to be installed at least every twenty metres to minimise risk to cleaning staff, equipment and users of the buildings when cleaning is performed during normal working hours.

#### **4.3 STORAGE FOR CLEANING EQUIPMENT AND SUPPLIES**

Adequate space for cleaning consumables must be provided in each building. Whenever possible consumables storage shall be provided in cleaners' rooms and if this is not possible it will need to be provided elsewhere in the building.

## 5 BUILDING WASTE MANAGEMENT

It is important that building design include adequate areas for the collection and storage of waste and recyclable items. These areas are to be suitably located for ease of use and servicing, away from main entrances and have minimal disruption on users of the facility.

Other design considerations include the following:

- Waste service points and associated vehicle access must be suited to the method of collection and be appropriately located to ensure safe and efficient servicing of containers – away from main entrances.
- Provide in facility areas, as a minimum, source separation bins for different waste streams to accommodate and segregate wastes and that these are easily recognised and appropriate to the waste streams expected to be generated by the facility.
- All external building waste management areas must be of sufficient size to accommodate the level of waste expected to be generated by the users and/or functions housed within the building. (Refer to Appendix A for bin sizes.)
- Waste storage areas must be provided with a general water tap and waste water drain with a trap to collect debris and refuse etc.
- The floor of a wash-down waste storage area should be graded to fall to a drainage point located within the wash-down area with drainage by means of a trapped gully connected to the sewer.
- Rainfall and other surface water should not be able to flow in to a wash-down waste storage area.
- The waste and recycling bins shall be stored in an external enclosure with minimum 1.8 m high walls or fence that is suitable for the location but can screen out the contents within the enclosure.
- The waste storage area or enclosure shall have a concrete floor or other approved material minimum with a thickness of 75 mm. Additional bin wash-down facilities (hose cock and floor graded to a 100 mm industrial floor waste) is to be provided. Gullies should incorporate a trap to maintain a seal for prolonged periods of use.
- For public space bin stations, a concrete plinth shall be installed with the size of the housing adequate to accommodate 2 x 240 L wheelie bins. For details refer to *000316 PDG Public Places Design and Technical Guidelines*.

## **6 ACCESS ARRANGEMENTS**

### **MAIL AND COURIER DELIVERIES**

For internal mail and courier deliveries/collections, the following is required:

- Access to the building for small mail vehicles, or a loading bay, dedicated Facility Manager's bay or similar. Otherwise, vehicles would need to be able to park as close as possible to the building to minimise OHS risks.
- A covered drop-off area is preferred, which would then be of benefit for various campus logistics functions.
- Access to collection point(s) within the building – if no access, then staff from the department must be in attendance. This would need to be confirmed at the planning stage with the building users. Mail cannot be left unsecured.
- If a swipe card is required for access, then it must be on Curtin's access control system.

### **MANUAL HANDLING FACILITIES**

- Where applicable, access to the building should have:
  - trafficable pathways with a minimum rating of 10 tonne; as appropriate to accommodate the building external cleaning plan
  - loading bay(s) of a suitable width to accommodate site services trucks (3–4 metres wide)
- Stairwells should be designed so that the:
  - tread depth (stair width) is no less than 400 mm
  - risers are no higher than 150 mm
  - landings within stairwells are of sufficient width/depth/breadth to handle items from the Curtin furniture system
- Office layouts should be designed so that there is sufficient space to be able to move and relocate furniture within office areas as invariably areas are replanned from time to time.
- Lifts are to comply with requirements in the *000322 PDG Vertical Transport Guidelines*.

## 7 REFERENCES/RELATED DOCUMENTS

Title
000312 PDG Electrical Services Guidelines
000326 PDG Hydraulic Services Design Guidelines
000316 PDG Public Places Design and Technical Guidelines
000322 PDG Vertical Transport Guidelines

## 8 APPENDIX A

### APPROVED AND STANDARD EQUIPMENT/FITMENTS RELEVANT TO WASTE AND AMENITIES

Equipment Type	Product Code	Supplier/ Manufacturer	Description
Bin External	85207	Sulo	240 L Blue Paper Recycling
Bin External	5201	Sulo	240 L Green Bin, Red and Yellow lids
Bin External	5039	Sulo	660 L Blue Cardboard
Bin External	5054	Sulo	660 L Green
Bin Internal	AS-060	Method	60L Base
Bin Internal	AS-060CL-Red-Lan	Method	60L Touch – Red Landfill with Lid
Bin Internal	AS-060CL-Amb-Mix	Method	60L Open – Amber Mixed Recycling
Paper Towel Dispenser	552030	Tork	Paper Towel Dispenser
Toilet Roll Dispenser	D58T	Stub	Double Jumbo Toilet roll Dispenser – Black
Soap Dispenser	B50C934	Statewide	Soap Dispenser - Gala – 1300 ml
Hand Dryer	20041	Zip Industries	Zip Silent Dry Touch Free Hand Dryer