



CURTIN UNIVERSITY
PROJECT DELIVERY GUIDELINES

**PUBLIC PLACES DESIGN AND
TECHNICAL GUIDELINES**

000316



Curtin University

Details of revisions

<i>Level</i>	<i>Details</i>	<i>Date</i>	<i>Initial</i>
<i>1</i>	<i>Initial version prepared for Project Delivery Guidelines from Technical Specifications v2 Public Realm.</i>	<i>Nov-16</i>	<i>RPS</i>
<i>2</i>	<i>Revised to integrate with Shared Zone Design Guidelines reference document.</i>	<i>Feb-18</i>	<i>RPS</i>
<i>3</i>	<i>Revised to integrate with 000346 PDG Services Metering Guidelines</i>	<i>Oct-18</i>	<i>RPS</i>

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1 INTRODUCTION

This document provides guidance on public places design principles, requirements and the technical specifications for construction projects at all Curtin University campuses.

Curtin places high value on campus urban spaces and its public and open spaces. To make these spaces more accessible and better utilised, the spaces need to provide the right level of amenities for their location and potential use. An analysis of the current use of the spaces and existing features is crucial, taking into account the vegetation, building function, pedestrian/vehicular access and public amenities e.g. movable furniture, drinking fountains and waste management.

All spaces will need to conform to the Curtin University Universal Design Guidelines.

For queries, identified issues, or where alternative public places elements are sought, contact the Portfolio Manager, Public Places.

1.1 ACADEMIC HEART MASTERPLAN

The Academic Heart houses Curtin University headquarters at Bentley and, to facilitate the delivery of the fundamental elements, development should follow a place-led approach where people and their needs are front and centre.

Planners and developers of public places projects should be aware of the Curtin Academic Heart Masterplan and its Development Guidelines. These guidelines are applicable to new development, redevelopment and refurbishment of all buildings and places within the Academic Heart.

1.1.1 SHARED SPACES

Planners and developers should familiarise themselves with the guidelines for the design or redesign of places and spaces that are intended to be shared between people on foot and people in or on vehicles such as cars or bicycles. The Curtin University Shared Zone Design Guidelines provide the information required to ensure that all shared zones meet the appropriate quality, safety, form and function standards to achieve the vision of a thriving urban environment.

1.1.2 THE LIVING STREAM

Planners and developers should familiarise themselves with the background and intent outlined in the Campus Living Stream Development Guideline. This document provides guidance for linking the Indigenous Dreaming Trails across the campus, the Living Stream and water elements to recognise and respect the importance of water to the Indigenous community.

1.2 CURTIN REQUIREMENTS

1.2.1 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.

1.2.2 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>

1.2.3 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*.

2 PUBLIC REALM ELEMENTS

2.1 TREES

All trees on site are an asset, and every tree on campus has been asset-valued. It is also important that planners and designers understand the Curtin Tree Replacement Plan for Black Cockatoo Habitat Improvement, as these tree resources are a vital component for the protection of the endangered black cockatoo.

The tree development criteria are described below.

2.1.1 TREE PROTECTION ZONES

At the planning stage of a project, existing trees must be identified and, to ensure their integrity, tree protection zones must be established. A tree protection zone is an area in which no grading or construction activity may occur. The tree protection zone should be large enough to retain sufficient root and crown area to maintain tree health and stability. The size and conformation of the tree protection zone for a given tree depends on several factors:

- species sensitivity to impact
- health and age of the tree
- root and crown conformation
- development constraints.

Where needed, a professional arborist may be engaged to obtain further advice.

2.1.2 TREE PURCHASE, PLANTING AND CONSIDERATIONS

As part of construction projects, landscape architects and designers are to incorporate more trees on sites, which will provide a shading element and assist in the reduction of the urban heat island effect.

All trees are to be plotted using a global positioning system (GPS) and relevant forms completed to ensure tree data is kept up to date. (Refer to the Drawing Services Design Brief.)

Consideration should be given to the following requirements:

- Trees are to be purchased from a reputable tree nursery.
- Trees are to be species that are low risk to staff, students, visitors and property e.g. trees that are not susceptible to dropping branches, especially when adjacent to pedestrian pathways.
- Tree species are to suit the location, with thought given to maximum growth habit.
- Preference is for metal tree ring edging to be installed around the tree base at planting stage.
- Dependent on site location, tree root barriers are to be considered.
- Trees are to have a separate irrigation system (refer to Irrigation).
- The location of trees is to be taken into consideration so that they do not affect the vision of pedestrians, vehicles, security cameras or grounds/security lights.
- Trees are to be located with consideration for maintenance accessibility.

- Lighting in trees is to be easily removed for future tree maintenance. On installation, lights within the tree canopy should not affect the long-term wellbeing of the tree e.g. anything that restricts the tree's growth or penetrates into the tree structure.
- Trees that are likely to be affected by newly built structures or infrastructure upgrades are to be identified at the early planning stage.

2.2 FLORA

Consideration should be given to the following requirements:

- Plants are to be sourced from a reputable plant nursery.
- Plants are to be a waterwise, drought-tolerant species. (Exceptions can be made in areas with special requirements such as high-shade areas.)
- Plants with similar watering needs are to be grouped together (water zoning of plants).
- An instant landscape approach is to be adopted, as mass planting decreases weed growth in areas.
- Areas of planting are to have separate irrigation systems (refer to Irrigation).
- Installation of plants/trees/turf is to be completed within the cooler season months and not in the middle of summer.

2.3 TURF

Consideration should be given to the following requirements.

- Turf selection is dependent on the site and should be with regard to its special conditions e.g. amount of shade, high pedestrian use.
- Turf is to be selected from a reputable turf grower.
- Metal edging is to be installed with turf that adjoins garden beds.

2.4 MULCH

Mulch is to be shredded pine bark or quality recyclable green waste woodchip mulch and not jungle/peat mulch. Mulch is to be purchased from a reputable soil company.

2.5 HARDSCAPES

Hardscapes will be assessed on a project-by-project basis, dependent on the project scope and scale and will comply with requirements set out in the Academic Heart Landscape Master Plan's material schedules.

The University predominantly uses UrbanStone products and clay pavers.

Where concrete is used for trafficable surfaces, it is to meet the standards for vertical tolerances and slip resistance and the surface finish is to complement or match existing surfaces.

The Curtin University Shared Zone Design Guidelines provide further information for designers when the hardscape is part of a shared zone.

2.6 PEDESTRIAN WAYS

Pedestrian ways are to be designed for safe, clear travel for all. They should facilitate movement and connections between areas and facilities across the campus.

The following are design considerations:

- Pathways are to be universally accessible.
- Pathways should be visible, provide climate comfort and be clutter-free.
- Pathways should complement or match existing materials, with a preference for clay pavers.
- Surfaces must be slip resistant, flat and even, with smooth transitions.
- Pathway width should consider existing pathways and accommodate pedestrian traffic.

The Curtin University Shared Zone Design Guidelines provide further information for use by designers when the pedestrian way is part of a shared zone.

2.7 LANDSCAPE AND IRRIGATION SPECIFICATIONS

Irrigation designs are to be completed by a reputable irrigation consultant who has experience with the particular University site. Irrigation is to be installed by a preferred irrigation contractor. A listing of these can be provided on request.

2.7.1 IRRIGATION METERING

All irrigation of public places at Curtin University and the Greater Curtin Precinct shall be metered, in accordance with the requirements described in *000346 PDG Services Metering Guidelines*.

2.7.2 GROUNDWATER SUPPLIES

All irrigation to the Bentley Campus uses groundwater supplies and therefore is a valuable resource. Curtin University has a licence for groundwater use from the Department of Water and must comply with its terms and conditions.

The use of groundwater for construction on University sites is not an authorised activity under the University's licence conditions. The need for dust suppression during construction will be identified during the planning stage. Contractors or individuals requiring groundwater for use during construction must apply in writing to the Department of Water. (Refer to the Department of Water website www.water.wa.gov.au/licensing/water-licensing.) Once approval is given, a copy is to be provided to the Portfolio Manager, Public Places.

If the use of groundwater has been denied for dust suppression, water tankers will need to cart water in and not use Curtin's scheme water. (Refer to *the 000326 PDG Hydraulic Services Design Guideline*.)

2.7.3 IRRIGATION

MAINLINE

New irrigation mainlines are to be welded polyethylene pipe – minimum PN 12.5.

LATERALS

PVC lateral pipework should be a minimum of Class 9 SWJ at 350 mm cover and 600 mm cover over-sleeve under roads or pathways. The pipe is to be to Australian standards and a minimum size of 25 mm PVC.

SLEEVES

Sleeves are to be installed under roads and pathways, be a minimum of 600 mm cover and be two sizes larger than the pipe that is being sleeved. Sleeves used must be a minimum of Class 9 PVC.

CONDUIT

Wiring is to be installed in a minimum of 25 mm MD electrical conduit.

MAINLINE FITTINGS

Tees that are size 80 mm and above are to be cast – old system.

Bends can be cast or long radius SWJ PVC – old system.

Valve take-offs on PVC pipe should be 50 mm gunmetal tapping bands – old system.

New valve take-offs on welded polyethylene pipe should be poly tapping bands with a minimum 50 mm outlet.

THRUST BLOCKS

Mainline fittings (tees, bends, elbows etc.) are to be thrust blocked as per the pipe and fittings manufacturers' recommendations.

PVC FITTINGS

PVC fittings should be made to Australian standards and be at least Class 18 or greater.

CONTROLLERS

New irrigation controllers installed at Curtin University sites will be the SD two-wire system as manufactured by Technical Irrigation Imports (TII).

IRRIGATION CABLE/JOINTS

- Old system – Active cable is to be 1.5 mm colour code common cable 2.5 mm black.
- New SD two-wire system – Cable is to be a minimum of 2.5 mm two-wire cable suitable for the SD controllers.

Cable joints are to be done using King one-step connectors, unless using the two-wire cable system, in which case they are to be soldered first and put into a 3M DBY or are to use Pentair BVS-2/BVS-1 connectors. All cable joints are to be in a cable pit or valve box.

CABLE PITS

Cable pits are to be installed at all cable connections and for changes of direction. Cable pits are to be fibre cement (FC-1) with a plain lid, and not exceeding 100 metres from the nearest joint.

SOLENOID VALVES

Solenoid valves are to be Bermad Series with flow control. All solenoids are to have an isolation valve on the incoming side of the valve and all two-wire systems are to have data coils (SDS Bermad Data Coil).

BALL MARKERS

Solenoid valves are to have 3M General Purpose EMS ball markers 1428-XR/ID installed in the bottom of irrigation valve boxes.

Isolation or cable pits are to have 3M telephone EMS ball markers 1401-XR installed in the bottom of them.

VALVE BOXES

The type of valve box to be used is dependent upon site location.

Isolation valve – 910 valve box

In garden bed areas – Standard Rain Bird valve box

In turf areas – HR Product hydrant valve box with green lid

In turf playing fields – Standard VB1419 valve box; installed a minimum 300 mm below ground level.

ISOLATION VALVES

Mainline isolation valves that are 80 mm and above are to be flanged, cast iron, clockwise-closing sluice valves (Red Tops). Valves that are installed on the incoming side of the solenoid that are 50 mm or less in diameter are to be Philmac or Hanson valves. Any 80 mm isolation valve that is installed on a solenoid can be a brass or stainless steel ball valve.

SMALL TURF SPRINKLERS

Small sprinklers are to be Toro 570z series pop-up 75–100 mm (3 or 4 inch) sprinklers on poly artic risers or Eze elbow/tubes.

LARGE TURF SPRINKLERS

Large sprinklers are to be Hunter I-20 or I-40 geared pop-up 100 mm (4 inch) stainless steel shafts with check valve on poly artic risers.

GARDEN BED SPRINKLERS

For the middle of garden beds or in inaccessible areas, sprinklers are to be Toro shrub heads on poly artic risers.

For areas near footpaths and roadways, sprinklers are to be Toro 570z series pop-up 150–300 mm (6 or 12 inch) depending on the planting, on poly artic risers or Eze elbow/tubes.

BUBBLERS

On new trees – Toro flood bubblers on Toro 570z 100 mm (4 inch) pop-ups are to be used, as per the plan. All bubblers are to be on separate stations so they can be turned off after the trees are established.

AS-CONSTRUCTED DRAWINGS

Once all new irrigation areas are completed, the contractor will submit AutoCAD as-constructed drawings as per the Curtin CAD Standard.

CURTIN PERMITS TO WORK

Relevant permits, e.g. to dig/excavate must be obtained before construction is started.

Forms and instructions are available through Curtin University's Permits to Work webpage <https://properties.curtin.edu.au/workingforus/permits.cfm>.

SITE

No holes are to be left open overnight, unless cordoned off. The site is to be left clean and level at the end of the day/job.

IRRIGATION MAINLINE ISOLATIONS

No irrigation mainline or bores are to be isolated without notifying the Curtin Turf & Irrigation Supervisor or the Curtin Irrigation Maintenance Officer.

TREES

No tree roots or plants are to be cut or removed without the Horticultural Supervisor's or Technical Officer's permission.

CONSULTANTS

New irrigation designs need to be completed by an irrigation consultant.

COMMISSIONING OF LANDSCAPE WORKS

Commissioning of landscape works must be inspected and approved by the Portfolio Manager, Public Places at completion of the project in order to obtain practical completion.

2.8 AMENITY ELEMENTS

Amenity elements, including furniture, are to be considered when designing a site to provide comfort to students, staff and visitors.

To have consistency with existing furniture/amenities at Curtin campuses, the list below shows the preferred elements. Other furniture or amenity elements (of commercial grade) may be considered and are to be approved by the Portfolio Manager, Public Places.

The use of appropriate amenity elements for shared zones is discussed in the Curtin University Zone Shared Design Guidelines.

Preferred furniture/amenity items	
Item	Supplier
<p>Kink tables and benches</p> <p>Description:</p> <p>Kink table dimensions: 2100 x 830 x 740 mm high</p> <p>Kink seat dimensions: 1900 x 410 x 475 mm high</p> 	<p>Design Farm Tait Furniture</p> <p>www.designfarm.com.au/</p> <p>Contact: Margaret Entriiken</p> <p>T: 08 9322 2200</p> <p>E: margaret@designfarm.com.au</p> <p>Address: 1000 Hay St, Perth WA 6000</p>
<p>White umbrellas</p> <p>Description: Cafe Series Umbrellas</p> <p>Size: 3 m square</p> <p>Fabric: Premium acrylic canvas</p> <p>Fabric colour: White</p> <p>Moveable bases sandbags</p>	<p>Awning Republic</p> <p>http://awningrepublic.com.au/</p> <p>Contact: Jamie Morrison or Aime Bellingham</p> <p>T: 08 9361 2728</p> <p>E: info@awningrepublic.com.au</p> <p>Address: Unit 2, 9 Milford Street East Victoria Park WA 6101</p>
<p>In-ground black umbrellas</p> <p>Description: 3 m SQ Cafe Series Umbrella</p> <p>Material: Black poly</p> <p>Cafe Series In-ground Fitting Umbrella 50 mm</p>	<p>Instant Shade Marquees & Umbrellas</p> <p>Contact: Alan Scott</p> <p>T: 0433 761 333 or 03 9555 9535</p> <p>E: Alan@instantshade.com.au</p>

Preferred furniture/amenity items	
Item	Supplier
	Address: 51 Capella Crescent, Moorabbin VIC 3189
Bean bags	Unitec http://www.unitec.net.au/ Contact: Joseph Kolz T: (08) 9248 1894
Filtered water drinking station 	aquafil http://aquafil.com.au/ P: 1300 400 006 F: (61 2) 9737 0948
Bike rack 	Cora Bike Rack http://www.cora.com.au/ T: 1800 249 878 E: sales@cora.com.au
Description: Cora 'CBR 2' bike rack	

Preferred furniture/amenity items					
Item	Supplier				
Material: 316 grade stainless steel					
<p>Dual bin enclosures</p>  <p>Description: 120/240 L dual frame bin enclosure Product: COX URB:EWL 121 (CUSTOM AS DUAL) or COX URB:EWL 241 (CUSTOM AS DUAL) Frame: Anodised aluminium clear Panel: Stainless steel with Avery cast vinyl laminate wrap General waste: red Drink containers: yellow Signage for each side of the enclosure Support fixed to footing. Include adjustable telescopic legs</p> <p>REFERENCES</p> <table border="1"> <thead> <tr> <th>Reference title</th> </tr> </thead> <tbody> <tr> <td>Campus Living Stream Development Guideline</td> </tr> <tr> <td>Curtin Academic Heart Landscape Masterplan (under c</td> </tr> <tr> <td>Curtin CAD Standard</td> </tr> </tbody> </table>	Reference title	Campus Living Stream Development Guideline	Curtin Academic Heart Landscape Masterplan (under c	Curtin CAD Standard	<p>Cox Urban Furniture http://www.coxurbanfurniture.com.au/ T: 1800 2584 3676</p>
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Curtin University Shared Zone Design Guidelines	
<i>000346 PDG Services Metering Guidelines</i>	
APPENDIX A DUAL FRAME BIN ENCLOSURE DETAILS	
<p>Handrail</p> <p>Description: Stainless steel handrail and posts</p> <p>Material: 316 grade stainless steel</p> <p>Size: 48 mm handrail with an internal wall thickness of 3.7 mm and post with 30 mm x 20 mm connector tube to 50 mm x 50 mm post fixed into reinforced concrete</p> <p>Finish: Electropolished to 180 grit</p> <p>Footing: In-ground concrete footing, (refer to drawings)</p>	none

3 REFERENCES

Reference title
Campus Living Stream Development Guideline
Curtin Academic Heart Landscape Masterplan (under development)
Curtin CAD Standard
Curtin Tree Replacement Plan for Black Cockatoo Habitat Improvement
Curtin University Universal Design Guidelines
Curtin University Shared Zone Design Guidelines
<i>000346 PDG Services Metering Guidelines</i>

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APPENDIX A DUAL FRAME BIN ENCLOSURE DETAILS



