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1 INTRODUCTION

Curtin is a large, culturally diverse university spread across multiple campuses and countries, with many others joining us online. To connect us across these diverse locations, we will provide work and study environments that are inclusive and collaborative.

Curtin is committed to providing a safe and welcoming environment for all staff, students and partners. We want all of our campuses to be vibrant and welcoming places for the broader community to engage with us across a range of academic, entrepreneurial and commercial activities. The physical comfort of the working/studying environment is crucial in this regard.

1.1 THE UNIVERSITY AS A LONG-TERM OWNER

The University has a vital interest in the quality and long-term sustainability of its built environment. A quantitative measure is life-cycle costing and life-cycle costs should be minimised as far as possible. The qualitative terms ‘buildability’ and ‘maintainability’ are equally relevant in this context.

The as-installed project must conform to established University building standards and represent the best possible value for money consistent with planning and financial restraints. It must also be easy to maintain, energy efficient, easy to clean and environmentally and aesthetically acceptable, both internally and externally. It must be buildable and in the final form must be flexible enough to allow ready and inexpensive alterations. Environmentally responsible processes and technologies must be employed throughout the project, including the recycling and re-use of materials, sustainable/environmentally sound sourcing and the safe disposal of dangerous materials unavoidably used in project processes.

1.2 PURPOSE

The purpose of this document is to provide an overview of the planning and design principles to be considered when providing consultancy and/or design of the interior and exterior environments of built form Curtin University projects. This document is intended for use by consultants, architects, engineers and other design services.

In the design phase of any project, both the best design outcomes, that accord with the client’s policy requirements, and coordination of services and installation must be considered by consultants. The design should ensure that all selected building materials and services are fit for purpose whilst also providing value for money. Building materials and services must be of sound construction, offer local support and integrate with other services and design concepts. Importantly these materials and services must be easily maintained and able to be scaled to the University environment.
1.3 PRINCIPLES

1.3.1 GREEN STAR – COMMUNITIES

All new or refurbishment projects on site should support Curtin’s status as Australia’s first university to achieve a 5-star Green Star-Communities rating from the Green Building Council of Australia (GBCA).

Additionally, Curtin University’s aspiration is that all new buildings should seek to achieve GBCA 5 Star Green Star As-Built. Furthermore, all building refurbishments should understand and incorporate practical, innovative and achievable Green Star criteria into designs and specifications in order to maintain and enhance Curtin’s Green Star status.

Information on the criteria and the process to follow for Green Star Communities can be found in the 000325 PDG Green Star – Communities Design Guidelines.

1.3.2 ACCESSIBILITY

Curtin has a vision to be the most accessible Campus in Australia by 2030. The pathway to achieving this vision is detailed in its Disability Access and Inclusion Plan (DAIP).

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 – Built Form is PF&D’s response to the vision and 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. The Universal Design Guideline – Built Form can be found at http://properties.curtin.edu.au/workingwithus/guidelines.cfm.

The Universal Design Guideline – Built Form seeks to exceed minimum mandatory requirements through focusing on the following seven principles:

- equitable use
- flexibility in use
- simple and intuitive use
- perceptible information
- tolerance of error
- low physical effort
- size and space for approach and use.

1.3.3 WAYFINDING

Curtin’s vision for wayfinding is that it will:

- be logical and inclusive
• promote a ‘permeable’ Curtin
• be personalised to enhance the user experience
• be integrated to ensure consistency across a variety of interfaces
• be easy to update.

Curtin’s key wayfinding goals are:

• consistency of approach to temporary and permanent wayfinding systems to reduce wayfinding confusion
• provision of a wayfinding approach that provides a safe, secure and inclusive journey that is appropriate to all
• promotion of sustainable wayfinding systems that maintain relevance in the ever-changing environment
• clearly defined and legible gateways and threshold points, to promote the concept of a permeable Curtin
• enhanced legibility and connectivity for all network users with provision of a strong linkage between Curtin and external wayfinding systems
• use of the built environment to intentionally enhance intuitive wayfinding.

1.3.4 ACTIVATION AND INTERACTION

Curtin creates a ‘sticky campus’, an attractive and lively cultural hub at its Bentley Campus, one that connects our students and staff with the broader community.

Through its Place Activation Program, Curtin ensures that its campus is an inclusive, engaging and enjoyable destination, where students and staff are at home and the wider community feels welcome. Further details including the daily food truck program and event program can be found at https://properties.curtin.edu.au/ourprojects/placeactivation.cfm.

Projects should be considered in the context of Bentley as a precinct with an active social life, bringing together visitors, students, workers, their families and friends, in a strong community bond. Designs should consider accessibility, proximity to and interaction with:

• Place Activation Programs
• public spaces
• sports and recreation facilities – active lifestyle
• amenities
• resting places.

Designs should also consider movement patterns across the campus that link activity generators, places and attractions and stimulate economic and social exchange. Designs should provide an environment that protects users from the elements, encourages indoor and outdoor activity and encourage the use of bicycles and other active forms of transport means of transport by incorporating:

• weather protection – access between places
• welcoming end of trip facilities for travel and activities
• connection between levels – staircases instead of lifts
• priority for pedestrian and cycle access.

### 1.3.5 Indoor Environment

At Curtin, ‘fitting work and study to people’ is the process of designing or arranging environments to fit the people who use them. This examines how people interact with their environment from both a physical and psychological perspective, and identifies ways to promote access, prevent injury and maximise productivity. Considerations should include:

- building orientation
- accessibility
- occupant internal movement and flow
- acoustic comfort
- thermal comfort
- daylighting
- connection to outdoors.

### 1.3.6 Adaptability, Resilience and Diversity

To create places that cater for all people, encourage engagement, collaboration and innovation and is resilient to future change in society, economics and climate, designs should incorporate:

- flexibility and adaptability
  - size and volume
  - clear spaces – no structural components
  - modular accessible services
- modular and mobile furniture
- technology-richness
- connectivity and wireless facilities
- assistive technology.

### 1.3.7 Indoor Air Quality

Design should consider the health and comfort impacts associated with indoor air quality (IAQ). The impact upon IAQ of applied finishes and associated materials (paints, adhesives, sealants, carpets and engineered wood) and, in particular, the minimisation and/or exclusion of the following should be considered:

- Volatile Organic Compounds (VOCs)
- formaldehyde.
Designs should actively consider the inclusion of indoor plants evenly distributed across areas.

1.3.8 ACOUSTICS, NOISE AND VIBRATION

Designs should consider the whole environment, internal and external, including size, volume, shape, construction, traffic/vehicular/flight path noise, public/gathering places, work/study stations/partitions, work/study typology, surfaces and finishes.

Designs should ensure that:
- internal ambient noise is minimised
- reverberation is minimised
- transmission of sound is minimised through acoustic separation.

1.3.9 VISUAL COMFORT

Designs should consider high levels of visual comfort through:
- reduction of glare from natural (external) lighting through the use of shading devices (screens, blinds and tinting)
- maximised levels of natural daylight during at least 80 per cent of the normal working day (preferred 60 per cent with a minimum of 40 per cent of the area)
- a clear line of sight to a high quality external or internal view across at least 60 per cent of the nominated area.

Designs should consider the orientation and façade design of buildings and structures, having regard to:
- solar heat gain and glare
- minimising overshadowing of places and attractions
- provision of high quality external and internal views from spaces within buildings.

1.3.10 COMMISSIONING AND HANOVER

Planning and implementation of the transition from construction into operation should form part of the project plan and should consider:
- commissioning and post-occupancy adjustment of plant and equipment
- detailed operations and maintenance documentation
- demonstration of operation and controls to key stakeholders.
1.4 PROJECT DELIVERY GUIDELINES

The entire suite of Project Delivery Guidelines provides the necessary insights on all aspects of each new capital project. For particular elements of this guideline, the following guidelines are useful:

- 000311 PDG Mechanical Services Guidelines for air conditioning and ventilation
- 000312 PDG Electrical Services Guidelines for lighting
- 000344 PDG Acoustic Requirements Guidelines for acoustics and noise
- 000335 PDG Workplace Design Guidelines for office workspace design
- 000333 PDG Learning and Teaching Spaces Guidelines for student workspace design
- 000336 PDG Research and Laboratory Design Guidelines for laboratory workspace design
- 000325 PDG Green Star – Communities Design Guidelines
- 00340 PDG Transport and Movement Guidelines.
2 REFERENCES

- Refer to clause 1.4 for Project Delivery Guideline references
- Universal Design Guidelines – Built Form
- Greater Curtin Master Plan, Parts A, B and C
- Academic Heart Development Guidelines
- Green Star – Interiors
- Green Star – As Built
- The Lighting Handbook (Chapter 33) – Illuminating Engineering Society (IES)
- AS/NZS 1680.1 and the AS(/NZS) 1680.2 series
- Green Star Daylight Hand Calculation Guide.