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Universal Design Guide

University of Wollongong
Universal Design Guide
Built Environment
FINAL version
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University Of Wollongong

Universal design is a design process that makes environments, services and products for the greatest number of people

Welcome to the University of Wollongong (UOW) Universal Design Guide. This Guide is a practical tool for creating more inclusive environments and experiences at UOW.

The Universal Design Guide is a result of many conversations with the UOW community including staff and students with lived experience of disability, teams from Disability Support Services, Facilities Management, WHS, IT, Brand and Marketing, Events and Pulse as well as specialist knowledge and expertise in access and inclusion by funktion.

We would like to thank you all for your valuable insights and contribution, we're delighted to share this publication and continue the conversation with each other, our community and our project partners.

– UOW Planning & Development Team

Seven principles of universal design define the key considerations of design as they apply to the built environment.

EQUITABLE USE

Useable and desirable to people with diverse abilities

FLEXIBILITY IN USE

Accommodates a wide range of individual preferences and abilities

SIMPLE AND INTUITIVE USE

Easy to understand and reduces complexity

PERCEPTIBLE INFORMATION

Communicates information effectively and in a variety of modes

TOLERANCE FOR ERROR

Minimizes hazards and the adverse consequences of accidental or unintended actions

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LOW PHYSICAL EFFORT

Efficient and comfortable use with a minimum of fatigue

SIZE AND SPACE FOR APPROACH AND USE

Appropriate size and space for approach, reach and manipulation when seated or when standing

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Universal Design Guide

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01 Background

Background

Introduction

Overview

‘University of Wollongong aspires to set the standard for inclusiveness, diversity and equity’

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UOW Accessibility Action Plan 2019-2021

The University of Wollongong Universal Design Guide is here to support the provision of an equitable, diverse and inclusive university environment at UOW. Based on universal design and Whole of Journey principles, the UOW Universal Design Guide forms a living collection of ideas and best practice that will evolve alongside the implementation of the UOW Strategy, UOW Masterplan and Accessibility Action Plan.

The Universal Design Guide is a resource for staff and contractors responsible for the construction of new buildings and refurbishments, pathway networks and the outdoor environment. The Universal Design Guide focuses on international best practices in access and inclusion in the built environment that will build on a whole campus that is welcoming and inclusive for students, staff and visitors with disability.

As detailed in the University of Wollongong Accessibility Action Plan 2019 – 2021 (AAP):

“UOW is committed to providing an environment that facilitates the success of all students and staff living with disability, and to the provision of an inclusive culture where all individuals can actively participate and excel in their studies and work.”

The goal of the AAP is to provide a coordinated and accountable approach to achieving our vision of an inclusive university for all students, staff and visitors and the Universal Design Guide has been developed to provide an enabling university environment and ensure that all new, major and minor building works and public realm works embody universal design principles.

While universal design principles can be applied to all areas of learning, teaching and information technology, this Guideline focuses on access to the built environment for all students, staff and visitors including those with disability, whether that be sensory, cognitive, physical, temporary, permanent or episodic.

Purpose

Design is all around us and has a strong influence on the quality of our lives. When the needs of a diverse population are considered, design can remove real and imagined barriers and promote independence, participation and quality of life – resulting in better environments that are sustainable and inclusive for everyone.

The purpose of the UOW Universal Design Guide is to provide a set of design strategies for implementing universal design specific to UOW's physical environment. The strategies and design criteria in this guide are based on the principles of universal design. Universal design embraces best practice in disability inclusion planning and encourages design to go beyond compliance with minimum standards, and design for inclusion.

The intent of this Guide is to assist project teams integrate the principles of universal design into strategic planning and design to meet the needs of a wide range of UOW community members well into the future. Creating inclusive places and spaces that embrace diversity and deliver design solutions that benefit as many people as possible, ensures that each person has an equally welcoming and empowering experience at UOW.

The Guide is not prescriptive, unlike the National Construction Code and Australian standards for Access and Mobility, although it does reference these documents where mandatory design requirements sit alongside accessible and universal design principles. The intent is to broaden the view of what encompasses accessible and inclusive design, so that built environments can respond to a variety of staff, student and visitor needs. Accessibility is addressed in its widest sense, including people with physical, sensory, neurodiverse, medical and mental health conditions. The Guide looks at how to make design features more usable and how to improve the experience at places that already meet minimum accessibility compliance.

The Guide recognises the wide variety of possibilities and constraints that face project teams. From limited resources, to the importance of upgrading existing infrastructure and balancing accessibility requirements, to the development of new buildings, and managing the integration between the two. The aim is to provide a holistic, practical and effective tool to make and manage improvements in the built environment that create more access in more places for more people.

The Guide is for people involved in the management, maintenance, refurbishment, design and construction of the UOW campuses including project managers, architects and design professionals, planners, engineers, builders, and facilities managers.

Background

Context

With the purpose of achieving 'above compliance' inclusive environments for the UOW community, the Guide is structured to work in a number of ways:

- **Advocating** the importance of design for improving access and inclusion
- **Supporting** UOW staff and contractors to deliver universal design by incorporating the diverse needs of people including those with disability
- **Enabling** effective inclusive practices to be established and supported in the design and development process

It is hoped this resource will become a comprehensive source of practical information and considerations that contribute to 'best practice' or beyond 'DDA compliance' outcomes on any UOW building or refurbishment project.

Context for Planning and Design

'People with disability want the same things as everyone else – and they deserve the same opportunity'

—

Commonwealth of Australia 2011

Background

Improvements in accessibility in the built environment have been driven and supported by legislation and policy frameworks that have aimed to eliminate discrimination against people with disability and ensure that people with disability have the same rights as the rest of the community.

This Guide should be read in conjunction with the relevant legislation, standards and policies outlined in this section. The Guide aims to address scenarios in learning and teaching environments that are not covered by these standards and legislation. The design considerations aim to exceed the minimum mandatory requirements by broadening the view of accessible design and moving beyond compliance with minimum standards, toward universal design across the UOW campuses which will cater for a wider range of people's needs.

UOW Strategic Commitments

Embedding universal design into UOW physical environments is underpinned by a number of UOW strategic planning commitments. The following strategies align with the adoption of universal design, access and inclusion in the built environment. Further detail is provided in the Planning and Governance section of the Guide.

- Strategic Plan 2020-2025
- Masterplan 2016-2036
- Accessibility Action Plan 2019-2021

UOW Disability Policy – Students & Staff

UOW is committed to a program of continuous improvement that will ensure all buildings and facilities are accessible to people with disability. This will be achieved through the ongoing review and upgrade to existing buildings and construction of new buildings and facilities to comply with the Disability (Access to Premises – Buildings) Standards, 2010 (Commonwealth); Standards AS 1428.1– 2009 Design for Access and Mobility and AS1428.2 – 1992 Design for Access and Mobility – Enhanced and Additional Requirements – Building and facilities.

Background

Legal Framework

The following legislation and standards are integral to UOW's Accessibility Action Plan and are applicable to students, staff and visitors:

- The Disability Discrimination Act 1992
- NSW Disability Anti-Discrimination Act 1977
- The Disability Standards for Education 2005 and the Review of the Education Standards 2015
- The National Disability Strategy 2010 – 2020
- The Convention on the Rights of Persons with Disabilities 2006
- Fair Work Act 2009
- Disability (Access to Premises – Buildings) Standards 2010

To meet the Disability (Access to Premises – Buildings) Standards 2010, all new buildings and new parts of refurbished buildings must meet mandatory design requirements to better meet the needs of people with disability. The mandatory requirements are the minimum requirements to be met in the design and construction of all new buildings and in the refurbishment of existing buildings.

The Building Code of Australia (BCA) in conjunction with the Disability (Access to Premises – Buildings) Standards 2010 (Premises Standards) apply to new buildings and existing buildings that undergo refurbishment. The Premises Standards apply to any new part, and any affected part, of an existing building.

Background

Project specific design reviews during design development should address detailed requirements to ensure minimum mandatory requirements in the following listed legislation and standards can be addressed as they become relevant.

- Disability (Access to Premises – Buildings) Standards 2010
- The Disability Discrimination Act 1992 (DDA)
- Disability Standards for Education 2005
- The Building Code of Australia (BCA) primarily parts D3, E3.6 and F2.4
- AS1428.1 (2009) (Incorporating Amendment No 1): Design for access and mobility Part 1: General requirements for access – New building work.
- AS1428.2 (1992) Design for access and mobility Part 2: Enhanced and Additional requirements – Buildings and facilities
- AS1428.4.1 (2009) (Incorporating Amendment No 1): Design for access and mobility Part 4.1: Means to assist the orientation of people with vision impairment – tactile ground surface indicators
- AS1428.4.2 (2018) Design for access and mobility Part 4.2: Means to assist the orientation of people with vision impairment – Wayfinding signs
- AS1428.5 (2010) Design for access and mobility Part 5: Communications for people who are deaf or hearing impaired (referenced)
- AS1735.12 (1999) Lifts, escalators and moving walks Part 12: Facilities for persons with disabilities
- AS2890.6 (2009) Parking Facilities – Off-street parking for people with disabilities
- AS3745 (2009) Planning for Emergencies in Facilities
- Australian Human Rights Commission Guideline on the Application of the Premises Standards (2013)

Using This Guide

How to use this Guide

The Universal Design Guide advocates for a whole of organisation approach in realising good design processes and outcomes for UOW. With a focus on the built environment, the UD Guide will particularly assist professionals such as project managers, architects and design professionals, planners, engineers, builders and facilities managers to better understand how to incorporate universal design principles through the development and management of new and existing buildings and outdoor spaces. In addition, the Guide can also be used and referenced by multiple user groups and audiences in the UOW community to:

- Support good inclusive practices and design outcomes
- Provide a framework for good design that will help create, evaluate and deliver more inclusive projects
- Establish a human centred design approach to the inclusive staff, student and visitor journey – the methodology established in this Guide supports a customer experience approach
- Provide a framework to support and develop tools for universal design outcomes through other complementary projects and initiatives
- Have a clear understanding of what 'universal design' means in the built environment and university context and have a set of design objectives to help focus the design intent of a variety of stakeholders on common functional outcomes
- Understand universal design practices and how they deliver benefit to a diversity of people, including those with disability
- Help the UOW community participate in the conversation about universal design and review processes that affect access and inclusion within their campus environments
- Support design teams to promote the importance of an inclusive approach and the value of universal design when working with project teams and suppliers to develop improved outcomes.
- Support the prioritisation of universal design in early procurement processes and articulate the value of access and inclusion more broadly
- Understand the role of design decisions in a range of ways such as project scope, whole of life costs and accessible product selection
- Holistically plan and develop solutions that are inclusive, accessible, responsive, innovative and practical

02 Design Principles

Introducing Universal Design

Introducing Universal Design

Universal Design makes places more inclusive for more people

Inclusive environments are welcoming to all people by removing barriers, broadening participation and unlocking possibilities for diverse communities irrespective of people's age, ability or origin. The design of the built environment shapes the places where we live, learn, work and meet. Design that considers the needs of a broad range of people can make experiences better for everyone.

Universal design is an approach to intentionally design and deliver programs, services and facilities to remove barriers to access. While universal design helps ensure inclusion of people with disability, it is seen as good design practice to ensure that programs, services and facilities are designed to meet the needs of all people who wish to access them.

Universal design (UD) is a cornerstone of good design. It is a design process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation.

> 'Universal design refers to the design of products, services and environments to be used to the greatest extent possible by all people, regardless of their age, size, ability or disability without the need for adaptation or specialised design.'
>
> —
>
> **The Centre for Universal Design**

Design Principles

Universal design is an effective way to remove barriers that exclude people with disability and identifies solutions that are usable, accessible, and enjoyable to use, where everyone benefits. Unlike accessibility compliance that often considers minimum requirements to delivering a solution, UD considers the diverse abilities of all throughout the design process creating products, services and environments that effectively meet the needs of a broad range of users. By considering people's diversity and designing a diversity of ways for people to participate, it is possible to break down unnecessary barriers and exclusion, often achieving superior, flexible solutions that benefit everyone while still delivering a good return on investment.

UD is a process rather than an outcome. It is a design practice that considers the varied abilities of people that can be applied to any type of design. Features that enhance access or use for some should not hinder or diminish the experience for others. Every decision made can raise or lower barriers to participation. It is our collective responsibility to lower these barriers through designing inclusive environments and experiences using the seven principles of universal design.

As developers, asset owners, designers, builders, and managers, we often generate and evaluate ideas on what we know. But the problem is that if we use our own abilities as a baseline, we will solve problems using our own biases and make things that are easy for some people to use and difficult, even excluding for others.

There are over 35,000 staff and students accessing University of Wollongong campuses, with this population set to increase in the coming years. If we are to create campus environments that are physically, cognitively and emotionally suitable for the UOW population, we need to broaden our perspectives and personal biases (based on our own experiences), to integrate into design, development and management processes, a more inclusive view of how people of all abilities access and interact with environments, and most importantly, how they can do so seamlessly with independence, equity and dignity.

Seven Principles of Universal Design for UOW

The seven principles of universal design were developed in the mid-nineties by a working group of architects, product designers, engineers and environmental design researchers from the Centre of Universal Design at North Carolina State University and are described below.

The seven principles of universal design define the key considerations of design. These principles are a useful framework for the design, development and implementation of a wide range of solutions in environments, products, digital assets and communications. Applying these principles to the built environment will ensure UOW campuses, public realm, outdoor spaces and buildings will be welcoming, inclusive, accessible, responsive, innovative and integrated.

Principle 1: Equitable use – useable and desirable to people with diverse abilities

Design that appeals to more people broadens participation. It welcomes and inspires a wide variety of people by creating a sense of belonging and desirability and avoids segregating any users.

- Make the design of buildings and open spaces appealing and welcoming to all users.
  e.g. avoid feature stairways at building entrances
- Buildings and spaces should provide the same means of use
  for all users or an equivalent option.
  e.g. a universally accessible main building entrance that everyone can use
- Avoid highlighting impairment, segregating or stigmatizing any users.
  e.g. provision of lifts in obvious locations
- Provisions for privacy, security, and safety should be equally available
  to all building users.
  e.g. provide visual indicators to emergency alarms for people with
  a hearing impairment

Principle 2: Flexibility in use – accommodates a wide range of individual preferences and abilities

The design incorporates flexibility, allowing people to use features in more than one prescribed way.

- Provide choice and flexibility in methods of use
  e.g. providing a countertop orientation map that is viewable from either a seated or standing position
- Accommodate right or left-handed access and use
  e.g. lecture theatre seating with a choice of writing tablet positions
- Facilitate the user's accuracy and precision
  e.g. lever door handles that are easily used by people with reduced dexterity
- Provide adaptability to the user's pace (speed and precision of movement)
  e.g. dwell time for automatic doors can be adjusted

Principle 3: Simple and intuitive use – easy to understand and reduces complexity

Use of building features is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

- Eliminate unnecessary complexity
- Be consistent with user expectations and intuition
  e.g. the operation of basin taps in a bathroom is readily apparent and relatively easy
- Accommodate a wide range of literacy and language skills
  e.g. a directory sign in the foyer of a building that includes icons as well as text
- Arrange information consistent with its importance
- Provide effective prompting and feedback during and after task completion
  e.g. help point buttons illuminate when pressed

Design Principles

Principle 4: Perceptible information – communicates information effectively and in a variety of modes

Buildings and spaces should provide all essential information in a variety of modes e.g. written, symbols, tactile or auditory to ensure effective communication with all users regardless of their sensory abilities.

- Use different modes for essential information
  e.g. use of pictograms, tactile, Braille on signage
- Provide adequate contrast between essential information and surroundings
  e.g. lift call buttons contrast with the wall
- Maximize legibility of essential information
  e.g. type and size of font is suitable for viewing distances
- Provide compatibility with a variety of techniques, technology or devices

Principle 5: Tolerance for error – minimizes hazards and the adverse consequences of accidental or unintended actions

Building and open space design should eliminate, isolate or minimise design features that could prove hazardous to or inconvenience any user and anticipate accidental or unintended actions by any user to minimise the inconvenience and protect the user from harm.

- Arrange elements to minimize hazards and errors
  e.g. avoid placing columns in access ways
- Provide warnings of hazards and errors if they are unavoidable
  e.g. a barrier underneath a stair that abuts an accessway
- Provide fail safe features
  e.g. a bridge has edging to avoid wheelchair users rolling off the edge

Principle 6: Low physical effort – efficient and comfortable use with a minimum of fatigue

The environment should include features that are comfortable and convenient to use.

- Allow user to maintain a neutral body position
  e.g. general power outlets at a comfortable height to use when seated or standing
- Use reasonable operating forces
  e.g. minimal or no force needed to open doors
- Minimize repetitive actions
  e.g. remove doors that are not necessary
- Minimize sustained physical effort
  e.g. ramps and pathways have landings at appropriate intervals

Principle 7: Size and space for approach and use – appropriate size and space for approach, reach and manipulation when seated or when standing

A building's features should provide an adequate amount of space that is appropriately arranged to enable anyone to approach, reach and use. In addition, the space needs to be arranged to provide a clear path of travel to and from important design features for all users.

- Provide a clear line of sight to important elements for any seated or standing user
  e.g. wheelchair seating spaces with equivalent lines of sight to the stage / arena
- Make reach to all components comfortable for any seated or standing user
  e.g. the top shelf in a library can be reached by a seated person
- Accommodate variations in hand and grip size
  e.g. Lever taps
- Provide adequate space for the use of assistive devices or personal assistance
  e.g. providing underside knee clearance under a basin or kitchen bench to enable use by someone in a seated position

Accessible Journey

Introducing the Accessible User Journey

Design is a user experience, it either evokes ease and flow or limitation and frustration.

The Universal Design Guide has been arranged to follow the logical sequence of activities that a person visiting the university will undertake – the user journey.

This approach has been adopted because universal access is about the end users. An accessible journey is a linked chain of events that leads from a person's decision to visit, through the journey, arrival, and visit around the destination and its facilities and then the journey home. If any one of the links in the access chain is broken, then the visit may either end unsatisfactorily or may never happen.

Whole of journey planning means providing integrated accessibility which aims to deliver a seamless integration between facilities and services. It is a view to planning which focuses on the user's experience and takes the perspective of the user and their journey from beginning to end. It is vital to making UOW universally accessible.

Access improvements that embrace all links that make up the access chain will ensure whole of journey accessibility and avoid piecemeal access improvements that are likely to be under-used or have little impact.

UOW Accessible Journey Stages

To provide context and understanding of the user needs in each stage, the Universal Design Guide includes a description of the key activities, a performance statement, design goals and explanation of why it matters. This is followed by the design considerations to implement universal design into each stage. By way of introduction, below is a summary of the stages and performance statements.

Stage 1 – Pre-visit planning

This stage represents the time when students, staff and visitors are deciding to visit the campus and pre-planning their journey before arriving onsite.

Performance Statement – Before arriving on campus, staff, students and visitors can easily find out how to get to and navigate through the campus and effortlessly reach their destination.

Stage 2 – Campus arrival and departure

This stage represents the time when students, staff and visitors are transiting to and from campus by car, bus, train, foot, bicycle.

Performance Statement – All people travelling to UOW can confidently choose varying modes of transport, knowing they will interface seamlessly and conveniently with public transport, parking and surrounding community areas.

Stage 3 – Using pathway networks

This stage represents the time when students, staff and visitors are moving around campus using pathway links and connections to get between buildings and University facilities.

Performance Statement – Moving and navigating around campus is easy, safe and convenient for all staff, students and visitors including those with accessibility requirements.

Design Principles

Stage 4 – Entering & moving through buildings

This stage represents the time when students, staff and visitors are entering and accessing the internal areas of buildings.

Performance Statement – Entry to all principal entrances and movement within internal building areas and layouts are clearly identifiable, logical and independently usable to everyone.

Stage 5 – Using University amenities, services and spaces

This stage represents the time when students, staff and visitors are utilising purpose-built amenities like toilets, reception areas, kitchens, laboratories or accommodation.

Performance Statement – All staff, students and visitors are welcome at UOW by providing accessible facilities and usability of amenities that facilitates independent access and comfortable use by a range of diverse users.

Stage 6 – Attending events and temporary activities

This stage represents temporary campus events such as construction, maintenance, o-week, markets and graduation ceremonies.

Performance Statement – Inclusion in activities and participation in all aspects of university life is promoted through early planning, strategies for access and up to date communication to reduce any potential barriers to accessibility.

03 Designing for Diversity

User Needs

Diversity and User Needs

‘We aim to build experiences that unify people and embrace individuality. These experiences are rooted in interaction with people and objects in the world around us. Seeing disability differently and understanding exclusion helps us extend a solution for one person into a solution for millions of people.’

—
Microsoft

The most successful designs and services come from understanding the needs of the people that use them. The goal of universal design is to “meet the needs of people of diverse age and capability in a wide range of contexts because appropriate access to information, products, services and facilities is a fundamental human right. Mainstream products and services often fail to meet the needs of all who could benefit from them, sidelining some potential customers to specialist providers.” – BSI Global

Design that is easy to use, effortless and intelligently meets a diverse range of end-user needs, such as the ones outlined below, means making places and things easier to use, tasks more enjoyable to perform, activities more inviting to engage in for more people.

Best design redefines our experience of moving, seeing, hearing, touching, smelling. It activates engagement and our sense of independence and possibility. To this end, the Universal Design Guide has been developed to incorporate into design, the needs of people who may experience the following.

Designing for Diversity

Physical diversity

- Mobility difficulties e.g. person may use a manual wheelchair, powered wheelchair, mobility scooter, walking aid or have reduced walking tolerance
- Upper limb impairment
- Temporary short-term impairment or injury
- Chronic Illness
- Medically related needs
- Short Stature
- Chronic Pain

Sensory diversity

- Blindness
- Low vision (vision impairment)
- Deafness
- Hard of hearing

Learning, Cognition and Neurodiversity

- Memory or organisational difficulties
- Learning difficulties
- Communication difficulties
- Autism

Psychological and Psychosocial diversity

- Short term, long term and episodic mental health conditions
- Chronic mental illness
- Episodic mental illness
- One-off episode
- Psychiatric illness e.g. schizophrenia
- Mood Disorders e.g. anxiety, depression,
- Post-traumatic stress disorder

04 Design Guidance

4A Pre-Visit Planning

Before arriving on campus, staff, students and visitors can easily find out how to get to and navigate through the campus and effortlessly reach their destination.

A. Pre-Visit Planning

A.1 Provide Off-site information

A.2 Provide accessibility related information and details about accessible facilities

A.3 Provide detailed information on the location, number, availability and specific design elements of accessible facilities

A.4 Provide Information about direct assistance

A.5 Distribute Information in a variety of formats

A.6 Provide meaningful information

A. Pre-Visit Planning

Design Outcomes
Accessible Journey

In this stage of the campus journey, students, staff and visitors are deciding to visit the campus and pre-planning their journey before arriving onsite. Activities may include:

- making the decision to visit
- existing students planning their semester, frequency of travel to and from campus
- deciding on the mode of transport for the visit
- using off-site information like the university website and public transport planning websites
- searching for information about accessible facilities like drop-off points, parking, accessible pathways, building entrances and toilets
- locating parking areas and using booking systems
- viewing the campus map
- searching for event venue information and “how to get there” information

Performance Statement

Before arriving on campus, staff, students and visitors can easily find out how to get to and navigate through the campus and effortlessly reach their destination.

Design Goals

1. Information is available and easy to find on all travel options to / from campus (walk, cycle, train, bus, car, taxi).
2. Encourage and enable visitors with disability to make informed decisions about how they will get to / from campus and navigate their way around.
3. Reduce the amount of time it takes to pre-plan an accessible journey to / from campus and research “how to get there” information.
4. Increase the confidence of visitors that their onsite experience will be seamless and safe.

A. Pre-Visit Planning

Design Impact
Why it matters

First time or infrequent visitors to campus rely on accurate and easy to find information to feel confident about where they need to go to get to their destination. If certain essential information (such as location of accessible parking, drop offs and accessible toilets) is not available or difficult to find, many visitors may not attempt the journey. Information provided in a variety of formats will cater for different visitor needs and create a sense of welcome and inclusion even before visitors physically arrive on campus. The removal of social and psychological barriers is often important to open up opportunities for people with disability, mental ill health and accessibility needs.

It is common for people with disability to spend a great deal of time and effort pre-planning a journey to an unfamiliar environment. This is particularly evident in the context of the university in the first few weeks of starting a new course or job at the campus or visiting for an event. This is in contrast to other staff, students or visitors who can often make more spontaneous decisions about travel, transport, navigation and use of campus amenities. People with accessibility requirements need to be confident that they can efficiently and safely get to their destination without being thwarted by unexpected physical barriers.

Access to information is just as important as access to the environment. Off-site information allows visitors to make their own decisions and judge their visit against their own abilities. It enables people to plan a visit, anticipate potential issues and prepare alternative options all of which can greatly reduce anxiety associated with unknown site challenges. For example, to help a visitor decide which mode of transport to take, the duration of travel of the route, physical distances required to travel and number of transitions they can expect.

A. Pre-Visit Planning

Design Considerations

A.1 Provide off-site information

- Provide off-site information in a variety of accessible formats with a focus on "how to get there" information, availability of accessible facilities and the location of essential facilities.
- Accessibility information should provide detailed, objective, off-site information about paths, sites, facilities, barriers, access points, to allow each potential visitor to make decisions on their visit and how to shape their visit accordingly. This may include information on accessible transport to the site, accessible car parking and drop-off / pick up areas, type and length of routes, availability of seating and rest areas.
- Even when a site might not be completely accessible, information that highlights where a site is accessible and where it is not, what features are available and to what standard can be helpful and enabling.
- Produce information publicly and update as access improvements are made. Consider producing information in a format, such as a web page, word processing document and access map that can be easily updated as access improvements are made.
- Provide a campus orientation pack – "how to get to campus" that can be provided to visitors, new students, at open days and at o-week.
- Provide links to other Apps that may assist with navigating to and around campus such as "Trip View" and "Lost on Campus".

A. Pre-Visit Planning

A.2 Provide accessibility related information and details about accessible facilities

Types of information includes:

- Accessible parking spaces
- Accessible bus services and transport interchanges
- Accessible drop-off / pick up areas
- Accessible arrival points
- Accessible building entrances
- Accessible pathway networks and access routes between buildings and facilities, including location of ramps and lifts
- Accessible toilets, showers and baby change facilities
- Accessible quiet, chill out, prayer spaces and rest areas
- Accessible services and amenities i.e. food outlets and dining areas, gym, swimming pool, ATMs, payment facilities
- Assistance dog areas
- Accessible venues and stage areas
- Accessible building features i.e. lifts, hearing loops, live captioning, adjustable height desks, wheelchair seating spaces, seating options, automatic doors, sensor lights
- Accessible study spaces, specialised assistive technology and equipment
- Accessible student accommodation
- Direct onsite staff assistance and method of contact
- Venue & event information “How to get there” sheets
- Parking, pathway and building disruption information
- Access upgrade works

A. Pre-Visit Planning

A.3 Provide detailed information on the location, number, availability and specific design elements of accessible facilities

- Provide objective information rather than subjective information as it allows a person to make a decision based on their individual needs and preferences. A sign that identifies relevant features and elements provides information for a person to consider many variables such as seasonal changes, weather conditions, pedestrian traffic, time of day, functional capability etc.
- Accessible parking spaces – location, number, weather protection, vertical height clearance, eligibility and process for applying for accessible parking permit including temporary permits.
- Accessible bus services and transport interchanges – indicate accessible bus services and interchange stops, boarding point accessibility, gradients, shelters, tactile ground surface indicators, seating, type of service information i.e. printed / digital timetables, audio announcements.
- Develop information for first time users of public transport that describe accessible transport and trip planning options to UOW including train and bus.
- Outline special transport provisions to and around the campus e.g. shuttle bus.
- Accessible drop-off / pick up areas – location, number, weather protection, seating, kerb ramp.
- A simple overview of the campus elevations and overall topography.
- A campus mobility map that indicates step free access and continuous accessible paths of travel that link drop-off / pick up points, accessible parking spaces, bus stops with key arrival points, accessible facilities and destinations (i.e. Library, Hall, Disability support services, cafes / food, Duck Pond, recreational areas), incorporating information about distances, travel times, stairways and grades. This could be incorporated into the interactive campus map.
- Link mobility maps to active transport routes to key destinations near campuses
- Potential for campus smart maps to be clearly marked and identified with buildings (name / number), augmented reality, guide beacons, hyperlink resources e.g. hyperlink to exact spot on campus map.
- Details of pathway features on accessible pathway networks – gradient, distances, kerb ramps, pedestrian crossings shared ways, footpath surface and quality, seating, lighting, edges, textured elements, colour contrast, accessible signage elements.
- Accessible building features provided on campus and within buildings – passenger lifts, hearing loops, assistance dog areas, live captioning, quiet rest areas, automatic doors, movement sensors, voice activated features, acoustic elements etc.
- Location and accessible features of quiet, chill out, prayer spaces – seating, lighting, furniture, mobility equipment set down areas, charging points for scooters.

A. Pre-Visit Planning

- Location of accessible toilets, shower and baby change facilities.
- Venue information “How to get there” sheets that describe accessible directions to and within venues that can be used for events i.e. conferences, meetings, public gatherings etc.
- Access upgrade work information that outlines planned access upgrades to any site and indicates accessible features, progress made and timeframes to completion that is current and accessible.
- Disruption information that describes the nature of the disruption i.e. footpath repairs, building construction etc. and outlines alternative amenities, accessible paths of travel, timeframe for disruption and contact person.

A.4 Provide information about direct assistance

- Provide and promote an accessibility help line contact number for enquiries relating to campus accessibility which are supported by staff who are knowledgeable to answer queries regarding access around campus and availability of accessible facilities.
- Promote contact number on all digital and published information sources.
- Describe provision of onsite staff assistance and method of contact, if a visitor requires assistance once on campus.
- For campus events such as o-week, train concierges to provide accessibility assistance and support.
- Provide options to book accessible parking bays including an online booking option.

A. Pre-Visit Planning

A.5 Distribute Information in a variety of formats

- Different visitors require different types of information in order to enjoy their visit. Make information available in multiple formats.
- Provide written materials in accessible formats that can be published, posted, printed – accessible pdf, word, large print, videos.
- Provide audio description of printed materials.
- Provide capability to translate printed materials into languages other than English.
- Make information available on the internet as clear images and downloadable plain text files to allow people to customise the presentation to their particular requirements. This can reduce the need to store and distribute numbers of Large Print or Culturally and Linguistically Diverse (CALD) guides, although it will not completely replace them.
- Design accessible websites and webpages to conform to the Web Content Accessibility Guidelines (WCAG) set by the Web Accessibility Initiative (WAI) Guidelines.
- Provide welcoming and diverse images on webpages with written captions accessible by screen readers (to ensure that they are accessible to people with vision impairment).
- Web based information – trip planner for UOW, accurate, real time information on accessible transport services, travel distance information, GPS location guide to / from drop offs, parking, venues and events.
- Provide a campus mobility map in a variety of interactive, electronic, printed, visual and written formats.
- Incorporate mobility map information into campus wayfinding and signage systems.
- Mobility map features may include hyperlinking resources e.g. hyperlink building locations to the exact spot on the campus map, site elevations and access routes, development of tactile maps for campus and key areas, Briometrix Smart Campus Mapping.
- Interactive campus map with different overlays including bus stop, drop offs and accessible parking locations and step free linking pathways to destinations, travel distances, accessible entrances to buildings, seating, real time disruption information due to events and construction.

A. Pre-Visit Planning

A.6 Provide meaningful information

- Develop material in partnership with representatives of the intended audience.
- Test information first before publishing.
- Carry out usability testing to ensure the information provided is accurate and relevant.
- Invite an access advisory group with representative users to check the content and format of information before finalising.
- Keep information accurate and up-to-date.
- Confidence is important for many people. It's not only about providing access to relevant information but equally ensuring that the information provided is up-to-date and reliable. For this reason, it is essential to keep information current so that it can be trusted.

4B Campus Arrival & Departure

All people travelling to UOW can confidently choose varying modes of transport, knowing they will interface seamlessly and conveniently with public transport, parking and surrounding community areas.

B. Campus Arrival and Departure

Design Outcomes
Accessible Journey

In this stage of the campus journey, students, staff and visitors are transiting to and from campus by car, bus, train, bicycle or foot. Activities may include:

- Wayfinding while driving and walking
- Locating safe drop off points
- Using pedestrian crossings
- Finding accessible parking
- Locating parking in proximity to the destination
- Queueing at transport interchanges
- Boarding buses
- Locating buildings

Performance Statement

All people travelling to UOW can confidently choose varying modes of transport, knowing they will interface seamlessly and conveniently with public transport, parking and surrounding community areas.

Design Goals

1. An accessible pathway network links the campus to / from surrounding areas and allows for safe and continuous movement.
2. Arrival points are clearly distinguishable, welcoming and informative for people arriving by either foot or vehicle and provide a continuous path of travel to all site destinations and accessible facilities.
3. Convenient vehicle access through the provision of set down points and parking located in close proximity to accessible entrances.
4. Campus wide accessible parking meets the demand for accessible spaces, eligibility and a variety of usage needs by staff, students and visitors.
5. Accessible drop-off / pick up areas are strategically located throughout campus, that minimise congestion and connect to the accessible pathway network.
6. Transport interchanges and amenities are accessible, safe, convenient and linked to accessible paths of travel.

Design Impact
Why it matters

Whether getting to and from campus by walking, cycling, catching a bus, catching a train, driving a car or catching a taxi, incorporating universal design across all modes of transport promotes a sense of welcome, flow, safety and efficiency so that people can confidently arrive and leave via the most direct route.

Due to the complex nature of campus wayfinding, especially for first time visitors and new students, clearly defined arrival and departure points and information that is easy to read (on foot or in a car), and in logical locations will provide enough time for people to make a decision to reach their intended destination. Effective feedback and prompting will reduce the likelihood of errors in wayfinding and orientation, with space and opportunities to re-trace routes if an error is made during arrival or departure.

The proximity of car parking and drop off areas, prominence of main entrances and easy and safe physical entry for all levels of mobility is an important consideration; integrated with direct and universally accessible paths of travel from main campus arrival points and parking.

Design Considerations

B.1 Welcoming and accessible arrival points

- Campus arrival points should be accessible, clearly defined main entry points that link seamlessly with public transport options. Use of landmarks to distinguish key arrival points helps wayfinding and orientation.
- Provide campus maps at all primary entrance points that show accessible routes.
- Provide help points near principal entrances.
- The pedestrian routes should avoid crossing or sharing roads as much as possible.

B.2 Landmarks / freestanding artworks

- Locate landmarks and artworks adjacent to or off the accessible path of travel and oriented so they do not create a barrier or head height obstruction to pedestrians.
- Design so that the base of landmarks / artworks can be detectable for a minimum height of 300mm above the floor or ground surface by a person using a long cane where in proximity or adjacent an accessible path of travel. Alternatively surround the artwork with a detectable barrier or tactile ground surface indicators.
- Provide sufficient luminance contrast. Illuminate the artwork for night-time orientation. The use of illumination as an artwork installation should not create visual confusion along primary access routes or at entrances or create reflections or glare.
- Give consideration to providing multi-sensory wayfinding features such as audible cues, scents or other visual, tactual and audible features. If water is a key feature of a landmark or artwork, ensure there is a suitable barrier between the water and the adjacent pathway.

B. Campus Arrival and Departure

B.3 Pedestrian Crossings

- Provide direct and safe pedestrian routes to minimise pedestrian / vehicular conflict, with good sight lines.
- Safety and clear sightlines should be considered at pedestrian street crossings and is particularly important for people with mobility or sensory impairments.
- At peak times, such as at the beginning of sessions, traffic and pedestrian management may be required, to keep traffic flow moving and maximise pedestrian safety.
- Provide real time traffic flow optimisation technology.
- Areas shared with vehicles should be adequately signed to maximise pedestrian safety.
- All pedestrian crossings must be at right angles to the direction of the road.
- Clearly define pedestrian crossings for easy recognition by drivers and pedestrians.
- Consider raised pedestrian crossings where there are high levels of pedestrian activity
- Raised pedestrian crossings must provide a safe transition between the footpath and the crossing.
- Where raised pedestrian crossings are provided ensure a level path of travel across the road and include warning tactile ground surface indicators that comply with AS1428.4.1 across the full width of the crossing.
- Provide crossfalls and gradients that are compliant with AS1428.1.
- Install kerb ramps that comply with AS1428.1 i.e. 1:8 gradient; 1520mm long, angle between ramp and adjacent surface 166 degrees.
- Provide adequate circulation space to manoeuvre at the top of kerb ramps (1500mm x 1500mm).
- Install kerb ramps on both sides of the crossing that are orientated so that the kerb ramps align with each other and the direction of travel.

B. Campus Arrival and Departure

B.4 Public transport stops & linkages

- Ensure bus stops are designed to meet DSAPT requirements (Disability Standards for Accessible Public Transport) – this includes requirements for level boarding points, placement of tactile ground surface indicators and manoeuvring space for wheelchairs and mobility aids.
- Make sure there is adequate clear space of minimum 1540mm x 2070mm for a wheelchair user to board and alight the bus. Allow a minimum clear unobstructed space of 1540mm x 2070mm to deploy a boarding ramp and enable a wheelchair to turn 180 degrees for boarding and alighting including deploying boarding ramps and wheelchairs turning 180 degrees.
- Provide clear timetable and location information for accessible bus services and shuttle bus services to campus. Provide real time public transport information.
- Locate taxi stands with sufficient boarding and manoeuvring space (1540mm x 2070mm) and with clear, accessible pathway inks to the campus.
- Provide timetables and route information in accessible formats, including audible announcements and Braille.
- Install tactile ground surface indicators in a logical way in accordance with AS1428.4.1, with a clear width of 1200mm on either side of the tactile ground surface indicators (TGSIs), to allow a person with low vision to safely walk next to the tactile pavers and avoid obstructions i.e. rubbish bins, light poles.
- Ensure public transport interchanges can cater for large volumes of people with safe and effective queue management systems.
- Provide shelter, seating and wheelchair allocated spaces for travellers waiting for transport services, to cater for anticipated volumes of people.
- Provide adequate lighting at bus stops.

B.5 Dedicated drop off points / pick up points including taxi zones

- Provide drop off zones at key locations in proximity to building entrances / key destinations.
- Make provision for adequate time and space for vehicles to pull over and safely load / unload passengers, including passengers with reduced mobility or who are using a mobility aid. Drop off points should not impact circulation routes – transfer directly onto a footpath should be avoided unless the footpath is at least 2000mm wide so that other people are not obstructed.
- Provide shelter (minimum 2.5m overhead clearance), seating and wheelchair allocated space at pick up / drop off areas.
- Provide visual highlighting / contrasting colour on bollards and chicanes.
- Pick up / drop off points should be at the same grade as the roadway surface to enable easier transfer to and from cars and taxis.
- Pick up / drop off points should be level with a firm, even surface. Items such as pit covers, grated drains and dish drains should be avoided in the area where people will be transferring into and out of vehicles as they can impede access and may present a trip hazard.
- Where drains are unavoidable on access paths, the openings should be no greater than 13mm, or a heel guard cover (or similar) provided, to comply with AS1428.1.
- Provide kerb ramps compliant with AS1428.1 directly adjacent pick up / drop off points.

B. Campus Arrival and Departure

B.6 Accessible parking and links to destinations

- Provide sufficient numbers of accessible parking in a variety of key locations close to building entrances so if some areas are full, there are other options. Include undercover accessible parking. Ideally, accessible parking connects directly to campus primary access routes with weather protection and minimal level changes between accessible parking and primary access routes.
- Consider accessible parking locations that are easy to find and clearly signed to communicate eligibility / parking restrictions. Clear signage should be provided to highlight the location of designated parking spaces; parent and child spaces; ticket machines; lifts; final exit; and the building entrance.
- Provide the opportunity to reserve or pre-book accessible parking, particularly for students so they are able to plan their trip and arrive to classes on time.
- Provide additional accessible parking spaces in multi-storey carparks to provide undercover shelter amenity.
- In multi-storey car parks the accessible parking bays should be located on the most convenient level and at the most convenient position to the adjacent building(s) and / or access route to the campus.
- Undercover accessible parking spaces should have sufficient overhead clearance above the parking space, shared space (2.5m) and vehicular path of travel to and from the entrance / exit (2.2m) to comply with AS2890.6. In existing car parks, if this clearance cannot be provided, drivers should be given sufficient warning of height restrictions before they enter the car park and directed to a suitable alternative car parking space.
- Parking dimensions and layout complies with AS2890.6 (for off-street parking) and AS2890.5 for on-street parking.
- Provide slip resistant surfaces including the line marking paint.
- Provide adequate clearance for safety around shared zones.
- Provide a number of “easy access” parking spaces in a number of locations that are larger than the standard dimensions to make it easier for people who drive larger vehicles; for people who need to load or unload via side doors; and for people who need more space to conveniently get in and out of a car, such as parents with children.
- Provide help points close to accessible parking.
- Adopt number plate recognition technology for hands free entry / exit from carparks.
- Provide scooter parking and charging points.

B. Campus Arrival and Departure

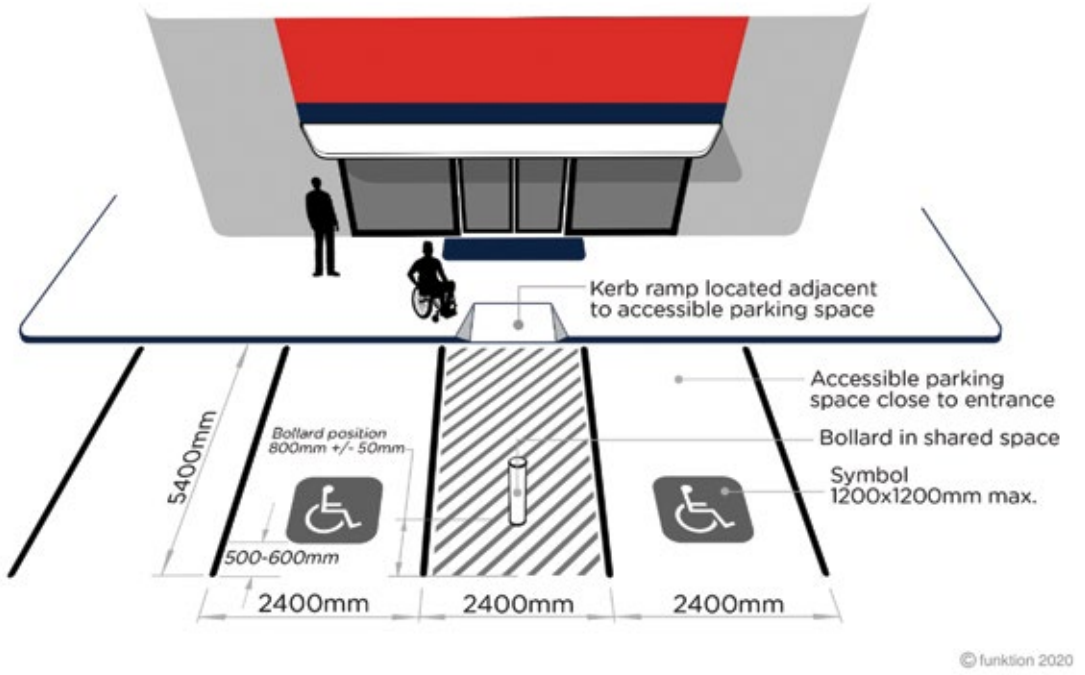

Figure 1: Accessible off-street parking

B.7 Easy to Use Parking Ticket Machines

- Ticket machines at car park entrances and exits that are designed to be reached from inside the car can present difficulties to some people and a bell or intercom should always be provided so that a motorist can call for assistance from a member of staff.
- In car parks where tickets are pre-paid before returning to the car, there should be obvious signage indicating this.
- Install parking ticket machines on a level surface with sufficient wheelchair approach and turning space of minimum 1540mm x 2070mm.
- Control buttons and panels must be easy to reach (height between 750mm-1250mm), buttons easy to push, simple and intuitive to use.
- Be lit for night use and have luminance contrast with the surrounding surfaces and feature clear identification signage.
- Feature easy to read, clear concise informational signage. Instructions should be clear and logical, incorporating symbols or diagrams in addition to text, where possible.

B. Campus Arrival and Departure

B.8 Accessible Campus Assistance Points

- Install accessible campus assistance points on a firm level surface with sufficient wheelchair approach and turning space of 1540mm x 2070mm.
- Have intercoms and controls that are easy to reach, simple and intuitive to use.
- Be lit for night use and have luminance contrast with the surrounding surfaces and feature clear identification signage.
- Feature easy to read, clear concise informational signage, with Braille and tactile instructions.
- Use of CCTV and provision of after-hours security support for added security.

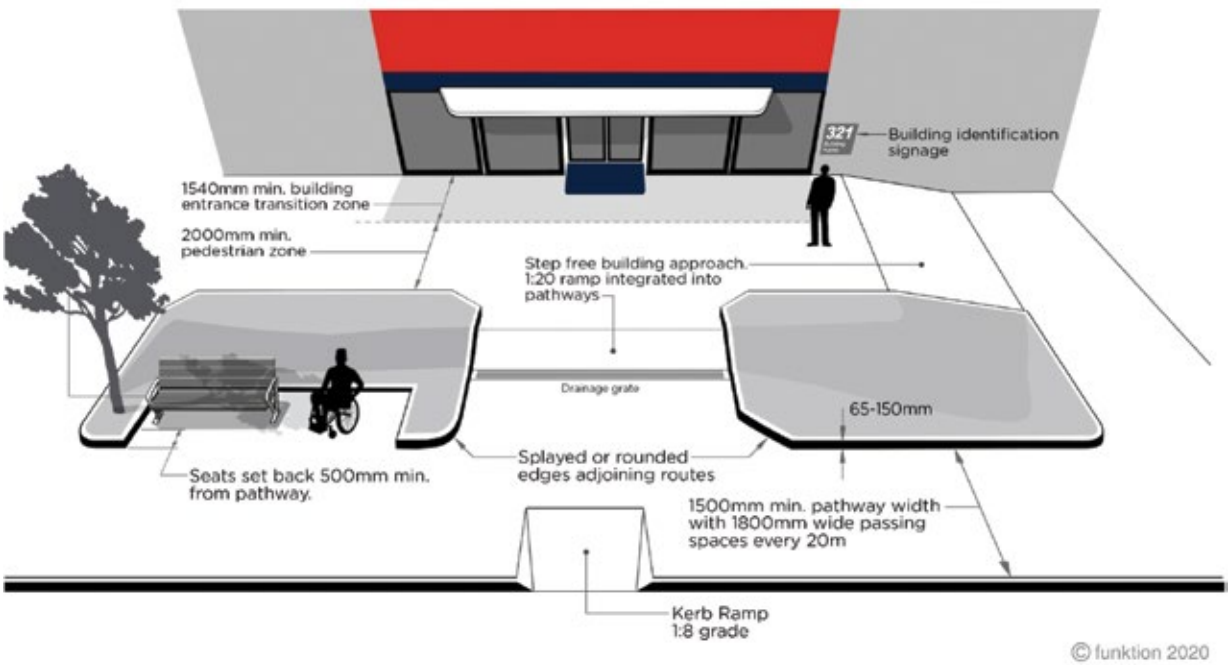

Figure 2: Building approach

B. Campus Arrival and Departure

B.9 Approaches to Buildings

- Site building entry points in a manner that minimises level changes and distances between accessible parking, transport hubs, campus arrival points, the principal pedestrian routes including the accessible campus route and campus buildings.
- Plan buildings to orientate principal entrances that they are logical and easy to find.
- Provide one accessible entrance for all users into a building, a separate accessible route to a separate entrance is not acceptable. Ensure no person is required to take a more complex, longer or more onerous route to gain access.
- Make use of artworks, architectural features and landmarks to draw attention to building entrances.
- Provide wide, navigable wayfinding paths that consist of a continuous accessible path of travel leading to the principal and any required secondary entrance doorways.
- Ensure that any obstacles that abut a path of travel have sufficient luminance contrast to the ground surface, wall surfaces and surrounds to maximise safety and orientation. Consideration of the location and finish of infrastructure can aid orientation.
- Use artwork, an architectural feature or landmark as a wayfinding cue to identify the principal route towards a building and the associated principal entrance.
- Provide directional signage at each wayfinding decision point where there is more than one directional choice.
- Any obstructions should be set back from the path of travel e.g. columns, seats.
- Bollards and chicanes should provide minimum 1200mm between them, have luminance contrast and minimum height of 1200mm.
- Building signage should be consistent, clear and obvious on the approach to the building.
- Include a 600mm wide, traversable textured surface contrast to provide wayfinding information to all users, where the approach to the building is off a primary path and a building shoreline is not provided.

4C Using Pathway Networks

Moving and navigating around campus is easy, safe and convenient for all staff, students and visitors including those with accessibility requirements or diverse orientation and mobility needs.

C. Using Pathway Networks

C. Using Pathway Networks

Design Outcomes

Accessible Journey

In this stage of the campus journey, students, staff and visitors are moving around campus using pathway links and connections to travel between buildings and university facilities. Activities may include:

- Walking or wheeling on a variety of ground surfaces in a variety of weather and lighting conditions – paving, bitumen, concrete, unsealed surfaces
- Navigating level changes via kerb ramps, ramps and stairs
- Crossing internal roads via pedestrian crossings
- Sharing pathways with cars, trucks and bikes
- Wayfinding while walking
- Locating Buildings
- Accessing open space and seating areas

Performance Statement

Moving and navigating around campus is easy, safe and convenient for all staff, students and visitors including those with accessibility requirements or diverse orientation and mobility needs.

Design Goals

1. Primary pedestrian pathway networks are step free, easy to negotiate, clearly identified (detectable) and accessible for all users.
2. An accessible pathway network linking campus buildings and facilities provides continuous, unimpeded movement free from obstacles and hazards.
3. Wayfinding and signage clearly identifies directions to accessible entrances and facilities from all arrival points, set down and parking areas.
4. Accessible information is provided about pathway features and access routes to assist people to navigate between buildings.
5. Well-lit pathways, parking areas and drop-off / pick up areas provide clear visibility and illumination at night and in darker shaded areas.

Design Impact
Why it matters

The public realm is the space of equal access and coming together in the community – a shared domain for social engagement, events, interaction and recreation. Pedestrians include students, staff and visitors who travel on foot or use a mobility device such as a manual or electric wheelchair, mobility scooter or pram. Pathway design should aim to accommodate the needs of all pedestrians including:

- People with a sensory impairment (vision, hearing)
- Long Cane users
- People with a mobility impairment
- Wheelchair or scooter user
- People with an intellectual disability
- Older people
- Parents with prams
- Children
- Students
- Staff
- Visitors including international visitors

People will always take the easiest and most direct path to their destination, so a logical network of accessible primary pathways (pathways linking to primary campus destinations) will make it easier for students, staff and visitors to UOW to take the quickest route to primary campus destinations and common facilities.

Slip resistant, smooth surfaces that are traversable with wheeled devices enables comfortable and safe passage for all users of access paths, including people using mobility devices, people pushing prams, people carrying equipment, people doing deliveries and cyclists.

Continuous accessible pathways are particularly important for people with mobility difficulties or reduced stamina, for whom extra effort is required to travel between meetings or classes within limited timeframes, which can add extra pressure and stress. It is therefore imperative to plan primary pathways that everyone can use, are easy to travel along, provide unhindered and direct connections between buildings, with good sightlines to roads and buildings. An effective signage and wayfinding system will support ease of movement around the campus by helping people locate buildings easily so that the destination can be seen on approach and easily identified on arrival.

C. Using Pathway Networks

Pathways are easier to use when they support comfortable and easy movement for the anticipated volumes of people, without hazards or barriers encroaching into pathways. The layout of path systems and lighting should establish a pattern that is safe and accommodates the needs of people on the site and in buildings, taking into account the variable lighting conditions due to shady, tree lined paths. To travel confidently and safely, people with low vision rely on pathways being obstacle free, predictable and easily detectable visually and / or tactually.

Resourcing implications for maintenance should be considered, to enable the following design considerations to be captured as part of routine maintenance programs.

C.1 Primary and secondary pathways

Define the network of primary and secondary pathways through the campus. Primary pathways link to all building primary entrances and all key destinations and include the following features:

- Step free pathways with accessible surfaces such as paved or concrete surfaces
- Accessible gradients no steeper than 1:20 and landings every 15 metres to comply with AS1428.1.
- Pathway width that is sufficient to enable people to move in both directions and pass each other with ease. A clear width of 2000mm is recommended to enable people to walk alongside each other and for two wheelchair users or parents with strollers to pass comfortably. The width should be increased where there is simultaneous use by a large number of people. Where a clear width of 2000mm is not possible, such as where there are existing obstacles, a width of 1500mm is acceptable. This will enable a wheelchair user or parents with a stroller and another person to pass each other.
- Where the clear width of an access route is less than 2000mm, passing places should be provided. Passing places should be minimum 1800mm wide x 2000mm long, at a reasonable frequency – approximately every 20m. This will allow groups of people to pass each other, particularly on busy routes.
- Where the clear width of an access route is restricted by existing conditions, the width may be reduced to 1200mm for a distance not exceeding 2000mm. Passing space should be provided either side of the narrow section.

C. Using Pathway Networks

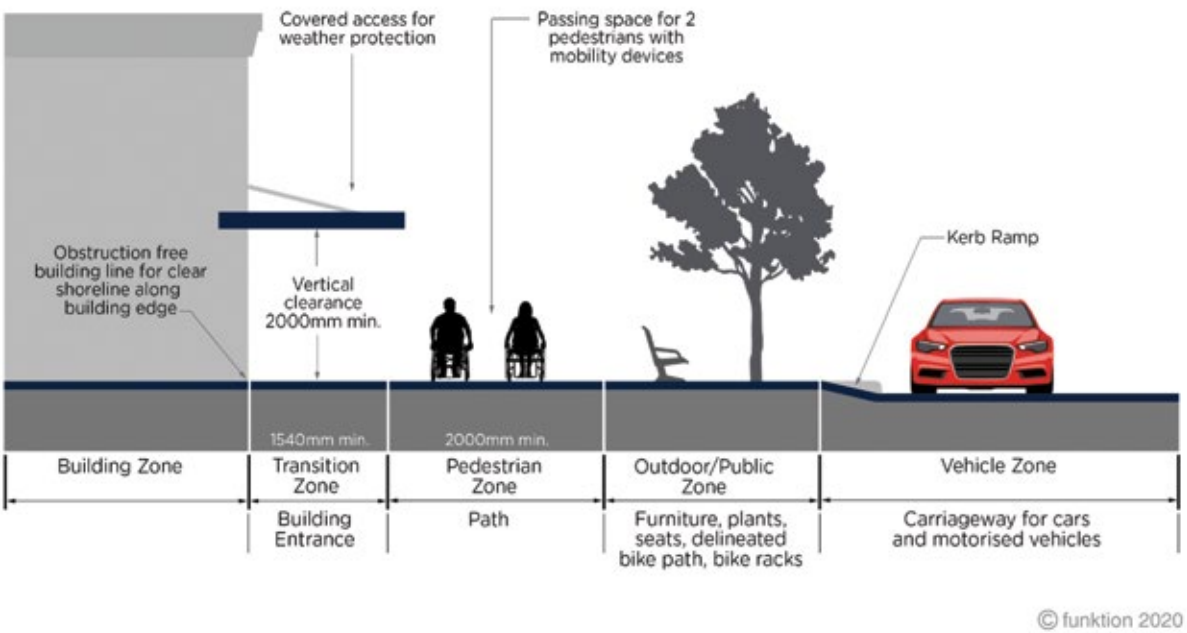

Figure 3: Elevation of external pathway

- Tree foliage is kept clear of pathways as they can cause hazards for people with vision impairment. Leaves, flowers, weeds and roots are managed through regular maintenance programs so they do not create slippery surfaces or lift pavers creating undulations and trip hazards.
- Unobstructed by foliage, art, signs, bins or seats.
- Minimal number of road crossings.
- Separate cycling and pedestrian pathways – no shared ways.
- Weather protection to the maximum possible extent to provide connectivity between buildings.
- Seating at least every 60 metres along accessible primary pathways.
- Adequate, non-glare illumination for night-time navigation and safety with even lighting that eliminates pools of light and darkness.
- Direct, clearly defined and well signposted.
- Clear identification and wayfinding signage to enable reassuring wayfinding for first time visitors.
- Clear lines of sight to major destinations and landmarks.
- CCTV at key locations

C. Using Pathway Networks

C.2 Level changes and ramps

Where the topography of the area is such that changes in level are unavoidable, access routes should be designed for ease of access. They should be understandable, useable, and offer choice.

- Some routes may have a gradual incline over a long distance, and some may have shorter sections with a steeper gradient and level landings or rest areas. The steeper the incline, ramp or steps, and the greater the change in level, the more frequent the need for landings and resting places. Where resting places are located on landings they should be out of the way of the path of travel.
- Access routes with a gradient of 1 in 20 should have level landings (1:40) at maximum 15m intervals and routes with a gradient of 1 in 33 should have landings at no more than 25m intervals. The interval of landings for access routes with gradients between 1 in 20 and 1 in 33 can be established by linear interpolation to comply with AS1428.1.
- Unavoidable level changes are preferably overcome with walkways no steeper than 1:20.
- Edge protection at pathways with level changes must comply with AS1428.1 clause 18.
- Some people with mobility difficulties find steps easier to use than ramps, while ramps are beneficial for people using wheelchairs and people with prams and wheeled equipment. The route of a ramp should be as direct as possible and easy to use. Wherever possible, the top and bottom of a ramp should be adjacent to the top and bottom of an associated flight of steps.
- The location of stepped and ramped routes should be obvious. Where steps and ramps are provided to gain access to a building entrance, they should both be clearly visible from the approach route. If alternative ramps or steps are not readily apparent, clear signage should be provided.

Design Considerations

KERB RAMPS

- When a level change is less than 150mm, provide kerb ramps compliant with AS14281.1 clause 10.7 – 1:8 max. gradient; 1520mm in length; with a maximum transition angle of 166 degrees; maximum 5mm vertical abutment with surrounding surfaces.
- Provide landings at the top and bottom of kerb ramps – 1200mm where there is no change in direction, 1500mm where there is a change in direction.
- Co-ordinate pairs of kerb ramps across roads so they align, to assist with navigation, especially for people with low vision.

C. Using Pathway Networks

RAMPS

- 1:14 ramps can be used, provided the ramp rise is no greater than 3.6m. Ramps that are very long and have a substantial overall change in level may be too tiring for some people to use, even with regular landings and rest areas. Where the overall rise of a ramp is more than 3.6m, an alternative means of access should be provided, such as a lift or platform lift.
- Ramps are to be clearly visible from the point where stairs are provided, or clear directional signage provided to the nearest ramp / lift.
- Landings are to be provided every 9m on a 1:14 ramp to avoid undue fatigue, with dimensions minimum 1200mm length for no change in direction of travel, or 1540mm x 2070mm for a 180-degree change in direction, to comply with AS1428.1.
- Where there are two or more consecutive slopes in a ramp, they should be of the same gradient. The gradient of ramps between landings should be constant, to comply with AS1428.1.
- Ramps are required to comply with AS1428.1 (including continuous handrails on both sides, kerbs and tactile ground surface indicators).
- Minimum width of a ramp is 1000mm between the handrails. Depending on the length of ramps, a passing space 1800mm width x 2000mm length may be required.
- The clear width of a ramp should be determined by the expected level of use and whether people are likely to be using the ramp in both directions simultaneously. The minimum required width between handrails is 1000mm; consider providing 1200mm.
- Curved ramps must be 1500mm wide to comply with AS1428.1.
- Provide sufficient lighting at ramps.
- Provide slip resistant surfaces on ramps (NCC requires P4 / R11).
- 1:10 step ramps may be used for level changes of maximum 190mm.
- Step ramps are required to comply with AS1428.1 and include edge protection.
- Step ramp landings should not overlap ramp landings to comply with NCC Vol 1 Part D3.
- Ramps and walkways should have a 1:40 crossfall for shedding of water.

LIFTS

- See “ Entering and Moving Through Buildings”.

C. Using Pathway Networks

C.3 Ground surfaces

- The logical and creative selection of surface materials can make it easier to demarcate different zones,
  for example, to clearly delineate between pedestrian and vehicular zones.
- Uneven surfaces such as cobbles and bare earth and surfaces such as loose gravel and sand should be avoided. These are difficult and uncomfortable for many people to cross and may present a tripping hazard. Surfaces should be slip-resistant when wet and dry.
- Surface materials should be selected to reduce the potential for glare from bright sunlight or other light sources.
- The ground surface should not have a strong pattern as this can be a source of visual confusion. The use of contrasting lines or bands should be avoided in locations where they may be perceived by some people as highlighting a step edge.
- Gravel is not suitable for primary pathways. If used for secondary pathways, it should be well compacted, with no loose stones greater than 5mm. This reduces trip hazards. Regular maintenance will be required to repair erosion and washouts.
- A significant factor in the selection of surface materials is the ease of making repairs. Regular and effective maintenance should prevent or replace cracked and uneven paving slabs and those with loose joints, as they become tripping hazards and are difficult to walk on, cause puddles to form and become slippery.
- Effective drainage so that water doesn't pool on pathways is important to maintain firm, even and slip resistant surfaces in wet and dry conditions.
- Any joints between paving slabs are closed and flush to avoid catching the small wheels of a wheelchair (maximum 5mm with bevelled edges).
- Service pit covers and grated drains should be located off pathways.
- Contrasting materials to define path edges and cue to building entrances, without patterns that may be visually confusing or distracting.
- Materials that aid wayfinding and orientation – such as a strip of coloured paving leading to key destinations.

C. Using Pathway Networks

C.4 Edges

- Edges provide a physical means for orientation and mobility. Edges include features of the built environment like the walls of buildings, the wall of a corridor or hallway or handrails. They also include landscape features like the edge of planting or the edge of a footpath. As every pathway has an edge, it can provide useful information to people for orientation and navigation towards a destination, as well as staying on the right path. Edges can also be used to mark the boundary of spaces with different uses. Strong edges and edges that provide both visual and tactile information (e.g. colour contrast and textured surface on the edge of a path) are much more memorable.
- If there is a change in level to either side of a path or to the rear of a pavement, edge protection should be provided to prevent people from falling. Edge protection may take the form of an upstand kerb, 150mm high and visually contrasting with the path or pavement, where the change in level is between 200mm and 600mm. Above this height, a handrail or barrier can be used
- Handrails should be 865mm-1000mm above the ground level to comply with AS1428.1.

C.5 Stairways

- Avoid single steps as they are less readily apparent than a longer flight of steps and may present a trip hazard. If the change in level of a route is equivalent to the rise of a single step, the surface should be gently graded to provide a level approach that is universally designed. Landings should be provided at the top and bottom of each flight. The landing should be unobstructed by any door swings or gates.
- Avoid tapered stairways, rounded stairs or stairs with a 90 degree angle in them.
- Provide sufficient lighting at stairs.
- Stairways must comply with AS1428.1 i.e. continuous handrails on both sides of the stairway, tactile ground surface indicators at the top and bottom, contrasting highlighting strips on the step nosings to visually highlight the edge of the step
- Minimum width of 1000mm between the handrails. Consider providing 1200mm where possible.
- Consider providing an additional central handrail on wide stairways.

C. Using Pathway Networks

C.6 Handrails / balustrades and kerbs

- Consider location of handrails so they align with building entrances, and do not lead people into walls or obstructions.
- Provide handrails on both sides of stairs and ramps that comply with AS1428.1.
- Set stairs and ramps back from adjacent pathways so that handrails do not protrude and obstruct.
- Handrails are to be 30-50mm diameter, extending past the stair or ramp, with ending types that comply with AS1428.1 (returning to ground, wall or 180 degrees).
- Provide kerbs / kerb rails on both sides of ramps that comply with AS1428.1.
- Handrail fixing points should not obstruct the passage of the hand over it.
- Continuous handrails on stairs and ramps are preferable.
- Select handrail and kerb finishes that provide visual contrast with the surrounding surface.

C.7 Seating areas and furniture

Provide seating areas at regular intervals to allow for resting, waiting or pause points. The following features are to be included at UOW:

- Located along primary access paths at least every 60m.
- Located at any location where waiting may occur such as pick up and drop off points.
- Located at pedestrian ramps that are longer than 20m.
- Located adjacent the pedestrian route, set back minimum 500mm, linked by a path and on a 1:40 landing area, with consideration of safety and passive surveillance.
- Inclusion of colour contrast with the surrounding area.
- A variety of seats types and heights – 450-520mm high, with backrests and armrests. A combination of fixed and moveable tables and seats allow flexibility and choice to suit the needs of many activities and events.
- 1500mm x 1500mm space next to seats for a wheelchair user to sit next to seats.
- Adequate lighting for night-time use, coordinated with any security path lighting audits.
- Furniture should be continuous to ground level, to avoid people with vision impairment bumping into furniture that obstructs the path of travel. Items attached to posts should face in the direction of travel so that they do not interfere with the line of movement.
- Outdoor furniture at UOW should include the following features:
- Café or picnic tables make provision for wheelchair access, with sufficient space for approach and manoeuvring to allow comfortable use of the space – minimum 1500mm x 1500mm.
- Include a firm, level, 1500mm wide accessible surface around the table.

C. Using Pathway Networks

C.8 Bridges

- Provide kerbs / kerb rails on both sides of bridges that comply with AS1428.1.
- Select kerb finishes that contrast with the surrounding surface.
- Provide handrails / balustrades where the drop off is considered a potential risk (NCC requires a balustrade in buildings where the drop is 1m or more, however in some cases outdoors it may be considered appropriate to provide a balustrade where the drop off is less than 1m).

C.9 Lighting

- Provide uniform general illumination with increased lighting at changes in level.
- Illuminate signs for easy viewing at night.
- Avoid pools of darkness by providing lighting at regular spacing.
- Consider position of lighting so people are not walking in their shadow, particularly at stairs.
- Avoid glare and shadows.

C.10 Tactile ground surface indicators

- Tactile Ground Surface Indicators (TGSIs) provide cues, which, when combined with other environmental information, assist people who are blind or vision-impaired with their orientation. A person's orientation, through processing all available environmental cues, make the information provided by the TGSIs meaningful.
- Refer to and install TGSIs in accordance with Australian Standard 1428.4.1 at ramps, stairs, kerb ramps and raised pedestrian crossings.
- Where TGSIs are to be installed, discrete TGSIs must provide 45% luminance contrast and integrated TGSIs must provide 30% luminance contrast with the background surface in accordance with AS1428.4.1.
- On paved areas install TGSI within paver sizes. Do not install TGSI on joints.
- Install TGSIs according to the supplier's instructions to minimise the likelihood of the edges lifting.
- The base surface of an integrated TGSI should be not more than 3 mm above the abutment surface of the surrounding ground surface and have all exposed external edges chamfered.
- Avoid installing TGSIs on a steep slope and on service / utility pits.
- Minimal use is preferred, as well as consistent, co-ordinated and reliable installation. Co-ordinate placement of TGSIs to be consistent with other locations across the campus.
- Avoid placing service and utility pits in locations where TGSIs will be required e.g. top and bottom of stairs, ramps, entry to raised pedestrian crossings.

C. Using Pathway Networks

C.11 Signage

- Accessible entrance should be clearly signposted from all access points, including car parking, transport links and drop off points.
- Indicate the best routes to accessible entrances from drop off points, provide clear and consistent directional signage to orientate all people.
- Clear and consistent signage, colour-coded precincts, maps on wayfinding plinths
- Incorporate tactile and Braille (this is mandatory for statutory signs including male / female and accessible toilets, hearing augmentation and emergency exit signs, building identification signs) and at wayfinding signs at key locations.
- Provide consistent identification signage on buildings.
- Include “you are here” reference points on signage.
- Integrate with wayfinding technology / use of beacons.
- Integrate with interactive maps to plot route to destination.
- Integrate with online maps that shows location of accessible facilities such as lifts, ramps and accessible toilets.
- Consider locations for signage / wayfinding that are accessible to the user and don’t have additional maintenance / servicing implications (i.e. signage on lawns).
- See – UOW external signage strategy.

C.12 Bins

- Provide a simple method for communicating the use of each type of bin. Clearly differentiate waste bins from recycling bins.
- Ensure the design allows easy access for people of short stature or in wheelchairs to be able to reach the bin opening (900-1100mm above the ground or floor).
- Provide clear signage on the front of the bin rather than the top of the bin.

C.13 Bollards

- Where bollards are essential, use contrasting colours, or a band of contrasting material, minimum 1000mm high and 200mm wide.
- A 1200mm-wide pathway should be maintained between bollards. Bollards may need to be spaced.
  wider apart for service / maintenance vehicles.
- Bollards should not be linked with ropes or chains as this can present a hazard to people with vision impairment.

C. Using Pathway Networks

C.14 Drinking Fountains

- Locate adjacent but not intruding into the accessible path of travel.
- Locate on a traversable surface with a circulation space that enables all users, including people using wheeled mobility devices, to manoeuvre into a position to operate all functions (minimum 1540mm x 2070mm in front).
- Have a light push button or lever control, located on the front or to the side of the fountain to allow one handed operation.
- Have a finish that achieves 30% luminance contrast between the drinking fountain and the surrounding surfaces against which it is viewed.
- Have functional components, whether drinking from the fountain or refilling a bottle, that meet the height and depth reach ranges, to be operated by all people from either a standing or seated position (maximum 1250mm AFFL control height).
- Drinking fountains located in an alcove prevents obstruction or hazard to other pedestrians.
- Consideration should be given to providing a shallow tray or bowl for assistance / guide dogs.

4D Entering & Moving Through Buildings

Approaches to building entrances and movement within buildings is universally accessible by providing elements that are identifiable, logical, connected and independently usable to everyone.

D. Entering and Moving Through Buildings

Design Outcomes

Accessible Journey

In this stage of the campus journey, students, staff and visitors are entering and accessing the internal areas of buildings. Activities may include:

- Finding the accessible entrance
- Identifying the entry or exit point
- Approaching the entrance or exit
- Operating entry / exit systems
- Moving safely through doorways
- Using and turning around in corridors
- Locating and moving between floors
- Navigating within the building and locating rooms
- Operating lifts
- Exiting the building safely in an emergency situation

Performance Statement

Approaches to building entrances and movement within buildings is universally accessible by providing elements that are identifiable, logical, connected and independently usable to everyone.

Design Goals

1. Building entrances are clearly visible, recognisable, defined by signage that is legible, easy to understand and orients people to where they are, with a direct accessible approach to the building.
2. Principal building entrances facilitate ease of movement, low physical effort and comfort in all weather conditions and at all times of day.
3. All users of a building can access all floors and building amenities independently with the exception of maintenance, plant or service machinery areas.
4. Step free access is provided at all changes of level. Location of ramps or lifts when used as an alternative to stairways is clearly identified by use of appropriate signage.
5. Information is consistently located and intuitive to use, legible from both standing and sitting positions and provided in multi-modal formats.
6. Physical features and management practices ensure that all users can egress from the building safely and with minimum amount of stress.

Design Impact

Why it matters

Well-designed buildings support their proposed use in an optimal and efficient manner, enabling activities to be easily performed. Locating and entering a building then finding a destination within the building can be a complex task, however well-designed entrances and circulation systems can make the process much easier.

Poorly designed buildings and spaces can restrict usage by staff, students and visitors. Facilities and spaces which effectively support usage will be used more frequently than less well-designed ones.

Buildings and spaces that resonate and fit within a community are better maintained, cared for and looked after. Adaptable buildings can adjust to changing requirements over time, without requiring significant changes or replacement. Functional requirements can change, perhaps many times over the life of a building or space. Good design balance encourages adaptability.

Working, relaxing and social interaction are supported by good design and arrangement of spaces. Inappropriate design can hinder and constrain these activities. Good design can support both formalised, structured activities, as well as informal or spontaneous activity giving users access to appropriate building spaces as they need them. Good design can reduce the impact of age and maximise functionality and performance.

Work and education environments which are well-designed support enhanced productivity and effectiveness for organisations. Living environments which work well for occupants and evolving lifestyles will increase in value. Long-term functionality in buildings and spaces protects and enhances the initial investment in creating these spaces and minimises the need for change or replacement.

D. Entering and Moving Through Buildings

D.1 Locating the building entrance

- Entrances should be clearly visible and prominent, easily distinguishable from the rest of the building with a clearly defined entrance space. Use distinctive exterior design features on or near the entrance of a building to make the building easy to distinguish from other nearby buildings.
- Architectural elements, landmarks, signs and other multi-sensory features all play an important role in determining how easily people find a building.
- The position of an entrance may be highlighted with architectural features such as a canopy or a door recess.
- Entrances should signify the uses of a building or faculty / department and demonstrate a positive approach to universal design.
- A change in surface texture of the pavement or forecourt may help to signal the location of an entrance, particularly for people with low vision.
- Trees or gardens can be used for wayfinding if positioned at key locations near buildings. Garden furnishings and sculptures can also aid wayfinding.

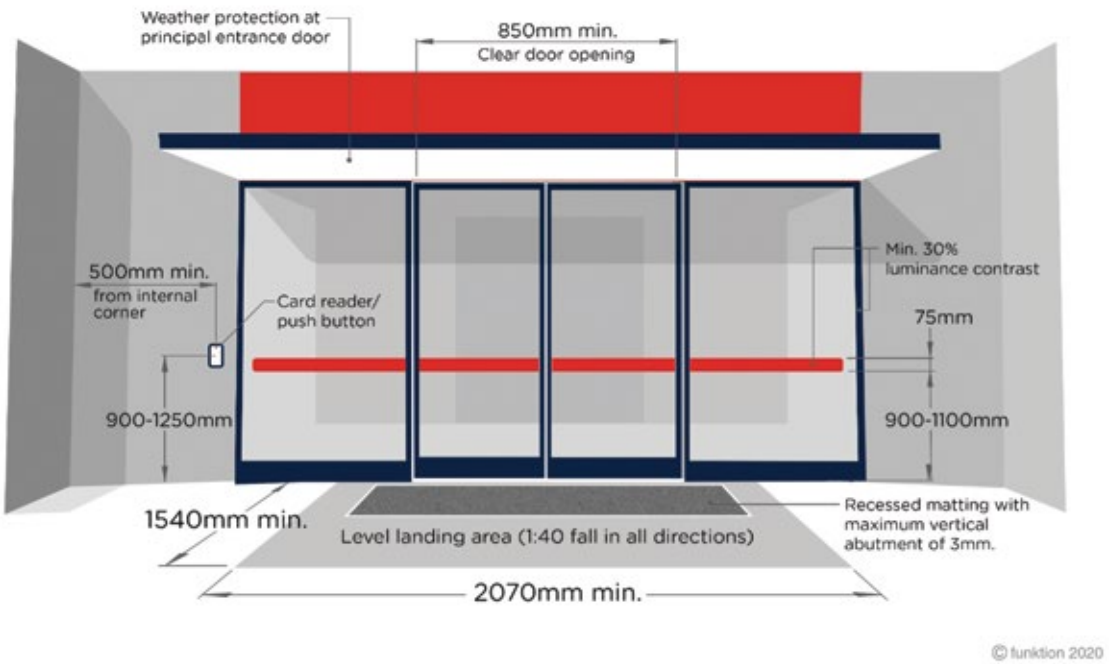

Figure 4: Principle entrance doorway

D. Entering and Moving Through Buildings

D.2 Entering and exiting a building

- Provide level step free pedestrian access into the building with cover for weather protection.
- Entrances should be accessible whilst also maintaining security, environmental performance, and other requirements.
- In new buildings, all entrances – whether they are the principal entrance or any other entrance such as a staff entrance – should be universally designed. Where this is not possible, entrances that are not accessible should have signs to direct users to the entrance that is usable by everyone.
- An entrance that is not accessible must be no further than 50m from an accessible entrance to comply with NCC Vol 1 Part D3.
- Provide adequate space inside and outside entrance doors – establish clear and level (1:40) landing space outside entrances of 2440mm x 2440mm.
- Ensure threshold to entrances are level or no greater than 5mm with chamfered, pencil-rounded or ramped profile.
- Leave a clear space of at least 530mm adjacent to handle-side of the door to comply with AS1428.1.
- Design alternative entrances to existing buildings to meet universal design requirements.
- Provide enough doorways to enable timely mass exiting by all users, whether standing or sitting, at peak demand times (e.g. after classes).

EMERGENCY EGRESS

- All people should be able to detect, access and use emergency exits in a safe and timely manner from all locations in the building.
- Provide audible and visual alarms.
- Make provision for a vibrating system for people with a hearing impairment. This is particularly important where people may be working alone or living in student accommodation.
- Development of individual evacuation plans for staff or students with a disability is recommended as part of building operational management strategies.
- Consider the inclusion of suitable emergency evacuation devices for people to be carried downstairs as per AS3745 (2009) Planning for Emergencies in Facilities; and provide space for their storage.
- For people who cannot access or safely use the emergency exits, provide secure and appropriately sized refuge areas (minimum 1300mm x 800mm outside the egress path) where they can wait for rescue.
- Provide appropriate connections for communications devices to be installed in the refuge area.
- Provide appropriate signage at the door to the refuge area.
- Where possible, provide handrails on both sides of egress stairs.

D. Entering and Moving Through Buildings

D.3 Entry Systems

- Where provided, locate and design entry systems to easily approach and use. Entry systems must be suitable to meet the needs of all users, including those with limited dexterity, vision or hearing impairments.
- Entry systems must consider an easily identifiable accessible after-hours access point
- Entry systems must be clearly identifiable.
- Controls such as doorbells and intercoms must be located at a maximum height of 1200mm above the finished floor so they are within reach of and usable by people with a wide range of statures and abilities to comply with AS1428.1.
- Controls must be located minimum 500mm distance away from an internal corner to comply with AS1428.1.
- Doorbells and call buttons should give visual indication of their operation, such as a light that flashes when the button is pressed.

INTERCOMS

- Install an intercom, vision panels or audio-video system to facilitate two-way communication and assist those who need access when the entry is locked.
- Locate intercom controls at an accessible height 900-1100mm above the ground / floor and at least 500mm from internal corners to comply with AS1428.1.
- If a camera intercom is required, consider using a type that is suitable for a range of heights, or is able to pan / move to view a range of heights.

D. Entering and Moving Through Buildings

D.4 Entrance Lobbies

- Preferred entry into the building is via an automated sliding door at the main entrance and in larger buildings, at the secondary entrance. Avoid revolving doors as they are not universally accessible.
- If air locks are provided, ensure there is sufficient circulation space between door leaves, particularly if they are swing doors. Minimum 1450mm between the edges of door leaves is required to comply with AS1428.1.
- Automatic swing doors should have the door swing marked on the ground, warning signage to warn people that the doors will swing into the path of travel and a change in surface texture as a tactile cue. Alternatively, arrange outward-opening doors so that they are recessed or guarded.
- Mats at entry points must be recessed so that the mat is flush with the surrounding floor surface, to comply with AS1428.1. Mats should have a firm, level surface. They should not be compressible or have deep pile, as these surfaces can create a barrier for people using wheelchairs or pushing trolleys.
- Configure the entrance level lobby to provide logical and easy progression from the entry point to the reception, waiting area and lift lobbies.
- Plan and arrange lobby entrances, main foyers and lift lobbies to minimise congestion during peak periods.
- Where entrance lobbies include glazed panels or doors, the design should consider minimising reflections or glare in varying light conditions as this can be disorientating.
- Glazed components should be effectively highlighted, incorporating visual indicators that comply with AS1428.1 and NCC Vol 1 Part D3.
- Provide space and seating for people who are waiting for others. Such spaces should be in a location easily detectable from main entries but out of the way of access ways.
- Provide a directory board within the entrance level lobby.
- Directory boards at entrance lobbies should incorporate tactile and Braille elements, including a tactile map.

D. Entering and Moving Through Buildings

D.5 Reception area

- Provide an accessible counter at all reception areas with a clear circulation space to approach either side of the counter of 1500mm.
- Provide adequate circulation space in front of the reception desk (minimum 1540mm).
- The reception desk is easily identified.
- Locate the accessible customer side counter with a direct line of sight from the point of entry. It may require a tactile path using different floor surfaces to help define the layout of the area and assist in finding the counter for those with low vision.
- Locate controls within 300mm from the front of the counter or desk, maximum 1350mm high for side reach and maximum 1120mm high for forward reach, minimum 500mm from any internal corner.
- Consider provision of a hearing augmentation system to assist communication with a person with a hearing impairment where the customer is not screened from the service provider. Provision is mandatory when screening is present to comply with NCC Vol 1 Part D3.
- Provide glare free illumination of minimum 250 lux over the countertop.
- Ensure the finish of counter and desk is not highly reflective.
- All visitors can independently sign in where required using accessible technology.
- Furniture is set back from the path of travel and is visually distinguished with contrast.

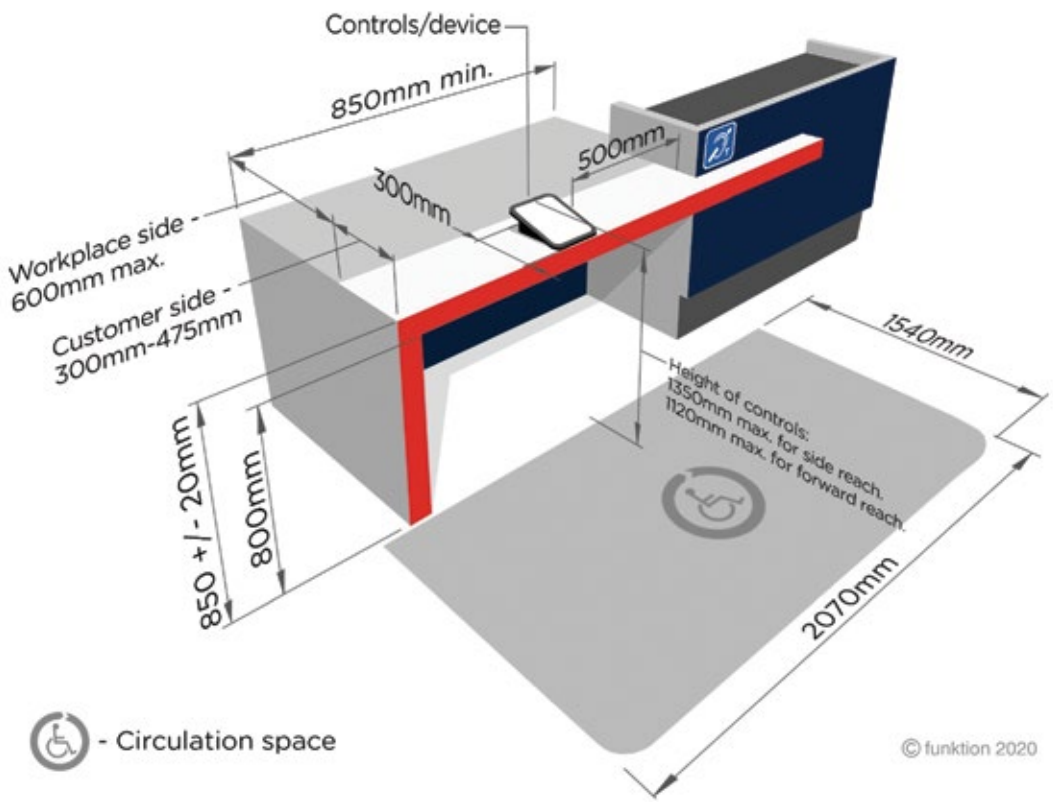

Figure 5: Accessible reception counter

D. Entering and Moving Through Buildings

ACCESSIBLE COUNTER

- An accessible counter has an accessible height section, in the range 830mm-870mm above finished floor level; and clearance underneath it for access by a wheelchair user 800mm above finished floor. This underside clearance allows for knee / toe clearance as shown in AS1428.1 Figure 45.
- Customer side counter dimensions – width of 850mm minimum; height of 850mm ± 20mm; countertop depth of 300mm – 475mm.
- Workplace side counter dimensions – width of 850mm minimum; height of 750mm – 850mm; countertop depth of 600mm maximum.
- As individual requirements will vary, a bench with an easily adjustable height counter is preferred within the range of 700mm to 900 mm from the finished floor.
- If receptionist and customer / desk are to exchange documents there must be a zone which both may reach. The maximum forward reach over an obstruction is 550mm. Therefore, an overall counter depth of 900mm will provide a common reach zone.
- Flexibility of accessibility is improved if a wider counter such as 1200mm is provided. especially if the accessible section of counter is only 300mm deep as the wider space enables a wheelchair user to approach at an oblique angle.

D.6 Internal Pathways

COLOUR AND LUMINANCE CONTRAST

The effective use of colour and luminance contrast can help people move around, locate features and communicate. Surfaces such as walls, floors, ceilings, doors, skirtings, hand-rails, architraves, can all be contrasted with their background surface, aiding wayfinding, orientation and identification of important facilities and safety features.

- Avoid high gloss finishes especially on floors, walls and ceilings.
- Use luminance contrast to effectively identify doors in accessible areas to meet NCC Vol 1 Part D3 and AS1428.1 requirements.
- Doors that are not required to be accessible (such as plant / comms rooms) do not need to contrast with the surrounding surface.
- Any obstacles in access ways such as columns should be effectively highlighted with a contrasting colour or band of colour.
- Avoid strong patterns that may cause visual confusion – especially on the floor.
- Consider using contrast to define different routes through buildings and the floor / walls or skirtings.
- Avoid identical spaces on circulation routes.

D. Entering and Moving Through Buildings

DOORWAYS AND DOORS

- Clear width of doors must be 850mm, measured at the narrowest point. The active leaf of double doors must provide 850mm clear width to comply with AS1428.1 and NCC Vol 1 Part D3. Required circulation space at doors varies depending on the angle of approach.
- Luminance contrast (30%) of doors with a surrounding surface (wall, frame, door jamb or architrave) is required by NCC Vol 1 Part D3 and AS1428.1 to make them more easily identified by people with low vision.
- Operation of doors must be intuitive and possible with minimum force (maximum 20N) – whether a sliding door or swing door.
- Automatic sliding doors are preferred over automatic swing doors.
- Doors that are push button controlled must have the door control located 1m away from the swing of the door, 900-1100mm AFFL and within 500mm of internal corners to meet AS1428.1.
- Push-button controls must have a minimum dimension of 25 mm diameter and be proud of the surface and activate the door before the button becomes level with the surrounding surface to meet AS1428.1.
- The door handle and related hardware are required be a type that allows the door to be unlocked and opened with one hand so that the hand of a person who cannot grip will not slip from the handle during the operation of the latch, to meet AS1428.1. Sliding doors must have D-handles that do not obstruct the 850mm minimum clear opening.
- If door closers are used (excluding fire / smoke doors), provide adjustable delayed action or a hold open function to give more time to a person using a mobility aid or assistance animal to pass through before the door closes.
- If the entry door is also a fire / smoke door, provide a power-assisted door opening device.
- Vision panels should be provided in all entrance and entrance lobby doors. This is to enable people to see whether another person is approaching the door on the other side and also to gauge the size and type of space they are about to enter. Good visibility can help people to orientate themselves as they enter or leave a building and provides reassurance that they are moving into a safe place.
- The zone of visibility should extend between 400mm and 1600mm above floor level, be at least 150mm wide and be positioned no more than 200mm from the leading edge of the door.

D. Entering and Moving Through Buildings

HALLWAYS AND CORRIDORS

- Enable people to move in both directions and pass each other with ease including people using wheeled mobility devices.
- Avoid long, narrow corridors.
- Provide 2000mm clear width for corridors in hub buildings.
- Provide minimum 1500mm clear width for corridors in other buildings.
- Provide passing spaces every 20m of 2000mm long x 1800mm wide in corridors less than 1800mm wide.
- Make sure short narrowed sections are not less than 1200mm. Where there is a reduction in the width of a corridor, due to a projecting column or duct, for example, the resulting clear width should not be less than 1200mm and the projection should be guarded.
- Where space is restricted at a corridor intersection, chamfered corners can allow a wheelchair user to maneuver around a tight corner.
- Allow sufficient circulation space around furniture to enable easy movement by all users.
- Recess wall-mounted items wherever possible. Items such as fire extinguishers should ideally be recessed so that they do not project into the clear width of the corridor.
- On long internal corridors, seating can be provided at intervals of approximately 20m to enable people to rest. Seats should be positioned close to the corridor, but not obstructing the clear width.
- Translucent corners on corridors allow people with hearing difficulties to see others approaching and avoid collision.
- Recess outward opening doors.

D. Entering and Moving Through Buildings

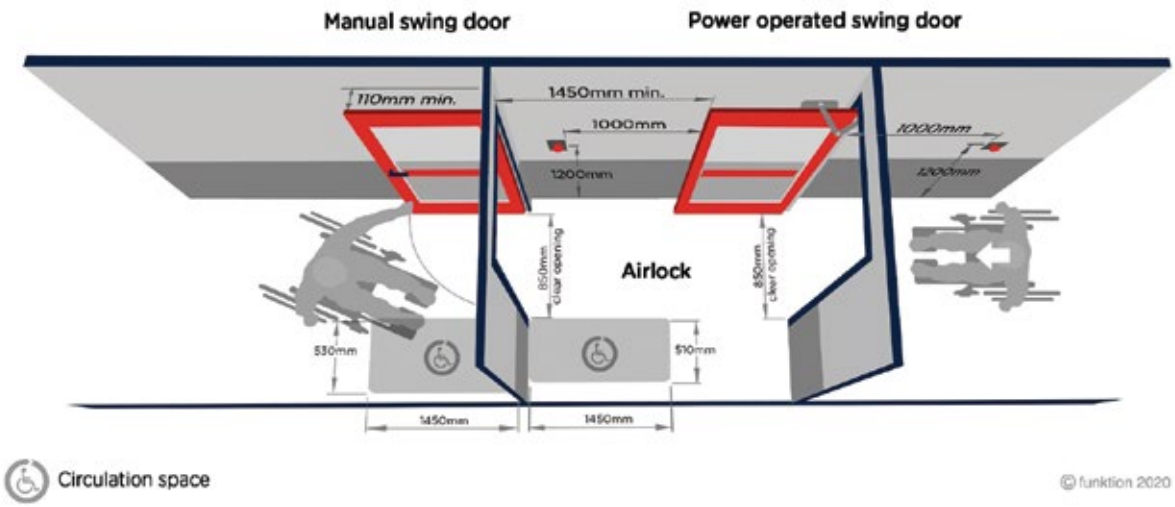

Figure 6: Doorway circulation for swing doors – front approach

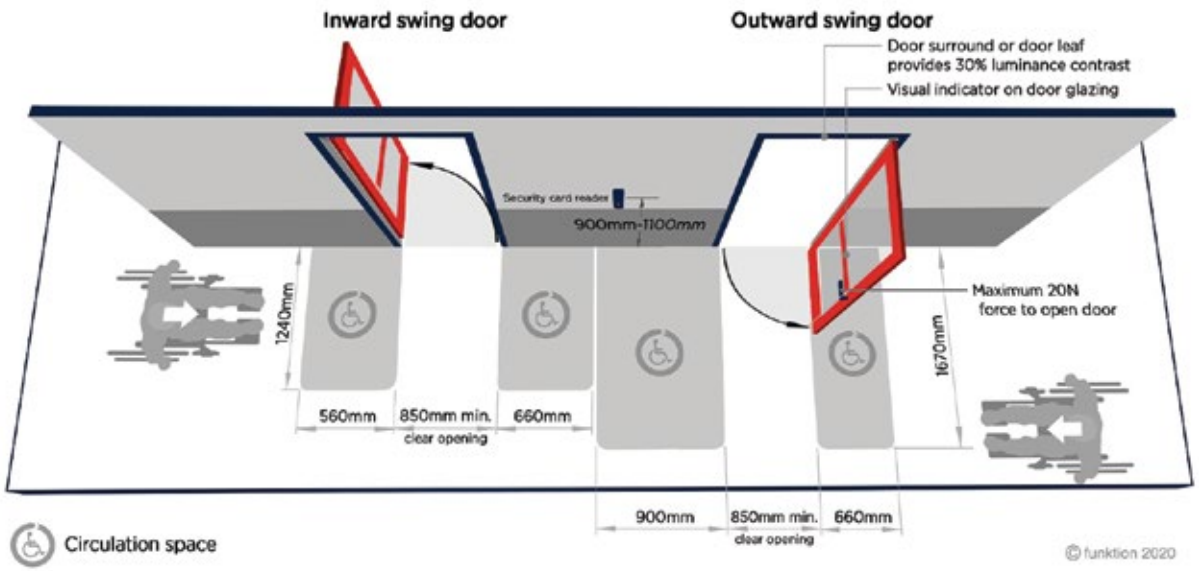

Figure 7: Doorway circulation for swing doors – side approach

D. Entering and Moving Through Buildings

D.7 Vertical Circulation

HANDRAILS / BALUSTRADES AND KERBS

- Consider location of handrails so they align with building entrances.
- Set stairs and ramps back from adjacent pathways so that handrails do not protrude.
- See “Stairways” and “Ramps”

STAIRWAYS

- Avoid single steps, rounded stairs or stairs with a 90-degree angle in them.
- Provide sufficient lighting at stairs.
- Comply with AS1428.1 i.e. continuous handrails on both sides of the stairway, tactile ground surface indicators at the top and bottom, contrasting highlighting strips on the step nosings
- Minimum width of 1000mm between the handrails is required to meet AS1428.1.
- Provide an additional central handrail on wide stairways.
- Provide a barrier underneath stairways where they are in access ways and present an overhead hazard / obstruction, to meet AS1428.1.

RAMPS

- Ramps are to be clearly visible from the point where stairs are provided, or clear directional signage provided to the nearest ramp / lift.
- Provide sufficient lighting at ramps.
- The following ramp requirements are mandatory to meet NCC Vol 1 Part D3 and AS1428.1
  - 1:14 ramps can be used, provided the ramp rise is no greater than 3.6m.
  - Landings are to be provided every 9m to avoid undue fatigue, with dimensions minimum 1200mm length for no change in direction of travel, or 1540mm x 2070mm for a 180 degree change in direction, to meet AS1428.1.
  - Ramps are required to have handrails on both sides, kerbs and tactile ground surface indicators.
  - Minimum width of the ramp is 1000mm between the handrails. Depending on the length of ramps, a passing space 1800mm width x 2000mm length may be required.
  - Curved ramps must be 1500mm wide.
  - Provide slip resistant surfaces on ramps (P4 / R11.)
  - 1:10 step ramps may be used for level changes of maximum 190mm.
  - Step ramps are required to have edge protectio.n
  - Step ramp landings should not overlap ramp landings.
  - Ramps and walkways should have a 1:40 crossfall for shedding of water.

D. Entering and Moving Through Buildings

LIFTS

- Lifts must comply with NCC Vol 1 Part E3.6 and Australian Standard requirements.
- Lifts should be in an obvious, central and convenient location and if this is not possible, provide clear directional signage leading to them.
- The lift lobby on each floor should include adequate circulation space (minimum 1540mm x 2070mm) and the installation of signage. Consider the size of the landing where the doors may be outward opening swing doors, to allow for door circulation that complies with AS1428.1.
- Locate lift call buttons with adequate circulation space to meet AS1428.1.
- A campus wide floor numbering system will ensure that lift floor numbers between connecting buildings consistently align. Where complex interfaces are unavoidable provide internal lift signage that clearly identifies key elements, for example ‘Exit level for Student Services’.
- Consider 2 lifts in hub / significant buildings in case one breaks down
- In small lifts where it is not possible for a wheelchair user to turn around in the lift, provide control panels on both sides of the lift car.
- Lifts that are part of a continuous accessible link between buildings or destinations should be available at all times and not subject to building opening hours.
- Lifts should not be labelled “staff only” or require swipe card access if stair access is available to anyone.
- Stairway platform lifts should only be considered if it is not possible to install any other type of lift, to meet NCC Vol 1 Part E3.6.
- Consider lift lighting levels and finishes to reduce glare and reflections.
- For platform lifts, automatic doors are preferred to manual doors.
- Plan regular lift maintenance that takes into account turnaround time for upgrades.

D. Entering and Moving Through Buildings

D.8 Wayfinding and Signage

- Consider signage and information that is usable and informative to everyone and may include information in visual, tactile, and audible formats.
- Provide Braille and tactile identification signage at building entrances, that includes the building name / number and the name of the principal building occupant.
- Provide Braille and tactile signage at nodes and decision-making points.
- Provide Braille and tactile identification signage to all rooms.
- Consider the use of tactile maps and models for hub buildings to provide valuable orientation and wayfinding information for people with a vision impairment.
- Where colours are used as part of a system to differentiate between floor levels or departments in a building, the colours used should be distinct. Colours that are similar, such as orange and red or blue and purple, may be difficult for some people to differentiate.
- The clarity and legibility of signage is significantly enhanced by the use of suitable sans serif display typefaces, including Akzidenz Grotesk Light, Helvetica Neue Regular, ARS Maquette Pro, Frutiger Book, FF Din Regular, Univers U45, Tiresias Infofont Regular, Avenir Book, Gotham Book, Myriad Pro Roman. These typefaces are clear and uncomplicated, and incorporate good letter spacing.
- Statutory signage that includes Braille, tactile information and sentence case is required in the following scenarios, to meet NCC Vol 1 Part D3:
  - Male and female toilets.
  - Accessible toilets.
  - Ambulant accessible cubicles.
  - Adult Change Facilities.
  - Hearing loop location.
  - Wayfinding signage where an entrance is not accessible, directing to the nearest accessible entrance.
  - Wayfinding signage where a bank of toilets is not accessible, directing to the nearest accessible toilet.
  - Adjacent emergency egress doors, with the words “Exit” and the Level.
- NCC Specification D3.6 provides requirements for statutory signage.
- AS1428.4.2 provides details on specification of Braille and tactile signs.

4E Using University Amenities & Spaces

University amenities enable independent access, safety, comfort and choice for all staff, students and visitors, ensuring a sense of welcome and belonging in the wider UOW community.

E. Using University Amenities & Spaces

Design Outcomes

Accessible Journey

This stage represents the time when students, staff and visitors are utilising purpose-built amenities like central learning areas, toilets, reception areas, kitchens, laboratories, accommodation, activity hubs and central learning spaces. Activities may include:

- Sign-in at reception
- Attending classes / lectures and tutorials to teach or learn
- Using specialised learning and teaching areas
- Accessing office based workstations
- Food storage, meal & drink preparation and access to utensils
- Locating and using accessible toilets
- Operating water dispensers
- Utilising spaces for quiet, privacy and prayer activities
- Running meetings and collaborating with teams
- Operating controls and equipment in different spaces

Performance Statement

Approaches to building entrances and movement within buildings is universally accessible by providing elements that are identifiable, logical, connected and independently usable to everyone.

Design Goals

1. Building entrances are clearly visible, recognisable, defined by signage that is legible, easy to understand and orients people to where they are, with a direct accessible approach to the building.
2. Principal building entrances facilitate ease of movement, low physical effort and comfort in all weather conditions and at all times of day.
3. All users of a building can access all floors and building amenities independently with the exception of maintenance, plant or service machinery areas.
4. Step free access is provided at all changes of level. Location of ramps or lifts when used as an alternative to stairways is clearly identified by use of appropriate signage.
5. Information is consistently located and intuitive to use, legible from both standing and sitting positions and provided in multi-modal formats.
6. Physical features and management practices ensure that all users can egress from the building safely and with minimum amount of stress.

Design Impact
Why it matters

Facilities on campus provide staff, students and visitors with a range of amenity from undercover seating areas to reception areas, bike repair stations to meal preparation areas. Within a building, many facilities need to be planned at the outset due to spatial requirements and implications, however, outdoor facilities and free-standing elements are commonly added over time which can result in poor integration and barriers to access. For example, unsuitably located facilities, pathway obstructions, insufficient circulation space, level changes and no accessible linking pathways. Considering spatial requirements early on in the design stage helps provide facilities that meet the needs of the broadest range of people, consider accessibility and create seamless connectivity for all.

The provision of any facility or amenity needs to consider if everyone has easy access including those who have no vision, no hearing, unable to walk or from a seated or standing position. Not having easy access to a facility in which others can use can mean missing out (exclusion), organising alternatives, or needing to ask for assistance, which is undignified. Dignified, equitable access, means that a person can independently access the environment without separation or assistance. Equitable access to basic amenities promotes a sense of inclusion and enhances independence, improving participation, productivity and psychological wellbeing. A consistent approach to the design of amenities enables the greatest number of people to use amenities without special modifications being required.

In some situations, individual modifications may be required. Building in universal design features from the beginning will allow for easier modification of spaces and amenities if required, as well as building in flexibility of use in spaces. This includes designing adequate circulation spaces, locating amenities so that they have sufficient space around them, considering height of amenities for people who are seated or standing and providing easy operation of controls.

Design Considerations

E.1 Activity Hubs (such as Library, collaboration areas)

- Provide a high level of accessibility that is consistent in hubs through the provision of generous circulation spaces and easy to use amenities which provide choice and flexibility of use.
- Clearly identify hubs by an architectural feature or landmark.
- Provide a choice of fixed and loose seating and furniture to allow flexible use of the space. Separate accessways from loose furniture by defining areas with edges or textured and coloured surfaces.
- Provide minimum 1200mm circulation around furniture in aisles / corridors.
- Have generous space around fixed furniture for wheelchair users to maneuver. 2070mm x 1540mm enables a wheelchair to turn in the opposite direction.
- Provide sufficient power outlets to allow for power wheelchair and mobility scooter charging in addition to charging for electronic devices. The power outlets should be within reach range (900-1100mm AFFL) and meet AS1428.1.
- Provide a variety of types of spaces that allow quiet study, moderate noise or noisier areas for collaboration with a variety of group sizes.

E. Using University Amenities and Spaces

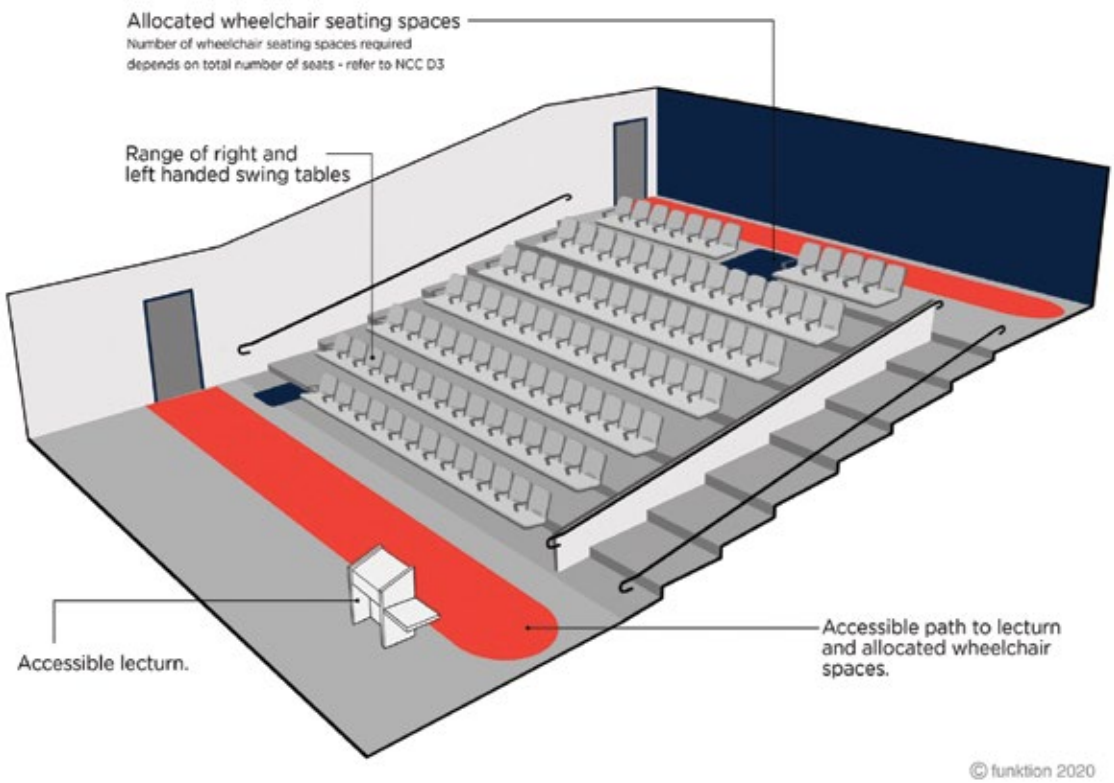

Figure 8: Lecture Theatre

E. Using University Amenities and Spaces

E.2 Central Learning & Teaching Areas

GENERAL

- Where there is fixed seating, provide adequate numbers of wheelchair seating spaces, in a variety of locations – at the front, rear and middle of the room. The NCC provides the required numbers and grouping of wheelchair seating spaces which is in proportion to the total number of seats. Provide removable seats for flexibility in the location of wheelchair seating spaces. Sight lines must be equitable with other seating. The dimensions of the wheelchair seating spaces must comply with AS1428.1.
- Provide a clear and direct path of travel to all wheelchair seating spaces and adequate circulation space around them.
- Provide an accessible path of travel to the front of lecture theatres for teachers / presenters.
- Where raked floors are used, seating positions for people using wheelchairs should incorporate a guard rail to guard any change of level. The seating position should have a flat floor, even if the rest of the auditorium has an inclined floor, as it can be uncomfortable for people to sit for long periods on a sloping surface.
- In rooms where seating is not permanently fixed, such as in seminar and meeting rooms, seating positions should allow a degree of choice. Seats should be arranged to provide convenient access between rows or around the perimeter of a room and to facilitate adequate escape in the event of an emergency.
- Consider providing space for assistance dogs to rest next to some seats, while not obstructing aisles.
- Provide a range of seating types including different sizes / widths, left hand or right-hand use, different heights and weight capacities, with and without armrests.
- Provide at least two height adjustable desks in all central learning areas with loose furniture.
- Provide at least one height adjustable desk in all seminar and tutorial rooms.
- Provide hearing loops in all new central learning areas. Refer to AS1428.5-2010 for further details on design of various hearing augmentation systems.
- Provide Echo 360 and Captioning as standard in all central learning areas.

E. Using University Amenities and Spaces

LECTERN

- All lecterns should have a wheelchair accessible section.
- Provide an adjustable height lectern or alternatively an accessible desk / table. Ensure it is capable of accommodating the presenter's laptop and is located where the presenter can see and be seen by the audience.
- For accessible desk / table: adjustable height type is preferred as this will facilitate access to the broadest range of people. A bench with easily adjustable height within the range of 700mm to 900 mm from the finished floor is preferred.
- If not adjustable: In accordance with AS1428.2-1992 Clause 24.1. Table height in the range 830mm-870mm above finished floor level; clearance underneath it for access by a wheelchair user 710mm-750mm above finished floor.
- Increase minimum clear knee / toe width to 1000mm to provide space for an assistance animal.

E. Using University Amenities and Spaces

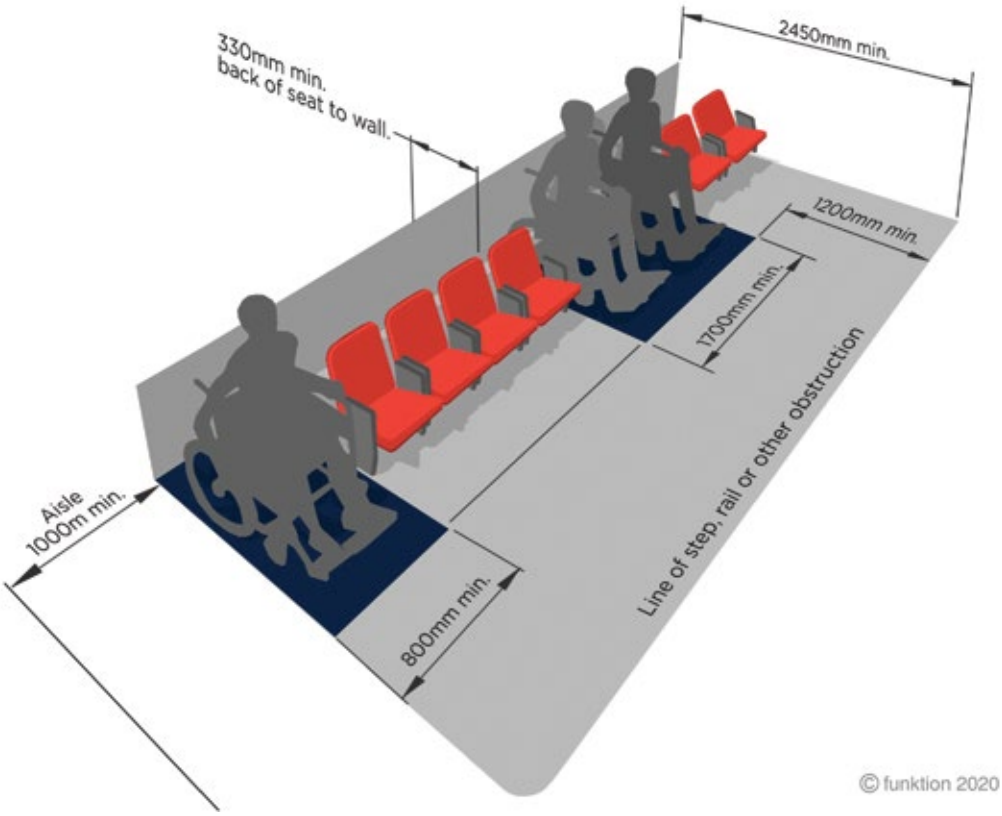

Figure 9: Wheelchair seating space in Lecture Theatre – front approach

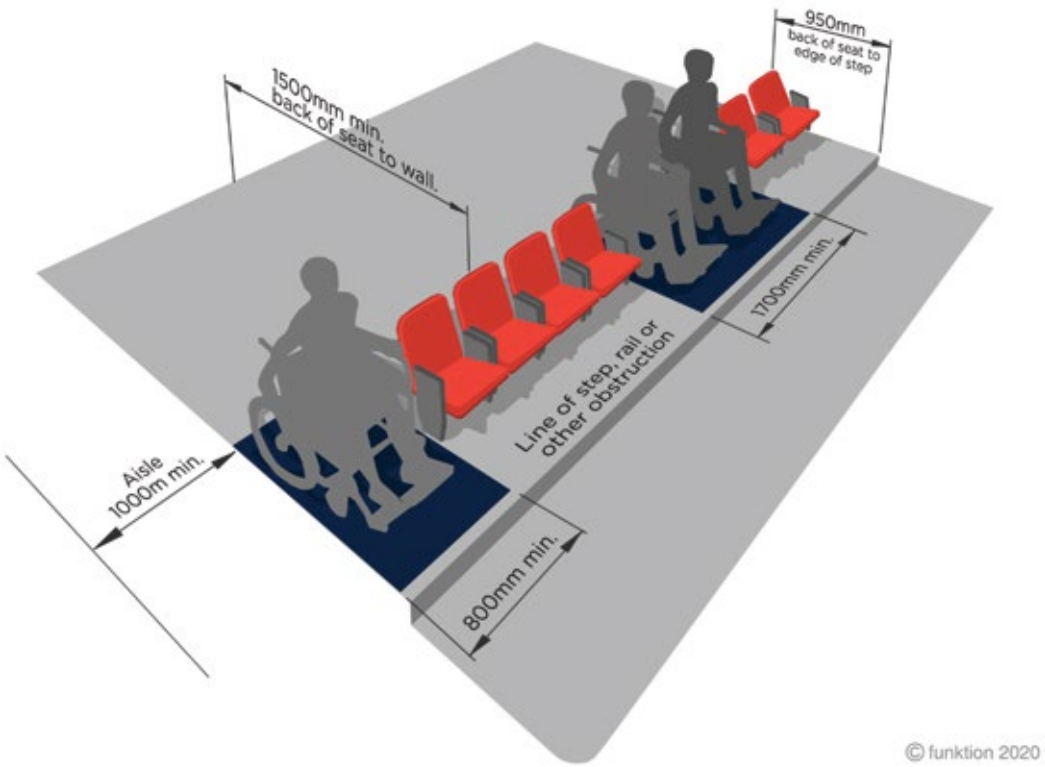

Figure 10: Wheelchair seating space in Lecture Theatre – rear approach

E. Using University Amenities and Spaces

FLOORING

- Select flooring that helps to reduce background noise, for example carpeted flooring assists people.
  with hearing impairment using hearing aids by reducing background noise.
- Where carpet is used in circulation areas, provide low-pile type to assist people using wheeled mobility aids.
- Avoid carpet patterns that create visual perceptual distortions.

LIGHTING

- Provide glare free illumination.
- People with vision impairment may require up to three times the amount of light required by a sighted person. Provide an illumination level of 300 lux max, adjustable by the presenter.
- Where used, provide lighting switches in consistent and obvious places that can be easily operated from a seated or standing position.
- Use rocker action / toggle switches with a minimum dimension of 30mm x 30mm or push pad with a minimum diameter of 25mm.
- Use zoned lighting that can be manually operated e.g. ability to reduce light over projector screens for ease of screen viewing, the ability to maximise lights over users if they are taking notes in a lecture or reading a screen and the ability to dim lighting over zoned areas.
- Make provision for natural light and ensure it is not blocked by furniture.
- Make effective use of colour and luminance contrast (see also “Entering and Moving Through Buildings”).

STAGE

- Ensure that the size of the stage is such that a wheelchair user can move around other seating provided on stage.
- If a temporary stage is to be provided, provide a temporary ramp with handrails that complies with AS1428.1 to support access for people using a mobility aid

E. Using University Amenities and Spaces

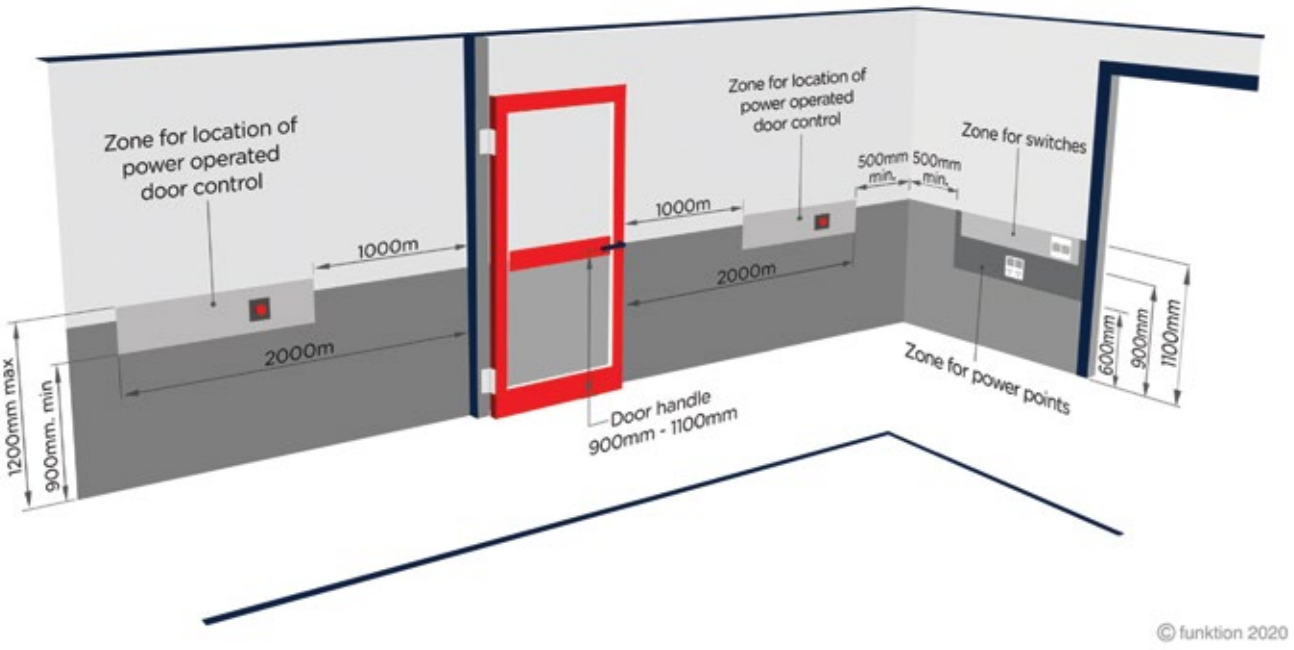

Figure 11: Door controls and switch locations

CONTROLS AND EQUIPMENT

- Locate all equipment and equipment controls provided for use by the presenters in an accessible position and ensure that controls are accessible – i.e. buttons are clear with visual contrast and easy to operate.
- Format all instructions for use of equipment in large print aligning with appropriate symbols to represent each element of equipment, e.g. data projector, computer, speakers, TV, DVD player, etc.
- Large print instructions for teaching equipment in teaching spaces also need to be in soft copy to accommodate screen reader users.
- Ensure all presentation equipment is easy to move with the ability to make adjustments to height and location to suit presenters needs i.e. a person standing or sitting.
- Ensure lapel microphone is available when required.
- Provide air temperature controls. Locate at a reach range for someone seated or standing. Provide a consistent control system that can be operated by a smart phone app.
- Provide TVs with captioning functions.
- Ensure white boards can be accessed from a seated position.

E. Using University Amenities and Spaces

E.3 Meeting Rooms / Collaboration Spaces

- Provide staff, visitors and students with the facilities to be able to have a meeting at an appropriate and dignified venue / room that is suitable for the purpose of that meeting.
- Provide a range of collaboration spaces that offer a diversity of noise-controlled areas with specific behaviours of use and marked by signage. Such areas include spaces that are quiet and free from distraction, moderate noise rooms conducive for group work and discussion and collaboration areas that have no noise restrictions.
- Provide tables and chairs that are adjustable and on casters so the configuration can be easily changed.
- Provide clear space around meeting room tables for mobility devices – minimum 1200mm clear space between furniture.
- Provide hearing augmentation systems in all rooms that have inbuilt amplification systems to comply with to comply with NCC Vol 1 Part D3.
- Provide portable hearing augmentation for smaller rooms on request.
- Locate the international sign for deafness at the entrance to rooms where hearing augmentation is available to comply with NCC Vol 1 Part D3.
- Provide lighting (natural and artificial) design with high levels of even illumination without creating glare and reflections. Provide lighting options (e.g. dimming).
- Consider how employees, visitors and clients interact with the space and what they may need to use / access – for example, technology, power points and screens.

E.4 Office Areas

OPEN PLAN OFFICES

Open plan offices can be challenging for employees with accessibility needs due to the inconsistency of office environments, availability of equipment and ever-changing sensory conditions. This lack of certainty can create additional organisation requirements and stress.

- Provide a variety of different types of workstations (enclosed areas, desk orientations, high and low sensory areas, personal storage areas for assistive equipment) so that all employees, visitors or clients are able to easily work at a workstation that is suitable for their needs.
- Working areas and workstations should be adaptable so that they meet the needs and preferences of as many employees as possible.
- Provide adjustable ergonomic chairs to all staff.
- Provide at least 50% adjustable height desks in each office area to provide staff with choice and height customization and a desk depth of 800mm.

E. Using University Amenities and Spaces

- Provide adequate task lighting for the work being undertaken as well as ambient lighting for accessways.
- Provide sufficient and appropriate desk space and depth or height adjustable desks
- Provide adjustable computer monitor arrangement.
- Ease of use of equipment such as power points, access to one at each workstation located 900-1100mm AFFL.
- Provide unobstructed paths of travel to / from workstations, minimum 1200mm preferred.
- Provide air-conditioning and temperature control. Allow fine tuning for different areas – this is important for people with chronic health conditions or poor temperature regulation when sitting in meetings or the same location for long periods.
- Acoustic comfort – limit background noise from mechanical systems and ambient noise. Individual areas within an office that require or would benefit from a quiet environment, such as a meeting room or interview area, should be located away from external sources of noise. The internal layout of an office can also be used to advantage to separate quiet work areas from potentially noisy facilities, such as refreshment areas. The size and shape of individual rooms and the acoustic performance of the building fabric and its furnishings can all influence the acoustic environment and should be tailored to suit the requirements of the particular workplace or room.
- Offer a choice of areas for employees to work to offer choice in thermal and acoustic comfort.
- Provide an area for stretching or standing.
- The inclusion of a smaller privacy space, to allow staff to undertake tasks that require concentration and provide privacy when making conference, business or private phone calls. These privacy spaces can provide an area for individual use for short term private phone calls and minimise disruption to others.
- Privacy spaces may be located towards the core of the floor (e.g. along the main public corridor adjacent to meeting rooms and enclosed offices).
- To maximise the usage of privacy spaces they should be provided with:
  - both acoustic and visual privacy
  - voice communication and data network access
  - lighting that can be dimmed, as well as natural light
  - good ventilation
  - good thermal regulation

E. Using University Amenities and Spaces

CIRCULATION SPACE

- Provide sufficient circulation space within all office areas of minimum 2070mm x 1540mm to enable a wheelchair user to enter the area, turn around and exit.
- All circulation routes within offices should be well maintained and free of obstacles. In open-plan offices, circulation routes should be clearly defined, for example, through the use of floor surfaces of contrasting colours; a change in texture of floor coverings; or the careful placement of furniture. Potential obstructions or hazards should be adequately guarded and visually highlighted. The width of circulation routes should be 1200mm minimum.

DOORS

- Meet AS1428.1 including a minimum clear opening of 850mm and circulation clear of all fittings.
- Easy access is best achieved with sliding auto-opening doors. However, if doors are auto swing consider the clearance of the outward door swing and the location of the button or swipe access.
- Consider adequate tactile and audio cues for users with vision impairment.
- Consider luminance contrast, door hardware and vision panels.
- Also see “Entering and moving through Buildings” – Doorways and Doors.

E. Using University Amenities and Spaces

UTILITY AND STORAGE AREAS

- Provide accessible utility rooms in offices that allow for sufficient circulation space around equipment.
- Ensure that there is clear space in front of the photocopier and room to access the side trays.
- Provide a bench as a set down area. A preferred location for printing is on the output side of photocopier.
- Adjustable height type bench is preferred – 830mm-870mm above finished floor level; clearance underneath it for access by a wheelchair user 710mm-750mm above finished floor, width 850mm, depth 550mm
- Provide good access to photocopier controls with an adjustable height control panel, or fixed controls within accessible reach ranges on the front.
- Locate all fittings and controls 500mm minimum from any internal corner and 300mm maximum from the front of a bench or other obstruction.
- Storage facilities should be solid, stable, and without sharp edges. They should contrast visually with adjacent surfaces and be adequately illuminated. Handles should visually contrast with the mounting surface so they are readily identifiable.
- Shelving should be positioned to suit people with different reach ranges; people of short stature; and not too low for people who can't bend down, for example, older people and people with mobility difficulties including people in a seated position.
- Locate the majority of shelves within the accessible range of 230mm to 1350mm above floor level for side reach and 380mm – 1120mm above floor level for forward reach. Preferred depth of shelves is 300mm.
- Provide adequate space in front of shelves – 1200mm-1400mm is preferred.
- Access to storage facilities should be direct and unobstructed. The location of storage facilities should be readily apparent or clearly indicated, particularly where access is available to members of the public.

AIR QUALITY

- All internal spaces should be designed within the recommend range for air quality such as temperature, humidity, particulates, carbon dioxide, and microbials.

E. Using University Amenities and Spaces

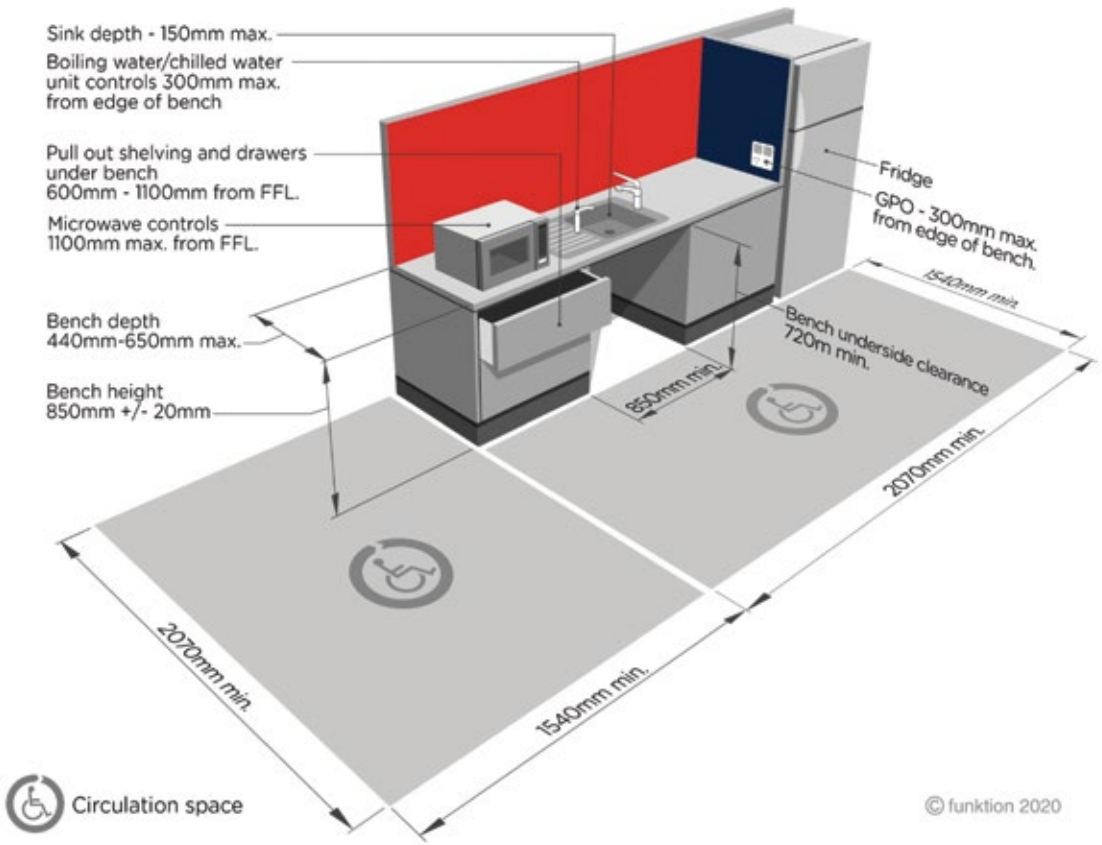

Figure 12: Accessible kitchen

E. Using University Amenities and Spaces

E.5 Kitchens / Kitchenettes

JOINERY

- Provide consistent kitchens / kitchenettes layouts in all new buildings.
- Provide an accessible bench in all kitchens / kitchenettes; with a height: 830mm-870mm above finished floor level; depth: 440mm minimum, 650mm maximum.
- Provide 1500mm minimum depth circulation space in front of the accessible bench. Additional circulation space may be required for access to a general power outlet or fridge. If turning around within a room, provide a space of 2070mm x 1540mm in the direction of travel (see AS1428.1 Figure 5).
- Access to the refrigerator needs to take into account the direction of door swing relative to approach, wall and adjacent benches.
- Provide a clear area under the kitchen sink for knee and toe clearance for seated users. Clearance underneath should be 710mm-750mm above finished floor.
- Enclose the plumbing and with the remaining space maintain an open area of:
  - Width of under sink clearance is a minimum of 850mm
  - A sink depth of 150mm is preferred
  - The sink waste must not impinge on the space required.
- Doors that open and slide away or fold back 180° can be installed. Easy to grasp door handles are to be used and meet AS1428.1 where provided.
- Storage at accessible heights to enable access to crockery and cutlery.
- Clearly differentiate waste bins from recycling bins. Bins should have a simple method of communicating their use, such as indicators with raised shapes. Ensure hood design allows easy access for people in wheelchairs to put rubbish in. Lowered lids are better for access. In addition, clear signage to be on front of bin rather than the top of bin.

E. Using University Amenities and Spaces

TAPS, CONTROLS AND POWERPOINTS

- Distance of tap hardware from the front of bench to furthest operating part is a maximum of 300mm. This includes the arc of tap swing horizontally and vertically. This requires taps with extended lever handles and careful sink positioning (close to front of bench is best) and tap position to ensure the tap is not an obstruction.
- Water taps to be push button or lever handle. Alternatively locating taps on the side of the sink can provide easier to reach ranges.
- Boiling water units (BWU) are often located over the sink. Where this system is installed, the operating points also need to be a maximum 300mm from front of bench. This needs careful layout with sink tap so sink will operate without obstruction.
- A preferred option is to provide the BWU as a self-draining model which gives greater flexibility.
- Consider child safety in environments where children will be present.
- Provide at least one GPO 900-1100mm high, 300mm maximum from the front of the bench and 500mm minimum from an internal corner. Ensure clear circulation floor space for users. Observe reach parameters at AS1428.2-1992 Figures 20 and 21.
- Locate fittings such as paper towel dispenser and soap dispensers with the operating part 900mm – 1100mm above floor level, maximum 300mm from the front of the bench and minimum 500mm from any internal corner.
- Install microwaves at an accessible height with an adjacent set down area or slide out bench area. Ensure controls are within a reachable height from a seated and standing position between 600mm –1100mm.

FURNITURE

- Provide seating in close proximity to kitchen areas to allow someone to rest while preparing food or reduce the need to carry food longer distances.
- Where UOW standard furniture is provided, ensure there is a mixture of seating heights and styles and table heights with accessible underside clearance.

WATER DISPENSERS / WATER BOTTLE FILLING STATIONS

- Provide water dispensers that are accessible (underside clearance, suitable height and easy to use controls) or alternatively provide a range of different height water dispensers including one that is accessible.
- Accessible water dispenser incorporates operable parts installed at a maximum height of 1250mm AFFL, push button taps or lever handle.
- Allow for adequate circulation space in front of water dispensers / water fountains of 1540mm x 2070mm and ground surfaces are firm and level.

E. Using University Amenities and Spaces

E.6 Toilets

UNISEX ACCESSIBLE TOILETS

- Unisex toilets are provided on every level of buildings where there are other toilets
- Unisex accessible toilets are installed to comply with AS1428.1 and NCC Vol 1 Part F2.4 including:
  - Adequate circulation space in airlocks leading to toilets
  - Correct signage incorporating the raised tactile words “Unisex Toilet (RH or LH)”; Braille; pictograms and the international symbol for access
  - Room dimensions that are sufficient for the proposed use – bathroom only or including a shower
  - Inclusion of a baby change table
  - Lever door handle or D-handle for sliding doors
  - 20N maximum force to open and close the door
  - An in-use indicator and a bolt or catch. Snib handle with a minimum length of 45 mm from the centre of the spindle. The latch mechanism is openable from the outside in case of emergency.
  - Fixtures correctly installed – pan, grabrails, toilet roll holder, hooks, flushing control, back rest, basin, shelf, lever taps, mirror, soap dispenser, hand towels or dryer
- Best practice inclusions for accessible toilets:
  - Automatic door
  - Sensor taps
  - Automatic hand drier
  - Duress alarm button to security and external strobe light

E. Using University Amenities and Spaces

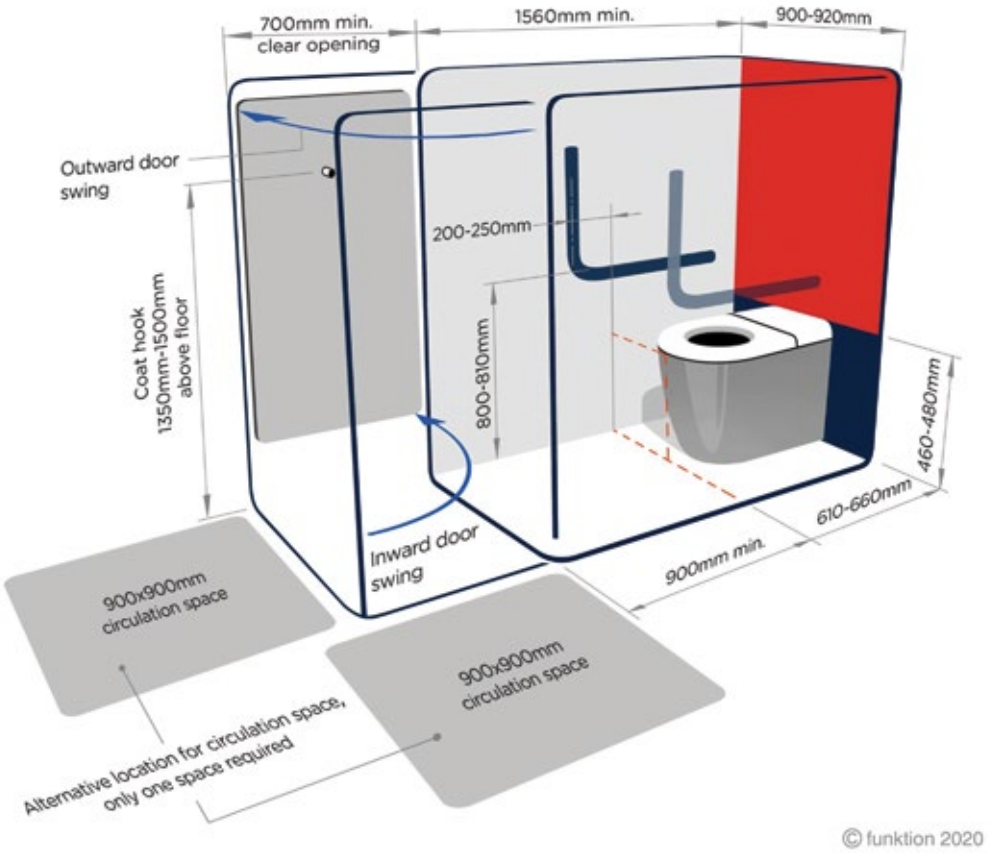

Figure 13: Ambulant toilet design requirements

AMBULANT ACCESSIBLE TOILETS

- Ambulant accessible cubicles are provided at banks of toilets in accordance with the NCC and AS1428.1 including:
  - Circulation space in the airlock
  - Pan 440-460mm AFFL (to top of seat)
  - Grabrails
  - Coat hook
  - Circulation space in front of the pan and at the door internally and externally 900mm x 900mm

E. Using University Amenities and Spaces

PARENTING ROOMS

- Provide a parenting room in hub areas with the following inclusions:
  - Door to meet AS1428.1 including a minimum clear opening of 850mm and circulation clear of all fittings.
  - If the door opens out, locate it to open clear of transverse traffic, for example by ensuring that the door opens out against a side wall.
  - a comfortable chair close to a table and power point for breastfeeding equipment
  - a sink, microwave and fridge (in the room or close by)
  - a lockable door
- Proprietary baby change tables measure about 900mm wide (horizontal model)
- Clear circulation space at the long side of the change table. These circulation areas may overlap other circulation areas within the space.
- Meet AS1428.1 clause 15.2.8.2 for location of baby change table, including maximum 820mm height of the leading edge and minimum 720mm knee-space clearance underneath when the table is in the open position.
- Provide 100mm minimum clearance to any obstruction on both sides of table to ensure that hands do not get jammed when opening / closing the table.
- Provide additional shelf space for changing materials minimum 150mm wide and 450mm long at a height level with the top of the change table and within reach of change table when down (I.e. maximum 300mm away and beside circulation space).
- Provide glare-free lighting in the work area and above the change table of not less than 200 lux.

ACCESSIBLE ADULT CHANGE FACILITY

- May be required in new facilities such as a new pool facility with a pool perimeter of 70m or greater.
- This facility should be considered where a recreation facility is open for community use.
- Where required, the facility is provided in addition to a unisex accessible sanitary facility.
- The following must be included to meet NCC requirements:
  - A ceiling hoist
  - A toilet pan, seat, backrest and grabrails
  - A washbasin and tap
  - Fixtures and fittings as specified
  - A change table
  - Changing rails
  - An automated sliding entrance door
  - Signage
  - Operating instructions for the hoist and change table
  - Circulation spaces
- Detailed requirements and specifications are found in the Changing Places Guide available online at www.changingplaces.org.au

E. Using University Amenities and Spaces

E.7 Special Use Facilities

MULTI-FAITH ROOMS

When locating multi-faith rooms, it is important to consider:

- Access to the room, adequate circulation space, accessible amenities and
- Noise levels.
- Proximity to washrooms is appreciated by faiths who need to wash before praying.
- Installing a low sink in the toilet near the space can be an effective solution.
- Take into consideration the number of staff that will require these facilities.
- Clear identification signage is essential.

The use of the room will influence the orientation and shape of the room:

- Some faiths pray facing a particular direction (usually East or South-East). It may be important that the shape of the room fits with that orientation, and that the door is not situated in that direction.
- Muslim men and women usually prefer to pray separately. Moveable screens can be provided, but the shape of the room could also potentially be utilised.

Maintain neutrality and a welcoming ambience to allow for diversity:

- Attention to atmosphere is important to provide a sense of the sacred. This can be provided through effective interior design, paying attention to colour, fabric and light will make a big difference to the atmosphere of the room.
- Avoid any religious imagery rather than attempt to accommodate all faiths.
- Neutral colours, simple abstract designs and effective use of light can all be employed to create a beautiful and welcoming space.
- Muslims and some others avoid imagery of people or animals

Consider environmental conditions such as lighting and temperature to include:

- Natural light (with blinds for privacy as appropriate) is good if available.
- A special lighting scheme that allows a variety of moods and effects, controllable by users, is best.
- Avoid fluorescent or office-type (overhead) lighting.
- Some users may appreciate the possibility of allowing candlelight, although such a decision would need to be checked against fire safety regulations.
- Body temperature drops during meditation, so the space needs to be warm enough (or blankets or shawls provided).
- Conversely, adequate ventilation can be essential depending on the room location, during times of congregational prayer if the room is likely to get very full.

E. Using University Amenities and Spaces

When providing seating, furniture and accessories flexibility is important, the following elements are good to consider:

- Some faith groups and individuals may prefer to sit on chairs, but others will need floor space and either prayer mats or meditation cushions.
- A small table or altar may be appreciated by Christian groups for Communion services.
- A screen or curtain to separate men and women may be appreciated by Muslim staff / students
- Furniture that can be stacked, folded or wheeled away increases the flexibility of the space.
- Storage areas including shoe racks, cupboards for scriptures, prayer mats and possibly storage for chairs.
- Religious or Faith related artefacts (such as symbols, holy books, prayer mats) should ideally be stored in a cupboard and put back after use. This allows people from all backgrounds to feel comfortable in the space and not alienated by the presence of other faith objects.

QUIET ROOMS

- Quiet rooms are spaces for people to have time away from overwhelming environments, sounds or situations.
- The room must be in a quiet location.
- The room must have good acoustic properties (well insulated from surrounding sound).
- Must be in an accessible location, with fully accessible doors and circulation space within the room and around furniture.
- Provide soft furnishings and furniture for a change in posture including sleeping, if appropriate.
- Consider whether the room should be bookable.
- Provide lighting that can be dimmed, as well as natural light.
- Provide good ventilation.
- Provide good thermal regulation.

E. Using University Amenities and Spaces

ASSISTANCE ANIMAL FACILITIES

- Provide a network of assistance animals facilities in a variety of locations across campus.
- Assistance animal facilities include:
  - An area that has access to running water / hose
  - Access to a grassed area or fake grass area
  - Access to animal waste disposal bags and bin
  - Is easily located by a person with vision impairment

LABORATORIES / SCIENCE

- See “Building Types”

SPORTING FACILITIES / SPECTATOR SEATING

- See “Building Types”

STUDENT ACCOMMODATION

- See “Building Types”

4F Attending Events & Activities

All events and temporary activities at UOW are accessible to all. Proactive accessibility planning is incorporated into all activities and information disseminated prior to events, to maximise inclusion, participation and minimise disruptions.

F. Attending Events and Activities

F. Attending Events and Activities

Design Outcomes
Accessible Journey

In this stage of the campus journey, students, staff and visitors are attending events or pop up / temporary activities or using campus spaces alongside temporary activities such as construction. Activities may include:

- Attending and participating in graduation ceremonies
- Attending conferences or seminars
- Attending alumni events
- Participating in O-week activities
- Attending open days
- Campus markets
- Navigating around temporary construction areas

Performance Statement

All events and temporary activities at UOW are accessible to all. Proactive accessibility planning is incorporated into all activities and information disseminated prior to events, to maximise inclusion and participation and minimise disruptions.

Design Goals

1. Universal design and accessibility is embedded into the early planning stages of events, temporary activities, repairs and construction work.
2. Increased communication and information on accessibility to reduce reliance on requests for individual assistance and improve confidence, dignity and attendance at events.
3. Separate and clearly defined vehicle and pedestrian access ways are provided by locating vehicle set down areas away from accessible parking facilities and paths of travel.
4. Temporary paths of travel and activities provide sufficient space for wheelchairs, have defined edges and are well lit with convenient access to a power source.
5. Access to event furniture is step free and provides a firm, level surface. Provision of seating is provided in a variety of locations and set back from the accessible path of travel.
6. All construction plans and works include a continuous and safe accessible path of travel around the construction area.

Design Impact
Why it matters

Key events such as Open Day, Discovery Day, Outreach & Widening Participation Programs, graduation and community events held on UOW campuses but not conducted by UOW, are an important part of the campus experience, and can communicate UOW's intention to be an accessible and inclusive campus. These events showcase the campus opportunities and key community engagement events. Graduation, in particular, is crucial to fostering relationships with high profile visitors and graduating new alumni. Such events need to accommodate up to thousands of people – including people with disability and older family members and visitors who may have accessibility needs.

Attending a job interview is a key activity for a new staff member who is likely to be unfamiliar with the campus. Arriving on site for a job interview inevitably results in an interaction with the campus environment and will often be the first touch-point with the workplace. This is likely to create a first impression for a potential employee of feeling welcome and providing insights into the culture of the organisation. The first-time visitor experience is a common scenario for many other University events and activities such as conventions, conferences and public meetings.

While Wollongong and other campuses implement and undertake large-scale projects, construction and maintenance activities are common activities for the campus environment. The coming and going of trucks, cranes, construction materials and contractors can cause significant disruptions to space, vehicle / pedestrian flow, movement around campus, safety and noise levels. Planning and managing these disruptions is an important aspect of reducing impact on staff and students' day to day experiences. This may include managing barriers to access, travel distances, availability of parking, pathway blockages, access to buildings and facilities on campus and other disruptions to routine that may be essential in providing accessibility.

Design Considerations

F.1 Venue Choice

- Choose an accessible venue that has accessible parking close by and a drop off area near the entrance.
- Well ahead of the event, check that the venue is accessible with welcoming entrances – either level access or clearly visible ramps or lifts. Automatic entrance doors are preferable. Ramps and corridor widths should comply with current standards. A hearing augmentation system is installed. Newer buildings are preferable for events as they are more likely to comply with more recent Australian Standards.
- Ensure accessible toilets are available. Check that the toilets are functioning, clear of clutter, located near other toilets and can be easily accessed.
- Provide a grass or artificial grass area for service animals or guide dogs, with access to water.
- Check that the acoustics of the venue are adequate, and that noise from external sources (traffic, crowds, other events, etc.) do not interfere. Test the hearing augmentation system to make sure it works.
- Ensure wheelchair access to the stage and that the size of the stage is such that a wheelchair user can move around other seating provided on stage.
- If a temporary stage is to be provided, provide a temporary ramp that complies with AS1428.1 to support access for any user with a mobility aid or access challenges that requires the need for ramp access.
- Ensure the PA system e.g. microphone can be accessed from a standing or seated position.
- For outdoor events, locate activities on or adjacent accessible surfaces (firm, even surfaces).
- Events on grass or natural surfaces require accessible pathways for trolleys and mobility aid users. Temporary pathways with an accessible surface should be provided where the existing surface is not accessible (for example on grass or gravel). Purpose-made, non-slip synthetic or timber planking generally provides a firmer surface and is more robust, although care should be taken to ensure that the jointing and point of entrance does not become a tripping hazard.
- Provide adequate lighting for night-time events, especially at pathways and temporary access ways.

F. Attending Events and Activities

F.2 Invitations / Registration

- Outline the accessibility features of the venue during the registration process.
- Ask attendees to advise of any accessibility requirements when registering so that these adjustments are managed as a part of the event.
- Ensure digital invitations / programs are accessible. If physical invitations are provided, ensure attendees can easily access accessible digital versions.
- Ensure that guests and participants can register for the event in a range of ways, including by phone, email or online. If using an online form or third party booking service, make sure it is accessible.
- Provide information about accessing the venue, including accessible parking, general parking, public transport, venue drop off points, paths of travel and distances to the entrance.

F.3 Marketing, signage and communications

- Provide adequately sized signage for the viewing distance, with good lighting and contrast levels.
- Wayfinding materials should be simple and easy to read (clear directions, appropriate signage).
- Temporary signage should be located at key decision points and adjacent to the path of travel so as not to create obstructions for people with vision or mobility impairments.
- Written material should also have good contrast levels and be available in alternative formats, as required, before and after the event (e.g. large print, audio, electronic).
- Make written material available in electronic formats so that information can be translated into different languages if needed.

F. Attending Events and Activities

F.4 Room arrangement during the event

- At the beginning of the event, it is helpful for the MC or event organiser to provide a verbal explanation of the layout of the venue, including the layout of the room and directions to toilets, meal areas, breakout rooms and fire exits.
- Book Auslan interpreters and / or live captioning as needed, and reserve seats in the front to enable a clear view for people who are deaf and hard of hearing.
- Provide sufficient space between tables for wheelchair access (1200mm is preferred).
- Some higher tables (830-870mm AFFL) and some lower tables (700-750mm AFFL) will enable wheelchair users and people of short stature to access tables, including refreshment and food tables.
- Venue should be clear of obstacles, and trip hazards such as cables should be removed or taped down.
- Provide guests with access to a separate, quiet area to allow them to take a break, if needed.
- Provide a height adjustable table on the stage for presenters to use, as an alternative to a lectern.

F.5 Audio Visuals

- Ensure a hearing loop is available and ascertain the coverage area.
- Provide space for Auslan interpreters (if required). Ensure interpreters are positioned in a well-lit area and clearly visible to the audience.
- Provide live captioning whenever possible and as required.
- Venue should be evenly lit throughout. The lighting near the presentation projection should be adjustable, while maintaining good lighting on the speaker.
- Presentations should be reviewed to ensure they are adequately sized for the viewing distance, using sans serif fonts and good contrast levels.
- Provide infrastructure to support temporary lighting and power outlets.

F.6 Queuing and temporary barriers

- For people to move along the queue conveniently, safely and comfortably, consider the likely numbers queuing and how fast the queue will move. Provide seating in close proximity for people who may be unable to stand for long periods of time.
- Barriers should be fixed to the floor and arranged in parallel and logical lines.
- Where temporary barriers are required, provide adequate luminance contrast to the background surface and provide clear width between the base of the barriers of more than 1000mm.
- Belts or chains between bollards are not recommended. However, if absolutely required, limit their use and ensure they are detectable by long cane users, by provision of a kerb or kerb rail between stanchions, no less than 200mm above floor level. Provide circulation space between kerbs / kerb rails of more than 1000mm.

F. Attending Events and Activities

F.7 Construction management

- Ensure all construction management works, on new or existing buildings provide safe, clear and accessible paths of travel for all pedestrians.
- Develop an accessibility plan when planning construction and maintenance works that may include a designated role to plan, monitor and communicate alternative accessibility options, UOW communication system for real time information and scope of disruption, helpline or subscription messaging system to respond to access enquiries. Communication channels could include Universe App, SOLS Bulletins, My UOW.
- Contractors should provide all necessary temporary pedestrian access including access for people with disability for the duration of the project; identifying accessible temporary routes with traffic management and construction communication plans. The project team – UOW project manager, consultants, contractor and sub-contractors – should monitor any changes for potential conflict with accessibility requirements. Once completed, existing pedestrian routes should be re-instated in accordance with project objectives and UOW standards.
- Scaffolding should be enclosed within hoarding with no protruding parts, sharp edges or outward opening-doors and be well lit in low light conditions. Where a hoarding or scaffolding is erected on the footpath, and passage is restricted, a 1800mm unobstructed width should be maintained in busy areas or a recommended width of 1200mm in less busy areas to enable pedestrians to pass safely. Clear headroom of 2000mm should be maintained. Protruding parts such as pole ends should be minimised, but where they do occur, should be sleeved or boxed in. Hoardings should be highlighted with a contrasting colour or band, 900-1100mm above ground level.
- The provision of a continuous handrail 900 to 1000mm above ground level may be considered to assist pedestrians with vision impairment to find a safe route through scaffolding and to locate public entrances.
- If it is not practical to provide a safe route through scaffolding, an alternative route should be provided. If pedestrians are diverted onto the road, the pedestrian route should be separated from the traffic and any site vehicles or equipment by a physical barrier on either side. Where temporary paths are located on the road, kerb ramps or raised footways should be provided. If people must use the road it should be clearly marked and signed to vehicles.

05 Building Types

Building Types

Building design should enable visitors, students and staff to conveniently access all facilities and amenities within the buildings. In more specialised buildings, a degree of flexibility and adaptability incorporated into the design will enable individual modifications or adjustments to be made, as required.

Design Outcomes

UOW campuses are unique environments that provide a series of buildings and spaces that support both staff and students to learn, live, work and play. Every building on campus has a particular use and is classified according to its range of functions, some multi-use buildings and spaces provide more common facilities than others. While other buildings on campus have specialised functions in which the design and design elements are fit for purpose. Considerations of a range of specific buildings and environments are discussed in this section.

See also:

- "Using University Amenities and Spaces";
- "Pathway Networks"; and
- "Entering and Moving Through Buildings"

Performance Statement

Building design enables visitors, students and staff to conveniently access all facilities and amenities within the buildings. In more specialised buildings, a degree of flexibility and adaptability incorporated into the design enables individual modifications or adjustments to be made, as required.

Design Goals

1. Living in student accommodation facilitates independence, creates social connections and enhances participation in university life.
2. Clearly identify hubs like libraries by an architectural feature or landmark and make it easy to locate and move to destinations within the building through a logical and easy to understand layout.
3. Provide a clear, continuous accessible path of travel into laboratories and to equipment, with adequate circulation space in front of equipment.
4. Provide accessible sporting facilities for both people participating in the activities and spectators. Link playing areas, seating and change facilities to each other with accessible paths of travel.

Design Considerations

5.1 Student accommodation

Living in student accommodation facilitates independence, creates social connections and enhances participation in university life.

GENERAL

Student Residential accommodation buildings are classified as a Class 2 or 3 building in the NCC (National Construction Code) and are required to have accessible paths of travel that connect to campus arrival points, campus facilities and amenities.

UOW student accommodation consists of a number of multi-storey buildings with individual and shared rooms, communal living spaces, kitchen preparation areas, activity rooms, parking areas.

As with all buildings, applying the principles of universal design for entering and moving through buildings is fundamental. In addition to these, key inclusions for student accommodation include:

Building Types

COMMON AREAS

- Open plan design to maximise circulation spaces and use moveable furniture for flexibility of circulation spaces.
- Fire doors are not accessible due to the force required to open them. Automated doors to internal common areas make approaching the door more accessible and easier to operate for people carrying things, temporary or permanent mobility restrictions and with limited dexterity and upper arm strength.
- Use door hardware, intercoms, switches and controls that are accessible, easy to use and operate and are located at heights that can be reached from a standing or seated position.
- Flooring selection that helps to reduce background noise, for example carpeted flooring assists people with hearing impairment using hearing aids by reducing background noise.
- Where carpet is used in circulation areas, provide low-pile type to assist people using wheeled mobility aids.
- Colours and contrast that support wayfinding and orientation.
- See “Entering and Moving Through Buildings” for Emergency egress strategies and procedures.
- Provision of visual and auditory emergency warning systems in all communal areas
- See “Using University Amenities and Spaces” for kitchen design in or near accessible rooms.
- Laundries with:
  - unobstructed circulation spaces to enable people using mobility aids to enter and move through the laundry, turn around and pass another person operating a washing machine.
  - one front load washing machine with sufficient circulation space in front for all people to approach, load and operate the machine.
  - one front load dryer that can be accessed from the seated position with an adjacent accessible bench.
  - adjustable storage to meet the needs of all residents.
  - a GPO within easy reach of all residents.
  - a more accessible alternative to a deep laundry tub, for example, a kitchen sink.

Building Types

ACCESSIBLE BEDROOMS

- Provide accessible rooms in a range of locations to provide choice.
- Consider locating rooms to minimise travel distances to lifts and communal living areas.
- The NCC part D3.1 provides requirements for numbers of accessible rooms to be provided.
- In addition to those accessible rooms required by NCC, provide at least two accessible rooms with the following dimensions, located on the ground floor:
  - Minimum room size: 3530mm x 3230mm, clear of cupboards / wardrobes. 1800mm next to bed for manoeuvring
  - Minimum bathroom size of 2700mm x 2500mm
  - Include grab rail strength towel rails
  - Storage cupboard for large equipment such as a wheelchair or commode
  - Automatic door or provision for installation of automatic door
  - Minimum circulation space at wardrobe: 1540mm x 2070mm in front of the wardrobe
  - Minimum circulation space next to bed: 1200mm on both sides and the end of the bed
  - Minimum circulation space at desk: 1500mm x 1500mm
  - Have window 1000mm above floor level to enable a person using a wheelchair to experience a view
  - Celling track hoist (or reinforced celling for future provision)
  - Linked room for carer to sleep over
- In addition, provide one (conventional) bedroom that could better cater for a student with a vision or hearing impairment by including the following features:
  - visually highlighted light switches (i.e. with a background of colour contrast)
  - stronger than required contrast on doors (60%)
  - visual and auditory emergency warning systems and provision for a vibrating alarm device
  - Grabrails adjacent the toilet pan
  - Controls and switches are large and easy to operate within accessible reach ranges and can also be reached from the bed in accessible rooms
  - Provide adjustable height shelving in wardrobes and at study desks
  - Provide both visual and auditory emergency warning systems in all accessible rooms and provision (i.e. can be adapted) for the installation of vibrating alarm devices as required by individuals
  - Have any emergency call bells (supported by a robust and sustainable response procedure, by a person who is trained to give assistance) installed adjacent the toilet pan in a location that can be reached by a person sitting on the toilet pan or a person who may have fallen onto the floor, ensuring that the emergency call bell reset switch is in reach of the user.

5.2 Libraries

Clearly identify hubs like libraries by an architectural feature or landmark and make it easy to locate and move to destinations within the building through a logical and easy to understand layout.

In addition to meeting the requirements for entering and moving through buildings, key inclusions for libraries include:

- Provide a map of the building, clearly indicating the location of key facilities – such as toilets, refreshment areas, information desks, incorporating symbols wherever possible, with lettering in clear, contrasting and tactile type.
- Provide a high level of accessibility that is consistent with other hub buildings through the provision of wide and direct accessways, generous circulation spaces and universally designed amenities.
- Provide minimum 1200mm circulation around furniture and wide aisles and corridors.
- Provide carpets and floor surfaces that enhance wayfinding by using changes in carpet texture and colour and reducing bold patterns that can create visual perception difficulties and confusion.
- Library shelves arranged logically in parallel rows. The distance between the units themselves and between the units and any adjacent wall or obstruction should be 1200-1400mm. Provide a range of shelving heights.
- Provide a choice of fixed and loose seating and furniture to allow flexible use of the space. Ensure furniture is set back from the path of travel.
- Provide sufficient power outlets to allow for power wheelchair and mobility scooter charging in addition to charging for electronic devices. The power outlets should be within reach range (900-1100mm AFFL) and comply with AS1428.1.
- Provide a variety of types of spaces that allow quiet study, moderate noise or noisier areas for collaboration with a variety of group sizes.
- Desks with a fixed work surface should have a height between 730mm and 780mm and a clearance of minimum 710mm to the underside. The provision of electric, adjustable-height desks or work surfaces will facilitate access to the broadest range of people. Each desk should have easy access to a power outlet and be adequately illuminated with background and adjustable task lighting.
- Where computers are provided, position them where there is adequate space for people to sit comfortably at the desk and lay out papers or books to either side. There should also be sufficient space for people to rest their hands and arms in front of a keyboard when not typing, and to use a mouse effectively with a straight wrist.

- Computer screens should be adjustable so that each person can position the screen to suit their individual need. Screens should not be permanently fixed to a wall or stand as this will render them unusable by some people, particularly those who need to view the screen at very close range.
- At least one computer should incorporate assistive technology such as screen readers and software to enable the font size to be increased on screen.
- A number of large-print keyboards and ergonomically designed keyboards should be available, and they should be compatible with all computer terminals to facilitate maximum flexibility for users regardless of age, size, ability, and disability.
- A keyboard with integral Braille display unit will be beneficial to some people, as will equipment such as a scanner-reader that converts text in a document or book to speech.

5.3 Laboratories

Provide a clear, continuous accessible path of travel into laboratories and to equipment, with adequate circulation space in front of equipment. Even if equipment is complex and specialised, accessibility and adequate space to make provision for individual modification should be considered.

- In some situations, it may not be possible or practical to provide accessibly designed equipment within complex learning areas, for example specialised equipment within a chemistry laboratory, however it is still important to provide a clear, continuous accessible path of travel that meets the needs of all people into the room and to the equipment. Circulation spaces should enable people using mobility aids to manoeuvre themselves into a position to utilise the equipment. Building in universal design features from the beginning will allow for easier modification of spaces and equipment if required, as well as building in flexibility of use in spaces.
- It may be necessary to make modifications to complex equipment with specific safety implications, to meet the needs of individuals with specific requirements. Consideration should be given to how the design could be modified if and when required.
- Depending on the type of equipment, an alternative control area may be appropriate, or a viewing area in an accessible location.
- If height adjustable equipment is a viable option, 5% of total benches should be adjustable and one fume cupboard at an accessible height, with adequate circulation space around one side of 5% of all benches of 1500mm x 1500mm, with 1000mm circulation access ways leading to them.
- These environments may need to be further assessed on a case by case basis by an Access Consultant.

5.4 Sports Facilities

Provide accessible sporting facilities for both people participating in the activities and spectators. Link playing areas, seating and change facilities to each other with accessible paths of travel.

- Provide an accessible path of travel on to playing areas and spectator seating areas
- Provide shelter in a variety of seating areas with a clear view of outdoor playing fields and arenas.
- Locate accessible spectator seating in a variety of easy viewing areas especially to areas with shelter and provide accessible paths (firm, level) linking to the seats
- If fixed seating is provided in an arena, then wheelchair seating spaces are required (see NCC part D3.9 for numbers required).
- If bleacher seating is provided, ensure sufficient provision of handrails at stairs and leading to seating areas.
- Provide wheelchair spaces adjacent to bleacher seating.
- Provide an accessible path of travel to bathrooms and change facilities, including provision of accessible facilities.
- If showers / change rooms are provided, ensure accessible showers are also provided (see NCC part F2.4 for numbers required).
- If lockers are provided, provide a proportion that are linked to an accessible path of travel and have circulation space in front of 1540mm x 2070mm.
- Accessible lockers should have dimensions of 300mm wide (recommended) x 600mm deep (maximum) x 1200mm high, with the base between 400 to 800mm above floor level. Some larger lockers should be available to store items, such as mobility equipment.
- Locks and key fobs should visually contrast with the locker door and be easy to operate. Any numbering or coding system should be easy to follow and include large tactile letters or digits.
- Ramp access into pools is preferred over hoists, NCC clause D3.10 and Specification D3.10 provides requirements for when access is required into a pool and the type of access.
- An accessible adult change facility may be required in a new pool facility that has a pool with a perimeter of 70m or greater (see “Using University Amenities and Spaces” for details of requirements).

5.5 Lecture Theatres

See “Using University Amenities and Spaces”

5.6 Offices

See “Using University Amenities and Spaces”

06 Planning & Governance

Planning and Governance

Access and inclusion practices are embedded in the planning, design and management of the built environment.

Design Outcomes

Embedding inclusion into the UOW community needs to be supported by strong governance frameworks that provide leadership and clear expectations around planning processes and accountability for the delivery of access and inclusion. The development of governance arrangements enables active partnerships to build capacity and achieve shared vision and deliver a variety of stakeholder benefits.

Performance Statement

Access and inclusion practises are embedded in the planning, design and management of the built environment.

Design Goals

1. Establish coordinated and universal design approaches in design and development projects.
2. Incorporate ownership, accountability, feedback and support mechanisms for implementing inclusive practices.
3. Universal design and accessibility strategies are embedded into the early planning stages of design and management activities such as building development, upgrades, maintenance / repairs, construction, events and temporary activities.
4. Engage with staff and students in a meaningful and ongoing way through inclusive consultation methods.
5. Raise awareness among stakeholders by providing knowledge sharing opportunities that enable more inclusive practices.
6. Stakeholders involved in designing and managing the built environment understand the impact design solutions, decisions and actions have on people with disability and work cooperatively to resolve issues and explore opportunities for improvement.

Design Impact
Why it matters

The opportunities to create more inclusive environments are most cost-effective when captured in the earliest phases of the design process. The most effective building modification or risk control is often cheaper and more practical to achieve at the planning stage, rather than making changes later in the lifecycle when barriers can become challenging, exclusive and real to staff, students or visitors. The direct costs associated with design that excludes, rather than includes and is unintentionally inaccessible can be significant, for example retrofitting, duplication, resourcing and discrimination claims.

These costs have a greater impact on parties 'down-stream' in the design process (i.e they impact the disability services staff, building managers and academic staff more than the designer). This is not always understood or appreciated, especially when there is time and budget pressure to get a building project completed.

A universal design approach focuses on getting it right in the planning stage and results in many benefits, including:

- **Better for all people** – creating inclusive, welcoming and equitable environments for a diverse UOW community of all abilities where independence, dignity and participation is encouraged. Improved experience and student / staff / visitor satisfaction.
- **Better performance** – delivering genuinely sustainable and adaptable solutions for UOW and avoiding poor design outcomes.
- **Better places** – avoiding the need for wasteful and inefficient retro-fitting of solutions, as design elements are considered at the outset of the design process.
- **Better fit** – genuinely informing integrated strategies for safe, functional, comfortable and intuitive design.
- **Better value** – creating greater efficiencies for infrastructure investment and minimising costs over time.
- **Better growth** – widening the audience and market for more people, enhances commercial viability. Humanises the UOW brand and influences positive organisational image.

UOW Strategic Commitments

6.1 UOW Strategic Commitments

The Universal Design Guide recognises the following UOW strategic documents and guidelines which should be referred to and cross-referenced as appropriate when developing universal design solutions:

- UOW Strategic Plan
- UOW Masterplan
- UOW Accessibility Action Plan
- UOW Design Guidelines and Standards

These can be found online on the UOW website.

Embedding universal design into UOW physical environments is underpinned by a number of UOW strategic planning commitments. The following strategies align with the adoption of universal design, access and inclusion in the built environment.

Strategic Plan 2020-2025

The UOW Strategic Plan encourages inclusive practices by promoting equality and equity across all aspects of the university from study, to work, to events run by the university and other forms of community engagement. Within each strategic goal, there are specific strategies that directly relate to the adoption of universal design in the physical environment.

Planning and Governance

GOAL 1: EMPOWERING STUDENTS FOR THEIR FUTURE.

The adoption of universal design principles maximises independence and participation which ultimately empowers student and staff engagement.

- Strategy 1.2 – Engage students as trusted partners with a shared responsibility for their educational journey. We will empower our diverse student body to co-design their educational experience, enhancing their voice in decision-making bodies and the services and programs offered to support their success.
- Strategy 1.4 – Leverage sophisticated learning analytics and artificial intelligence to provide sector-leading personalised support for our students. We will develop a single view of student data, which will be used in an ethical and transparent manner to support success and empower students on their learning journey.
- Strategy 1.5 – Promote and reward teaching excellence. We will support ongoing staff development through proactive communities of practice and enhance career progression opportunities for teaching excellent academics.

GOAL 2: CREATING KNOWLEDGE FOR A BETTER WORLD.

Increasing awareness and communication of the benefits of universal design on campus will contribute to better design and the exploration of new ideas and technologies for disability and ageing, by attracting students who may have an interest in this area.

- Strategy 2.2 – Champion high-performing teams to tackle complex problems and global challenges. We will support innovative and impactful outcomes which cross conventional discipline and organisational boundaries.

Planning and Governance

GOAL 3: MAKING A DIFFERENCE FOR OUR COMMUNITIES.

The adoption of universal design promotes the value of people, community and wellbeing by providing environments (assets, amenities, facilities, services, systems, products) that can be used by the majority of people.

- Strategy 3.1 – Promote safe, respectful and socially inclusive communities where our common commitment to equity, diversity, reconciliation and human dignity is lived by all.
- Strategy 3.3 – Partner with organisations and individuals on shared social purposes through philanthropy and investment to create transformative change.
- Strategy 3.5 – Embrace the circular economy and initiatives which promote environmental sustainability. We will maximise the environmental and fiscal efficiency of our assets, optimise the performance of our systems and transition from product-centric delivery models to service-centric models.

UOW Masterplan 2016 – 2036 (Wollongong Campus)

The Master Plan strategies and projects are aligned with capital works programs and building developments that have recently been approved, and the new 2016 – 2036 Strategic Plan for the University. Masterplan strategies that influence each stage of the Universal Design Guide are outlined below, and when they are implemented, this Guide will be an essential reference.

PRE-VISIT PLANNING:

- 5.4 Communications and Technology Strategy – digital campus management

Planning and Governance

CAMPUS ARRIVAL / DEPARTURE:

- 5.9 Access to the campus strategy
- 5.12 Car parking strategy
- 5.11 Public transport and vehicular access strategy
  - Upgrade Northfields Avenue to be the principal face of the University and gateway to the Keiraville and Gwynneville neighbourhoods
  - Introduce pedestrian-friendly gateways to provide a welcoming entrance to the campus that connects to the neighbourhood
  - Improve access to the campus for cyclists and upgrade bike infrastructure
  - Consolidate car parking on the periphery, providing easy access to core campus
  - Vehicular access to the inner core will be restricted to disability, service and contractor vehicles.
  - Support introduction of a new northern entrance to the campus
  - Digital campus management – wayfinding signage

USING PATHWAY NETWORKS:

- 5.10 Pedestrian and cycling strategy
  - Introduce a hierarchy of key pedestrian paths
  - Wayfinding Strategy – improve signage and wayfinding on campus, develop a wayfinding strategy for the campus that builds on the idea of the proposed walks.
- 5.13 Landscape and public realm strategy
  - Create a hierarchy of paths

ENTERING AND MOVING THROUGH BUILDINGS:

- 5.3 Learning, Teaching and Research Strategy
  - Introduce a central learning and teaching building
  - Refurbish and replace faculty buildings
  - Refurbish and extend McKinnon building
  - Provide an extension to the library
  - Introduce outdoor informal learning areas
  - Introduce collision spaces to support collaborative research

Planning and Governance

USING UNIVERSITY AMENITIES AND SPACES:

- 5.3 Learning, Teaching and Research Strategy
  - Introduce a central learning and teaching building
  - Refurbish and replace faculty buildings
  - Refurbish and extend McKinnon building
  - Provide an extension to the library Introduce outdoor informal learning areas
  - Introduce collision spaces to support collaborative research
- 5.4 Communications and technology strategy
  - Support the Connected Digital Campus
  - Implement Student Success 360
  - Create Future Classrooms
  - Integrate audio visual and virtual classroom technologies
  - Allow for adaptable space design and management
  - Support Technology Enriched Learning (TEL)
- 5.5 Campus Life Strategy
  - Co-locate student services into a centrally located and prominent location
  - Provide extended hour services
  - Encourage staff culture and interaction
  - Support different cohorts
- 5.7 Art, Culture and sport Strategy
  - Introduce best practice creative spaces
  - Encourage informal recreation
- 5.8 Student accommodation strategy
  - Introduce additional beds to the Wollongong campus
  - Redevelop Weerona housing
  - Increase diversity of housing offer

ATTENDING EVENTS AND TEMPORARY ACTIVITIES:

- 5.6 Retail, hospitality and events strategy
  - Provide diverse event spaces
  - Increase diversity of entertainment offers
  - Introduce diverse retail and hospitality along the Primary Pedestrian Network

Planning and Governance

Accessibility Action Plan 2019-2021

UOW are working to adopt the principles of universal design in teaching, learning, research and operational activities so that universal access by all individuals of all backgrounds and abilities is the minimum standard (p4 of Accessibility Action Plan). UOW is committed to providing an environment that facilitates the success of all students and staff living with a disability, and to the provision of an inclusive culture where all individuals can actively participate and excel in their studies or work.

One of the Enabling strategies to provide an inclusive environment for people living with a disability (students, staff and visitors), is ***Providing an enabling university environment.*** The development of the UD Guide came out of the Accessibility Action Plan, *Action Item 14: Develop a Universal Design Guideline for all works undertaken by FMD, (including awareness of mental health). Ensure that all new, major and minor building works and public realm works embody Universal Design principles.*

Existing Standards, Regulations and Good Practise

The Universal Design Guide does not replace the need to reference relevant standards and requirements, including the following which should be read in conjunction with this Guide.

AUSTRALIAN STANDARDS

- Disability (Access to Premises – Buildings) Standards 2010
- The Disability Discrimination Act 1992 (DDA)
- Disability Standards for Education 2005
- The Building Code of Australia (BCA) 2019, in particular parts D3, F2.4 and E3.6
- AS1428.1 (2009) (Incorporating Amendment No 1): Design for access and mobility Part 1: General requirements for access – New building work.
- AS1428.2 (1992) Design for access and mobility Part 2: Enhanced and Additional requirements – Buildings and facilities
- AS1428.4.1 (2009) (Incorporating Amendment No 1): Design for access and mobility Part 4.1: Means to assist the orientation of people with vision impairment – tactile ground surface indicators
- AS1428.4.2 (2018) Design for access and mobility Part 4.2: Means to assist the orientation of people with vision impairment – Wayfinding signs
- AS1428.5 (2010) Design for access and mobility Part 5: Communications for people who are deaf or hearing impaired
- AS1735.12 (1999) Lifts, escalators and moving walks Part 12: Facilities for persons with disabilities
- AS2890.6 (2009) Parking Facilities – Off-street parking for people with disabilities
- AS3745 (2009) Planning for Emergencies in Facilities
- Australian Human Rights Commission Guideline on the Application of the Premises Standards (2013)

Planning and Governance

Facilities Management Division (FMD) contractor documents

These are found online on the UOW website under the Facilities Management division.

COMMISSIONING STANDARDS

- Ecologically Sustainable Development (ESD)
- Building Monitoring and Control Systems (BMCS)
- Building Elements
- Electrical Services
- Closed Circuit Television System (CCTV)
- Electronic Monitoring and Access Control
- Fire Services
- Hydraulic Services
- Mechanical Services
- Vertical Transportation

DESIGN STANDARDS

- Ecologically Sustainable Development (ESD)
- Landscaping Standard (supporting attachments)
- Building Monitoring and Control Systems (BMCS)
- Building Elements
- Closed Circuit Television (CCTV)
- Electronic Monitoring and Access Control (EMAC)
- Documentation
- Electrical Services
- Fire Services
- Hydraulic Services
- Joinery Elements Design and Space Allocation
- Mechanical Services
- Vertical Transportation

Planning and Governance

IT STANDARDS

- Audio Visual Standards and Guidelines (under review)
- ICT Infrastructure Standard

GUIDELINES

- User Guide for Contractor Web (CWEB) for External Contractors
- Client interaction guidelines

PROCEDURES

- Work Order Completion Procedure for Contractor Web (CWEB)
- Fire System Isolation and Impairment Procedure

CAMPUS SITE PLANS

- Wollongong Campus
- Eurobodalla Campus
- Bega Valley Campus
- Innovation Campus (IC)
- Shoalhaven Campus
- Southern Highlands Campus
- Sutherland Campus
- Sydney CBD Campus
- Liverpool Campus

Planning and Governance

6.2 Incorporating Universal Design

UNIVERSAL DESIGN ACTIVITIES THROUGHOUT THE DESIGN PROCESS

UOW planning teams are encouraged to integrate disability inclusion within their capital works delivery model process ensuring that universal design planning and processes are directly linked to their Delivery and Resourcing budgets. In the new UOW gateway system it may be appropriate that it lies within Gate zero (0) and form part of the governance in the initial project set up.

Eliminating barriers to access and inclusion through good design involves incorporating universal design into the design process right from the beginning. Important decisions are made early in the design process and as the project proceeds it becomes more difficult and more costly to make changes. Universal design can extend from inception, through detailed design, construction, management and operation. The following outlines how universal design can effectively influence a project through its lifetime.

This Universal Design Guide provides guidance to be used throughout all stages of the design process. As stakeholders take up the opportunity to refer to the UD Guide the application of when and where to use it will evolve as well as refining the design criteria to reflect continuing development of an UOW approach to universal design.

Stakeholders are encouraged to liaise with the UOW Planning & Development team to ensure all relevant guidelines and strategies have been considered as part of project planning.

Incorporating Universal Design

STAGE OF PROJECT	UNIVERSAL DESIGN ACTIVITY
Setting Project Objectives	– Integrate the principles of universal design throughout project specification – Circulate the Universal Design Guide to proposed development partners – Identify key stakeholders for involvement in the selection process
Business case / Strategic Brief / Feasibility Study / Master Planning	– Universal design approach to be written and adopted – UOW Universal Design champion / Access and Inclusion Officer identified – Specialist technical DDA and Accessibility expertise identified and appointed – Understand relevant accessibility standards and legislative requirements – Begin engagement with key accessibility stakeholders (i.e. Access Advisory Panel)
Planning	– Circulate the Universal Design Guideline to successful contractors – Develop an Access and Inclusion strategy specific to the project objectives and planning application – Continue consultation with key accessibility stakeholders (i.e. Access Advisory Panel) – Monitor progress with the Universal Design Guide through reporting process

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STAGE OF PROJECT	UNIVERSAL DESIGN ACTIVITY
Detailed Design & Procurement	– Incorporate access and inclusion requirements into UOW procurement selection processes – Access and Inclusion strategy is updated – Specialist access consultant to undertake access design review – Conduct user engagement with people with lived experience of disability through Inclusive Consultation – Monitor progress with the Universal Design Guide through reporting process
Occupation and Activation	– Access review during the building phase to ensure the implementation of compliance and Principles of Universal Design are being carried through correctly – Final inspection on completion and occupation to include an access review to pick up and rectify any outstanding issues and identify any management issues – Conduct post occupancy review with people with lived experience of disability through Inclusive Consultation
Maintenance	– Activities to integrate universal access and design during routine maintenance and scheduled upgrades – Resourcing implications need to be understood to uphold universal design considerations in routine maintenance

Table 1: Universal Design activities throughout the design process

Specialist DDA and Accessibility input

Many organisations and project teams engage a specialist Access Consultant (Disability Access, DDA or Access and Inclusion Consultant) to assist in the design process. Access Consultants provide technical expertise in optimising the built environment for people with disability and ensure the building meets legislative standards and requirements for Access and Mobility. Access Consultants can provide the following input:

- Conduct access audits and identify barriers to access
- Provide technical information about size, spatial requirements and capability for people with disability and the implications of this information for the design / project
- Review architectural plans and provide advice about compliance with legislation and standards for access and universal design solutions
- Prepare a detailed technical document with actions and recommendations for compliance with mandatory and upgrade requirements as well as enhancements based on the principles of universal design
- Liaise with UOW stakeholders and external project and design teams to incorporate principles of universal design into projects
- Provide design awareness education for stakeholder groups

It is preferable to engage an Access Consultant with the following attributes:

- an Accredited member of the Association of Consultants in Access Australia (ACAA);
- specialist experience in the design of university environments

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Universal Design Champion

Disability inclusion is a process rather than a project. It is not just about the use of buildings and facilities or a project to be delivered within a certain timeframe. Compliance with disability standards is often associated with meeting minimum mandatory requirements. The use of universal design principles is about making environments and services better for everyone by considering the most demanding 'extreme' users of the physical environment and catering for their needs.

Explaining how a universal design approach can achieve wider social, economic and design benefits within current design processes can be a challenge. Designating a Universal Design champion to communicate the vision, design intentions and desired outcomes can therefore be beneficial. The Universal Design champion, usually from the project sponsors, will need to be involved at all stages of the project to ensure that design integrity is maintained, and the principles are delivered.

Some tips on creating a Universal Design champion / Access and Inclusion Officer role include:

- Identify who will act as lead access and inclusion officer within projects to coordinate the integration of universal design across project teams
- Build disability confidence and knowledge in accessibility through training, support and liaison with experts in disability, access and inclusion i.e. Disability Support Services, Access Consultant
- Co-ordinate and oversee the development of strategies and actions for inclusion (access and inclusion strategy) for each project in line with universal design principles
- Monitor and review proposed access and inclusion strategies with the project team and ensure alignment with project implementation
- Identify reporting approach to document progress on the implementation of access and inclusion strategies

Why, when and how to engage people with lived experience of disability

6.3 Why engage people with lived experience of disability?

Inclusive consultation plays a pivotal role in the development of inclusive spaces. Consultation with staff, students and visitors with lived experience of disability at all stages of planning, design and implementation ensures that disability inclusion practices reflect the needs of the community. It allows for issues and ideas to be discussed and is essential to gain insight into how services or facilities are used and to help plan for them to be as inclusive as possible. It also allows for discussion with the project team around competing priorities and resource constraints to identify priority actions.

Design and development solutions are more likely to be successful if engagement is inclusive, involving a wide cross-section of the community. The National Disability Strategy (NDS, 2010-2020) discusses the importance of the engagement process and its influence on developing solutions to meet the needs of its users. Commonly, project consultation processes are undertaken with limited consideration for the broad cross-section of people with disability and a lack of accessibility in engagement methods to cater for diversity of needs, often resulting in small representation of those with lived experience of disability. Inclusive consultation can be complex and the impacts across disability groups can be quite varied and at times conflicting.

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Staff, students and visitors with lived experience of disability are a valuable source of information because they know the challenges of interacting with a poorly designed environment better than anyone else and can identify key barriers to a user-friendly design more extensively than anyone else. This means they can help get the design right in the first place, avoiding the need for costly adjustments to newly designed facilities. If properly consulted, providing opportunities for people with lived experience of disability to share their experiences and insights can empower people to participate and build the cultural value of diversity and inclusion through real, genuine action.

When and how to engage?

There will be different models of engagement, depending on the scale and complexity of the project. It is important to develop an engagement strategy that aligns the project scale with the engagement activities, as well as scheduling time for consultation at each relevant stage of the process. This consultation time needs to be built into the project budget and scheduled at the beginning of the process, otherwise it is at risk of being ineffective.

Engaging staff, students and visitors with disability right at the beginning of the project, at pre-planning stage, provides the opportunity for users to have useful input into decisions and contribute to the vision and purpose, as well as to the design process itself. This helps with identifying key design assumptions and highlighting pain and gain points that need to be considered in the overarching design approach from the outset.

The engagement process during design can provide a mechanism for checking that the inclusive vision of the project is aligned and testing key design features and details. It is important to understand that while participants are not expert designers or builders, they are experts of their own personal experiences and know what their needs are and what works and doesn't work in a design. Participants may not have any experience reading plans or interpreting designs, nor will they be up-to-date in latest accessibility standards or universal design approaches. As it will be necessary to express the objectives and design ideas to a wide audience, careful consideration needs to be given to the means by which designs are communicated to participants, some of whom will be unable to use purely visual presentation methods. The use of more inclusive and imaginative engagement and communication techniques will be required. It is essential to find methods that are accessible, inclusive and meaningful which result in a positive outcome. Ensure the facilitator is competent to run the engagement process and is clear about engagement boundaries, processes, timings and manages expectations sensitively. Often there will be no single straightforward solution. Therefore, it is important to listen with an open frame of mind to the different perspectives when exploring inclusive solutions.

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Through the building stage the engagement process can provide insights that can be used to position and locate fixtures, fittings and furniture, while engagement in post occupancy stages can assist in evaluating design approaches in order to take successful features forward into future designs and developments and make further improvements.

Establishing feedback loops for users (staff, students and visitors with disability) can also be an effective way of ensuring valuable information is captured. Some strategies may include:

- setting up an accessible project engagement page i.e. 'Have your say' on UOW website
- providing a community feedback process that filters access related information to project managers and design team
- providing ongoing opportunities for feedback regarding accessibility issues
- communicating proposed plans and accessibility strategies on social media pages
- built environment projects are a standing agenda item in relevant stakeholder meetings i.e. Disability Support Services, WHS etc.

The findings and feedback should be reviewed by project managers upstream and downstream of the current project stage to ensure alignment with the scope, design and implementation needs of the building. An effective engagement process during planning will build teamwork, communication across departments and lead to a quality design outcome.

Who to engage?

The views of staff, student and visitors with disability who learn, live, work or visit UOW are especially important. They represent the views of people who are most likely to use the actual environment being designed and their input is particularly useful. Effective engagement of people with different functional profiles and experiences of disability will ensure there is a balanced cross-section of representation.

Groups or individuals representing the interests of a range of functional profiles could include, for example:

- Mobility
- Physical & Medical
- Sensory (Vision and Hearing)
- Learning, Cognitive & Neurodiversity
- Mental Health

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Advocacy groups representing the interests of people with disability, have experience of supporting community engagement and often represent the views of a large number of people, these may include:

- Disability Support Services;
- Local disability and community associations;
- Peak bodies; and
- Orientation and Mobility Instructors

For many projects, engagement can also be co-ordinated through an Access Advisory Group. Advisory groups provide a forum for gathering ongoing feedback and engagement and can play a key role in monitoring the implementation of access and inclusion.

The Australian Local Government Association (ALGA) guide for Disability Inclusion Planning 2016 provides recommendations on setting up Advisory Groups related to disability inclusion within Council which can be applied to other organisations:

- Determine the size of the group and the frequency of meeting times
- Clearly define the role and authority of the group – at a minimum provide leadership and feedback on accessibility and inclusion for design projects and University events, recruitment, engagement activities, project initiatives, wording and accessibility of UOW documents and websites and involvement in disability awareness education
- Articulate the commitment expected from members and develop a time period for appointment to the advisory group
- Ensure people with lived experience of disability form part of the group and represent a wide range of experiences including physical, intellectual, learning and psychosocial disabilities
- People interested should be interviewed to ensure they are clear on their role and to assess their suitability for the group
- Project sponsors and members of the design team should also be represented in the Advisory Group to provide legitimacy and direct access to decision makers
- Ensure importance of the Advisory Group is recognised through formal communications
- Ensure the Advisory Group is accountable for its objectives and actions, providing reports of progress and outcomes to the appropriate Governance body.

Good Building Management

6.4 Good Building Management

The accessibility and usability of a building relies as heavily on good management as it does on the physical characteristics of the environment. Building management encompasses a range of practical tasks including cleaning, maintenance, servicing and repairs. Good management is essential to the effective functioning of a building at all levels, from policy making and strategic planning to practical tasks, such as clearing pathways of leaf litter, restocking toilet paper, testing hearing loops and scheduling lift maintenance.

Poor management may mean that even the most accessible elements of an environment are compromised due to lack of maintenance, lack of awareness of accessibility elements or little consideration for user needs. This may result in lifts being serviced at a time when their availability is essential and leaf litter and overgrown vegetation cover up pathway shorelines and create un-traversable surfaces.

A good understanding of the accessibility features within a building or facility is needed to ensure that accessibility is maximised within an existing environment. Preparation of a building accessibility inventory is a useful way of recording accessible features of a building or facility. This information can be updated when alterations or refurbishment works are undertaken and can be easily converted into communication and venue information materials.

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AN ACCESS UPGRADE PLAN

Developing an access upgrade plan for an existing building or facility can assist in identifying opportunities for improvements and be a useful tool for planning refurbishments and meeting Access to Premises Standards requirements. An Access Upgrade Plan is a strategy for improving accessibility originating from an access audit. An access audit can establish physical and non-physical barriers and identify maintenance issues that affect accessibility and establish a plan of action for:

- implementing findings
- developing and updating schedule of work, prioritised actions and costings
- introducing procedures for updating audit information
- training staff in disability awareness and considerations for access and inclusion
- informing users of planned accessibility upgrades and improvements
- evaluating the effectiveness of adjustments and identifying opportunities for ongoing improvement
- linking audit findings to maintenance management upgrades

LINKING ACCESSIBILITY TO MAINTENANCE MANAGEMENT

Planned maintenance upgrades can also offer good opportunities to improve accessibility and ensure accessibility becomes a key part of the management strategy of the building or environment, reducing lost opportunities. Something as simple as the selection of the colour of finishes or the location of a fitting, can make a big difference with little cost impact.

Promoting a Culture of Inclusion

6.5 Promoting a culture of inclusion

Building a culture of inclusion at UOW relies upon people within the University and the community to understand, take on and communicate the fact that inclusion matters. UOW have a great responsibility as custodians of inclusion, to take action to positively influence outcomes for people who in the past have been excluded from certain areas of university life.

The physical environment is not the only avenue to promote universal design and inclusion, however it is a tangible form that immediately reflects the values of the organization and can send clear messages to visitors, staff and students about:

- **access with dignity** – getting to, and into places, and using them. Physical access to places and services, including access to appropriate technology.
- **treatment with respect** – how people are dealt with, talked to and looked after; whether their needs are considered and whether they are respected and welcomed.
- **relevant services** – places meet people's needs, are designed with users in mind and give people a sense that they have a right to be there.
- **improved safety** – well designed spaces encourage participation by minimizing hazards that can cause anxiety and injury, enhancing confidence, peace of mind and security.

The Universal Design Guide advocates for a whole of organisation approach in realising good design processes and outcomes for UOW. Integrating disability inclusion actions with other policy and strategic plans gives visibility to actions and requires all areas of UOW to be responsible for undertaking work to improve access and inclusion. It also assists in being able to plan more holistically across different departments.

Building in accountability and sponsorship to senior managers or executives helps build senior support for inclusion activities, giving authority to project goals that promote access and inclusion and enabling different departments to work together to achieve better outcomes.

Appendix

Appendix

List of References

References

For more information on Universal Design and the built environment, please see below.

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