



Charles Sturt
University

Revision 1.0

Infrastructure Design Standards

Module S16: Roof Access

Division of Finance (Strategic Infrastructure)
Charles Sturt University

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1. Introduction

1.1. Overview

The Charles Sturt University Infrastructure Design Standards (the Standards) outline the University's expectations for its built forms to achieve consistency in the quality of the design and construction of those built forms.

The Standards have been developed to provide guidance to the design team and to assist Facilities Management to drive a consistent approach to the design, construction, commissioning, handover, and operation of new capital projects to ensure the new asset is fully integrated into campus life and conforms to the University's standards and policies.

The successful integration of any new project into the day-to-day operation of campus life cannot be underestimated and is vital to ensuring the new asset provides a fully functional platform for Facilities Management clients and the University. The Standards will ensure Facilities Management is successful in supporting the University's strategic objectives now and into the future. The pitfall of viewing any new project as a standalone entity must be avoided as any new project is an extension of the existing campus.

The Standards are aligned with Charles Sturt's requisites for aesthetic appeal, life cycle maintenance and environmental sustainability, while ensuring that there is sufficient scope for innovation and technological advancements to be explored within each project.

1.2. The University

The history of Charles Sturt University dates to 1895, with the establishment of the Bathurst Experiment Farm. Formed progressively through the merge of regional institutions in south-western and western NSW, Charles Sturt was formally incorporated on 19 July 1989 under the Charles Sturt University Act 1989. As one of Australia's newer universities, Charles Sturt has been built on a tradition of excellence in teaching and research spanning more than 100 years.

With over 40,000 current students studying both on-campus and online, Charles Sturt University is the largest tertiary education institution in regional Australia. The University operates six main campuses across New South Wales in Albury-Wodonga, Bathurst, Dubbo, Orange, Port Macquarie, and Wagga Wagga, alongside specialist campuses in Canberra, Parramatta, and Goulburn. Charles Sturt University is structured around three Faculties: Arts and Education; Business, Justice and Behavioural Sciences; and Science and Health.

1.3. University Vision and Values

Charles Sturt University is committed to building skills and knowledge in its regions by offering choice and flexibility to students, while collaborating closely with industries and communities in teaching, research, and engagement. As a significant regional export industry, the University brings both strength and learning back to

its regions, positioning itself as a market-oriented institution. Its goals are to remain the dominant provider of higher education in its regions and a sector leader in flexible learning.

Charles Sturt University believes that wisdom has the power to transform communities. With perseverance and dedication, the University contributes to shaping resilient and sustainable regions for the future. Acknowledging the deep culture and insight of First Nations Australians, the University's ethos is encapsulated by the Wiradjuri phrase *yindyamarra winhanganha*, which translates to "the wisdom of respectfully knowing how to live well in a world worth living in." Through its values, Charles Sturt University fosters a welcoming community and learning environment that supports innovation, drives societal advancement, and gives back to the regions it serves.

1.4. Using the Infrastructure Design Standards

The Infrastructure Design Standards are written to advise Charles Sturt University performance requirements and expectations that exist above and beyond existing industry codes and standards.

The Infrastructure Design Standards do not repeat codes and standards.

Performance to Codes and Standards are a non-negotiable regulatory minimum of any design solution, to be determined for each project by the design team.

The Standards are to be used by all parties who are engaged in the planning, design, and construction of Charles Sturt's facilities. This includes external consultants and contractors, Charles Sturt's planners, designers, and project managers as well as faculty and office staff who may be involved in the planning, design, maintenance, or refurbishment of facilities. All projects must comply with all relevant Australian Standards, NCC, EEO as well as Local Government and Crown Land Legislation.

1.5. Modules

The Standards are divided into the following modules for ease of use, but must be considered in its entirety, regardless of specific discipline or responsibilities:

- S01 Overview and Universal Requirements
- S02 Active Transport
- S03 Acoustics
- S04 Building Management System
- S05 Electrical and Lighting
- S06 Energy Management
- S07 Ergonomics
- S08 Fire and Safety Systems
- S09 Floor and Window Coverings
- S10 Furniture
- S11 Heritage and Culture
- S12 Hydraulic

- S13 Information Technology
- S14 Irrigation
- S15 Mechanical Services
- **S16 Roof Access**
- S17 Termite Protection, Vermin Proofing and Pest Management
- S18 Security Systems
- S19 Signage
- S20 Sustainable Building Guidelines
- S21 Waste Management
- S22 Project Digital Asset and Data Requirements
- S23 Commissioning, Handover and Training

1.6. Related Documents

1.6.1. University Documents

The Standards are to be read in conjunction with the following relevant University documents, including but not limited to:

- Facilities and Premises Policy along with supporting procedures and guidelines
- Charles Sturt University Accessibility Action Plan 2020 - 2023
- Relevant operational and maintenance manuals
- Charles Sturt University Asbestos Management Plan
- Charles Sturt University Signage Guidelines
- Charles Sturt University Modern Slavery Statement
- Charles Sturt University Sustainability Statement
- Charles Sturt University Work Health and Safety Policy
- Charles Sturt University Risk Management Policy
- Charles Sturt University Resilience Policy
- Charles Sturt University Health, Safety and Wellbeing Policy

1.6.2. Federal Legislation

The planning, design and construction of each Charles Sturt University facility must fully comply with current relevant Federal legislation, including but not limited to:

- National Construction Code (NCC)
- Disability Discrimination Act 1992 (DDA)
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC)
- Work Health and Safety Act 2011

1.6.3. NSW State Legislation

The planning, design and construction of each Charles Sturt University facility must fully comply with current relevant Federal legislation, including but not limited to:

- Work Health and Safety Act 2011
- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Building and Development Certifiers Act 2018
- Heritage Act 1977
- Protection of the Environment Operations Act 1997 (POEO Act)
- Design and Building Practitioners Act 2020
- State Environmental Planning Policies (SEPPs)
- Local Government Act 1993

1.6.4. Federal Regulations and Standards

- Relevant Australian or Australian/New Zealand Standards (AS/NZS)
- Safe Work Australia Model Codes of Practice
- Work Health and Safety Regulations 2011
- Disability (Access to Premises – Buildings) Standards 2010
- National Environment Protection Measures (NEPMs)

1.6.5. NSW State Regulations and Standards

- SafeWork NSW Codes of Practice
- Disability (Access to Premises – Buildings) Standards 2010
- Building and Development Certifiers Regulation 2020
- NSW Work Health and Safety Regulation 2017
- Protection of the Environment Operations (General) Regulation 2022
- NSW State Environmental Planning Policies (SEPPs)
- Fire and Rescue NSW Fire Safety Guidelines
- NSW Local Council Development Control Plans (DCPs)

1.6.6. Manufacturer Specifications and Data Sheets

All installation must be carried out in accordance with manufacturer specifications and data sheets to ensure product performance over its intended life and so as not to invalidate any warranties.

1.6.7. Project-Specific Documents

Requirements specific to a particular project, campus, or other variable, will be covered by project specific documentation, such as client briefs, specifications, and drawings. These Standards will supplement any such

project specific documentation. The Standards do not take precedence over any contract document, although they will typically be cross-referenced in such documentation.

Extracts from the Standards may be incorporated in specifications; however, it must remain the consultant's and contractor's responsibility to fully investigate the needs of the University and produce designs and documents that are entirely 'fit for purpose' and which meet the 'intent' of the project brief.

1.7. Discrepancies

The Standards outline the University's generic requirements above and beyond the above-mentioned legislation. Where the Standards outline a higher standard than within the relevant legislation, the Standards will take precedence. If any discrepancies are found between any relevant legislation, the Standards and project specific documentation, these discrepancies should be highlighted in writing to the Manager, Capital Works.

1.8. Departures

The intent of the Standards is to achieve consistency in the quality of the design and construction of the University's built forms. However, consultants and contractors are expected to propose 'best practice / state of the art' construction techniques, and introduce technological changes that support pragmatic, innovative design. In recognition of this, any departures from relevant legislation, or the Standards, if allowed, must be confirmed in writing by the Manager, Capital Works. Any departures made without such written confirmation shall be rectified at no cost to the University.

1.9. Professional Services

All projects at Charles Sturt University require the involvement of adequately skilled and experienced professionals to interpret and implement the Standards. Consultants or contractors lacking proper qualifications and licenses are not permitted to conduct any work.

1.10. Structure of Document

This document is structured into 4 sections:

Section 1 Introduction (this Section).

Section 2 General Requirements – outlines the general requirements or design philosophies adopted at Charles Sturt University.

Section 3 Supporting Documentation – Legislation, Standards, Codes of Practice, University Policies, and other applicable technical references.

Section 4 Specifications (if applicable) – materials specifications and/or preferred lists for materials, processes or equipment used by Charles Sturt University.

2. General Requirements

2.1. Obligations

SafeWork NSW cites the following legislative requirements from the WHS Regulation for preventing falls from heights:

- i. a stable and securely fenced work platform – eg scaffolding*
- ii. if compliance with subparagraph (i) is not reasonably practicable, secure perimeter screens, fencing, handrails or other forms of physical barriers that are capable of preventing the fall of a person, or*
- iii. if compliance with subparagraph (ii) is not reasonably practicable, other forms of physical restraints that are capable of arresting the fall of a person from a height of more than two metres.*

These requirements establish a "hierarchy of controls." The University and authorised contractors must first apply the primary control measure. If it's not reasonably feasible to utilize it, the subsequent measure should be considered, and so forth.

Safe Work Australia emphasises a hierarchy of control measures to manage the risks associated with working at heights. This hierarchy prioritises the most effective control measures to minimise or eliminate the risk of falls. The hierarchy typically includes the following steps, listed in order of preference:

1. **Elimination:** The most effective way to control the risk of falls is to eliminate the need to work at heights wherever possible. This might involve redesigning tasks, processes, or work areas to avoid working at heights altogether.
2. **Substitution:** If it's not feasible to eliminate the need to work at heights, the next best option is to substitute the task with a safer alternative that reduces the risk. For example, using equipment with built-in fall prevention features or utilizing extended-reach tools to perform tasks from the ground.
3. **Engineering Controls:** Engineering controls involve implementing physical barriers, guardrails, platforms, or other structural measures to prevent falls or minimize the consequences of a fall. Examples include installing guardrails around elevated work areas or using temporary work platforms.
4. **Administrative Controls:** Administrative controls focus on changing work practices, procedures, or training to reduce the risk of falls. This might include implementing safe work procedures, providing training on working at heights, scheduling work to minimize exposure to fall hazards, and ensuring proper supervision.

The WHS Regulation doesn't specify a minimum height for implementing control measures since risks are associated with working at any elevated position. Whenever there's a risk of falling, control measures are necessary. However, if installing fencing, guardrails, or similar measures isn't practical, a restraint or fall arrest system capable of stopping the fall must be employed. In certain situations, employing multiple control measures may be appropriate. If the controls at the top of the hierarchy are deemed impractical, documenting the reasons is essential.

2.2. Roof Access and Authorisation

Access to all roofs is restricted, and individuals must obtain proper authorisation before accessing them. This will involve submitting a request to the relevant Campus Facility Manager, outlining the purpose and duration of the access. The type of access system may vary from one campus to another, and the preferred systems shall be confirmed with Operations staff at each location.

2.3. Training

All roof access systems must have an installation specific user manual to ensure the correct use and operation of the roof access system. It is recommended annual height safety system annual certifications be added to manuals to ensure holistic access.

2.4. Risk Assessment

Prior to accessing a roof, a thorough risk assessment is often conducted to identify potential hazards and determine appropriate control measures. This assessment considers factors such as roof condition, weather conditions, and the presence of hazards such as trip hazards, electrical equipment, or fragile surfaces.

Contractors are required to utilize a Safe Work Method Statement (SWMS) as part of their risk management process. This document outlines the specific steps and precautions that will be taken to ensure the safety of workers and others in the vicinity during roofing activities. The SWMS provides a detailed plan for mitigating identified risks, including procedures for accessing the roof safely, using appropriate personal protective equipment (PPE), and implementing emergency response measures if needed. SWMS are to be provided to Campus Facilities Managers for review prior to accessing roofs and undertaking works.

2.5. Maintenance and Inspections

Regular inspections and maintenance of roofs are essential to ensure their structural integrity and safety. Height safety systems are to undergo periodic inspection and recertification to ensure systems and equipment are legally compliant under Australian Standards, State Legislation, and Codes of Practice:

- Anchor Point Recertification - 12 Months
- Static Lines Recertification - 12 Months
- Guardrails and Walkways Recertification - 12 Months
- Ladders, Platforms, and Stairs Recertification - 12 Months
- Overhead Rail Systems Recertification - 12 Months
- Hatches and Skylight Protection Recertification – Months

These annual inspections should be undertaken by an accredited and experienced height safety certifier trained to inspect system components to ensure they are fit for purpose, in good working condition, and meet all legislative requirements along with Section 9 of AS/NS 1891.4:2009. Facilities Management teams must be able to provide evidence of height safety system annual certification to contractors upon request.

2.6. Planning and Design

The requirement for Facilities Management staff and contractors to access the roof for maintenance of plant and equipment should ideally be eliminated from project design whenever feasible. Minimising the need for personnel to access rooftops reduces the associated risks and enhances overall safety. However, in cases where frequent access to the roof area is necessary for servicing plant and equipment, a comprehensive approach is essential to ensure safety and compliance with standards.

An integrated and accredited access to heights system should be methodically designed and installed, aligning with the guidelines set forth in AS/NZS 1657:2018 Fixed platforms, walkways, stairways, and ladders - Design, construction, and installation. This standard outlines the specifications and requirements for the design, construction, and installation of fixed platforms, walkways, stairways, and ladders, ensuring they meet rigorous safety standards.

The design of such systems should encompass various elements, including access stairs, walkways, and other supportive structures. These components should be strategically positioned to provide safe and efficient access to the equipment while minimising risks associated with working at heights. Additionally, the system should be engineered to accommodate the specific needs of the site and the types of equipment being serviced.

Integration with AS/NZS 1657:2018 ensures that the access to heights system meets industry best practices and regulatory requirements. It ensures that operational staff can perform their duties safely and effectively, reducing the likelihood of accidents and injuries. Regular maintenance and inspection of the access system are also crucial to ensure its continued effectiveness and compliance with safety standards.

3. Supporting Documentation

These below lists are not all-inclusive and those associated with the project are responsible for identifying and complying with all standards relevant to the scope of works.

3.1. Supporting Legislation

- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Act 2011 (ACT)
- Work Health and Safety Regulation 2017 (NSW)
- Work Health and Safety Regulation 2011 (ACT)
- Construction Safety (WHS) Regulation 2011 (ACT)
- National Construction Code (NCC)

3.2. Supporting Standards

Standard Number	Standard Title
AS/NZS 1576.1:2010	Scaffolding - General requirements
AS 1562.1:2018	Design and installation of metal roof and wall cladding, Part 1: Metal
AS/NZS 1657:2018	Fixed platforms, walkways, stairways and ladders - Design, construction and installation
AS/NZS 1891.1:2007	Industrial fall-arrest systems and devices - Harnesses and ancillary equipment
AS/NZS 1891.2:2001	Industrial fall-arrest systems and devices - Horizontal lifeline and rail systems
AS/NZS 1891.3:1997	Industrial fall-arrest systems and devices - Fall-arrest devices
AS/NZS 1891.4:2009	Industrial fall-arrest systems and devices - Selection, use and maintenance
AS/NZS 2210.1:2010	Safety, protective and occupational footwear - Guide to selection, care and use
AS/NZS 4389:2015	Roof safety mesh
AS/NZS 4488.1:1997	Industrial rope access systems Part 1: Specifications
AS/NZS 4488.2:1997	Industrial rope access systems Part 2: Selection, use and maintenance
AS/NZS 4576:1995	Guidelines for scaffolding
AS/NZS 4994.1:2009	Temporary edge protection - General requirements
AS/NZS 4994.2:2009	Temporary edge protection - Roof edge protection - Installation and dismantling
AS/NZS 5532:2013	Manufacturing requirements for single-point anchor device used for harness-based work at height
AS 2550.10-2006	Cranes, hoists and winches - Safe use
AS/NZS ISO 22846	Industrial Rope Access Systems
ISO 45001:2018	Occupational health and safety management systems — Requirements with guidance for use

3.3. Industry Codes of Practice

Safe Work Australia Working at Heights

<https://www.safeworkaustralia.gov.au/safety-topic/hazards/working-heights>

Safe Work Australia Model Code of Practice: Managing the risk of falls at workplaces

<https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-risk-falls-workplaces>

Safe Work Australia Safe Work Method Statement For High Risk Construction Work Information Sheet

<https://www.safeworkaustralia.gov.au/system/files/documents/1703/information-sheet-safe-work-method-statement.pdf>

NSW Code of Practice – Managing the Risk of Falls at Workplaces

https://www.safework.nsw.gov.au/_data/assets/pdf_file/0018/50076/Managing-the-risk-of-falls-at-workplaces-COP.pdf

WorkCover NSW Safe Work of Roofs Part 1: Commercial and Industrial Buildings

https://www.safework.nsw.gov.au/_data/assets/pdf_file/0008/52865/Safe-work-on-roofs-part-1-commercial-industrial.pdf

Roof edge protection fact sheet

<https://www.safework.nsw.gov.au/resource-library/working-at-heights/roof-edge-protection-fact-sheet>

Working at Heights in Construction Safety Checklist

https://www.safework.nsw.gov.au/_data/assets/pdf_file/0006/559446/safety-checklist-working-at-heights-in-construction.pdf

3.4. University Documents

Charles Sturt University Facilities and Premises Policy

<https://policy.csu.edu.au/document/view-current.php?id=465>

3.5. Other Resources

Summiting Safety

<https://www.workplaceaccess.com.au/summiting-safety/>