

A photograph of a modern public restroom interior. The space features wooden stalls with dark grey metal frames and partitions. The walls are covered in large, rectangular, light brown tiles. The floor is made of large, square, light grey tiles. The ceiling has two large, rectangular, recessed light fixtures. The overall design is clean, functional, and durable.

Hard-Wearing Design for High-Use Environments

Specifying Toilet Cubicles in Public,
Commercial, and Industrial Applications





INTRODUCTION

Toilet cubicles may appear peripheral within the scope of a large, complex building project, yet they play a pivotal role in determining the performance, hygiene, and inclusivity of shared environments. In practice, cubicle systems function as critical architectural elements that must withstand sustained, heavy use while supporting accessibility and privacy requirements. Their specification has implications not only for user experience but also for lifecycle cost, as poorly chosen systems can accelerate maintenance demands and compromise safety outcomes.

In sectors such as education and sports and recreation, toilet cubicles are subject to high foot traffic and heavy wear. Here, material selection and detailing must address vandal resistance, moisture management and accessibility provisions to align with standards while reducing the risk of premature failure. Comparable pressures exist in commercial settings, where cubicles contribute to occupant amenity and brand perception. In industrial or warehousing environments, where durability and ease of cleaning are paramount. Each sector imposes distinct performance demands that architects must anticipate and address at the specification stage.

This paper establishes a technical framework for evaluating cubicle systems in line with these requirements. It examines durability under high-use conditions, resistance to humidity and impact, compliance with accessibility regulations and strategies to integrate sustainability into product choice.

GENERAL PRINCIPLES IN TOILET CUBICLE DESIGN

Toilet cubicles form a critical part of wet-area design. Unlike furniture or light fixtures, cubicles are semi-permanent architectural elements that interface directly with building services. Their specification is therefore guided by a set of general principles: the system must withstand frequent use and cleaning, maintain privacy and dignity for users, comply with building code and accessibility standards and deliver an appropriate service life relative to the intensity of use.

A toilet cubicle system is typically composed of three main elements: panels, hardware and fixings and supporting framework. Panels form the partitions and doors and their material choice dictates water resistance, impact performance and surface durability.

Hardware and fixings include hinges, locks, brackets and feet. The supporting framework ties these elements together, often through headrails or floor-mounted systems and contributes to overall stability, alignment and accessibility clearances.

In addition to these primary components, specification must also consider surface finishes, edge detailing and joint treatment, each of which affects hygiene, cleanability and long-term performance. System layout and dimensional planning are equally important, ensuring compliance with accessibility standards (e.g., AS 1428.1 Design for Access and Mobility) and allowing for adequate circulation, privacy and emergency access/egress.

DURABILITY IN WET AREAS

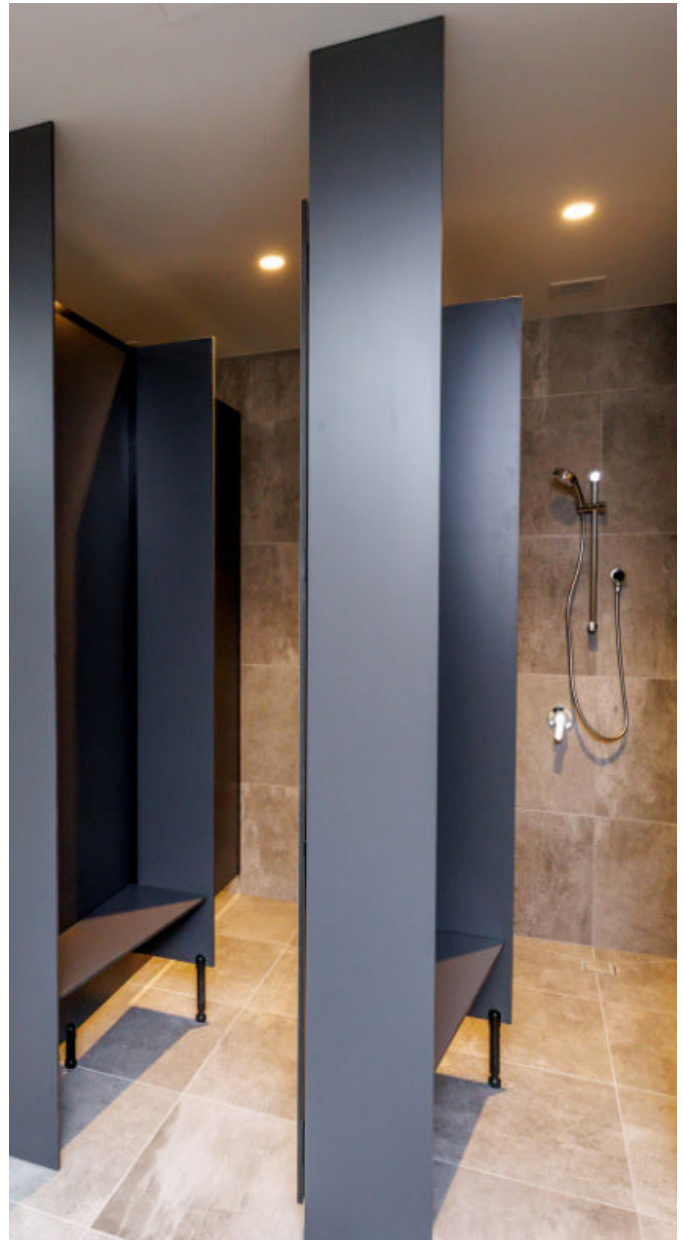
Wet-area cubicles are subject to constant environmental stress, including moisture exposure, repeated impacts from heavy use and intensive cleaning protocols. Materials such as particleboard, MDF and standard plywood often fail under these conditions, with swelling, warping and delamination reducing both performance and lifespan.

Compact laminate has become the preferred specification choice in these contexts. Its water-impervious composition ensures dimensional stability, while its resistance to impact and abrasion allows it to maintain integrity in high-traffic environments. Equally important is the performance of ancillary components, hinges, brackets and locks, which must be specified for strength and corrosion resistance, particularly in humid or coastal locations where accelerated deterioration is common.

Vandal resistance is another critical design consideration in public and semi-public facilities. Surface finishes should be capable of withstanding graffiti removal, scratching and impact damage without premature failure.

Design notes

- Select compact laminate panels for water and impact-resistant performance.
- Avoid particleboard, MDF or plywood in wet-area applications.
- Specify corrosion-resistant hardware and fixings (stainless steel or equivalent).
- Ensure hinges, brackets and locks are rated for high-traffic and humid environments.
- Consider finishes with graffiti and scratch resistance (e.g. non-porous decorative surfaces).
- Confirm the system supports intensive cleaning regimes without deterioration.



PRIVACY, INCLUSIVITY AND USER EXPERIENCE

Privacy has become a defining issue in toilet cubicle specification, particularly within education, workplace and public facilities where user expectations are evolving. Traditional cubicles with large floor and ceiling gaps can compromise both dignity and comfort by allowing sightlines and acoustic leakage. In response, full-height cubicles are increasingly preferred, creating a barrier that improves acoustic separation and prevents visual intrusion while still allowing for ventilation and maintenance access when detailed appropriately.

Inclusive design principles are also reshaping toilet cubicle planning. Gender-neutral amenities are now frequently specified as an alternative to separate male and female bathrooms, providing greater flexibility in space allocation and supporting diverse user needs. Cubicle layouts designed for higher privacy can also reduce risks of misuse, such as covert recording with mobile phone cameras, while ensuring spaces remain accessible and safe.

Compliance with AS 1428.1 remains a fundamental requirement across all settings. At the design stage, this requires careful consideration of door swing and clearance dimensions, the strength and location of grabrail fixings and circulation space within accessible cubicles.

Design notes

- Specify full-height cubicles to enhance privacy and acoustic performance.
- Incorporate gender-neutral layouts where appropriate for cost efficiency and inclusivity.
- Plan cubicle orientation to reduce risks of misuse (e.g., mobile phone cameras).
- Ensure compliance with AS 1428.1 for accessibility: door clearances, grabrail strength and circulation must be confirmed at design stage.

In practice, cubicle systems function as critical architectural elements that must withstand sustained, heavy use while supporting accessibility and privacy requirements.

COMPLIANCE AND CERTIFICATION PATHWAYS

Toilet cubicles intersect with several regulatory and certification frameworks, requiring specifiers to balance performance, safety and sustainability from the outset. At a fundamental level, the National Construction Code (NCC) Section F: Health and Amenity sets requirements for the number, distribution and accessibility of sanitary facilities in public buildings. This includes provisions for male, female and accessible toilets, as well as guidance on layout and access to ensure facilities meet minimum standards of functionality and hygiene.

Accessibility compliance is governed by AS 1428.1, which defines technical requirements for door clearances, circulation spaces, grabrail installation and hardware operability. This means cubicles must be planned to accommodate wheelchair manoeuvrability, ensure sufficient structural strength for grabrail fixings and provide door hardware that can be operated with minimal force.

Fire performance is another key compliance factor. Compact laminate and similar materials used for cubicle panels must be tested in accordance with AS/NZS 3837 (method of test for heat and smoke release) and related standards for wall linings under the NCC's fire hazard property provisions. Products must demonstrate

acceptable indices for spread of flame and smoke development to be suitable for use in public interiors.

Sustainability frameworks are increasingly shaping specification decisions. Materials can contribute to Green Star, WELL and LEED ratings when they incorporate FSC-certified laminates, low-VOC adhesives or substrates or third-party verified Environmental Product Declarations (EPDs) that provide transparent lifecycle data. Certifications such as Global Green Tag or Greenguard help specifiers demonstrate compliance with indoor air quality criteria and broader sustainability goals.

Design notes

- Verify cubicle design against NCC Section F for sanitary facility requirements.
- Ensure compliance with AS 1428.1, particularly door clearances, circulation and grabrail fixings.
- Confirm fire hazard properties of panels under AS/NZS 3837 and NCC fire provisions.
- Prioritise materials with FSC certification and low-VOC content. Where possible, specify cubicles with verified EPDs and other third-party certifications.



END-OF-LIFE CONSIDERATIONS

The construction sector is under increasing scrutiny for waste, with fitout elements such as toilet cubicles often discarded during refurbishments despite their material intensity. Unlike structural systems, cubicles are frequently replaced due to aesthetic or layout changes rather than functional failure, which accelerates landfill volumes and drives up embodied carbon. Product stewardship initiatives are beginning to shift this pattern.

Some manufacturers now offer take-back programs where cubicles are collected, disassembled and separated into recyclable material streams. Aluminium frames and stainless steel fixings can be readily recycled, while compact laminate panels, though more complex, can be repurposed for industrial or secondary applications.

For architects, specifying systems with clear end-of-life pathways aligns project outcomes with ESG goals and

client expectations around responsible procurement. Circular design strategies such as prioritising recyclable components, designing for disassembly and engaging with suppliers offering stewardship schemes, can transform cubicles from disposable fitout elements into long-term resources.

Design notes

- Confirm whether manufacturers offer product stewardship or take-back programs.
- Prefer cubicle systems with aluminium and stainless steel components for recyclability.
- Investigate opportunities for repurposing compact laminate panels in secondary applications.
- Consider design for disassembly at the specification stage to support future reuse.

DESIGN FLEXIBILITY AND AESTHETIC INTEGRATION

Toilet cubicles are not only functional but can also contribute positively to interior architecture when design flexibility is prioritised. Mounting options such as ceiling-fixed, floor-mounted, or pedestal-supported systems, offer different balances of privacy, ease of cleaning and visual impact. Full-height ceiling-fixed systems maximise privacy and enclosure, while pedestal-supported frames create a lighter appearance and allow unobstructed floor cleaning. These choices directly influence both user experience and maintenance efficiency.

Aesthetic integration is equally important. Colour palettes, surface finishes and edge treatments can be specified to either harmonise with surrounding materials or create deliberate contrast, ensuring the cubicles are integrated into the overall fitout rather than treated as a purely functional afterthought. For facilities requiring large-scale rollouts, such as schools, sports centres, or gyms,

modular systems provide the advantage of consistent visual language while adapting to site-specific constraints. In changing facilities, cubicle systems can also be coordinated with lockers, bench seating and other wet-area furniture

Design notes

- Use colour palettes and finishes to integrate cubicles with overall interior design schemes.
- For large-scale rollouts, specify modular systems to maintain consistency while accommodating varied site conditions.
- Integrate cubicle systems with lockers, benches and changing-room furniture.
- Consider edge detailing and surface treatments to enhance both durability and appearance.



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ENGINEERED TO THRIVE: DURACUBE'S ENDURING PARTITIONING SYSTEMS

Founded in 1987, DuraCube has established itself as a leading Australian manufacturer of bathroom joinery systems, specialising in high-performance solutions for wet-area environments. With decades of experience in design, manufacture and installation, the company has become a trusted partner for architects and builders seeking durable, compliant and sustainable fitout products across education, sports and recreation, commercial and industrial sectors.

The DuraCube product range extends well beyond toilet cubicles, encompassing partitioning systems, lockers, vanity benches and bench seating; all engineered to withstand high traffic, moisture and frequent cleaning. At the core of these systems is DuraSafe compact laminate, a 13mm waterproof, impact- and vandal-resistant panel that delivers long-term performance in demanding conditions. Available in a wide palette of colours and finishes, these systems combine functionality with design flexibility.

Privacy and inclusivity are central to performance. The Full Height Privacy Ultra (FHPU) system minimises floor and ceiling gaps, enhancing acoustic separation and preventing sightlines. Configurations can support gender-neutral layouts while remaining compliant with AS 1428.1, addressing circulation, door clearances and grabrail fixing requirements. For large-scale applications in education, sport and commercial facilities, modular options such as Floor-Mounted Overhead Braced (FOB) and Pedestal Mount Ceiling-Fixed (PCF) provide consistent quality across sites. A wide colour palette and surfaces tested for graffiti and scratch resistance ensure cubicles integrate seamlessly into diverse architectural layouts.

Sustainability and end-of-life pathways are also embedded into the system. DuraCube's Product Stewardship Program enables disassembly and recycling, with aluminium frames and stainless steel fixings returned to established streams and compact laminate repurposed for industrial use. Verified EPDs and certifications such as Global Green Tag GreenRate level A and a Platinum HealthRate PHD support compliance with Green Star, WELL and LEED.

Benefits of partnering with DuraCube

- **Built to last:** Durable design and easy maintenance make these partitions ideal for high-traffic commercial and industrial spaces.
- **15-year warranty:** Market-leading coverage across partitioning systems, lockers, vanity benches and bench seating.
- **Comprehensive design resources:** Revit families and ArchiCAD objects, technical manuals, data sheets, colour charts, sustainability certificates and EPDs to support accurate specification.
- **Tested performance:** Independent fire assessments and graffiti resistance reports provide assurance for compliance and certification.
- **National supply chain:** Facilities in NSW, VIC, QLD and SA ensure reduced lead times, consistent quality and continuity of supply for large-scale projects.
- **Sustainability:** Verified EPDs and certifications support Green Star, WELL and LEED submissions.

