Government of **Western Australia**
Department of **Housing and Works**

DHW Technical Guideline

TG018 Mental Health Facilities - Walls, Doors and Glazing

1. Purpose

This guide sets out the Department of Housing and Works (DHW) requirements for the design and construction of walls, doors and glazing in the consumer facing spaces of non-residential government mental health facilities (MHF) to support the delivery of safe, secure and durable healthcare environments. This guide should be circulated as appropriate to consultants.

2. Methodology

"Architects, designers, engineers and builders should recognise and understand that the fabric of service user areas of a mental health inpatient unit needs to be significantly more robust than for other healthcare units."[1]

Government non-residential MHFs in Western Australia (WA) deliver diverse services—including acute inpatient care for children, adolescents, adults, older adults, and mother–baby units, as well as forensic, custodial, and outpatient services. A review of operational MHFs revealed frequent damage to building elements, often requiring repair, replacement, or redesign. Most issues stemmed from wilful damage, leading to high safety and security risks for consumers and staff, maintenance costs, and service disruptions.

To address these challenges and with consideration of the operational service model, the design and construction of walls, finishes, doors, and glazing must be carefully selected and specified to suit the unique functional needs of each facility and its intended cohort. Walls and glazing in consumer-facing areas of a MHF must be designed to withstand both accidental and deliberate sustained impacts. Specifications must align with the National Construction Code (NCC), relevant Australian Standards (AS), and security risk reviews in aiming to be fit for purpose and supporting effective operational risk management.

To note: this guideline includes considerations for material selection. These guides do not remove the responsibility of the Lead Consultant for the specification of appropriate materials for each specific project. It also does not vary, amend, or reduce in any way, the consultants' obligations to comply with the relevant codes, standards, and legislation.

[1] Australasian Health Facility Guidelines (2025)

3. Requirements for DHW MHF projects

3.1. Planning requirements

"*Safety, suitability, appropriateness and functionality for a mental health environment should be considered a priority over design aesthetics."*[2]

From the commencement of the project design, consultants must ensure that the wall, door and glazing construction and finishes of the consumer facing spaces of a MHF are designed, documented and constructed to:

- withstand extreme, sustained wilful attacks and impacts through persistent and abnormally rough use from service users
- be suitably reinforced in areas where damage, accidental and wilful, is expected
- ensure the longevity and durability of finishes
- ensure the physical security elements of the facility cannot be breached by items readily available within the unit [3]
- prevent the hiding of contraband (e.g. at wall/ceiling, wall/door, wall/floor junctions)
- be free from fissures, open joints or crevices
- be easy to clean and maintain
- minimise the potential for consumers to self-harm (e.g. incorporate anti-ligature measures)
- comply with infection control requirements
- ensure the acoustic properties support the facility's operation and
- minimise the potential for vandalism (e.g. scratching, marking, graffiti, etc.).

3.2. Existing Facilities

For MHF projects involving additions or alterations to existing buildings, consultants shall comply with the requirements of this Technical Guideline wherever possible.

Where this is not possible due to existing site constraints, a risk analysis is to be undertaken to demonstrate that the construction and finishing proposed will be safe and appropriate for the building use.

All MHF projects involving additions or alterations to existing buildings must be surveyed for structural integrity early in the planning and design stages.

[2] The Chief Psychiatrist's Standards for Authorisation of Hospitals under the Mental Health Act 2014 (2019)
[3] Australasian Health Facility Guideline (2025)

4. Walls - Design and Construction Requirements

4.1. Wall construction

The building fabric and detailing of consumer facing spaces in a MHF must be built to a 'severe duty strength' – able to withstand extreme, persistent heavy impacts and with sufficient robustness to allow time for an appropriate response team to deescalate situations where consumers may be highly agitated, aggressive and violent.

4.1.1. Masonry construction

Masonry wall construction should be utilised in all consumer facing areas of a MHF. Experience has demonstrated that masonry construction provides the highest resistance to damage, wear, and tampering in mental health settings. Where acoustic separation between rooms is required, cavity construction will likely be required.

Walls are to be full height and attached to the underside of any concrete slab or roof structure above.

4.1.2. Light weight steel framed construction

The use of light weight steel framed construction is to be avoided in the consumer facing areas of MHFs. Experience has demonstrated that this type of wall construction, even when reinforced, is vulnerable to excessive impact loads. This has been found to compromise safety and security, resulting in additional maintenance and downtime, and associated recurrent management and repair costs.

Where masonry construction cannot be used, for example where prohibited by the specific site constraints of a refurbishment project, dispensation must be approved in writing by the DHW PM and the customer agency's representative. Consultants shall justify each deviation with a risk assessment demonstrating that the construction and finishing proposed will provide adequate resilience against damage, wear and tampering. **Cost and aesthetics are not suitable justifications for not using masonry construction.**

Care is to be taken when detailing the proposed light weight steel framed construction system in consumer facing spaces. This includes:

- Stud framing to be 0.75 BMT or heavier gauge to withstand high impact. Walls taller than 2.4m may require thicker gauge steel framing.
- Studs to be spaced at 450mm centres maximum.
- Top and bottom framework to be permanently fixed to floor and slab above. Sole plate (bottom frame) of the wall framing to the floor be sufficiently fixed to the floor structure to ensure there is no deflection of the bottom frame under impact (especially for de-escalation rooms). Provide at least twice as many fixings as manufacturers recommendation.

Wall material needs to be selected after assessment in consideration of the location and impact risks. As a minimum:

- One (1) layer of 16mm marine grade plywood to be installed over steel stud frame. Sheets are to be cut so that they cover half a stud at each vertical edge, ensuring that each sheet has both edges fixed to a stud. Alternatively, double studs are to be installed at sheet edges. Ply to be glued and screw fixed to studwork.
- Two (2) layers of 13mm high impact resistant boards such as *Gyprock EC08 Extreme* or a similar product equivalent in function, quality, etc to the approval of the Superintendent's Representative are to be installed over the plywood. Joints of each layer staggered. Screw and blanket fix to ply and wall framing.
- Extra length screw fixings to secure wall linings to steel studs.

MDF (where used as an exposed wall lining)

MDF walls panels have been used in consumer facing spaces to increase the robustness of the walls. If used:

- All panels to be adequately fixed to ensure no deflection at edges. Cut sheets so that they cover half a stud at each vertical edge, ensuring each sheet has both edges fixed to a stud.
- To minimise ligature risks, the top edge and exposed vertical edges of MDF linings must be chamfered e.g. 45 degree chamfer to top, exposed edges and corners. Leave maximum 3mm square edge.
- Panels must be moisture resistant.
- Minimum 16mm sheets.
- Sheets to be oriented with long axis horizontal.
- Any fixings to be countersunk with anti-pick filler.

4.1.3. Fire safety

All insulation to wall cavities is to be non-combustible in accordance with AS1530.1, including that used in single storey buildings.

All wall finishes shall be non-combustible.

4.2. Wall Finishes

A facility that is aesthetically appealing, has a clean appearance, with minimal signs of wear and tear or wilful damage will promote a welcoming, low stimulus environment. This type of facility is more inclined to be treated with respect by all and will support a mindset that the facility is safe and fosters staff morale.

Wall finishes should be smooth, hard, seamless and impervious, washable, extremely robust, resistant to physical impact and not easily removeable.

Consultants are to consider the properties of the finish, including:

- durability
- resistance to cracking

- resistance to abrasion
- resistance to fungal and bacterial attack
- ease of cleaning
- colour and retention of appearance
- capital, maintenance and replacement costs
- replaceability (long-term availability of proprietary finishes where an exact match might be required)
- indoor air quality

4.2.1. Wall vinyl

- Wall vinyl to be continuous vinyl sheets
- Joints / seams to be fully welded
- Anti-pick mastic to be used
- Pencil coving or pre-formed coving preferred to minimise picking opportunities
- The height of the wall protection will depend on the functional area and the wall grade rating applied. Examples:
    - De-escalation room – wall vinyl to extend full height (to ceiling)
    - Corridors – wall vinyl to extend to minimum 1500mm AFL (above height of handrail if installed)
    - Bedrooms – Customer agency to inform inclusion of wall vinyl and height
    - Psychiatric Emergency Care Areas - wall vinyl to extend to 2100mm AFL
    - Bedroom Ensuites;
        - wall vinyl to be full height (to ceiling)
        - Where wet areas have framed walls, ensure waterproofing with a proprietary membrane extends behind vinyl to full height.

4.2.2. Paint Finishes

Paint selection shall support the perception of the MHF as a calm and welcoming environment. In areas where consumer observation is critical, colours shall be specified which do not alter observers' perception of skin colour.

4.2.3. Skirting

The inclusion of skirting is not recommended. If proposed, the installation of skirting must be assessed against safety and security risks and approved by the customer agency. All skirting material has the potential to be removed and used as a weapon and/or an implement for self-harm. There is also the potential for a gap to be created between the skirting and wall for the concealment of contraband.

4.3. Fixtures / Fittings

Where possible, Consultants are to design out the need for fixtures and bespoke anti-ligature fixtures. Where fixtures, including physical security measures, are required, Consultants are to prioritise fixtures that are unobtrusive and incorporated into the building fabric sensitively so that the living environment is as therapeutic and unrestrictive as possible. Fixtures must be securely fixed to minimise the potential to be used to aid escape, self-harm or assault.

The design and selection of fixtures and fittings in consumer facing areas shall consider the following:

- Wall fixtures are to sit flush within walls where possible (e.g. toilet roll holders, soap holders).
- Where fixtures and fittings such as handrails and grabrails are fixed to walls, the wall type shall be solid brick. Fixing methods and fastenings shall be to the approval of the project's Structural Engineer.
- All fixtures and associated gaps are to be sealed with non-pick sealant.
- Ensure robust tamperproof housing of all ICT and electrical services (e.g. security swipe readers, gang cover from electrical switching plate). Ensure all housing has spare parts included removed e.g. extra screws.
- Wall grilles, air transfer ducts, and the like are to be avoided. Ceiling grilles shall be utilised instead. Avoid ceiling grilles in accessible locations e.g. over beds, desks.
- Door grilles are to be avoided. If unavoidable, these must be robust, tamper proof, and anti-ligature.
- The provision of corner guards is recommended.
- Ligature minimisation, particularly where consumers may be left unattended.
- Equipment locations and installation methodology of equipment and devices such that they do not assist climbing or provide a grappling point.

This shall include the final location and placement of new equipment and end devices, particularly those in external and/or accessible areas.

4.4. External and perimeter walls

The design and construction of external walls must pay particular attention to:

- Minimising attempts to climb walls / fencing or tampering with fence fixings in an attempt to abscond.
- Ease of cleaning, resistance to marking e.g. to minimise graffiti - scratching / marking etc. while avoiding additional maintenance e.g. reapplication of anti-graffiti barriers, re-painting etc.
- Maximising privacy for consumers from adjacent public areas, due to selection of fence material e.g. mesh.
- Maximising fence height to prevent absconding and contraband being thrown into consumer courtyard.

- Designing to ensure no climbing points e.g. fixed furniture in courtyard (table tennis tables, basketball hoops, shade structures, lines where different building fabric meets, etc), wall finish foot hold, stormwater drainage fixtures.

5. Glazing - Design and Construction Requirements

Window systems, including the type and thickness of glazing installed in a non-residential government MHF, must be carefully selected based on a thorough assessment of the location of the window and potential risks to ensure safety and performance.

Careful consideration must be given to:

- Human impact: from accidental collisions, falls, or wilful forceful contact with glazed surfaces or associated structural elements.
- Physical impact: Glazed surfaces may be struck by objects such as furniture or equipment.
- Security requirements: for example, access to unauthorised areas or egress from secure areas.
- Safety: Risk of tampering / disassembly. Self-harm risk e.g. laceration, ligature, weaponisation, pica behaviour (i.e. ingestion of components, materials, or coatings)

All glazing is required to conform to the relevant National Construction Code (NCC) and Australian Standards (AS), including:

  - AS 1288 Glass in Buildings
  - AS/NZS 2208 Safety glazing materials in buildings.

The design and construction of glazing must pay particular attention and consideration to the following:

- All glazing must be easily replaceable if damaged. It is therefore preferable that the glazing size and type installed across the facility is consistent throughout. Avoid bespoke shapes and sizes.
- Annealed glass is not to be used due to its tendency to break into large, sharp fragments, posing a significant safety risk.
- In consumer facing and public spaces, except where an alternative has been specifically specified in this TG (refer Table 1), or by the customer agency,
  - No monolithic glass is to be used due to safety and performance limitations.
  - Laminated Grade A safety glass is to be used,
  - An ionoplast interlayer is to be used in a laminated glass panel (rather than PVB) for superior strength, durability, and post-breakage integrity. In some instances, PVB inclusion maybe warranted and approved e.g. cyclonic region.

- Avoid full door glazing; use a two-pane configuration to improve impact resistance, reinforcement, security, design flexibility and ease of replacement.
- Where privacy is required in consumer accessible areas Double Glazed Units (DGU) with interstitial blinds are preferred for safety, and durability.
- All glazing must also meet the requirements as set out in DHW *TG030 Glass Panels in Non-Residential Government Buildings*.

5.1. Glazing guide

For building projects procured through DHW, the following table provides a guide for the selection of glazing on MHU projects. This guide does not remove the responsibility of the Lead Consultant and / or the façade engineer for the specification of appropriate glazing for each specific project. It also does not vary, amend, or reduce in any way, the consultants' obligations to comply with the relevant codes, standards, and legislation.

Table 1. Glazing guide

Access / Location	**Recommended Glazing minimum nominal thickness, mm**	**Comments**
Staff only access areas	10.38, 11.52	
Public facing areas	13.52	Heat strengthened (HS) laminate as a minimum.
Consumer facing areas	13.52	Heat strengthened (HS) laminate as a minimum.
Consumer facing - high security, high risk of impact	13.52	• To be determined on a project-by-project basis. • Location specific - consider thicker glazing or polycarbonate
Consumer accessible sliding doors and swing doors	13.52	
Exterior – level 1 and above (not accessible)	10.38, 11.52	Dependent on selected laminate interlayer.
Reception security screen	13.52	• Toughened Laminate • Glazing must provide maximum resistance to potential weapons and body impact attacks, while also maintaining visibility and communication. • Location specific - consider polycarbonate • As an added safety measure, consider application of a security film over the glazing on the staff-facing side to hold broken glass in place and prevent harm from any dislodged pieces of glass.

5.2. Glazing structural support: framing, fixings and sealing

High-impact forces can dislodge glazing and may result in broken glass being pushed out from standard frames. As a result, security glazing is only effective when designed and installed as a complete system. The complete configuration must be designed and specified by an appropriately qualified person e.g. Architect, Façade engineer.

Documentation of the system should include — structural support, frame, fixings, glazing type/thickness, and connection to any other building materials. The system is to be designed to withstand forceful, sustained impacts.

In consumer and public facing spaces:

- Framing should be fully supported and fixed on all four sides to structural members i.e. hot rolled steel to all sides of the window.
- Frames and fixings must be designed to accommodate the weight and thickness of specified glazing in addition to impact loads.
- Framing materials must be resistant to flexing and/or deformation.
- Frame fixings should be concealed or inaccessible to prevent dismantling.
- Glazing beads must be of adequate size to retain the pane securely. Glazing beads are to be tamper proof on the consumer facing side to prevent removal.
- Glazing shall be installed using a wet glazing method comprising high-grade anti-pick silicone, designed to maintain glazing retention under impact.
- All fixings must be corrosion-resistant and compatible with the framing material.
- Glazing systems must be ligature free.

6. Doors - Design and Construction Requirements

The wall/door junctions of consumer facing spaces in a MHF must be specified and detailed to withstand persistent heavy impacts and maintain safety and security within the unit. This includes:

- All doors are to be solid core.
- Steel door frames are recommended. Aluminium door frames have been found to not provide sufficient resilience against persistent extreme force.
- Door frames are to be welded to structural steel columns, even in masonry walls.
- Stiffener steel plates welded to door frame at hinge locations, for reinforcement.
- Anti barricade doors. Doors should be equipped with an override mechanism that allows staff to open the door outward if a consumer barricades themselves inside a room.
- Single leaf door clear opening width of 870–900 mm. Minimum clear openable width of the active leaf of double doors is to be 850mm.
- Anti ligature design.

- Door thickness to suit the functional requirements e.g. increased robustness, door hardware.
- Continuous hinges to protect against ligature attempt, tampering, finger entrapment.
- Internal wall cladding materials must extend past and behind (into) the door frame.
- Ensuite doors - double studs are to be provided to provide future flexibility should preferences change over time e.g. to facilitate change from a lightweight removable foam door to solid core timber.
- Door lever and locking mechanisms ensure:
  - replacements are easily sourced within Australia.
  - The door opening mechanism is selected for intuitive and effortless operation to minimise user frustration and prevent damage to the handle or locking components.
  - Escalation rooms installed with a minimum of a 3 point locking system.
  - Consideration of key lock vs swipe card access to consumer areas

7. Summary of design responsibilities and deliverables

7.1. Business case

Project funding and cost plan to include allowance for:

- building fabric requirements specific to MHF e.g. masonry construction, glazing, framing, bespoke and/ or proprietary items such as anti-ligature fixtures, door hardware etc
- Allowance for spare materials to replace e.g. doors, windows, fittings / fixtures

7.2. PDP / Site planning

Determine the risk category for each functional area within the MHF taking into consideration security requirements as outlined in the security brief, the consumer cohort/s using the facility, the functional brief and service delivery model.

7.3. Schematic design report

- Intended level of construction / security.
- Wall type to each functional area should be nominated, including the properties of walls for example acoustic, finishes.

7.4. Design development report

- Documentation of proposed wall type, doors and windows and preliminary construction details of each.

7.5. Documentation

- Full wall, door and window construction details

- Schedules
- Specification

7.6. Construction

- If, during construction, the selection of alternative structures, materials or fixed furniture and equipment is required, the alternative shall be assessed in context with MHF requirements (safety, security) and approved by the Superintendent's Representative in agreement with the DHW, Customer agency's representative and where required the Office of Chief Psychiatrist. The process will be in line with DHW departmental policies.
- To address quality and compliance of construction, it is strongly recommended that hold points be incorporated into the construction contract to enable the Consultant, Contractor and Supers Representative to jointly undertake an inspection of:
  - Door frame to structural column welds
  - insulation installation
  - robustness of floor / wall connections, including framed walls
  - installation of wall / door and window framing connections
- During site inspection and in addition to reviewing building quality, consultants and customer representatives should be mindful of potential ligature risks, self-harm risks, space to hide contraband, climbing points, unauthorised points of access etc. e.g. service ducts, grates, architraves, gaps in door and window framing, door / joinery hardware, protruding bolts, sharp fixtures etc.

7.7. Operation

Due to the nature of a MHF, it is expected that damage, both accidental and wilful, and general wear and tear is likely to occur. Maintaining the building to a high standard indicates to the service users that their environment is safe, welcoming and an important part of the therapeutic process. This includes:

- Preventative Maintenance, including frequent maintenance checks on wall integrity, wall fixtures, external perimeter wall and / or fencing and hardware.
- Access to resources for immediate repair of any damage to the building e.g. removal of graffiti, patching of walls, painting etc.
- Planning / budgeting for more frequent redecoration or refurbishing works than in other health care settings.

8. References

Australasian Health Infrastructure Alliance, *Australasian Health Facility Guidelines* (2025) https://healthfacilityguidelines.com.au/

Design Guidance: Doors

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