



0453 Doors and access panels

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00 Design principles

0.01 Main considerations

It is a requirement to undertake the [00 PLANNING AND DESIGN/0001R - DESIGN REFERENCE](#) and [GLOSSARY OF TERMS](#) information into all aspects of design, detailing and delivery when developing the content here within. Clear demonstration of adherence to these requirements is part of the services and will be called upon at key points in the project and during at the discretion of the Department of Education (DoE).

When selecting doors, the following characteristics should be considered:

- **Functionality:** Choose frame, leaf and hardware as appropriate to the function of the door and the use of the space to which the door is providing access.
- **Durability:** Doors in pupil accessible areas are subject to extensive wear and tear. In order to be fit for purpose, the frame, door leaf and hardware need to be robust.
- **Maintainability:** Door hardware needs to be readily available, easy and economical to maintain.
- **Minimum clear door openings** must be in accordance with building regulations, to enable easy access for wheelchair and trolley to all areas and functional spaces used by students and staff. (Minimum 850mm clear). The clear door opening width is to be measured between the door and the frames and /or door hardware when the door is open.
- **Consider safety** when planning for doors opening onto circulation spaces.
- **Threshold Steps** are to be avoided in order to allow wheelchair and trolley access. Weather bars at thresholds are to have a maximum height of 3mm.
- **Operable Walls** (between general learning areas): require an Rw rating of 45 for all Schools and should have an acoustically absorbent surface lining, to improve room acoustics. Refer to Acoustics section of the design guide for further details.
- **Accordion Doors** are not recommended due to their poor acoustic performance.
- **Fire Rated Doors** to be used where required by regulation for fire separation, such as store rooms to Communal Halls. Refer also to [00 PLANNING AND DESIGN/0001C DESIGN CHECKLIST - FINISH](#) for general materials and finishes requirements.

Specification

01 General

As per current NATSPEC.

02 Product

As per current NATSPEC except as follows:

2.1 Frames

GUIDE NOTE: Add the following information to the clause "Steel Frames." in NATSPEC Building Template.

Steel frames

Sections: Rebates: Incorporate rebates or double rebates where required for side hung doors or glazed transoms.

Minimum sheet steel thickness:

- Generally: 1.4mm
- Fire rated door sets: 1.5mm
- Category "E" and "D" security doors: 2.5mm

Assembly methods: Do not use mechanical assembly.

Hinges: Recess frames for screw fixing hinges to 150 x 45 x 6 mm thick backing plates fully welded to frames at hinge points. Drill and tap backing plates to suit machine thread screws for hinges.

Hinge reinforcement: For door leaf widths over 1000 mm wide, reinforce the top hinge backing plate with 250 x 40 x 5 mm M.S. plate and spacers all fully welded to backing plate and frame.

Weather moulds: Form from 1.4 mm steel sheet as detailed for external doors, fix to frames on site to suit reveal openings.

2.2 Doors

GUIDE NOTE: Delete "flush doors" nominated in NATSPEC Building Template/ Worksection and include the following:

The flush laminated veneered lumber door described below has been developed for use in schools. Other proprietary doors that comply with the specification requirements described Below may also be acceptable.

Flush door – laminated veneered lumber

- Type: Flush laminated veneer internal/external door. 40mm thick (nominal) solid flush door comprising of laminated veneer timber strips to required width.
- Veneer layers: Radiata Pine species, nominal thickness 4mm Moisture content (nominal): 4 to 12%
- Bonding: Glue veneers using MUF or UF in the lay-up with 2 veneers used as cross band
 - Bond: Type "A" or "B" to AS /NZS 2271
- Strips
 - Hardwood edge strip glued with XPVA to give required panel width
 - Butt jointed or finger jointed for the required length then edge glued as above
- Finishing: Sanded to a 120-grit finish undertaken by the manufacturer prior to delivery

Flush door – medium density fibreboard

GUIDE NOTE: The flush medium density fibreboard (MDF) door described below is based on a door manufactured by "Processed Forest Products". the door has been developed for us for internal use in dry locations only. Other proprietary doors that comply with the specification requirements described below may also be acceptable.

Type: Laminated medium density fibreboard (MDF) internal door. 40mm thick (nominal) solid flush door comprising a single 32mm core sheet of MDF with 3mm thick MDF sheet laminated to both faces of the core. Provide 0.5mm paint grade veneer to both faces of the door.

Requirement: Do not use for external locations or internal wet locations.

-
- Glue line: “B” Bond
 - Edge Strip: Hardwood edge-glued to give required panel width
 - Marking: In addition to the requirements of AS 2688 - 1.10 the construction of the flush door shall be marked (LA). See AS 2688 1.10 (d).

Flush door – blockboard core

Type: Flush blockboard core internal/external door. Core plate of timber strips laid edge to edge, fully bonded to each other and to facings each side no less than two sheets of timber veneer.

Blockboard core: To AS 2688 – Section 5

Sanding: Cross band veneer pressed to core plate and flush sanded to minimise core plate show through before pressing face veneer.

Face material:

- Internal locations: Paint quality 3mm plywood
- External locations: Paint quality external grade 4mm plywood with A bond glue line

Face veneer: Close grain face veneers must be used to enable a high-quality paint finish to be achieved.

Construction:

Door thickness:

- General: 40mm.
- External doors and doors over 900mm wide: 40mm.

2.3 Doorsets

Aluminium doorsets

Construction: Construction and finish generally as for windows and as detailed.

Finish: Refer to [04 ENCLOSURE/0451 WINDOWS AND GLAZED DOORS](#)

GUIDE NOTE: Specify minimum 2mm thick sections for aluminium door frames.

2.4 Ancillary materials

Seals generally

- Provide purpose made proprietary seals to meet requirements for weather, draught, smoke and acoustic sealing. Seals must not hinder the normal operation of the door. Door closers must be able to close the door at normal latching speeds and for the doors to latch effectively without being obstructed by the seal.

Acoustic seals

Proprietary acoustic seals to doors and door surrounds.

- Jambs and heads: Adjustable door stop seal capable of producing a continuous seal around the door frame.
 - Tested to AS 1191, AS 1045 and AS/NZS ISO 717.1.
 - Seal material: Closed cell EPDM
 - Frame/carrier: Clear anodised aluminium
- Bottom of door: Heavy duty automatic door bottom seal, spring loaded to lift clear as the door leaf is opened.
 - Tested to AS1191, AS 1045, AS/NZS ISO 717.1.
 - Seal material: EPDM sponge
 - Frame/carrier: Clear anodised aluminium
- Overlapping door stiles: Astragal seals (pair) designed for plain or rebated meeting stiles of timber doors.
 - Tested to AS1191, AS 1045, AS/NZS ISO 717.1.
 - Seal material: Flexible PVC
 - Frame/carrier: Clear anodised aluminium

Refer to the [04 ENCLOSURE/0455 DOOR HARDWARE](#)

Hinged shutters (doorsets) in two leaves - Canteen

Fix a proprietary heavy duty clear anodised aluminium “T” section for the full height to one leaf. The metal “T” strip must be of sufficient strength to provide an effective deterrent against forced leverage. Fixed to stile with compatible countersunk screws through pre-drilled fixing holes.

- Dimensions (minimum): 40 x 25 x 3mm thick

2.5 Glazing

GUIDE NOTE: Insert project specific Locations. Refer to the Educational Facilities Standards and Guidelines.

Location:

Viewing panel: 600 x 100mm.

Refer to [04 ENCLOSURE/0461 GLAZING](#)

2.6 Security (grille) gate – heavy duty

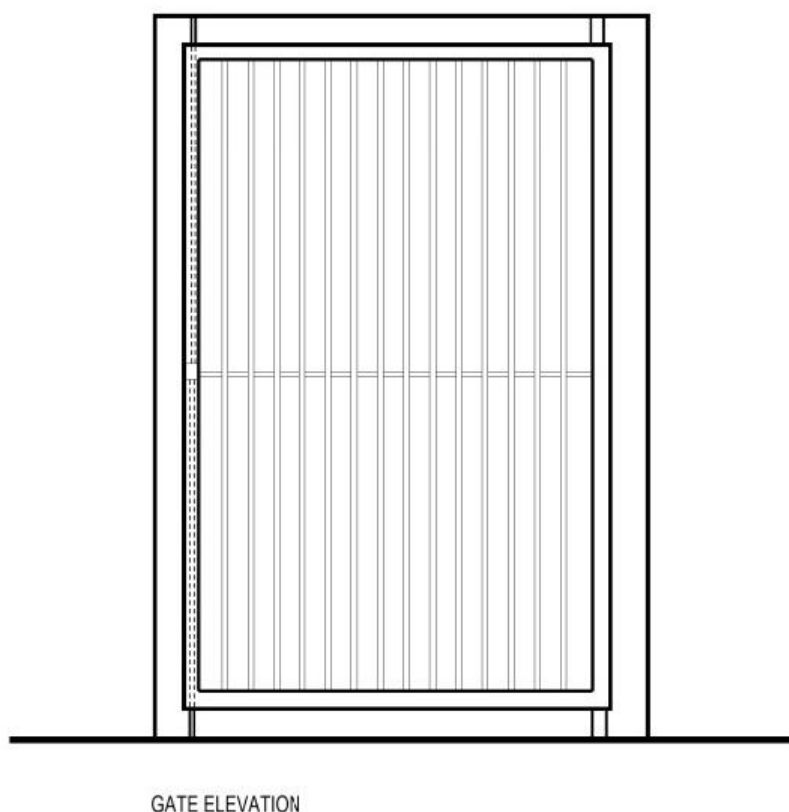
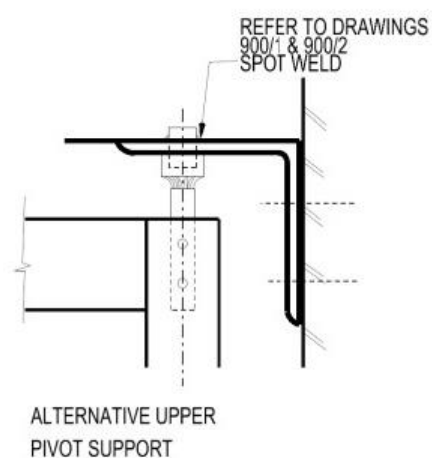
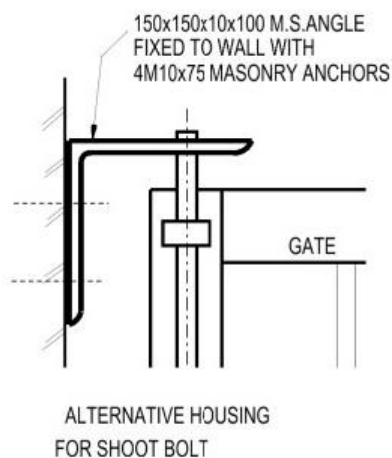
GUIDE NOTES: Infill Mesh must not be used.

Insert project specific locations. Refer to DRAWING in Figure 1 below.

Figure 01: Security Gate – Elevation & Details

SPECIFICATION REF
Doors and Hatches

NOTES
Guide only; do not use as a
construction detail



Location:

Fabrication: Mild steel frame with vertical rails at even spacing not exceeding 100 mm drilled for mid stiffening rail and pivots all welded together and hot dip galvanised after fabrication as shown on the drawings.

Pivots: Top and bottom as detailed on the drawings, with grease nipples. Frame: 65 mm x 35 mm x 3.0mm R.H.S.

Vertical Rails: 25 mm x 25 mm x 3.0mm S.H.S. Mid Rail: 12 mm diam.

Shoot Bolts: 20 mm hardened surface steel.

Pipe Ferrules

Location: Set in ground and ceiling to locate gate security in the open and closed position.

Size: 25 mm internal diameter x 30 mm long.

GUIDE NOTE: Alternative head fixing with 10mm masonry anchors by bolting 150mm x 150 x 10mm steel angle cleat to brickwork drilling 25mm diameter holes for top pivot and shoot bolt.

Fixing: Ensure no gaps greater than 125 mm and smaller than 25 mm occur between gate and adjoining surfaces.

GUIDE NOTE: Duo PLB-w pad bolts with compatible padlocks may be substituted for the Broadhurst lock. The doors must permit locking in both the open and closed position. (Amend drawing accordingly).

Lock Box: Stainless steel welded to gate to permit locking in both the open and closed position.

Master Keying: As specified in [04 ENCLOSURE/0455 DOOR HARDWARE](#).

Manufacturer/Installer:

GUIDE NOTE: The Manufacturer/Installer must hold a subclass ma, mb, mc or md licence, and a 2a or 2b licence issued by security licensing & enforcement directorate (sled) of the NSW police force

The installation must be carried out by a company and installer holding relevant licences issued by the Security Licensing & Enforcement Directorate (SLED) of the NSW Police Force.

Certification: Hand to the Principal's Authorised Person / Principal's Representative a certification that the security gate/s have been manufactured and installed by holders of

current appropriate licenses in accordance with the latest Security Industry Regulations and Security Industry Acts.

2.7 Mesh gate – light duty

GUIDE NOTE: Nominate appropriate locations.

GUIDE NOTE: Intended for low security areas. E.g. Student toilets, Student Shower/Change areas etc. (Security category A & B)

GUIDE NOTE: Refer to DRAWING in Figure below.

Figure 02: Mesh Grille Gate – Light Duty (Fully Welded Construction)

SPECIFICATION REF

Doors & Hatches

Door & Window Hardware

NOTES

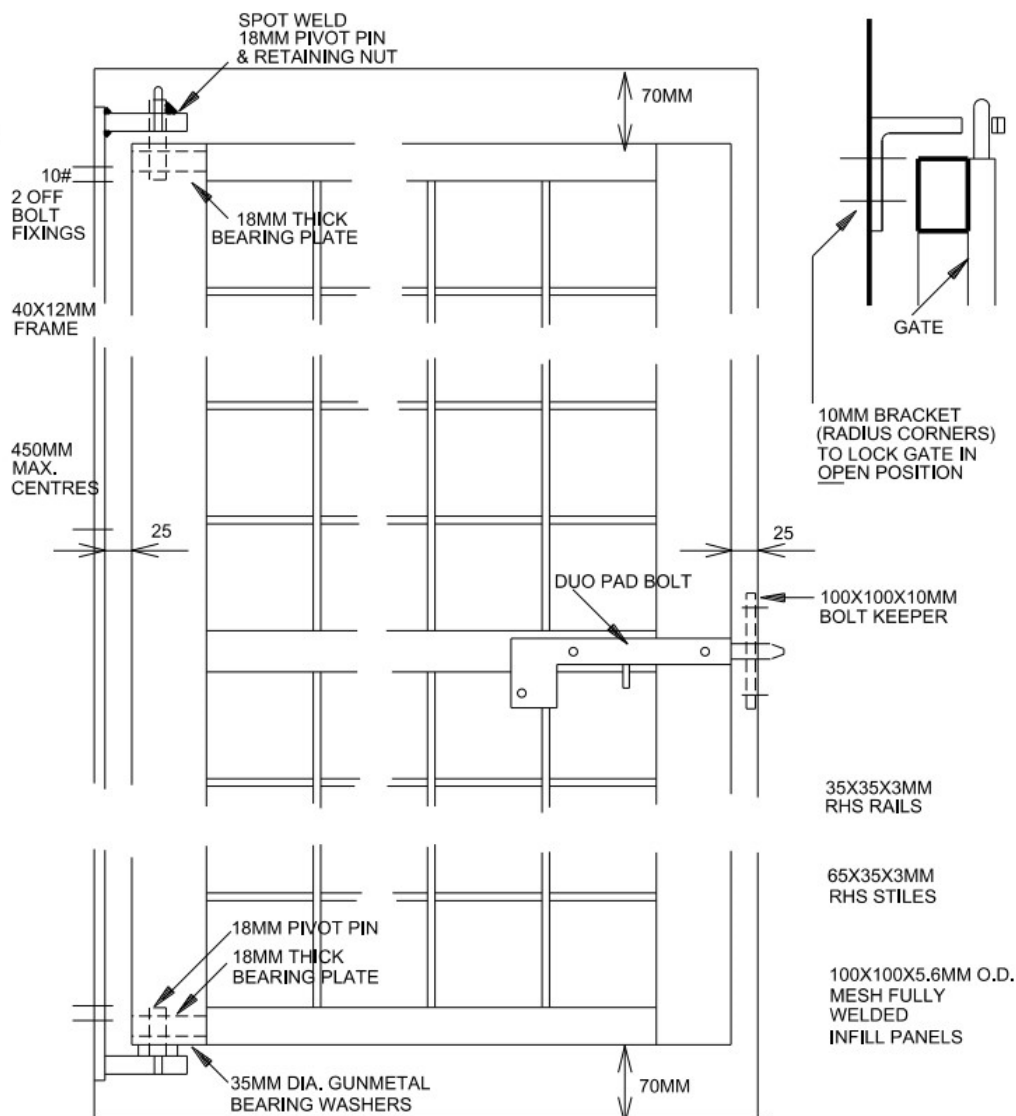
Guide only; do not use as a construction detail.

Intended for security areas e.g.

Student Toilets, Shower /

Change areas (Security

Category A & B)



Fabrication: Mild steel frame with steel mesh, mid stiffening rail and pivots, all welded together and hot dip galvanised after fabrication as shown on the Drawings. All rough edges to be removed to give the gate a smooth finish.

Frame

Rails: 35 x 35 x 3.0mm R.H.S.

Stiles: 65 x 35 x 3.0mm R.H.S.

Mesh: 5.6mm diam. x 100mm(vertical) x 100mm(horizontal) max. spacings.

Pivots: Top and bottom as detailed on the drawings, with gunmetal bearing washers.
Apply water resistant bearing grease to top and bottom pivot hinge assemblies

Pad Bolts

Heavy duty pad bolt as shown on drawings.

Installation: Pad bolt to be installed to permit locking in both the open and closed position.

Fixing: Ensure no gaps greater than 75mm and smaller than 25mm occur between gate and adjoining surfaces.

Bolt Keeper: 100 x 100 x 10mm bolt keeper for door to be locked in closed position.

10 mm angle bracket for door to be locked in open position.

Location: Securely bolted to wall to locate gate security in the open and closed position.

Master Keying: As specified in [04 ENCLOSURE/0455 DOOR HARDWARE](#).

2.8 Air relief grilles

Assembly: Fit extruded aluminium telescopic louvres with chevron grille to frame, screw fix all and colour anodize.

Frame Size: 32mm aluminium flange.

Free Area: 70%

2.9 Security air relief grilles

Location: Door grilles to external doors and in high security locations

Description: 32 x 6mm mild steel louvres all welded into a mild steel flanged frame with mesh backing.

Protective finish: Red oxide primer and paint finish to match door.

Fixing: One-way screw fixing or countersunk coach screw

2.10 Insect screen doors (including canteens)

Metal Framed Screens

Aluminium extruded section with channels for high grade security mesh fixing approved to SSU requirements.

Mesh Finish: Black

Frame finish: To match windows unless otherwise specified.

03 Execution

As per current NATSPEC except as follows:

3.1 Frames

Installation – 180 degree opening door

GUIDE NOTE: This system generally can only be achieved when the surrounding reveals are of the same construction (eg. full masonry external reveal not a combination such as part masonry part aluminium window frame)

- Fixing to prepared opening: Countersunk flush or concealed screws at least 4mm diameter at 600 mm maximum centres into masonry structures and into the frame members of timber structures and frame members and fixing blocks of metal structures.
- Frame to be positioned allowing a maximum reveal (door opening side) of 25mm for the full height of the prepared opening.
- Fix 25 x 25 x 2.5mm minimum thickness aluminium door trim angles to both sides of door frames and to reveals of the internal and external walls.
- Return masonry with vertical flashing or timber reveal lining to enclose external wall cavity.

04 Selections

As per current NATSPEC except as follows:

4.1 Door types

Table 01: Door types schedule

Property	Type or location		
	A	B	C
Door Type All doors including shutters to be either blockboard core, laminated veneered lumber doors or laminated MDF veneered doors (internal dry locations only)	-	-	-
Thickness (mm) (nominal)	40mm (nominal)	40mm (nominal)	40mm (nominal)
Core material All doors including shutters to be either blockboard core, laminated veneered lumber doors or laminated MDF veneered doors (internal dry locations only)			
Facing material			
Face veneers Timber species or group Veneer quality			
Matching arrangements			
Edge strips Thickness			
Panel Type Clear-opening size (mm)			
Finish			
Floor Clearance			

Table 02: Joinery Doors Construction Schedule

Property	Type or location		
	A	B	C
Door Type	-	-	-

Property	Type or location		
	A	B	C
Door thickness (mm) (nominal)	To AS -2688 Section 9 except as follows: Stile min. width 115mm	-	-
Adhesive bond type	-	-	-
Timber species or group	-	-	-
Timber grade	-	-	-
<ul style="list-style-type: none"> Finished sizes (mm): (Stiles minimum width 115mm) top rails and stiles Intermediate rails Bottom rails Muntins 	-	-	-
Panels <ul style="list-style-type: none"> Material Thickness (mm) 	-	-	-
Finish	-	-	-
Floor Clearance	-	-	-
Joints: Dowel joints must not be used	-	-	-

4.2 Doorsets schedule

Table 03: Fire resistant doorsets construction schedule

Property	Type or location		
	A	B	C
Automatic closure <ul style="list-style-type: none"> Action 	-	-	-
Edge strips <ul style="list-style-type: none"> Thickness 	-	-	-
Face veneers <ul style="list-style-type: none"> Veneer quality Timber species or group Matching arrangement 	-	-	-

Property	Type or location		
	A	B	C
Fire resistance level			
GUIDE NOTE: - 60 minutes for science laboratories, preparation rooms, multipurpose space, communal space - 120 minutes for chemical store, main switch room (if required)	-	-	-
Glazing	-	-	-
Hardware <ul style="list-style-type: none"> Item Material Finish 	-	-	-