

Cavity Sliders + Tiled Walls

ENGINEERED TO AUSTRALIAN STANDARD AS1720.1

TRILINE 2025

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Engineered to Australian Standard AS1720.1 as required by QBCC for cavity sliding door units.

Tested to comply with tiled walls for wet areas.

QBCC published advice in March 2019 advising the unsuitability of some cavity sliders to support wall tiles. With this challenge raised we wanted to ensure our cavity units were certified as compliant for your peace of mind.

Triline formulated an engineering test on our cavity slider unit to determine the capacity of the system to withstand loading from the application of wall tiles and associated wall board and adhesives. Testing was completed on 24th March 2020 and the Cavity Unit was found to satisfy the prototype test requirements of AS1720.1 where timber moisture levels are maintained below 15%. Testing and reporting of results to the requirements of AS1720.1 were carried out on a unit sized 2400H x 1200W to suit 90mm frame.



What is the requirement for tiled walls?

The wall or cavity slider structure must comply with the AS1684 "Timber Framing Code" and AS 3958.1 "Guide to the Installation of Ceramic Tiles." It must have a suitable framing layout that meets the fixing requirements of the manufacturers wet area wall board, and is strong enough to support the added weight of wall tiles without deflection or failure.



Why choose Triline cavity sliding door systems?

In March 2020, Triline developed a test plan for their 2400x1200 Cavity Slider Unit to assess its ability to support the load from wall tiles, wall boards, and adhesives up to 44.88kg/m².

The testing followed the method outlined in Appendix D of Australian Standard 1720.1—Timber Structures: Design Methods. Tests were conducted at Triline's Queensland testing facility, and completed on March 24, 2020. Results confirmed that the Cavity Slider Unit met the prototype test requirements of AS1720.1, provided the timber moisture levels were kept below 15%.



Long-term Loading Considerations

Timber structures are particularly susceptible effects of long-term loading. The moisture levels of the timber have a direct impact on the ability of the structure to withstand loading. If the moisture content of the timber exceeds 15%, the capacity of the system to resist longterm deflections begins to reduce. This reduction in capacity can be as much as 40% if moisture content exceeds 25%. Proper care must be taken to waterproof the cavity wall correctly.



FORMULATION

Recommended Installation Combinations

To quantify a range of combinations of wall boards, glue and tile thicknesses that load the cavity unit within acceptable levels in relation to the eccentricity, the Recommended Installation Combinations Table in Appendix C was formulated as a guide.

The approach to testing and the formulation of this table is conservative as it assumes no contribution to net stiffness or strength from the installation of wall boards, glue, tiles, and grout; all of which will, in practice form a composite beam that increases stiffness and also provide additional strength in the predominant failure mode of fastener pull-out.

The figures used are based on:

- Wall Board densities as per manufacturers specification
- Glue density of 1500kg/m³
- Tile density of 1680kg/m³
- Porcelain tile density of 1970kg/m³

FOR USE WITH THE FOLLOWING WALLBOARD TYPES



Gyprock Aquacheck



USG Boral Wetstop



James Hardie Villaboard

APPENDIX C - TABLE TL001_T01-R6

Sheet Type	Glue Thickness	Tile Thickness	Total Mass ** (kg/m ²)	Total Thickness (mm)	Eccentricity (Total Moment kg/m ² •m)	Result
USG Boral WETSTOP 10mm P/Board	3mm Glue	6mm Tile	21.97	19	0.25	APPROVED
USG Boral WETSTOP 10mm P/Board	3mm Glue	8mm Tile	25.33	21	0.301	APPROVED
USG Boral WETSTOP 10mm P/Board	3mm Glue	10mm Tile	28.68	23	0.375	APPROVED
USG Boral WETSTOP 10mm P/Board	3mm Glue	12mm Tile	32.04	25	0.456	NOT APPROVED
USG Boral WETSTOP 10mm P/Board	6mm Glue	6mm Tile	26.47	22	0.327	APPROVED
USG Boral WETSTOP 10mm P/Board	6mm Glue	8mm Tile	29.83	24	0.405	APPROVED
USG Boral WETSTOP 10mm P/Board	6mm Glue	10mm Tile	33.18	26	0.488	NOT APPROVED
USG Boral WETSTOP 10mm P/Board	6mm Glue	12mm Tile	36.54	28	0.579	NOT APPROVED
Gyprock AQUACHEK 10mm P/Board	3mm Glue	6mm Tile	22.47	19	0.237	APPROVED
Gyprock AQUACHEK 10mm P/Board	3mm Glue	8mm Tile	25.83	21	0.304	APPROVED
Gyprock AQUACHEK 10mm P/Board	3mm Glue	10mm Tile	29.18	23	0.378	APPROVED
Gyprock AQUACHEK 10mm P/Board	3mm Glue	12mm Tile	32.54	25	0.458	NOT APPROVED
Gyprock AQUACHEK 10mm P/Board	6mm Glue	6mm Tile	26.97	22	0.33	APPROVED
Gyprock AQUACHEK 10mm P/Board	6mm Glue	8mm Tile	30.33	24	0.407	APPROVED
Gyprock AQUACHEK 10mm P/Board	6mm Glue	10mm Tile	33.68	26	0.491	NOT APPROVED
Gyprock AQUACHEK 10mm P/Board	6mm Glue	12mm Tile	37.04	28	0.582	NOT APPROVED
James Hardie Villaboard 6mm	3mm Glue	6mm Tile	22.87	15	0.173	APPROVED
James Hardie Villaboard 6mm	3mm Glue	8mm Tile	26.23	17	0.226	APPROVED
James Hardie Villaboard 6mm	3mm Glue	10mm Tile	29.58	19	0.287	NOT APPROVED*
James Hardie Villaboard 6mm	3mm Glue	12mm Tile	32.94	21	0.354	NOT APPROVED*
James Hardie Villaboard 6mm	6mm Glue	6mm Tile	27.37	18	0.257	NOT APPROVED*
James Hardie Villaboard 6mm	6mm Glue	8mm Tile	30.73	20	0.321	NOT APPROVED*
James Hardie Villaboard 6mm	6mm Glue	10mm Tile	34.08	22	0.391	NOT APPROVED*
James Hardie Villaboard 6mm	6mm Glue	12mm Tile	37.44	24	0.468	NOT APPROVED
James Hardie Villaboard 9mm	3mm Glue	6mm Tile	26.97	18	0.241	APPROVED
James Hardie Villaboard 9mm	3mm Glue	8mm Tile	30.33	20	0.304	APPROVED
James Hardie Villaboard 9mm	3mm Glue	10mm Tile	33.68	22	0.375	APPROVED
James Hardie Villaboard 9mm	3mm Glue	12mm Tile	37.04	24	0.452	NOT APPROVED
Villaboard 9mm	3mm Glue	12mm Porcelain Tile	40.52	24	0.515	NOT APPROVED
James Hardie Villaboard 9mm	6mm Glue	6mm Tile	31.47	21	0.332	APPROVED
James Hardie Villaboard 9mm	6mm Glue	8mm Tile	34.83	23	0.405	APPROVED
James Hardie Villaboard 9mm	6mm Glue	10mm Tile	38.18	25	0.486	NOT APPROVED
James Hardie Villaboard 9mm	6mm Glue	12mm Tile	41.54	27	0.573	NOT APPROVED
Villaboard 9mm	6mm Glue	12mm Porcelain Tile	45.02	27	0.646	NOT APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	6mm Tile	24.84	22	0.301	APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	8mm Tile	28.2	24	0.378	APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	9.5mm Tile	30.71	25.5	0.44	APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	10mm Tile	31.55	26	0.462	NOT APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	12mm Tile	34.91	28	0.553	NOT APPROVED
Gyprock AQUACHEK13mm P/Board	3mm Glue	12mm Porcelain Tile	38.39	28	0.629	NOT APPROVED

Please Note:

- The purpose of this table is to demonstrate loading combinations that are equivalent or lower than the approved cavity frame design loads and eccentricities. This table does not exclude other combinations, however, calculations must be carried out to determine whether other combinations of materials with differing densities and distance from the cavity rails will exceed the approved design load and eccentricity that have been established from physical testing
- Installers must ensure that tile installations comply with AS 3958.1 – 'Guide to installation of Ceramic Tiles' and follow the wall sheet manufacturers installation instructions
- Installers must also ensure that the Maximum tile loads as specified by sheet manufacturers must not be exceeded
- The reference moment established from physical testing establishes the criteria for eccentricity of loading as 0.449 kg/m² • m or 44.88kg/m² applied at 10mm from the Cavity Unit
- Calculations are based on Glue density of 1500kg/m³; Tile density of 1680kg/m³; Porcelain tile density of 1970kg/m³

* tile thickness exceeds maximum recommended for 6mm Villaboard at 600mm spacings. These combinations are approved when using the Triline Cavity Unit with 450mm rail spacings as a special order

** Total weight includes the mass of the sheet

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INSTALLATION

Points to Consider Before Applying Tiles

CHECK MANUFACTURERS WALLBOARD LOADING

See recommended chart for tile thickness & glue thickness loading to specific wallboard options. You must check that the tile loading does not exceed wallboard manufacturers recommendation for maximum loading weight of tiles and glue (weight will vary with glue thickness). For very heavy tiles, it's recommended to either fix plywood sheeting to the cavity frame or construct a false batten wall beside the cavity pocket to support the added weight.

ENSURE CAVITY JAMBS ARE STRAIGHT AND PLUMB

Ensure the cavity slider wall frame is straight (they can get bent or bowed in transit). If the frame has bowed, straighten it before commencing tiling.

PACK CAVITY THROAT TO ENSURE FRAME STRAIGHTNESS

For best results we recommend you clamp a straight edge to the cavity split jambs or on the tiled side to hold it straight while the tile glue dries. We also recommend packing in the throat of the cavity while the tile glue dries. If the cavity pocket is bowed when the glue dries it will stay bowed. Once the tiles are installed, they will reinforce the cavity pocket wall, so it's essential to ensure the split jambs are kept the same distance apart from top to bottom during tiling.

REMOVE DOOR PANEL WHILE TILING IS IN PROGRESS

If door has been fitted prior to tiling please remove door and store it according to the door manufacturer's recommendations. The door may absorb moisture from tile glue if it is left in place. This may cause the door to bow and scrape against inside of cavity. For best results refit door when tile glue has dried.





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