

QBCC TECHNICAL FEATURE

13 February, 2017

Waterproofing requirements for doorways to decks and balconies

Water leakage below door openings has been a source of concern for the Queensland Building and Construction Commission (QBCC) and other state regulators for a number of years.

The Building Code of Australia’s adoption of ‘AS4654 Waterproofing membranes for external above-ground use – Part 1 Materials and Part 2 Design and installation’ means that building contractors working throughout Australia are provided with clear and consistent detailing requirements to eliminate water leakage in construction. This standard came into effect in Queensland back in May, 2013.

In particular, AS4654.2 provides construction details which are aimed at eliminating water leakage at the sills of door openings that lead onto a waterproofed deck or balcony. AS4654.2 depicts how to achieve compliance using systems, such as the application of waterproofing membranes or installation of sub-sill flashings (refer to Figure 2.8 options 1 and 2).

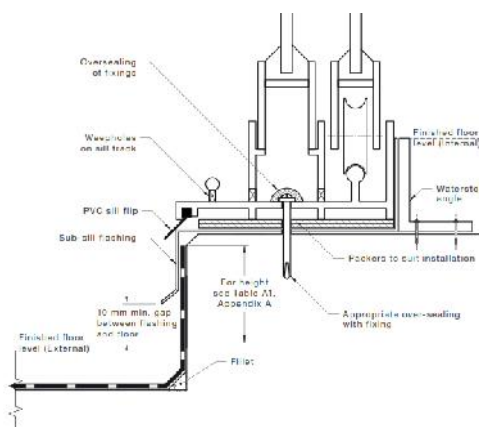


Figure 2.8 (Option 1) AS4654.2

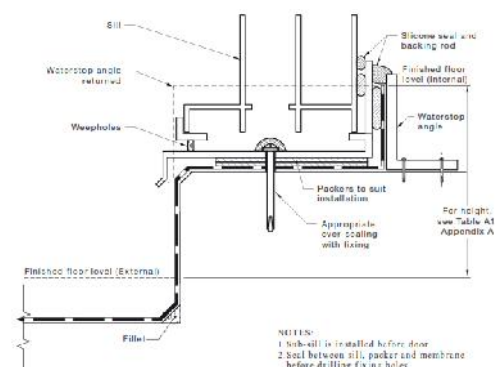


Figure 2.8 (Option 2) AS4654.2

Wind driven rain is one of the main factors contributing to water leakage that has occurred below door and window sills that open onto a deck or balcony.

High wind pressures can effectively push rain water under a door or window sill and into the building itself, or allow water entry into the wall cavity or frame, causing undue dampness or deterioration of building elements.

AS4654.2 includes an informative Table A1 – Vertical upward termination heights (refer to table) which specifies the minimum upward termination heights for a waterproofing membrane above the finished floor level of a deck or balcony. Table A1 also includes information for both cyclonic and non-cyclonic wind speed regions.

**TABLE A1
VERTICAL UPWARD TERMINATION HEIGHTS**

Wind class Regions A and B (non-cyclonic) AS 4055	Wind class Regions C and D (cyclonic) AS 4055	Ultimate limit state wind speed ($V_{h,u}$) AS/NZS 1170.2	Termination height mm
N1	—	34	40
N2	—	40	50
N3	C1	50	70
N4	C2	61	100
N5	C3	74	150
N6	C4	86	180

Table A1 from AS 4654.2

The QBCC has also noted an increase in home owner demands upon building contractors to construct waterproofed deck or balcony floors at the same level as internal floors to avoid step downs. Whilst this practice is not prohibited, it does become more problematic to construct and achieve compliance.

AS4654.2 acknowledges that at times circumstances will not permit for the inclusion of a set-down, for example, when wheelchair access is required.

To address this issue, the standard provides a typical design (refer to Figure 2.9) which includes for a grated drain to be formed across the front of the door opening with requisite waterproofing membranes and flashing being installed under the adjoining door sill to prevent any water penetration.

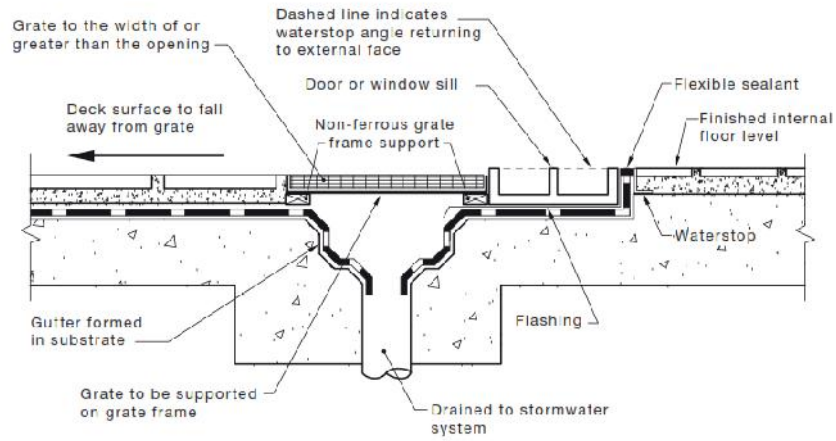


Figure 2.9 from AS4654.2

The QBCC's audits of building work under construction reveal that the vast majority of building contractors are simply unaware of the fundamental requirements of AS4654 and the need for compliance.

The QBCC encourages all builders, door or window installers, and waterproofing contractors to consider what methodologies allowed under AS4654 best meet their particular building needs before construction commences. This is so all parties concerned can meet their obligations for compliance with the Building Code of Australia.

Copies of AS4654 can be purchased from SAI Global at www.infostore.saiglobal.com



Note: Inadequate turn-up height of waterproofing membrane.

A non-compliant waterproofing installation below a balcony door.

Please note: the figures and table have been copied by the QBCC with the permission of Standards Australia under Licence 1702-c008.

For more information please call the QBCC (24/7) on 139 333 or visit qbcc.qld.gov.au

ENDS

Connect with us:

