WINDOW AND DOOR CLADDING PENETRATIONS

Windows and doors are major penetrations in the exterior cladding of a building. It is important that these are weathertight.

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The junctions between aluminium window or door flanges and the cladding represent potential leakage paths that can allow water to enter the wall assembly and also the frame cavity. Water may leak through the actual unit as well.

Direct-fixed cladding construction

Windows and door penetrations in direct-fixed claddings need to incorporate flexible flashing tape flashings at the head and sill (see Figure 1). The tape is installed over the wall underlay, which must be turned into the framed opening around all sides of the opening. This tape will protect the vulnerable timber frame from any water that may leak around the window frame and into the wall assembly. Aluminium window and door units can leak (through the corner mitres or glass seals), and the framing must be protected by flexible flashing tape at the corners and across the sill.

HEAD FLASHING

A metal head flashing with a 15° cross-slope is installed against the wall underlay and over the window frame to provide 10 mm cover to the face of the window frame. A drainage and ventilation gap of 5 mm must be left between the bottom of the cladding above the flashing and the top of the sloped flashing (see Figure 2). This opening will allow water to drain from the assembly and air to enter. The head flashing upstand must be sealed to the face of the wall underlay with flexible flashing tape or a layer of wall underlay dropped from above to create a gravity drainage path out over the flashing.

The ends of the flashing may be upturned to form a stop-end that will prevent wind driving water over the ends of the flashing.

SILL FLASHING

Window sills must incorporate a metal sill flashing that has a 5° slope, extend back into the framed opening for the full extent of the window extrusion and overflash the lower cladding by 35 mm minimum (see Figure 3). The bottom edge of the flashing should be formed to create a drip edge. The timber sill trimmer will need to be cut to a slope to fit the sill flashing. The ends of the flashing must be upturned to form a stop-end that will prevent wind driving water over the ends of the flashing. The sill flashing must be located to allow a gap of 5 mm between the face of the flashing downturn and the back of the bottom window flange – this gap will allow water to drain and air to ➔

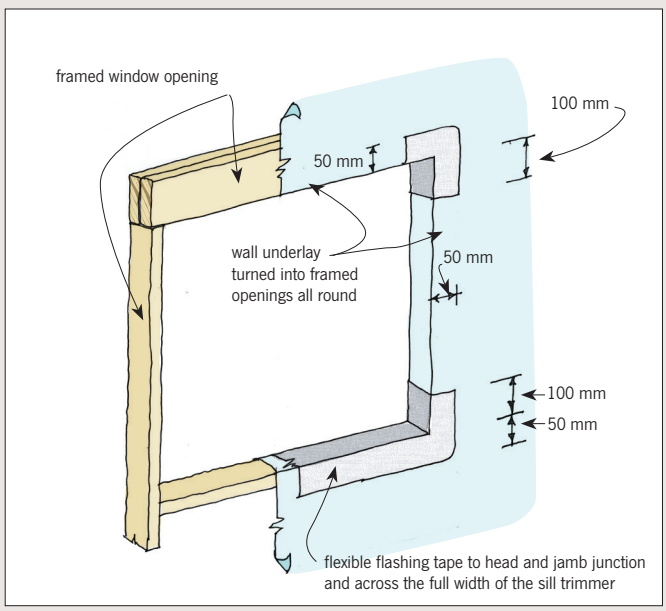

Figure 1: Window penetration preparation from E2/AS1.

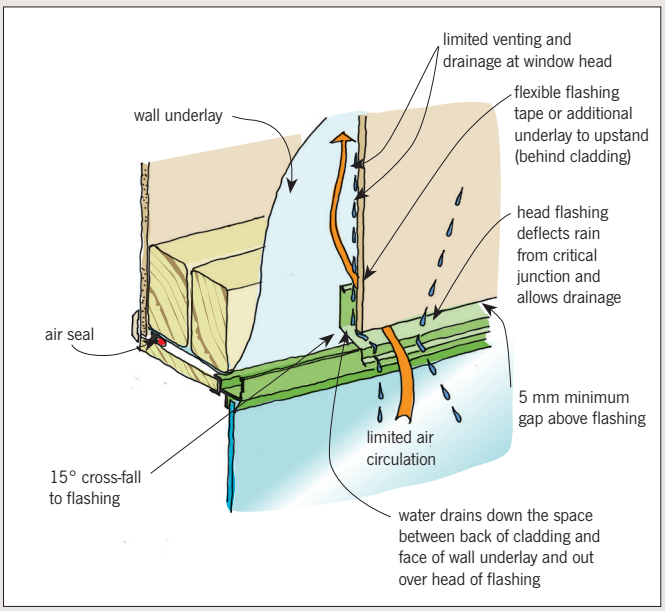

Figure 2: Drainage and venting openings in the cladding – window head with direct-fixed cladding.

enter. Check that windows are not pulled back tight to the cladding at the sill to maintain this 5 mm opening. The window flange must have 10 mm minimum cover over the sill flashing downturn.

WINDOW JAMBS

The window flange at the jambs must be sealed (or protected with a facing or scriber) to restrict water entry at these points, and the flange must have a 10 mm minimum cover over the cladding.

SEALS

The opening at the sill allows air to enter the trim cavity around the window. For pressure moderation to occur, the air entering must be restricted from going through the trim cavity into the lower pressure building interior – this is done by installing an expanding foam seal against a solid foam rod to the trim cavity around the perimeter of the window or door.

The seal must be installed at the inner face of the window or door framed opening to create a complete seal between the framed opening and the window or door reveal. This seal works in conjunction with the plasterboard interior lining to form an air barrier that allows the air in the trim and frame cavity to be moderated to the level of the higher pressure exterior air.

These types of seals must also be incorporated around all cladding penetrations such as pipe penetrations and utility boxes.

Air seals to cladding penetrations are a critical component for the weathertight performance of the cladding system. An air seal around penetrations, in conjunction with the plasterboard lining, restricts air within the wall assembly from moving into the building interior. This pressure moderation negates the higher pressure exterior driving force that can drive air and water into cladding assemblies.

SILL SUPPORT BARS

Larger size or double glazed windows and doors will require sill support bars. These need to be installed as per the window manufacturer's details and specification.

Drained and vented cavity cladding construction

Window and door penetrations in drained and vented cavity construction are similar to the details required for those in direct-fixed cladding, but with some variations.

WINDOW HEAD

The window head incorporates a cavity closure device that allows water to drain from the back of the cladding and air to enter the cavity (see Figure 4).

WINDOW SILLS

Window sills in drained and vented cavity claddings do not need a sill flashing. As the window extrusion is located out over the cavity, any water leaking through the window frame itself will be picked up by the cavity. The timber sill trimmer will be protected by the flexible flashing tape.

Windows and doors can also be fitted back tight to the cladding as air can enter into the drainage cavity from other openings, and this air moves into the trim cavity. Gaps at the sill are not required for air entry or drainage (see Figure 5).

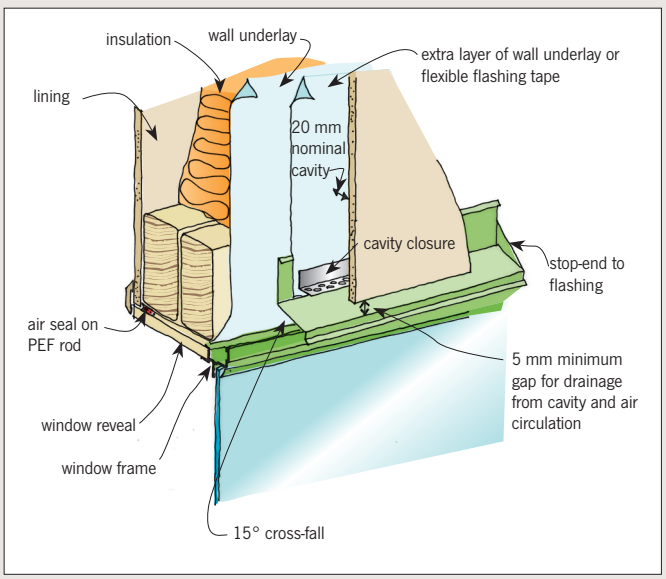

Figure 4: E2/AS1 detail (cut away to show detail).

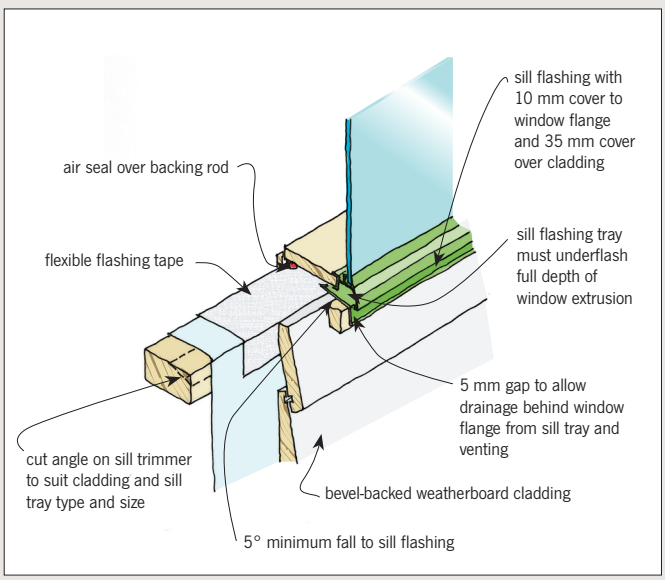

Figure 3: Window sill – typical direct-fixed cladding from E2/AS1.

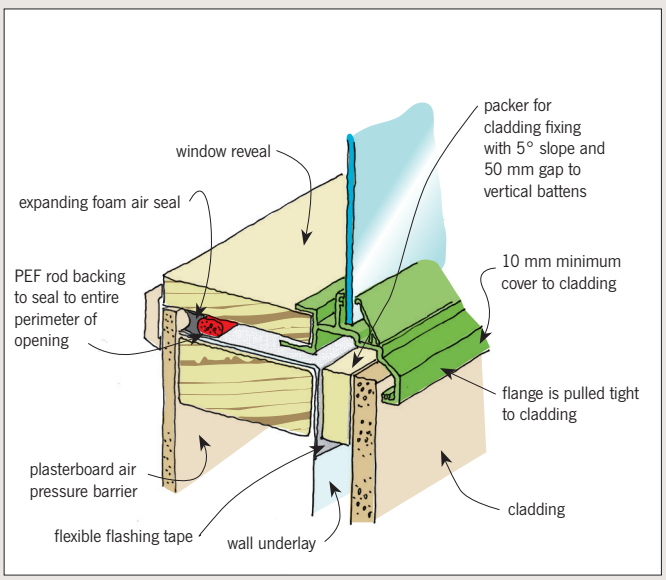

Figure 5: Air seal to cladding penetration (window example) with drained cavity from E2/AS1.