



Mind the gap



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WHERE IS A GAP REQUIRED BETWEEN BUILDING MATERIALS AND WHEN SHOULD ANY GAP BE SEALED? IT'S IMPORTANT TO GET THESE CORRECT SO WE REVIEW THE REQUIREMENTS IN E2/AS1 AND ELSEWHERE.

IN SOME SITUATIONS, buildings need to have gaps in their construction to provide separation between materials or elements and to allow drainage and drying to occur, such as behind wall claddings. In other situations, the gaps between materials and elements must be sealed to prevent airflow – draughts – that may also carry moisture into internal spaces.

Specifically designed gaps

Specifically-designed gaps or openings are incorporated into the building design so that drainage and ventilation can occur.

Drainage is needed to deal with any water that may have entered the internal wall space through a cladding joint, a change in cladding material or around a window or door opening so that it can drain out again.

Ventilation is needed to:

- dry any moisture from behind a cladding after the water has drained out
- allow air pressure moderation between the drainage cavity and/or framing cavity and the outside, across wall claddings and around window and door openings – pressure moderation restricts air and moisture flow from areas of higher pressure (outside) to areas of lower pressure (inside).

Some gaps must stay open

Examples of specifically designed gaps in E2/AS1 that must remain open include:

- the drainage slots at the bottom of brick veneer walls at 800 mm centres maximum, i.e. every third perpend should be left open to allow for drainage (see Figure 1)
- openings at the top of brick veneer walls for ventilation behind the veneer ➤

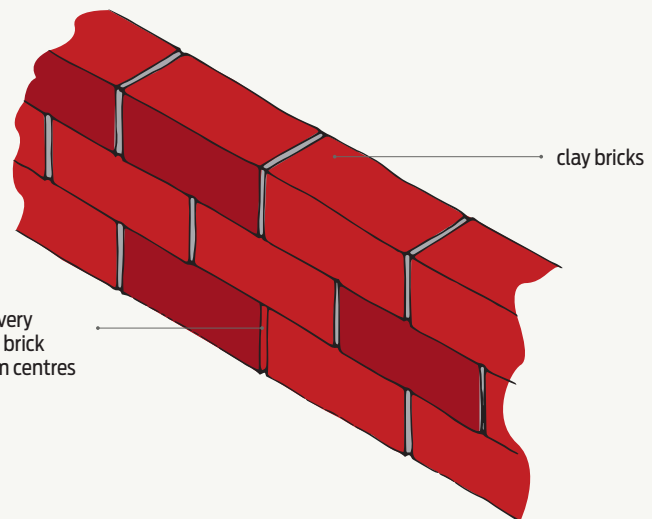


Figure 1 Gaps must be left at the bottom of brick veneer.

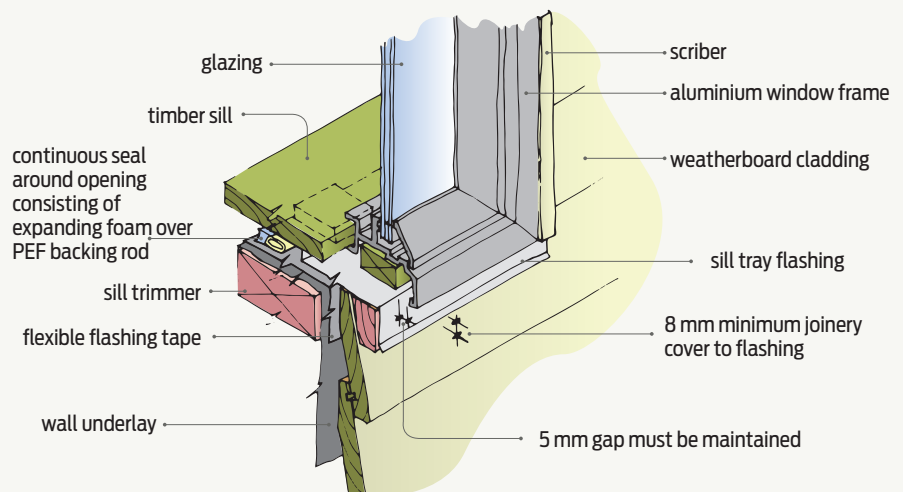


Figure 2

The gap between the back of the window reveal and framing must be sealed, and a 5 mm gap must be maintained under the sill flange (direct-fixed cladding).

- between the bottom of the cladding and the top of a window head flashing – 5 mm minimum
- between the bottom of the cladding and an inter-storey flashing – 5 mm minimum
- the sill window flange and the sill flashing for windows installed with direct-fixed cladding – 5 mm minimum
- a notched apron flashing downturn and the roofing profile – 5 mm maximum.

Another gap that must stay open is an air gap between a flexible roof underlay and roof insulation so moisture cannot transfer across the materials – 25 mm minimum.

While not a gap as such, ventilation openings must be provided and left clear under a suspended timber floor. NZS 3604:2011 *Timber-framed buildings* requires 3,500 mm² of clear opening for each 1.0 m² of floor area.

Some gaps must be sealed

In some situations, gaps between elements must not be left open.

The most important gap requiring sealing is the one between the window or door reveal and the wall framing forming the rough opening. A continuous airseal consisting of expanding foam over a PEF backing rod must be installed to prevent air movement from the outside to the building interior (see Figure 2).

Other gaps that must be sealed include:

- movement control joints in claddings

- movement control joints in tile finishes
- the space between the back of the jamb flange and window cladding of windows that are installed with direct-fixed sheet claddings.

These joints must be sealed with a flexible sealant installed according to the manufacturer's instructions. ◀

Table 1

LOCATIONS WHERE GAPS ARE REQUIRED

	LOCATION WHERE GAP REQUIRED	SIZE OF GAP
E2/AS1	Brick veneer cavity	40 mm (minimum) to 75 mm (maximum), BRANZ recommends 50 mm
	Top of brick veneer and soffit or cantilevered floor framing above	5 mm minimum
	Cladding base to apron flashing or membrane deck	35 mm minimum
	Flashing at top of cladding or inter-storey flashing	5 mm
	Drained and vented cavity	18–25 mm (20 mm nominal)
	Expansion gap to vertical flashings with horizontally fixed profiled metal cladding	5 mm, BRANZ recommends 10 mm
NZS 3604:2011	Rear of bottom edge of direct-fixed cladding and foundation wall	6 mm