DESIGN RIGHT

Weatherboards above brick veneer

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House designs with brick veneer cladding at the bottom and weatherboards above present a design challenge. Here we have some details that allow ventilation and drainage from the upper cladding while preventing additional moisture entering from the brick cavity and maintaining ventilation of the veneer cavity.

FOR ALL ITS SOLID appearance, masonry veneer is not a waterproof cladding. Masonry veneers are absorbent, and water can migrate through to the cavity – hence masonry veneers are known as wet cavity systems.

E2/AS1 applies

E2/AS1 applies to veneers of clay brick, concrete brick or concrete block attached to timber framing, with a drained and ventilated cavity between the framing and the veneer. The width of the cavity must be between 40 and 75 mm.

Figures 1a and 1b highlight some issues with details in E2/AS1 Figure 73E(m).

Let moisture drain or evaporate

Any moisture that penetrates the veneer must be able to drain away or evaporate from the cavity, so the cavity must be:

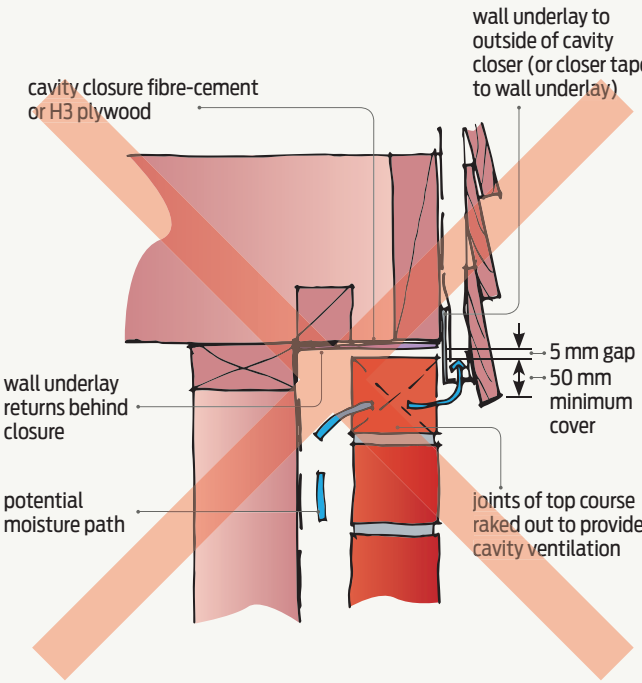

Figure 1a **Unacceptable detail – Figure 73E(m) from E2/AS1 with upper cladding on a cavity and ventilation via top course of bricks allows transfer of air between cavities.**

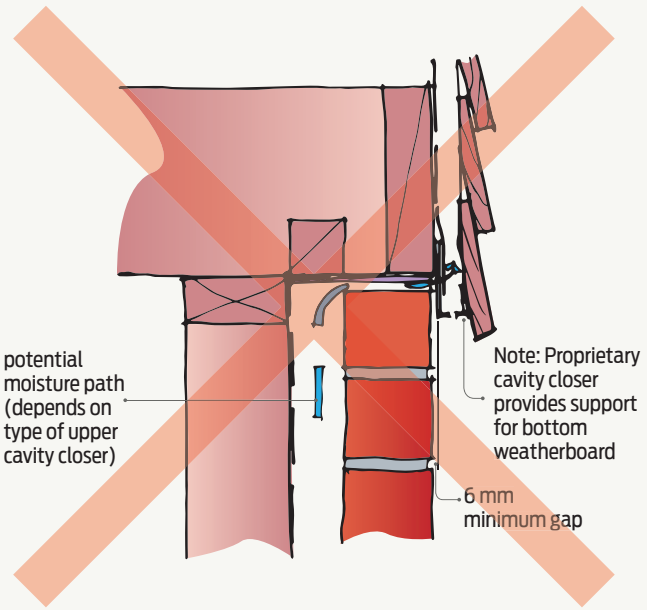

Figure 1b **Unacceptable detail – Figure 73E(m) with upper cladding on a cavity and continuous ventilation above the top of the bricks. The top of the veneer cavity is unvented (blocked by the weatherboard cavity closure).**

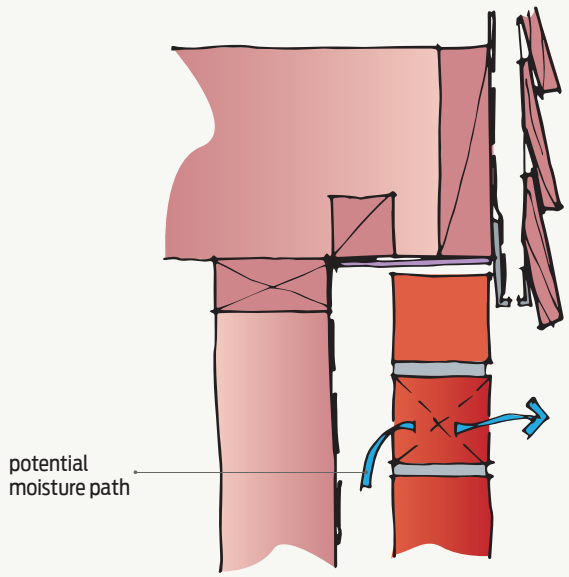

Figure 1c **Brick cavity vented through second-to-top course of bricks allows moisture to exit the cavity well clear of the upper level cladding.**

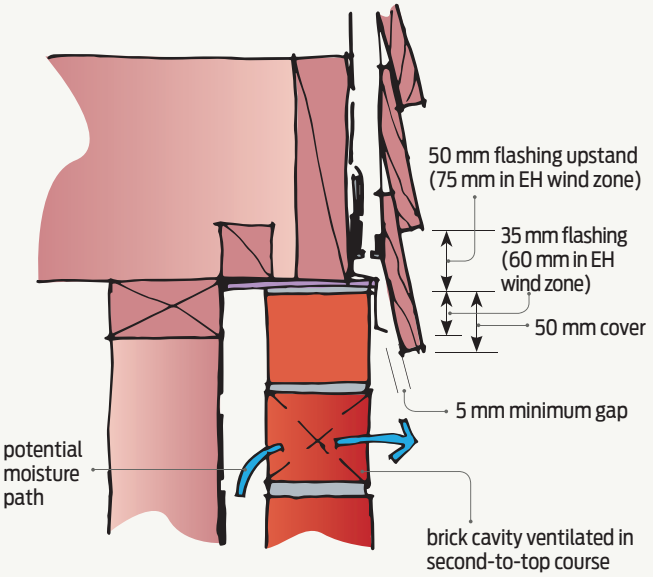

Figure 2 **Bevel-back weatherboard, flashed cavity.**

- drained and ventilated at the head of openings to allow moisture out
- drained and ventilated at the bottom to allow air in and moisture out
- ventilated at the top of walls and beneath openings wider than 2.4 m to allow air in to the cavity
- sealed off from the roof, subfloor space and any cladding cavity above the veneer to prevent moisture from migrating into these areas.

Important to get cavity ventilation right

Veneer cavity ventilation is usually provided by raking out perpend joints to a minimum of 75 mm at 800 mm maximum centres, or 1,000 mm²/m wall length.

Ventilation can also be achieved by forming a 5 mm minimum continuous gap between the top course and the soffit. The upper cladding must have 6 mm minimum clearance to the bricks and extend 50 mm below the top of the veneer.

BRANZ recommends providing ventilation by raking out joints in the second-to-top course, rather than the top course of brickwork (see Figure 1c). This allows moisture to evaporate clear of the cavity above and facilitates installation of the upper course of bricks.

Adapting E2/AS1 details not the answer

The details in E2/AS1 cover a variety of situations but do not provide a solution where there is ➤

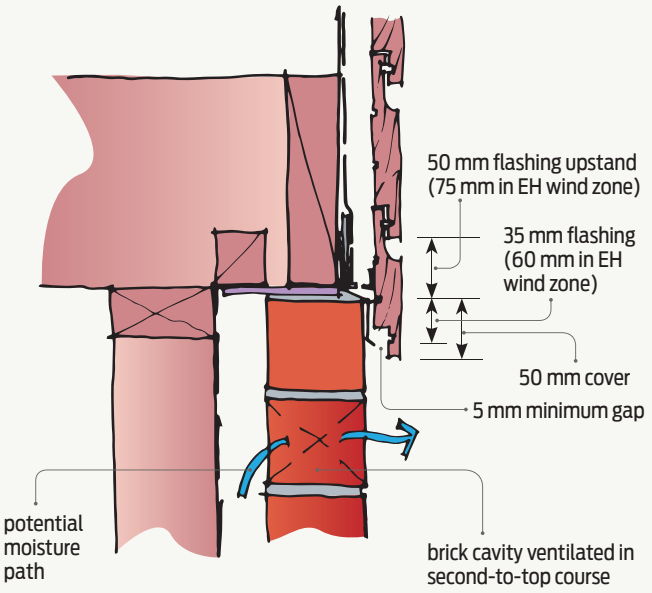

Figure 3 **Rusticated weatherboard, flashed cavity (flat sheet similar).**

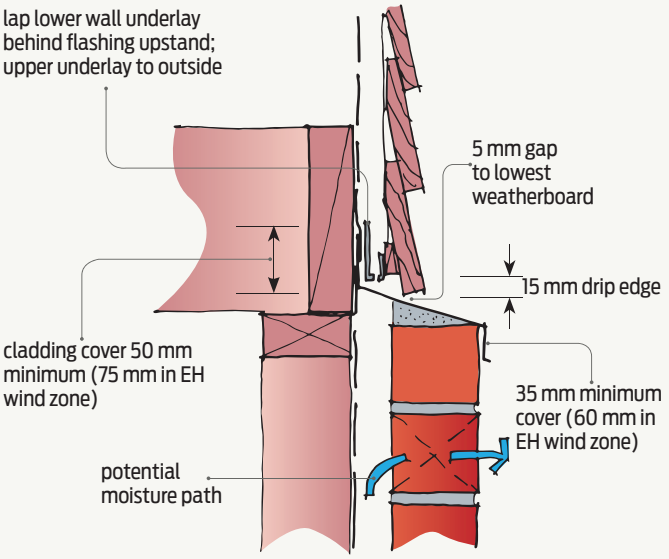

Figure 4 **Upper floor framing in line with lower floor.**

an upper floor with a lightweight cladding fixed over a 20 mm cavity. Simply adapting Figure 73E(m) from ES/A21 by adding a cavity behind the upper cladding may create a path for moisture to migrate into the upper cavity (see Figures 1a and 1b).

Detailing options

There are several detailing options to isolate the two cavities, allowing drainage from the upper cavity without compromising the ventilation of the veneer cavity. To further protect the upper cavity from ingress of moisture, a flashing can be installed at the base of the upper cladding (see Figures 2–4).

The flashing upstand should be 50 mm minimum (75 mm in EH wind zone) and cover the veneer by 35 mm minimum (60 mm in EH wind zone). A 5 mm minimum gap must be maintained between the flashing and the back of the upper cladding to provide ventilation for the upper cavity.

The soffit or closure to the brick cavity shown in these details provides a consistent finish where there may be a porch or other recess in the lower wall.