



# PIPE PENETRATIONS THROUGH CLADDINGS

To correctly form and fit pipe penetrations is time consuming and expensive, but necessary to maintain weathertightness. The best solution is to avoid them but sometimes that isn't possible.

By Tony Conder, Consulting Architect, Upper Hutt

**P**ipe penetrations through claddings should be designed out wherever possible. Where they cannot be avoided they should be planned to occur only in sheltered or protected situations. Also the installation and weatherproofing of the penetration must be integrated with the cladding installation to allow the flashing tape to be fitted.

Designers should be aware that where a pipe penetration is required, it must be prepared using flexible flashing tape. The pipe must also be weatherproofed where it emerges from the cladding.

The New Zealand Building Code Clause E2/AS1 illustrates how the penetration is to be prepared using flashing tape (see Figure 1), but little further information is given. The flange shown in the illustrations may be manufactured on site out of a short length of larger diameter pipe, with a flat sheet cemented together to provide approximately 10 mm gap all round the pipe for the sealant joint. The skirt of the flange will need to be at least 25 mm (see Figure 2). It may need to be larger if the hole in the cladding has not been made accurately.

Each type of cladding creates its own difficulties and requires care if the resultant penetration is to look good and work well. Just attempting to seal around the pipe where it emerges from the cladding is not adequate.

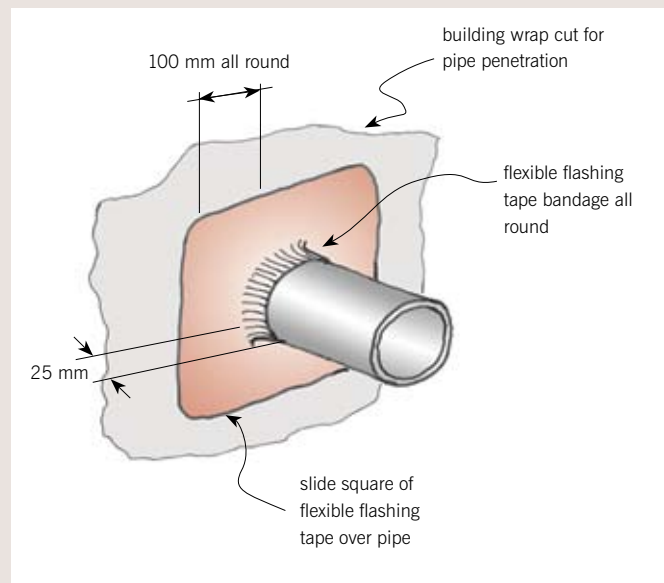


Figure 1: Penetration prepared using flashing tape, as shown in E2/AS1.

## Fibre-cement and EIFS

Penetrations through fibre-cement claddings are particularly difficult unless the cladding is fixed over a cavity. This is because the flashing tape may cause the fibre-cement sheet to bulge or even crack, thus making fitting the flange hard against the cladding impossible. Figure 3 shows a cavity detail.

The fibre-cement should be neatly overcut by approximately 6 mm for the penetration. Then the edges, back and around the hole should be sealed before the sheet is installed. Pipes must not penetrate at a joint in the cladding sheets. The flange should be centred on the pipe and cemented to the sealed fibre-cement. The texture and waterproof coatings should be applied over the fibre-cement and flange. Allow a 10 mm minimum gap between the flange and pipe so that a backing rod can be inserted and sealant applied.

For EIFS the detailing is similar, but instead of cementing the pvc flange to the cladding it is preferable to carry the base coat over the flange to secure it in place. The waterproof coating will then be carried to the full extent of the base coat (see Figure 4).

## Stucco and weatherboards

If making pipe penetrations through stucco it should preferably be one with a rigid backing (see Figure 5). This will allow the plaster to be adequately supported when it is applied. Alternatively, support will be needed where the pipe penetrates the non-rigid backing.

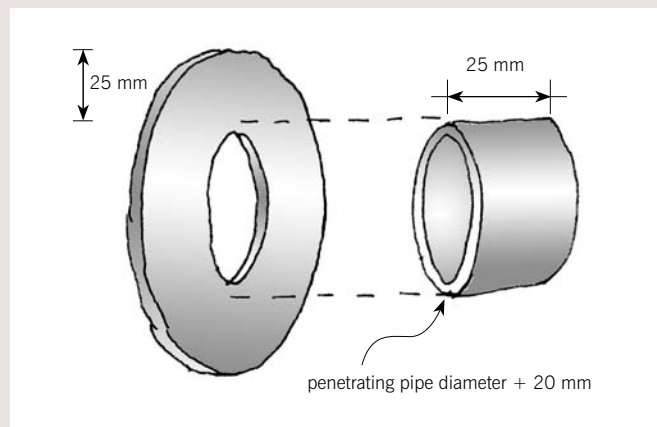


Figure 2: Flange.

The scratch and flanking coats should be applied first, and the flange to the pipe bedded into the flanking coat. The finish or texture coat can then be carried to the flange and the waterproof coating applied over the flange.

When a pipe penetrates weatherboard claddings it must be carefully planned for. The pipe must pass through the centre of the board, not at a joint (see Figure 6).

For rusticated weatherboard the hole for the pipe must be cleanly made, and of the correct size and position for a neat sealant joint. The hole will need to be primed and sealed to allow the sealant to adhere. A flange can then be fixed over the sealant joint. When bevel-back weatherboards are used it will be necessary to fit a shaped fillet to provide a flat surface for this flange. ◀

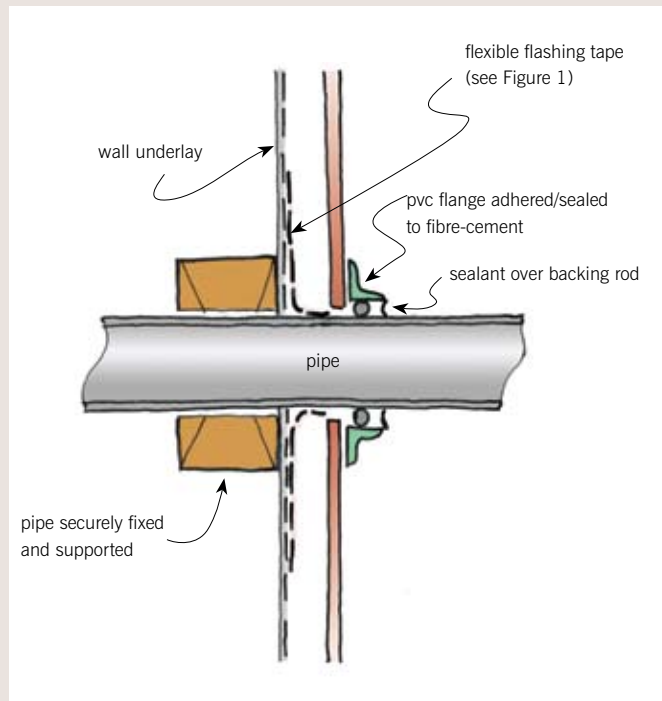


Figure 3: Penetration through fibre-cement claddings.

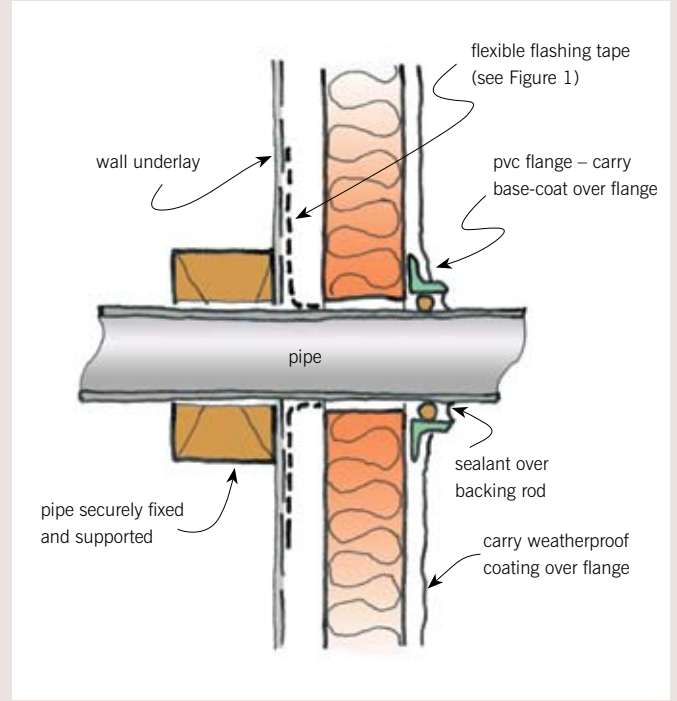


Figure 4: Penetration through EIFS.

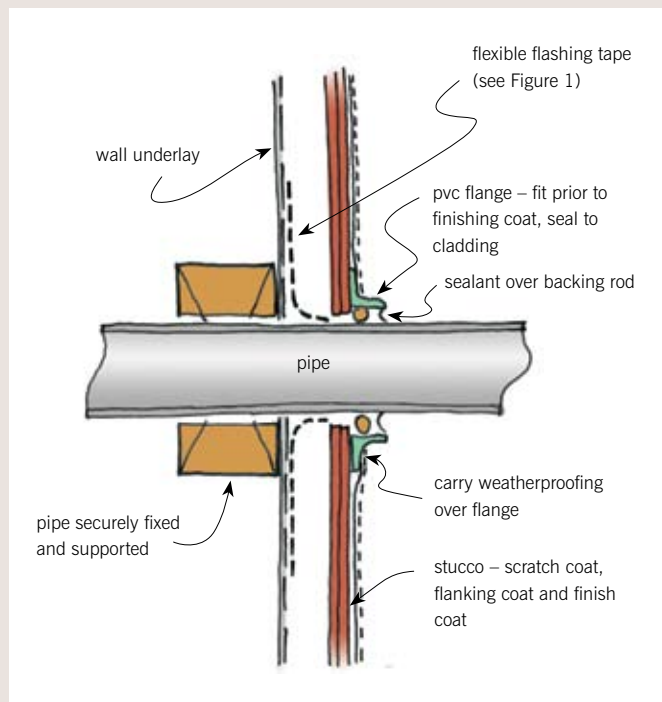


Figure 5: Penetration through stucco.

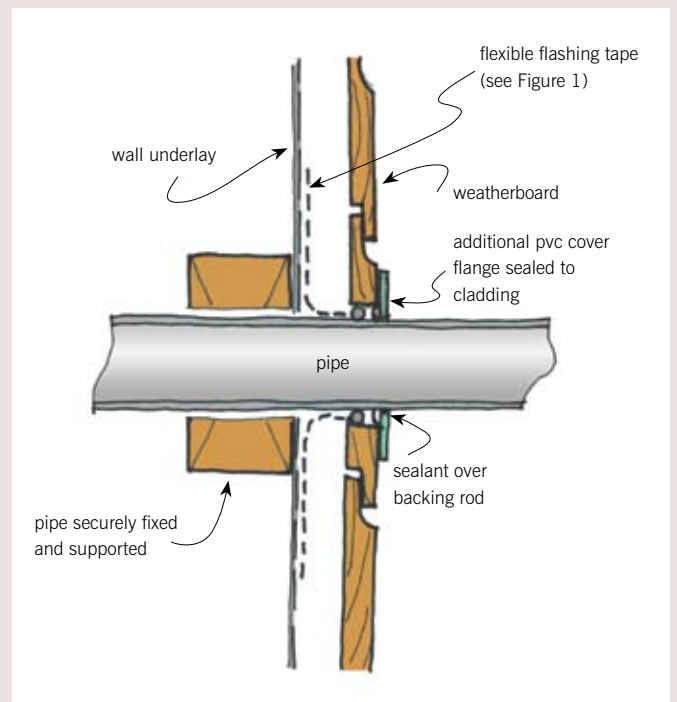


Figure 6: Penetration through weatherboard claddings.