

ATLANTIC FIXING

General principles

Bailey Atlantic is normally supplied and installed as a complete system, including insulation and vapour barrier, to current Building Regulations requirements. Installation is either by mechanical fixing, cold adhesive or ballasted with the laps being sealed by hot air, completely eliminating the fire hazards and burn risks associated with older systems. Bailey Atlantic is very energy efficient to install as heat is only applied as required. Installation is clean and non-hazardous to operators as well as causing less mess, less smell and less inconvenience to building occupants.

The substrates on which Bailey Atlantic is laid should be level, smooth and clean. The substrate should meet the design requirements for compressive strength and be damp and rot proof. Bailey Atlantic can be mechanically fastened to most types of deck especially timber and metal. Barrier and cushion layers are not generally required when laying over insulation boards, other synthetic membranes or bituminous felts.

An advantage of Bailey Atlantic is that the membrane can be mechanically fastened, a quick and clean method of installation. Adhesion is only necessary if the substrate is unsuitable for mechanical fixing. Installation without adhesion can be used where rounded gravel, paving slabs or a roof garden will form the topmost layer.

Atlantic can be applied to a cold roof provided the roof space is ventilated in accordance with the Building Regulations. It can be used with all usual types of roof insulation including cut-to-fall schemes.

Detailing options include pre-formed accessories for kerbs, verges and outlets.

Bailey Atlantic gives architects and designers the confidence to specify

flat roof and tanking membranes that will outperform and outlast membranes made from other materials. However no matter how effective the material and how proficient the specifier, no roof will perform to specification if installation is poor. Installation of Bailey Atlantic should only be carried out by recommended companies whose staff have been trained in the installation of Bailey Atlantic. Additional details, technical advice, on-site guidance and further information on the safe and speedy installation of Bailey Atlantic are available from the Bailey Technical Department.

Installation

Mechanical fixing is the preferred method and can be used with timber, plywood, galvanised steel or profiled aluminium sheet decks. It can also sometimes be used with woodwool slabs and screeded concrete decks provided pull-out tests are carried out first.

The normal method of layout is shown in Figure 1. End and side laps should be 110mm overall with the washers a minimum of 10mm from the edge of the base sheet.

Normally the membrane and insulation can be fixed in one operation. However it may be necessary to use additional fixings to secure the insulation boards adequately. Mechanical fixings should be of a size and type recommended by the manufacturer and be coated for long term corrosion resistance. Fixings must incorporate a feature which will lock the pressure plate to prevent damage to the membrane.

Fixings will normally be installed at a maximum of 300mm centres on side and end laps. There should be a row of fixings around the perimeter and around any protrusions through the roof such as rooflights. Additional fixings should be installed at corners.

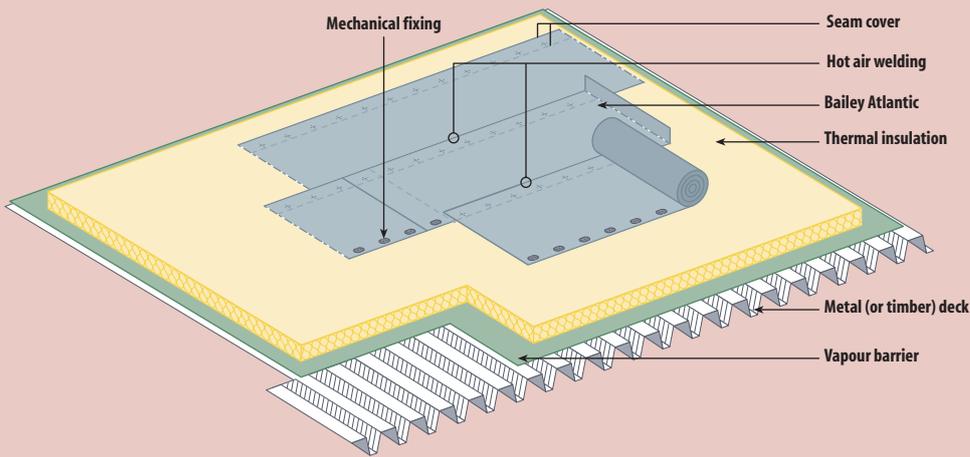
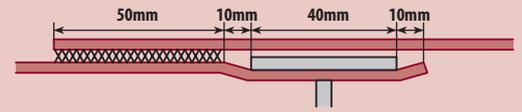


FIGURE1



Metal or timber deck warm roof – mechanical fixing

Bailey Atlantic 301 mechanically fixed at 100mm-300mm centres, depending on roof situation and size, with adjacent sheets overlapped approximately 110mm and hot air seam welded, see Figure 1.

Concrete deck cold roof – adhesive fixing

Bailey Atlantic 401 cold adhesive fixed except for band under laps with adjacent sheets overlapped approximately 60mm and hot air seam welded.

Structural concrete deck with ventilated airspace, insulation and vapour barrier as appropriate, see Figure 2.

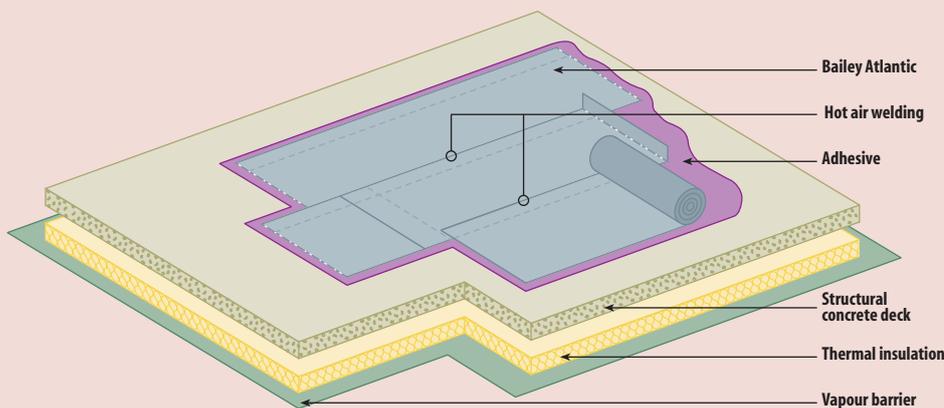


FIGURE2

Overlying (eg over asphalt roofs) – adhesive fixing

Bailey Atlantic 401 cold adhesive fixed (except band under laps) with adjacent sheets overlapped approximately 60mm and hot air seam welded, see Figure 3.

Existing mastic asphalt (pre-treated with Bailey Atlantic 501 primer,) or other existing roof suitably prepared

When applied to a warm roof, a vapour barrier must be installed. This can be heavy duty polythene sealed with double sided tape or a cold applied bituminous membrane incorporating aluminium foil. The Bailey Technical Department will produce a complete specification for any type of roof on request.

Three methods of fixing may be used – mechanical fixing, adhesion, ballasting.

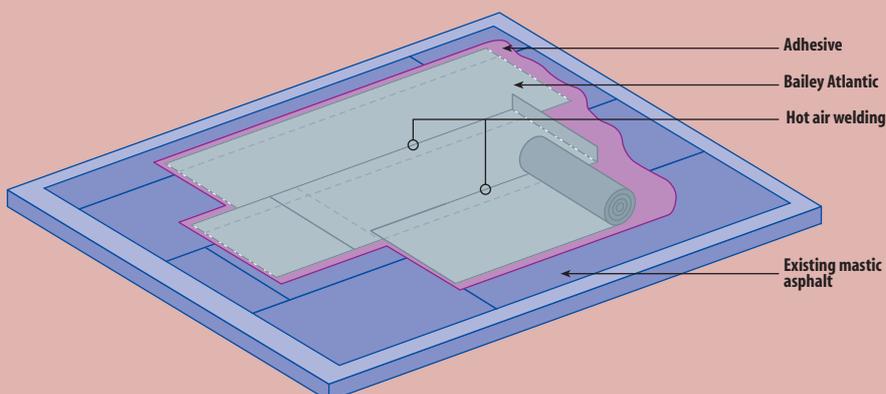


FIGURE3

ATLANTIC FIXING

For high rise buildings and those in exposed situations, a plan of the fixing frequency required must be produced.

Adhesion

Bailey Atlantic 400 fleece backed membrane should be laid using adhesive. The membrane can be bonded to various substrates including solid decks, insulation boards and bituminous surfaces. All layers of the built-up system must be firmly bonded to one another.

Surfaces must be clean and dry before bonding.

The recommended adhesive is Bailey Atlantic Polyurethane Adhesive although other adhesives, including hot bitumen, can be used.

Bailey Atlantic Polyurethane Adhesive (Code 501) is applied in strips to the substrate using four beads per metre width. Alternatively the adhesive can be spread over the entire area to create a full bond. In either case the seldge should be kept free of adhesive. Average coverage is 250g per square metre. This rate is increased on the perimeter and at corners. For high rise buildings and those in exposed situations, a plan of the quantity of adhesive required in each area must be produced. Apply adhesive sufficient for five to ten minutes of laying.

The Atlantic membrane should be rolled out and then lifted to ensure that the adhesive has been pressed flat. Side laps must be a minimum of 50mm. For end laps sheets should be butted and a 200mm wide flashing applied to the joint. The position of the sheets can be adjusted for up to 20 minutes.

Polyurethane adhesives are moisture curing so in dry conditions it is necessary to apply a fine spray of water after the adhesive has been applied to speed curing. Slight foaming of the adhesive is quite normal.

Full cure takes several hours so the membrane should be ballasted for the first night after application.

Ballasting

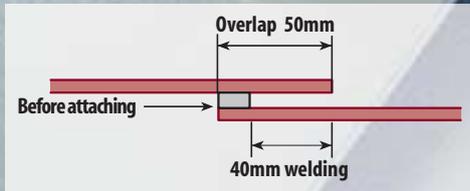
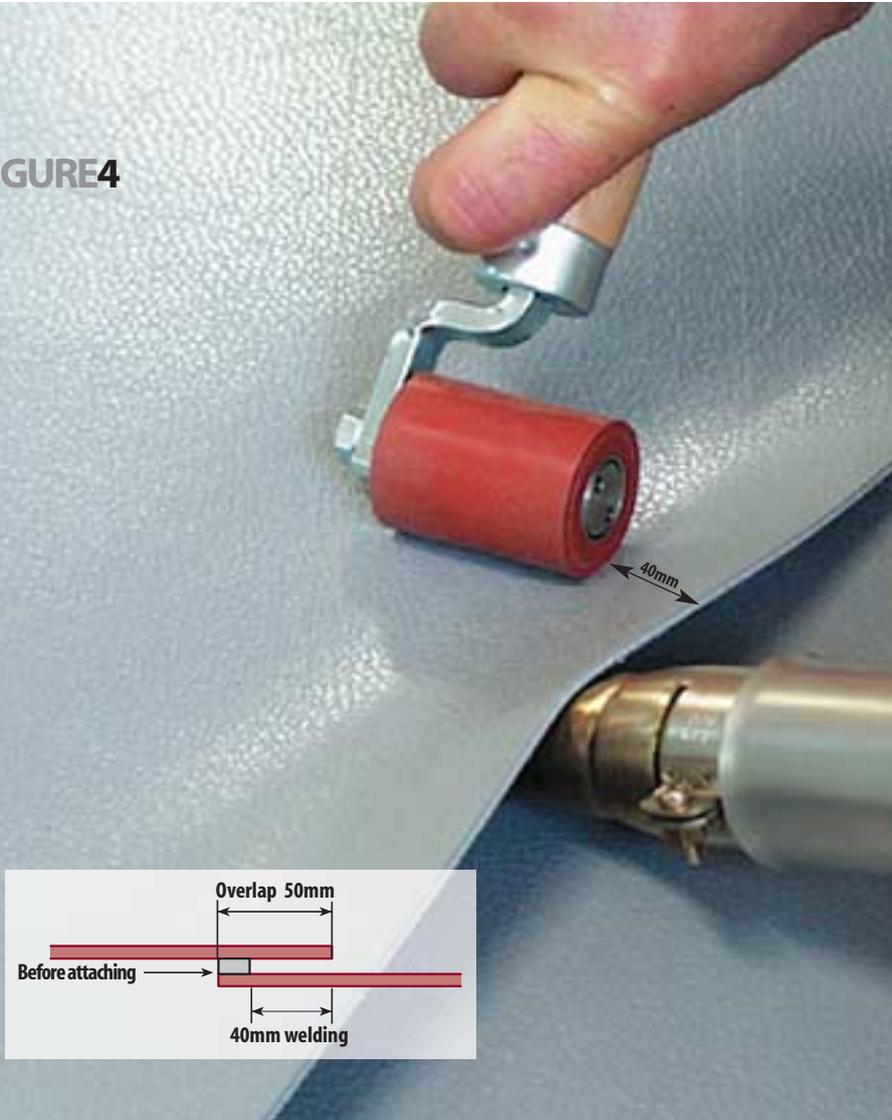
Bailey Atlantic can be laid loose to various types of decking or insulation boards over a vapour barrier. Ballasting must be applied immediately after laying to prevent wind uplift of the membrane.

Gravel used for ballasting must be rounded and between 16mm and 32mm in diameter. The membrane should be covered to a minimum thickness of 50mm, increased to 80mm at corners and perimeters depending on the geometry and location of the building. If possible mechanical fixings should be installed at perimeters and corners, in this case ballast depth can be reduced to 50mm overall.

Bailey Atlantic is root resistant and can be used as a waterproofing layer for roof gardens, however an isolation layer of Bailey polyester fleece (Code 610) should be applied first to prevent mechanical damage. A typical installation is shown in Figure 6.

Roofs can also be ballasted using suitable lightweight concrete slabs or tiles. These should be laid on rubber pads to prevent damage to the membrane and allow free drainage. For terraced areas, timber decking can be applied over a Bailey polyester isolation layer or an additional layer of Atlantic under the timber bearers.

FIGURE 4



Welding of laps

Regardless of the fixing method, all laps are sealed with hot air. Normally no cleaning or use of solvent is required before welding the laps.

Welding can be carried out using a hand held gun and a small seam roller. The temperature should be set at 500C to 600C depending on the ambient temperature.

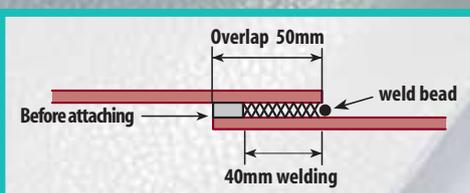
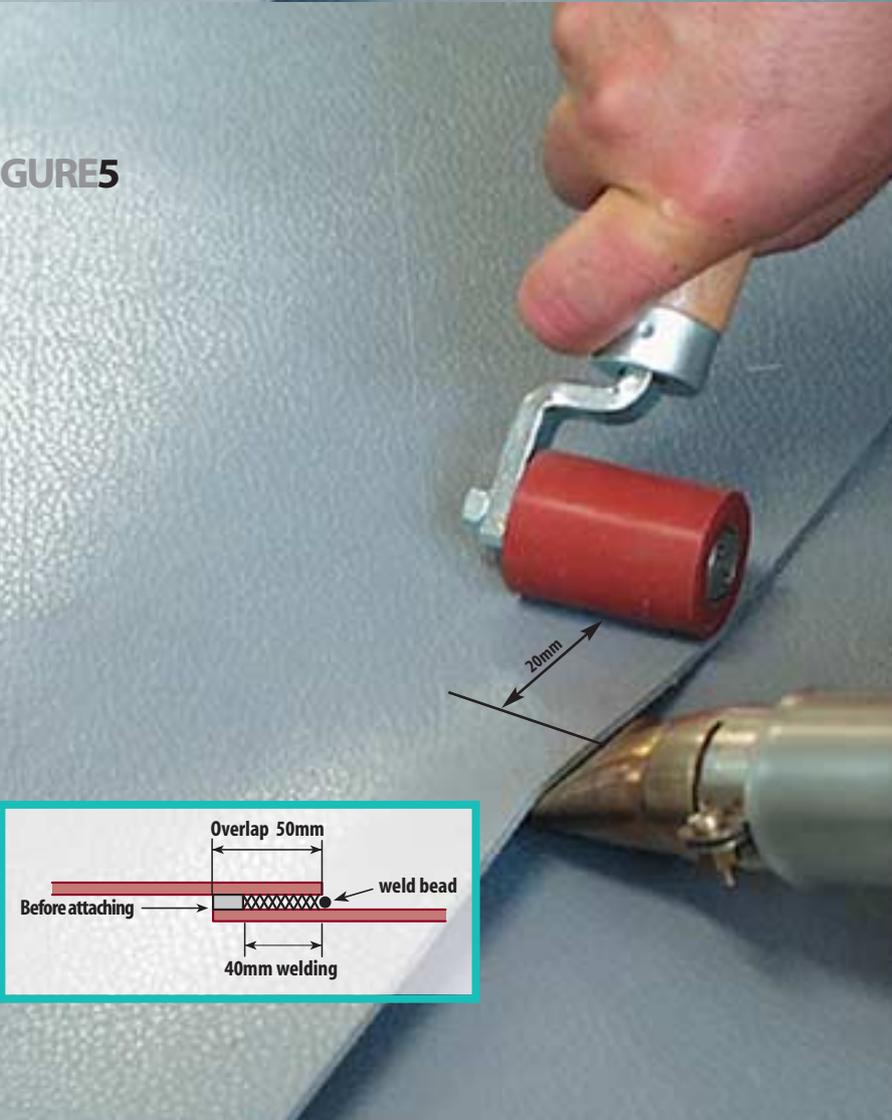
First the upper sheet is tacked to the lower membrane approximately 40mm from the edge, see Figure 4.

Then the final 40mm is welded continuously moving the gun and roller together. A small bead should be obtained indicating that the weld has been properly carried out, see Figure 5.

On large areas it is recommended to use an automatic welding machine. The temperature should be set between 500C and 600C depending on the ambient temperature. Welding takes place in one operation over a width of approximately 50mm. A small bead should be produced indicating the integrity of the weld.

As the material can be re-activated by hot air, even after years on the roof, repairs and alterations can be carried out using the same method.

FIGURE 5



ATLANTIC DETAILING

Detailing

Regardless of the method of attachment, the same principles are followed for roof details. These will normally use Grade 300 Atlantic unbacked, but for some details it is preferable to use Grade 100 non-reinforced available in 520mm rolls.

Upstands

Normally a row of fixings will be applied at the perimeter and around protrusions. An Atlantic flashing is taken a minimum of 150mm up the vertical surface and a maximum of 200mm on to the horizontal surface. The flashings should be hot air welded to the main roof layer. Use of a termination bar is recommended to mechanically fix the top edge of the upstand. Bailey Expanding Tape is used behind the termination bar to ensure a good watertight seal, see Figure 7.

The top edge of the upstand may also be protected by a cover flashing. In this case it may be necessary to adhere the Atlantic flashing to the vertical surface using a good quality contact adhesive.

If the upstand flashing is higher than 350mm, for instance on a parapet, it is necessary to provide an intermediate fixing point as shown in Figure 8.

The method for cutting internal and external corners is shown in Figure 9. Grade 100 should be used for small corner pieces, alternatively factory-cut corner pieces are available.

For internal outlets to external downpipes, one piece moulded outlets are available. These are recessed into the insulation to prevent ridging and a 500mm square flashing is heat welded to the outlet and to the main Atlantic sheeting.

Where downpipes are internal to the building it is recommended that proprietary outlets, which form a seal to the downpipe and where the body

is constructed of polyolefine, should be used. Olympic outlets supplied by Bailey are suitable. Again a cover flashing should be welded to the outlet body and to the main sheeting and a circular clamp fitted afterwards.

When installing rooflights, the same principles should be adopted. If it is not possible to mechanically fix to the kerb then the upstands are applied using contact adhesive.

Draining kerbs

The preferred method for draining edges is to use a Bailey Atlantic metal profile. This should be screwed to the kerb at minimum 300mm centres after the main sheeting has been applied. A cover flashing 200mm wide should then be heat welded to the Bailey Atlantic metal profile and to the main roof sheeting. Small cover pieces are required over the joints normally at 2000mm centres, see Figure 10.

Pitched roofs

When waterproofing a double pitched roof, the membrane is separated at the ridge, mechanical fixings applied to either side and a separate cover flashing, minimum 300mm wide, is heat welded to the main sheeting.

Kerbs and waterchecks

A timber batten should be used and a Bailey Atlantic metal flashing screwed to the kerb, see Figure 11.

Pipe flashings

A flange is cut with rounded corners using non-reinforced Grade 100 Atlantic. A round hole is cut in the centre of the flange 60mm less in diameter than the pipe diameter. The flange is stretched over the pipe to leave a small upstand. A collar is then applied, at least 150mm above the finished roof level and heat welded to the flange. The top edge should be protected with a circular clamp or similar, refer to Figure 12.



FIGURE 6

FIGURE 9

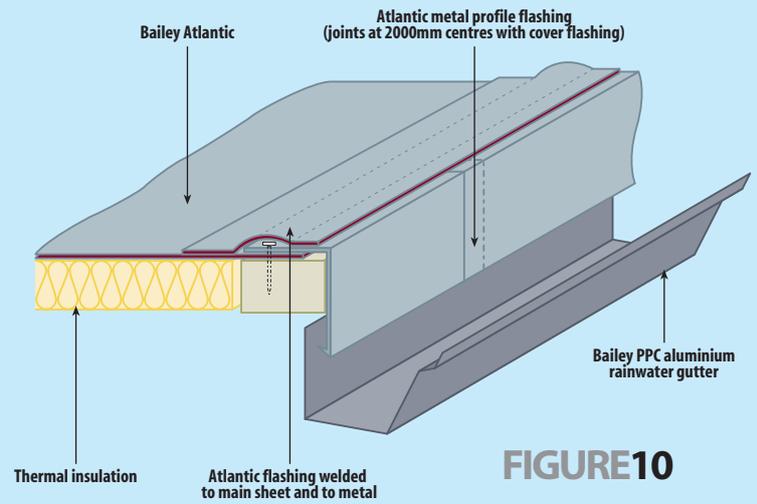
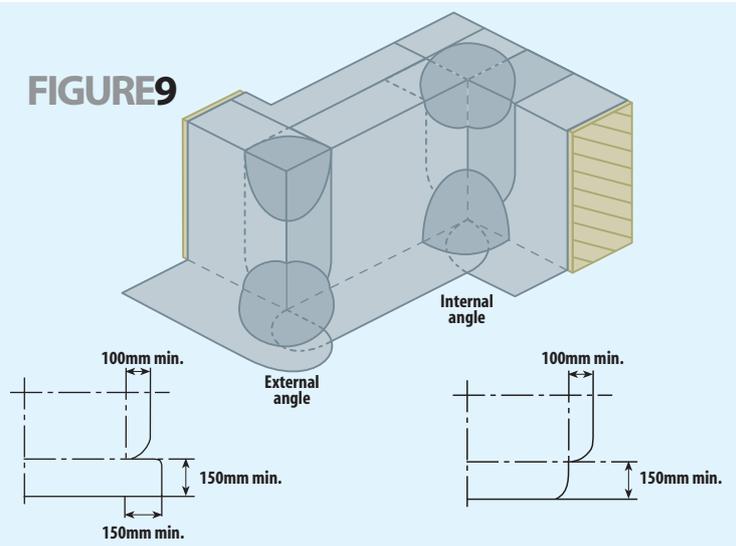


FIGURE 10

FIGURE 7

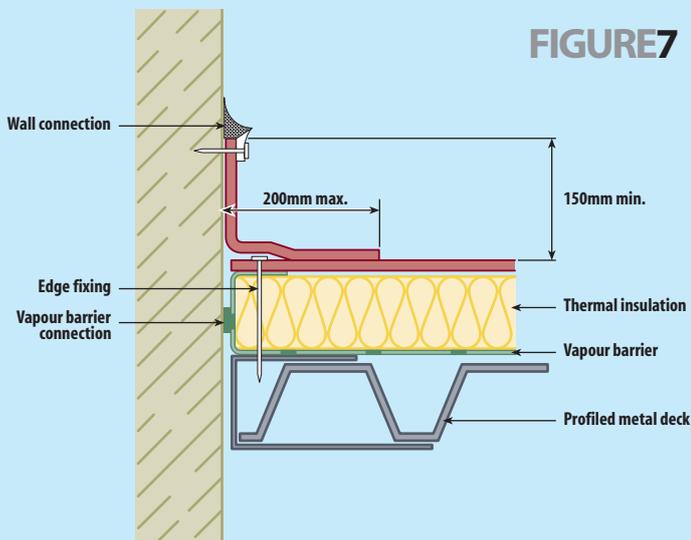


FIGURE 11

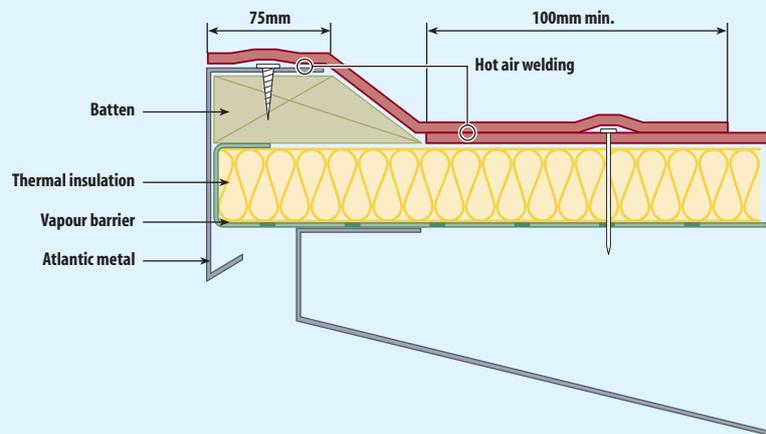


FIGURE 8

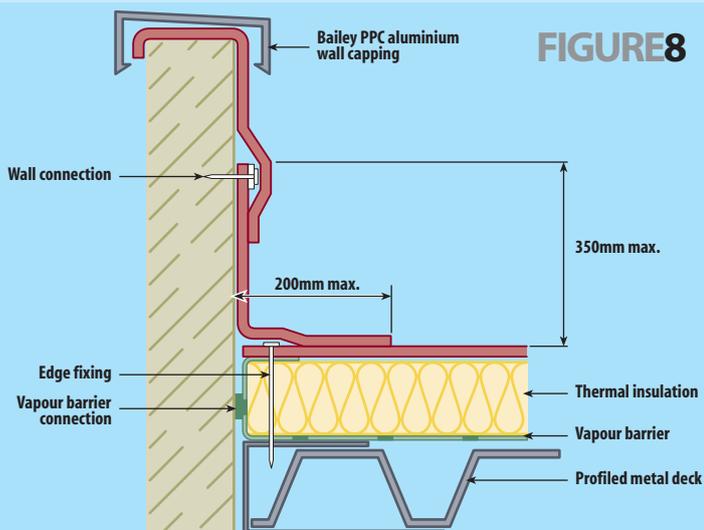


FIGURE 12

