

2.10 Application of panels in cladding, fascias and soffits

2.10.1 Selection of panels for claddings, fascias and soffits

The selection of wood-based panels for claddings, fascias and soffits depends on a number of factors of which the most important are:-

- adequate strength, stiffness and impact resistance
- high durability in external environments
- good dimensional stability in the presence of high humidity or liquid water.

The selection of panels meeting these demanding requirements is presented in Table 2.13 and some applications are illustrated in Figure 2.22.



Figure 2.22 The use of wood-based panels in cladding, fascias and soffits.

2.10.2 Design of cladding

2.10.2.1 Sizes and profiles

Typical board sizes are 2440 x 1220mm, 2400 x 1200mm, 2400 x 600mm and 1200 x 600mm, with other sizes available to order.

Boards may be plain (square) edged, or profiled, usually with matching tongue-and-groove. Proprietary boards are available pre-finished with grooved profiles to simulate timber boarding.

TABLE 2.13 PANEL GRADES* FOR CLADDINGS, FASCIAS AND SOFFITS

	EXPOSURE	PLYWOOD EN 636	PARTICLEBOARD EN 312	OSB EN 300	MDF EN 622-5	FIBREBOARD EN 622-3,4	CBPB EN 634	
Selection	Claddings and Fascias	Full (SC3)	636-3	-	OSB/3	MDF.HLS ⁺	HB.E	CBPB
	Soffits	Protected (SC2)	636-2	-	OSB/3	MDF.HLS ⁺	HB.E ^o MBL.E ^o MBH.E ^o	CBPB

- + Some manufacturers offer 'exterior' boards, the long-term durability of which is dependent on the presence of a durable coating. In the European specification these boards can only be classed as satisfying a service class 2 exposure, which is deemed to be equivalent to protected exterior situation.
- o These boards are NOT load-bearing.
- * The table provides the minimum grade of panel that satisfies the particular set of requirements: panels of higher quality may be substituted, and their selection may result in a reduction in required thickness.

Although all the panels meeting the grade specifications will satisfy a particular set of requirements, the level of performance of different brands of these panels may vary considerably, some may even be endowed with high levels of properties not directly covered by the table.

2.10.2.2 Thickness and support spacings for cladding

Recommended board types, thicknesses and maximum support spacings (mm) are as shown in Table 2.14 below.

Table 2.14 Support spacings

Panel types	Maximum support spacings (mm) for board thickness (mm)				
	6.4	9/10	11.5	18/19	>20
Mediumboard and MDF	406	406	610	610	
Hardboard	610	610			
Cement bonded particleboard			406	406	610
OSB		406	406	610	610
Plywood		406	406	610	610

Thicker boards are more rigid and should be used where increased stiffness and impact resistance are required. They are also generally more dimensionally stable.

2.10.2.3 Framing options

There are two main options – fixed to hidden framing or battens, or fitted into exposed framing. Where possible, a drained vented cavity should be provided behind the cladding; however, where cladding also acts as sheathing this is impracticable and care needs to be taken with precautions to prevent water ingress.

Framing and fixing details should accommodate movement where this can occur in the supporting structure

Hidden framing: The cladding should be fixed to vertical battens or framing at the maximum centres given above, with a minimum bearing on framing of 18mm (Figure 2.23). All board edges should be supported.

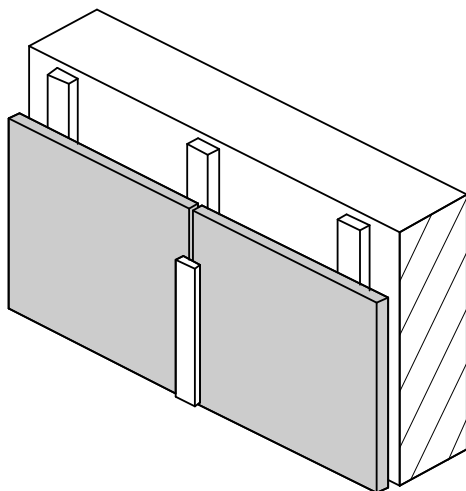


Figure 2.23 Board cladding with vertical battened joints

Boards should be fixed with a 3mm minimum gap between adjacent boards to allow for moisture expansion.

Vertical joints can be left open or covered with weathered cover battens or trim (Figure 2.23). Horizontal joints should be gapped to avoid water retention and have a flashing

dressed over the head of the lower panel; gaps should be wide enough to allow access for application of finishes and re-decoration while the flashing should have a crossfall of about 10° . Joints may also be sealed with an appropriate flexible sealant in accordance with the sealant manufacturer's recommendations. Schematic examples of joint details are shown in Figures 2.24 and 2.25.

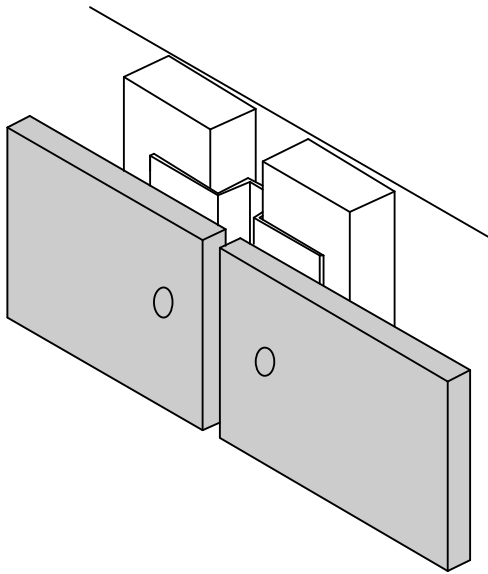


Figure 2.24 Open vertical joint with preformed metal 'top hat' flashing.

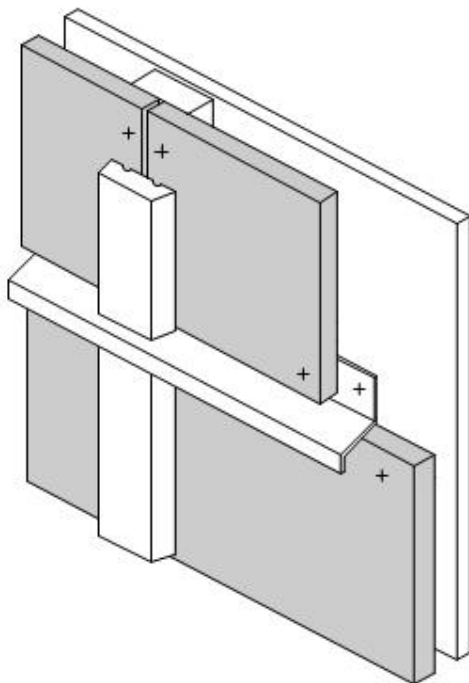


Figure 2.25 Vertical joint with timber cover battens and horizontal joint with preformed metal flashing

Exposed framing with rebates/beads: The cladding should be fixed into framing with supports at the maximum centres given in Table 2.15. The boards should be fixed into rebates with a minimum height of 15mm.

Where boards are inset into framing, a 3mm minimum gap should be left at the board perimeters to allow for moisture expansion.

Boards should be fixed to allow for dimensional change due to change in moisture content and retained with metal or timber beading, adequately fixed. The top and sides should be fixed using conventional beads, bedded in mastic or sealant. The bottom edge bead should be omitted to avoid water retention, and the bottom board edge should be fixed, with a gap to avoid moisture pick-up at the edge. Panel heads should be protected by weathered projecting framing. Figure 2.26 shows a typical fixing arrangement.

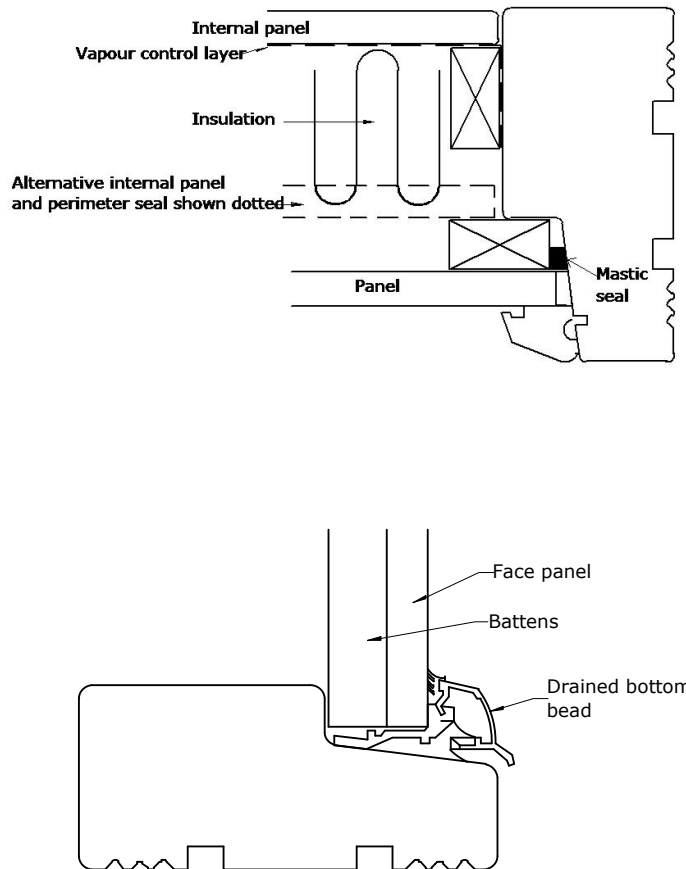


Figure 2.26 Infill panel with exposed framing

Panel should be bedded on mastic strips on all edges and be sealed at jambs with a non-setting mastic. Edges of panels should be sealed before fixing.

2.10.3 Design of fascias and soffits

Nowadays these applications are generally satisfied by the use of prepacked cut to size pieces. In the case of soffits, good practice demands that air flow must take place across the attic by way of slots or holes in the soffit; prepacked soffit boards do carry such slots or holes.

2.10.4 Sitework for cladding, fascias and soffits

2.10.4.1 Conditioning

It is important that boards are installed at a moisture content close to that which they will achieve in service. Advice on the conditioning of boards is to be found in Section 4.2.

2.10.4.2 Fixing

Boards should be conditioned, primed (if they are to be painted) and edge sealed before fixing.

Boards should be fixed using corrosion resistant nails, staples or screws. Corrosion resistant materials include galvanised or sheradised steel, austenitic stainless steel, phosphor bronze and silicon bronze.

Screws and flat headed improved nails (e.g. annular grooved or ringshank) have superior holding power and should be used in preference to plain shank nails.

Minimum nail length should be 50mm or 2.5 times the board thickness, whichever is greater.

Staples should have as wide a crown as possible – 11mm minimum, be not less than 15 gauge and not less than 50mm in length.

Where boards are to be fixed directly to battens or framing, the frequency and pattern of nailing around the periphery and on intermediate framing studs should be as in Table 2.15. Where manufacturer's instructions are supplied with the boards their recommendations should be followed. To avoid tear out at board edges, fixings should not be inserted closer to the edges than the minimum distances given in Table 2.15.

Table 2.15 Spacing of fixings for cladding, fascias and soffits

Board type	Maximum spacings (mm)		
	Perimeter framing	Intermediate framing	Min edge distance (mm)
Mediumboard and MDF	150	300	8
Hardboard	150	300	8
Cement bonded particleboard	see note below	see note below	see note below
OSB	150	300	8
plywood	150	300	8

Note: For cement bonded particleboard recommended nail spacings and edge distances vary with thickness and from manufacturer to manufacturer – examples of nail spacing range from 200 to 400mm on perimeter framing and from 300 to 610mm on intermediate framing; nail edge distance varies from 15mm for boards less than 12mm and 20mm for thicker boards up to 25mm irrespective of thickness. Boards may need to be pre-drilled or fixed with self-drilling screws to avoid splitting. For fixing cement bonded particleboard it is therefore essential to obtain and follow the manufacturer's recommendations.

With the thinner and more flexible boards, to avoid buckling, nailing should commence at the top centre and continue outwards and downwards.

Where boards are retained by beads or cover mouldings, the boards can be located in position by single fixings at mid-point top and bottom and retained by the beads fixed at 150-200mm centres to the framing.

Edge gaps between adjacent boards and to abutting framing should be provided as given above.

2.10.5 Finishes for cladding, fascias and soffits

Boards are available with various factory applied finishes.

Where unfinished boards are used, they can be decorated with conventional paints and stains, taking care that the appropriate primers are used on tempered hardboard and cement bonded particleboard.

Premature failure of paint systems on wood-based panels is often due to high moisture content in the board, impairing adhesion between the paint and the board. Water ingress usually occurs at joints in boards or through surrounding framework and careful detailing is required.

2.10.5.1 Paint systems

Paint technology has changed considerably over the last 20 years and there are a variety of paint systems suitable for use on wood-based panels, including opaque paints, translucent and opaque stains, and textured coatings.

Paints and stains may be solvent or water-based, giving both gloss and low sheen finishes. Most systems suitable for external woodwork will be suitable for use with wood-based boards, subject to the use of an appropriate primer for tempered hardboard and alkali compatible finishes for cement bonded particleboard.