



Daltex[®] VCL Vapour Control Layer

General & Constructional Applications

BS 5250, code of practice for control of condensation in buildings, defines an air and vapour control layer (AVCL) as a 'continuous layer of impermeable material'.



BS5250 recommends that:

- the various vapour control planes of adjoining constructional elements should be joined, i.e. the wall VCL and roof VCL should be continuous to reduce both air and vapour movement and should be positioned on the warm side of the insulation layer;
- in order to form an effective VCL, the number of side and end joints should be kept to a minimum. Where they arise they must be lapped and sealed. Joints in flexible membranes should preferably be formed over a solid backing or a rigid substrate. Any damage which arises during application should be repaired using matching material and effective jointing techniques.

Penetrations through a VCL by pipes and service ducts will compromise the materials performance. Penetrations should preferably be eliminated at the design stage. Where this is impractical penetrations should be effectively sealed using techniques which must be capable of accommodating thermal and other movements.

In some warm pitched roofing applications the VCL may be utilised to support lightweight, e.g. mineral wool, insulation. Particular care will be required on discontinuous substrates, e.g. profiled metal decking or metal/timber framing, where an additional rigid board or liner may be required to provide adequate support to the VCL and its associated lapping and sealing.

The correct design and effective installation of the VCL is critical to the long term thermal, moisture and air leakage performance of the building. It is vitally important that where issues, relating to detailing or positioning of the VCL, arise on site these should be referred to the designer. Once incorporated within the construction, remedial works to resolve VCL issues can be time consuming and costly.



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Installing Air Vapour Control layers

The VCL should be installed on the internal (warm) side of the insulation. It should form a continuous barrier against air leakage and water vapour transfer and be continuous with adjoining air or vapour control layers.

When positioning the VCL particular attention should be given to any design guidance which may be additional to the recommendations given here, e.g. increased lap widths or laying a double layer of the VCL.

The VCL should be laid as it is unrolled, i.e. shiny side up. The VCL may be laid either vertically or horizontally, as required, and should be pulled taut across the surface.

When laying on inclined or vertical substrates, temporary tacking or fixing may be required. The preferred method of temporary fixing is by double sided tape or sealant. Where non corrosive, large headed nails or staples are utilized, these may need to be additionally overlaid by a single sided tape to provide an effective seal.

Where the VCL is required to be continuous with an adjoining VCL, which is not as yet in position, a 'tail', 150 mm long, should be left. Where there is a risk of damage to this material it should be temporarily fixed to an adjoining constructional element with sealant or non-corrosive staples.

Laps should be 150 mm minimum and sealed with appropriate double sided tape. The preferred sealing method includes two runs of double sided tape, approximately 100 mm apart, with an appropriate single sided tape used to seal the free edge, as shown in Figure 1.

Alternatively, where the lap can be formed over a joist, rafter or vertical stud, the lap can be reduced to 100 mm and a single run of double sided tape applied between the layers, see figure 2. This can be additionally secured by a secondary batten, see figure 3.

Where the VCL has full support, e.g. over a rigid deck or insulation board, this 100 mm lap can be sealed by double sided tape applied between the layers, see figure 4.

Where a service void is to be created between the VCL and an internal lining this should be formed by battens fixed such that the integrity of the VCL is maintained.

Figure 1 - preferred method of sealing joints

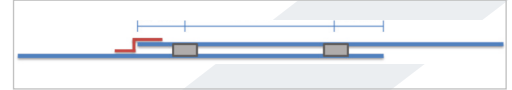


Figure 2 - lapped and sealed over rigid support

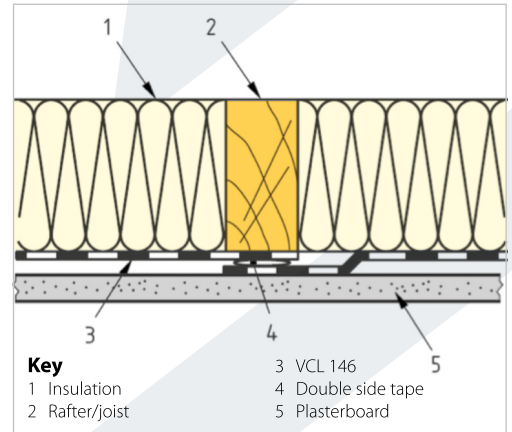


Figure 3 - lapped, sealed and secured with a secondary batten over rigid support

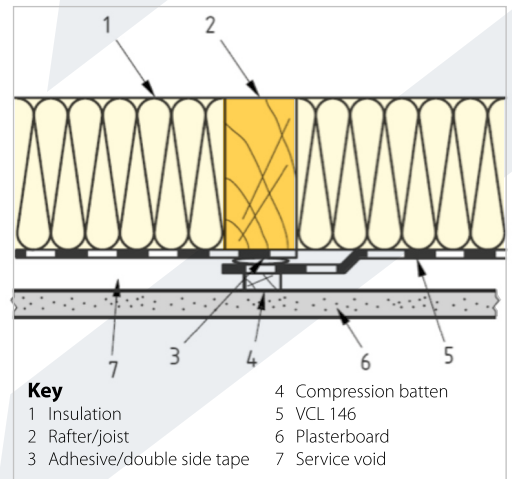
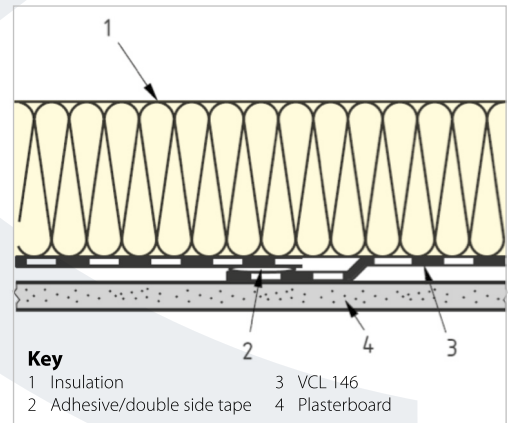


Figure 4 - lapped and sealed over a rigid substrate





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The VCL needs to be continuous across the surface and with adjoining constructional elements where roofs and walls meet. Where unavoidable, penetrations must be effectively sealed with a proprietary seal or sealant or tape. Direct and continuous contact with hot surfaces such as pipes should be avoided

Site Practice

The VCL should be stored upright on a clean, dry level surface and kept under cover. During windy conditions particular care should be taken when handling and laying as when unrestrained, may lift and flap making handling and placement awkward.

Where recently laid VCL is left exposed, until following trades complete the specified build-up, the membrane should be protected. Walking or storing materials on horizontally laid VCL membrane, e.g. on low pitched metal roofing, should be prevented. Primarily as a safety measure; opaque membranes can obscure missing areas of decking, and secondly to protect the integrity of the VCL. Where access over the roof is unavoidable, a dedicated temporary walkway should be provided. On walling and pitched roofing areas, oncoming trades should be prevented from penetrating or ripping the exposed membrane.

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