

Our Guide on Breather Membranes

Introduction

Our Technical Manual provides guidance on our Warranty requirements for breather membranes for framed external wall structures. This article aims to summarise these Warranty Requirements whilst providing additional guidance and context on their use.

Applicable sections of the Technical Manual

- External Walls – Timber Frame
- External Walls – Light Gauge Steel Frame

1. What are breather membranes and why are they required?

Breather membranes are made from a variety of materials and they have two primary functions. Firstly they can provide temporary weather protection to the structure prior to the application of cladding, and secondly they allow water vapour from inside the wall construction to pass outward through the wall.

Both of these functions stop moisture being trapped within the wall construction and thus preventing the framed structure from rotting (timber frame) or corroding (LGSF).

2. What are our Warranty requirements for breather membranes?

Specification

Breather membranes are required for all framed structures (timber frame and LGSF) and they should:

- Have appropriate third party product approval.
- Have a vapour resistant to less than 0.6MNs/g (0.12 Sd) when tested in accordance with BS EN ISO 12572 using the set of conditions C and using five test specimens.
- Be a minimum Class W2 or better in accordance with BS EN 13859-2.
- Be a minimum Class W1 in areas of very severe exposure, where liquid water penetration of the cladding is anticipated or where the membrane is likely to be left exposed during construction.
- Be capable of resisting water penetration.
- Be durable to resist site damage when wet.
- Be self-extinguishing.
- For timber framed structures, breather membranes must be securely fixed to protect the outside face of the timber frame structure with austenitic stainless steel staples.
- Be placed on the external face of the sheathing board to help maintain weather performance during construction. Any penetrations such as bracketry or fixings should be appropriately sealed as per the membrane manufacturer's instructions. A breather membrane may also be required on the external face of the insulation which is in the cavity zone where required by the insulation manufacturer or third party accreditation certificate.
- Be trimmed to leave 25mm lap below the lowest sole plate.
- Be repaired if damaged.
- Have the location of studs clearly marked on the outer face of the breather membrane to ensure that cladding fixings are installed into the studs.
- Meet the requirements of the relevant Building Regulations.

Lapping

Breather membranes should be lapped by a minimum of 100mm at horizontal joints, and a minimum of 150mm at vertical joints.

Vertical joints should be staggered at regular intervals where possible. The breather membrane should be lapped to deflect moisture away from the structure (upper layers over lower layers).

Fixing

Breather membranes should be fixed at the following centres:

- Horizontal
- Panel centres – 600mm max
- Membrane joint - 150mm
- Head and base of panels – 150mm
- Vertical
- 300mm centres vertically (may be increased to a maximum of 500mm when verified with third party certification)
- Membrane joint – 150mm
- Ends of panel – 150mm
- Around openings – 150mm

If breather membranes are trimmed flush with the edges of wall panels, additional strips of breather membrane, at least 300mm wide, should be supplied and site fixed over panel junctions.

3. When can breather membranes be excluded in a wall make up?

For framed structures, we always require a breather membrane to be used.

4. What about where the sheathing board manufacturer claims their product can also act as a breather membrane (often referred to as weatherboards)?

Whilst some weatherboard products have durability and water resistance characteristics that make them capable of resisting water ingress they, unlike breather membranes, are rigid panel elements with a multitude of joints and fixings.

This can make them less able to accommodate building movements and building interfaces / penetrations whilst maintaining a robust and durable degree of water tightness. Unlike breather membranes which can easily be dressed, wrapped and sealed (normally with tapes) around interfaces and penetrations.

Whilst we do not have any concerns with the use of third party approved sheathing boards such as those evidenced within the guidance, they must always have a breather membrane fixed on the outside to satisfy our Warranty requirements.

5. Is a breather membrane required in front of insulation which is in the cavity zone?

Where insulation is placed on the outside of the framed structure, a breather membrane may also be required to protect the insulation (dependent on the insulation manufacturer's recommendations and/or the third party accreditation for the insulation). Where this is the case, the breather membrane should be placed on the cold side of the insulation. This should be in addition to the breather membrane situated in front of the sheathing board to protect the framed structure and sheathing board.

6. What do the Approved Documents say about breather membranes?

Paragraph 5.17 of Approved Document C states:

Any framed external wall will meet the requirements if the cladding is separated from the insulation or sheathing by a vented and drained cavity with a membrane that is vapour open, but resists the passage of liquid water on the inside of the cavity.

7. What is CWCT's stance on the requirement of breather membranes?

The Centre for Window and Cladding Technology (CWCT) is a publisher of industry standards and guidance on building envelopes, providing further guidance which expands upon the guidance of the Approved Document for Built-up Walls.

Their guidance focuses on the capabilities of the insulation to tolerate wetting, illustrating how the breather membrane should be employed where the insulation is considered both tolerant and intolerant of wetting.

For further information, please refer to CWCT Technical Note 33 (often abbreviated as TN33).

Every care was taken to ensure the information in this article was correct at the time of publication. Guidance provided does not replace the reader's professional judgement and any construction project should comply with the relevant Building Regulations or applicable technical standards. For the most up to date technical guidance please refer to your Risk Management Surveyor and the latest version of the Technical Manual.