

VAPOUR BARRIERS

Excerpt from DIPL Major Building Works Insulation, Sarking and Pliable Membranes Specification Work Section

This document must be read in conjunction with the project specification. Any provision in the Project Specification prevails over any conflicting provision in this document.

Definitions

Terminology; To: AS/NZS 4859.1

Fire hazard properties: To: BCA. Vol.1. Section - A2.4.

Breathable membrane (vapour permeable): A flexible membrane material normally used for secondary waterproofing that allows for the transmission of water vapour.

Condensation: The process of moisture formation on a surface as a result of moist air coming into contact with a surface which is at a lower temperature. As cool air is unable to retain the same amount of water vapour as warm air, excess moisture is released as condensation.

Pliable building membrane: Includes damp proof membrane, sarking, insulation, vapour barrier or a combination when installed in a building structure (AS/NZS 4200).

Sarking: A material intended to collect and discharge any water that may penetrate a building envelope. A Reflective Foil Laminate (RFL) is commonly used as sarking. Where sarking also forms a vapour barrier, the vapour barrier properties must conform to this specification and AS/NZS 4200.

Reflective foil laminate (RFL): Bonded layers of aluminium foil which may be used as a flame or water barrier. When used as a vapour barrier the RFL must conform to the vapour barrier properties in this specification.

Vapour barrier: A material specifically intended to restrict the transmission of vapour. Typically used for moisture proofing. Only use materials which are VCM Class 1 to AS/NZS 4200.1 and are classified as Water Barrier to AS/NZS 4200.1. Only use material rated as heavy duty or better (to AS/NZS 4200.1).

STANDARDS

General

AS 1530: Methods for fire tests on building materials, components and structures

AS 1530.2: - Test for flammability of materials

AS/NZS 4200: Pliable building membranes and underlays

AS/NZS 4200.1: - Materials

AS/NZS 4200.2: - Installation Requirements

Comply with Work Health and Safety (N.U.L) Act and Regulations.

MATERIALS AND COMPONENTS

Sarking-type material

To: AS/NZS 4200.1. Standards Mark required.

Proprietary Item: Bradford Thermofoil 753HD or Fletcher Metal Roof HD 453. Where sarking also forms a vapour barrier, the properties must conform to the vapour barrier clause.

Flammability index < 5 when tested in conformance with AS 1530.2.

Thermal performance labelling: To: AS/NZS 4859.1:2002 Section 9.

Vapour barriers must be classified VCM Class 1 to AS/NZS 4200.1 and classified as Water Barrier to AS/NZS 4200.1

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Fasteners

Use galvanized steel fasteners and supports.

VAPOUR BARRIER INSTALLATION

General

To: AS/NZS 4200.2 - Pliable building membranes and underlays, part 2: Installation.

Proprietary item: Bradford Thermofoil 753HD or Fletcher Metal Roof HD 453

Provisions in this specification take precedence over any conflicting provisions in AS/NZS 4200.2

Requirement

Achieve air tight separation between air conditioned and non-air conditioned spaces to prevent moisture transmission, this includes internal non air conditioned spaces.

Infill of insulation and vapour barrier are required to be installed above the ceiling from top of block wall to underside of roof to ensure continuity of separating air conditioned spaces from non-air conditioned spaces. For example a toilet or store room placed centrally within the typically air conditioned building will require a stud wall extending from the top of the block wall to the underside of the roof complete with insulation and a vapour barrier on the "hot" side to prevent moisture being transferred to the cold side ceiling space.

Vapour barriers system

The vapour barrier must be VCM Class 1 to AS/NZS 4200.1 and be classified as Water Barrier to AS/NZS 4200.1 and provide moisture proofing, including at laps, at edges and at penetrations through the vapour barrier membrane.

For Metal sheeted roof areas – Use a vapour barrier membrane which can also act as sarking. Single layer of heavy duty reflective foil laminate over a layer of insulation bonded to a heavy duty perforated reflective foil laminate. Bonded heavy duty perforated reflective foil laminate to the underside.

For framed wall construction – Ensure the roof vapour barrier is lapped and sealed over the wall vapour barrier. The vapour barrier must be installed on the high vapour pressure side (hot side) of the wall.

For masonry construction – The vapour barrier is provided by an external painted membrane finish or sealant coating to prevent vapour transmission through the blockwork. This must be, as a minimum, on the high vapour pressure side (hot side) of the wall. Both sides of wall maybe sealed.

Seal reveals at openings in external walls, and in walls which are between conditioned and non-conditioned spaces, with material which is impervious to water before installing windows, doors or other items in those openings.

Where the air conditioning systems are to be run continuously, additional design features need to be incorporated to ensure long term effectiveness of the vapour barrier.

Installation

To AS/NZS 4200.2. Provisions in this specification take precedence over any conflicting provisions in AS/NZS 4200.2.

Vapour barriers in the roof must be laid on the high vapour pressure side (hot side) of the whole of the roof area, running parallel to the purlins and lapped 150 mm over the purlins. Limit the tension and contact with roof metal sheet to reduce thermal transmission; this applies to Climate Zone 1 (BCA). For Climate Zone 3 (BCA) design and specify for the specific requirements for the Region.

Seal the laps and smaller penetrations with approved heat resistant pressure sensitive tape 75 mm wide and elastomeric sealant to form a continuous air tight seal. The elastomeric sealant used must be compatible with the membrane material.

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Masonry walls – Seal vapour barrier membrane to walls with elastomeric sealant and mechanically clamp with metal angle brackets to the wall. If vapour barrier extends from the underside of the roof to the top of the wall, fix metal angles between roof beams to support vapour barrier at roof level. The elastomeric sealant used must be compatible with the materials with which it is in contact.

Frame construction – Ensure the roof vapour barrier is lapped and sealed over the wall vapour barrier. The vapour barrier must be installed on the high vapour pressure side (hot side) of the wall.

Where roof beams pass through the vapour barrier – Weld or mechanically fix metal flanges to the beam, seal with elastomeric sealant and mechanically clamp to the vapour barrier to all surfaces of the beam and to the faces of the flanges. Ensure there are no gaps between beams and flange which could allow air to pass from one side of the vapour barrier to the other. Refer to drawings if available.

Large penetrations such as ducts or flues – Fix angle flanges or purpose made straps to the duct or flue and mechanically clamp and seal the vapour barrier to all sides with elastomeric sealant. Ensure the vapour barrier material is supported to prevent stressing the seal. No fixings are to penetrate the duct. Refer to Drawings if available.

Where box gutters are incorporated into the roof design – Ensure the continuity of the vapour barrier under and around the gutters. Support the vapour barrier at the sides of gutters with plywood or sheet metal infills from the underside of the roof down to the gutter board. Ensure vapour barrier is not damaged during installation.

Any penetrations including service penetrations to the vapour barrier must be fully sealed with approved pressure sensitive tape and elastomeric sealant compatible with materials with which it will be in contact.

Extent of Vapour Barrier - Over and around all air-conditioned spaces where adjacent spaces are not air-conditioned, including within ceiling space.

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