

Membrane in external walls

20th May 2019

Working in partnership with customers to achieve NCC 2019 Compliance Condensation and Non-combustibility Considerations in sarking Volume 1 & 2

As Australian pioneers of sarking for over 75 years, innovation and compliance is at the core of what we do. That's why you can trust working with Fletcher Insulation as a reliable partner to provide quality, compliant products for your insulation needs.



Pliable building membranes (also known as 'sarking' or 'underlay') are primarily used as one or more control functions as a water, thermal, vapour or air control.

The new code has two new key amendments for sarking; firstly the NCC 2019 allows the use of sarking (provided it meets the applicable criteria) to be used in non-combustible external wall applications.

Secondly, where sarking is used for external wall application in building types 1, 2, 4 without a drained cavity (such as cladded type walls), it must be vapour permeable where the membrane is installed in an external wall that forms the external envelope for climate zones 6, 7 and 8 and act as water barrier.

The new code allows for a vapour permeable sarking without acting as a water barrier in walls with a drained cavity such as brick veneer type construction. Although the new code permits this, from a practical point where internal linings are to be installed prior to brick veneer a vapour permeable sarking that acts as a water barrier should be used. Care should be taken in selection to ensure that internal linings are not damaged if installed prior to completion of external wall.

Development Applications and Building Permits approved using NCC 2016 should not be affected by this change, and may use the wall wrap included in the original specification. From the 1st of May 2019, the change will become applicable for Development Applications and Building Permits approved after this date; however this may vary by state and local governing body.

Key changes in the 2019 NCC: Pliable Building Membranes

Non combustible building elements

NCC 2019 Extract:



Volume 1: C1.9 Non-combustible building elements

- (e) The following materials may be used wherever a non-combustible material is required:
- (vi) Sarking-type materials that do not exceed 1mm in thickness and have a Flammability Index not greater than 5.

Volume 2: 3.7.1.1 General concession–non-combustible materials

The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required in the Housing Provisions:

- (f) Sarking-type materials that do not exceed 1mm in thickness and have a flammability index not greater than 5.

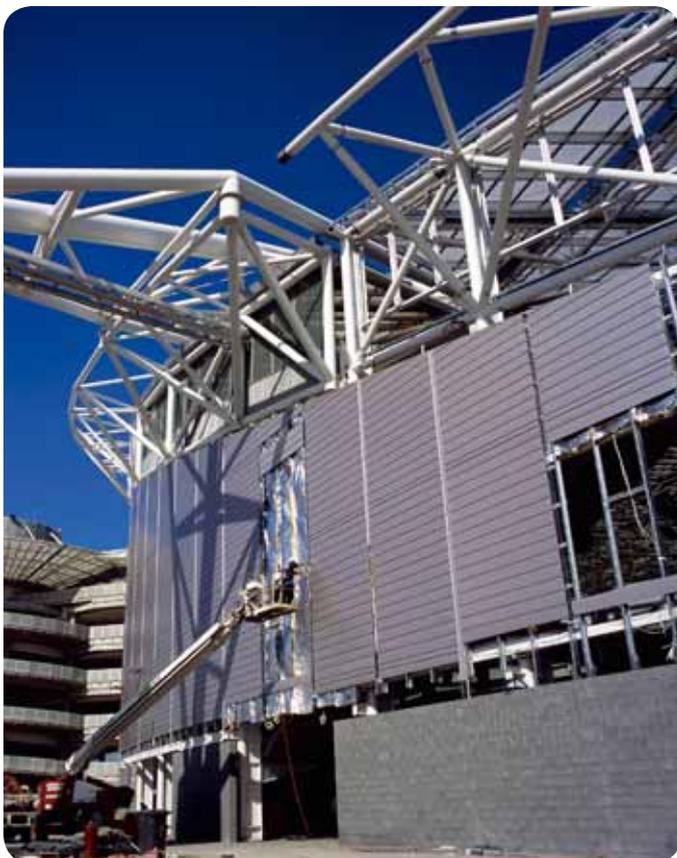
What is new for pliable building membranes?

Sarking may be used wherever a non-combustible material is required in external walls.

What is the criteria?

Must not exceed 1mm in thickness and must achieve a flammability index not greater than 5 (AS 1530.2).

What product can I use to achieve this in external walls?



Zones 1–5:

- Sisalation® Tuff Wrap™
- Sisalation® Multipurpose
- Sisalation® Vapawrap™ Wall*

Zones 6,7,8:

- Sisalation® Vapawrap™ Vapour Permeable Wall Wrap

Brick veneer type construction

- Sisalation® Tuff Wrap™ Breather
- Sisalation® Vapawrap™ Vapour Permeable Wall Wrap

Key takeaway:

The NCC 2019 notes that sarking that does not exceed 1mm in thickness and has a flammability index of 5 or under is acceptable where non-combustible materials are required.

Fletcher Insulation's Sisalation® water vapour barrier wall sarking range and Sisalation® Vapawrap™ Vapour Permeable Wall Wrap sarking range fit the criteria of acceptable materials for non-combustible sarking allowances in accordance with the NCC 2019.

*Sisalation® Vapawrap™ Vapour Permeable Wall Wrap is a vapour permeable sarking and is best suited for cold climates including climate zones 6,7 and 8. Sisalation® Vapawrap™ Vapour Permeable Wall Wrap can be used in all climate zones, however, it is recommended a vapour barrier is best suited for hot and tropical climate zones.

Key changes in the 2019 NCC: Pliable Building Membranes Condensation Management

NCC 2019 Extract: Class 1, 2 and 4 Buildings*



Volume 1: F6.2 Pliable building membrane and Volume 2: 3.8.7.2 Pliable building membrane

- (a) Where a pliable building membrane is installed in an external wall, it must:
- (i) comply with AS/NZS 4200.1; and
 - (ii) be installed in accordance with AS 4200.2; and
 - (iii) be a vapour permeable membrane for climate zones 6, 7 and 8; and
 - (iv) be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building.
- (b) Except for single skin masonry and single skin concrete, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from water sensitive materials by a drained cavity.

What is new for pliable building membranes?

Condensation Management has a new requirement in 2019 NCC

What is the criteria?

Must be vapour permeable for climate zones 6, 7, 8. Vapour Barrier can be used for climate zones 1-5. Must comply with AS/NZS 4200.1:2017

What product can I use to achieve this in external walls?

Zones 1-5:

- Sisalation® Tuff Wrap™
- Sisalation® Multipurpose
- Sisalation® Vapawrap™ Wall*

Zones 6,7,8:

- Sisalation® Vapawrap™ Vapour Permeable Wall Wrap

Brick veneer type construction

- Sisalation® Tuff Wrap™ Breather
- Sisalation® Vapawrap™ Vapour Permeable Wall Wrap



Key takeaway:

The major change for the NCC2019 for condensation means that where sarking is installed for climate zones 6,7 and 8 it must be vapour permeable. Fletcher Insulation's Vapawrap™ Wall is a vapour permeable membrane that meets the requirements for Permeable Membranes for climate zones 6, 7 and 8.

Fletcher Insulation's Sisalation® Tuff Wrap™ and Sisalation® Multipurpose and Sisalation® Vapawrap™ Wall are suitable for climate zones 1-5.

*Sisalation® Vapawrap™ Wall is a vapour permeable sarking and is best suited for cold climates including climate zones 6,7 and 8. Sisalation® Vapawrap™ can be used in all climate zones, however, it is recommended a vapour barrier is best suited for hot and tropical climate zones.

*Volume 1: The Deemed-to-Satisfy Provisions of this Part only apply to a sole-occupancy unit of a Class 2 building and a Class 4 part of a building.

Pliable building membranes – Wall Vapour Barrier Sarking Solutions for External Walls Including Non-Combustible External Walls (Climate zones 1,2,3,4 and 5)

In warmer climate regions such as as Climate Zones 1, 2, 3, 4 and 5, the Sisalation® foil range of sarking achieves a vapour barrier preventing the moisture as well as water and air transfer into the building. The same products comply with the non-combustible requirements for sarking in accordance with the 2019 NCC.

The below products have a flammability index of ≤ 5 and do not exceed 1 mm in thickness which meets the 'Deemed-To-Satisfy' compliance requirements in accordance with the 2019 NCC Volume 1, C1.9 (e) and Volume 2, 3.1.7.1.1 is suitable for use in non-combustible external walls.



Sisalation® Tuff Wrap™ MD 497

Recommended for use in the wall cavity where vapour and water barrier properties are required

Thickness	Flammability Index	Water Classification	Vapour Classification	Width mm	Length m	Product code
≤1mm	≤5	Water Barrier	Vapour Barrier Class 2	1350	30	255088
					60	255092
				1500	30	255385

Sisalation® Multipurpose EHD 456

Recommended for use in in the wall cavity where vapour and water barrier properties are required

Thickness	Flammability Index	Water Classification	Vapour Classification	Width mm	Length m	Product code
≤1mm	≤5	Water Barrier	Vapour Barrier Class 2	1350	30	952330
					60	952360
				1500	30	952331

Vapour Permeable Sarking Solutions for External Walls Including Non-Combustible External Walls (Required for Climate zones 6, 7 and 8, can be used in climate zones 1–5)

In cold climates namely climate zones 6, 7 and 8, the 2019 NCC identifies the requirement for vapour permeable products.

Vapour Permeable

Fletcher Insulation's Sisalation® Vapawrap™ & Tyvek® Homewrap range of Permeable membranes are tested in accordance with 4200.1, act as a water and air barrier whilst allowing the water vapour that has formed inside the building to transfer out.



Suitable for use in non-combustible external walls

The below products have a flammability index of ≤ 5 and do not exceed 1mm in thickness which meets the 'Deemed-To-Satisfy' compliance requirements in accordance with the 2019 NCC Volume 1, C1.9 (e) and Volume 2, 3.7.1.1 is suitable for use in non-combustible external walls.

Vapawrap™ Permeable Membrane Wall Wrap (LD)

Recommended for use in the wall cavity where vapour and water barrier properties are required

Thickness	Flammability Index	Water Classification	Vapour Classification	Width mm	Length m	Product code
$\leq 1\text{mm}$	≤ 5	Water Barrier	Vapour Permeable Class 4	1350	30	256103

Tyvek® HomeWrap (LD)

Recommended for use in in the wall cavity where vapour and water barrier properties are required

Thickness	Flammability Index	Water Classification	Vapour Classification	Width mm	Length m	Product code
$\leq 1\text{mm}$	≤ 5	Water Barrier	Vapour Permeable Class 4	2742	30	395121
				3048	30	395994

In cold climates namely climate zones 6, 7 and 8, the 2019 NCC identifies the requirement for vapour permeable products to allow water vapour that forms inside the building to transfer out. The NCC requires a water barrier where there is no drained cavity between external face and framing like cladded type construction. The NCC allows for vapour permeable sarking that does not act as a water barrier where a drained cavity exists such as in brick veneer type construction. It is important to confirm if the internal lining is installed before the external wall is completed else water permeable sarking that do not act as a water barrier will not prevent ingress of water during construction that can damage internal linings.

Sisalation® Tuff Wrap™ Breather Membrane Wall Wrap

Suitable in brick veneer type construction where external wall completed before internal linings are installed

Thickness	Flammability Index	Water Classification	Vapour Classification	Width mm	Length m	Product code
≤1mm	≤5	Non-water Barrier	Vapour Permeable Class 3	1350	30	255089
					60	255087
				1500	60	255393

For the full Sisalation range including roofing products contact your representative or visit www.insulation.com.au

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