Pliable building membranes in external walls (Building Classes 1, 2 & 4)

Condensation management considerations for sarking-type materials in external walls (NCC 2025 Volume 1 & 2)

Condensation has become a more significant risk in modern Australian construction. As homes become more air tight and energy efficient, the risk of trapping moisture in the building envelope has also increased. Originally introduced in 2019 and only applying to climate zones 6 to 8 the external wall clause now applies to all climate zones. The main change under 2025 is the definition of a drained and ventilated cavity along with varying vapour class requirements depending not just on climate zone, but also application.

This Technical Bulletin has been developed to explain the expanded requirements of the National Construction Code 2025 Volume 1 & 2 Condensation Management – External Wall Construction. The requirements of external wall construction applies to building class 1, 2 (SOU only) and class 4; with the requirements for the cavity and the vapour class of the control layer outlined in Table F8D3 (Volume 1)/10.8.1 (Volume 2 Housing Provisions).

Table 10.8.1 (explanatory): Vapour permeance classes

Climate Zone	Wall construction	Vapour permeance class as defined in AS 4200.1
1	No cavity	2 or 3
	Drained and ventilated cavity	1, 2 or 3
3	No cavity	3 or 4
	Drained and ventilated cavity	2, 3 or 4
4, 5	No cavity	4
	Drained and ventilated cavity	3 or 4
6, 7, 8	No cavity	X
	Drained and ventilated cavity	4

Table notes: X=Not permitted.

If the control layer selected is a pliable building membrane or sarking-type material it must comply with AS 4200.1 and installed as per AS 4200.2.

1. *Where a pliable building membrane or a sarking-type material is installed as a control layer in an external wall, it must–*
   - **(a)** *comply with AS 4200.1; and*
   - **(b)** *be installed in accordance with AS 4200.2.*

Any control layer (including pliable building membranes & sarking type material) must meet the permeance requirements listed in Table F8D3/10.8.1

2. *Subject to (5), any control layer incorporated between the cladding and the exterior side of the primary insulation layer in an external wall must achieve the vapour permeance specified in Table F8D3/10.8.1.*

If the wall is not proposed to have a pliable building membrane or water barrier between the cladding and primary insulation layer these walls must have a drained and ventilated cavity.

3. *Subject to (4) and (5), an external wall without a pliable building membrane or a water barrier between the cladding and the exterior side of the primary insulation layer, must incorporate a drained and ventilated cavity.*

F8D3/10.8.1(4) defines the characteristics required for a cavity to be considered drained and ventilated, as follows:

4. *Subject to (4) and (5), an external wall without a pliable building membrane or a water barrier between the cladding and the exterior side of the primary insulation layer, must incorporate a drained and ventilated cavity.*
   - **(a)** *be located between the cladding and the external side of the primary insulation layer, or the outermost control layer; and*
   - **(b)** *constructed from cavity battens, spacers or the like where applicable with a depth of at least 12 mm; and*
   - **(c)** *be unobstructed by any control layer; and*
   - **(d)** *be drained to the exterior, including where cavities are vertically compartmentalised in a multi-storey building; and*

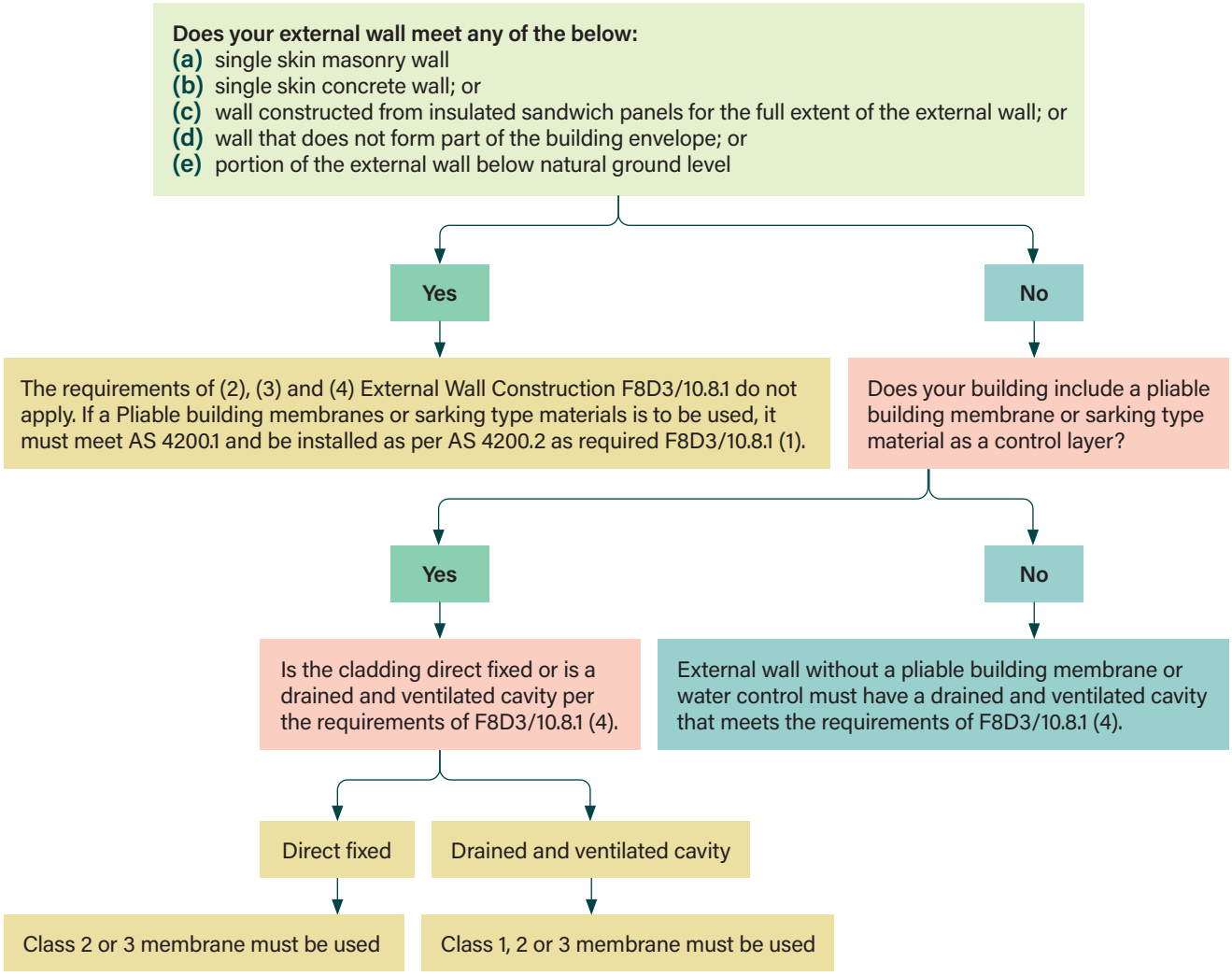
(e) *have openings with a free area of no less than 1,000 mm2/m of wall provided at–*
  i. *the base and top of the cavity; or*
  ii. *each storey or level to where the cavity is closed.*

It is to be noted that these requirements do not apply to the below external wall types:

5. *The requirements of (2), (3) and (4) do not apply to a–*
  (a) *single skin masonry wall; or*
  (b) *single skin concrete wall; or*
  (c) *wall constructed from insulated sandwich panels for the full extent of the external wall; or*
  (d) *wall that does not form part of the building envelope; or*
  (e) *portion of the external wall below natural ground level.*

Please note: if a pliable building membrane or sarking type materials is installed behind these wall types it must meet the requirements of F8D3/10.8.1 (1).

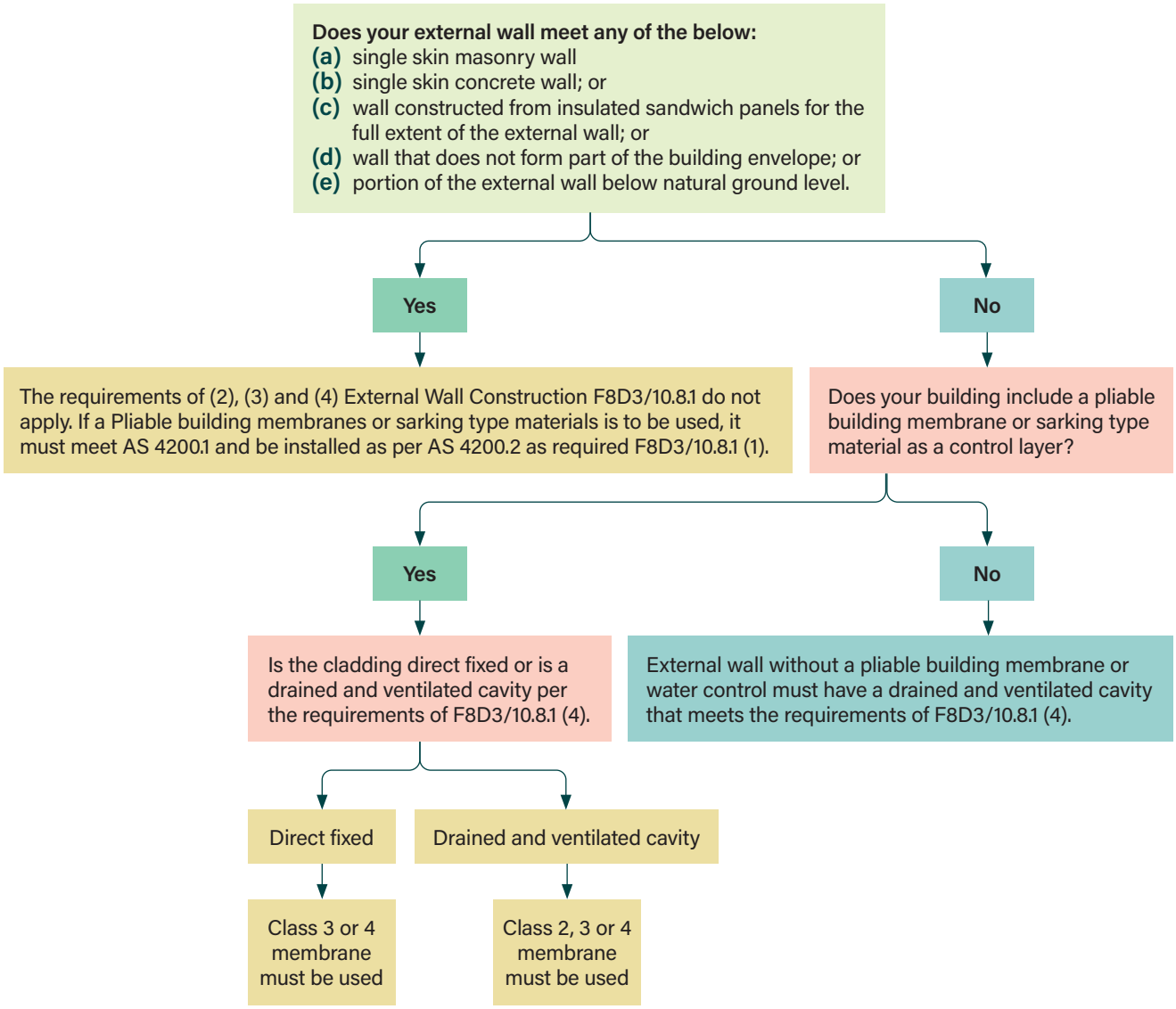
Climate zone 1 condensation management flow chart



Fletcher Insulation product recommendation

Cavity type	Recommendation
Direct fixed	Sisalation® Tuff Wrap™ Wall Wrap Standard (497)
Drained and vented cavity	Sisalation® Tuff Wrap™ Wall Wrap Standard (497) or Sisalation® Multipurpose EHD (456)

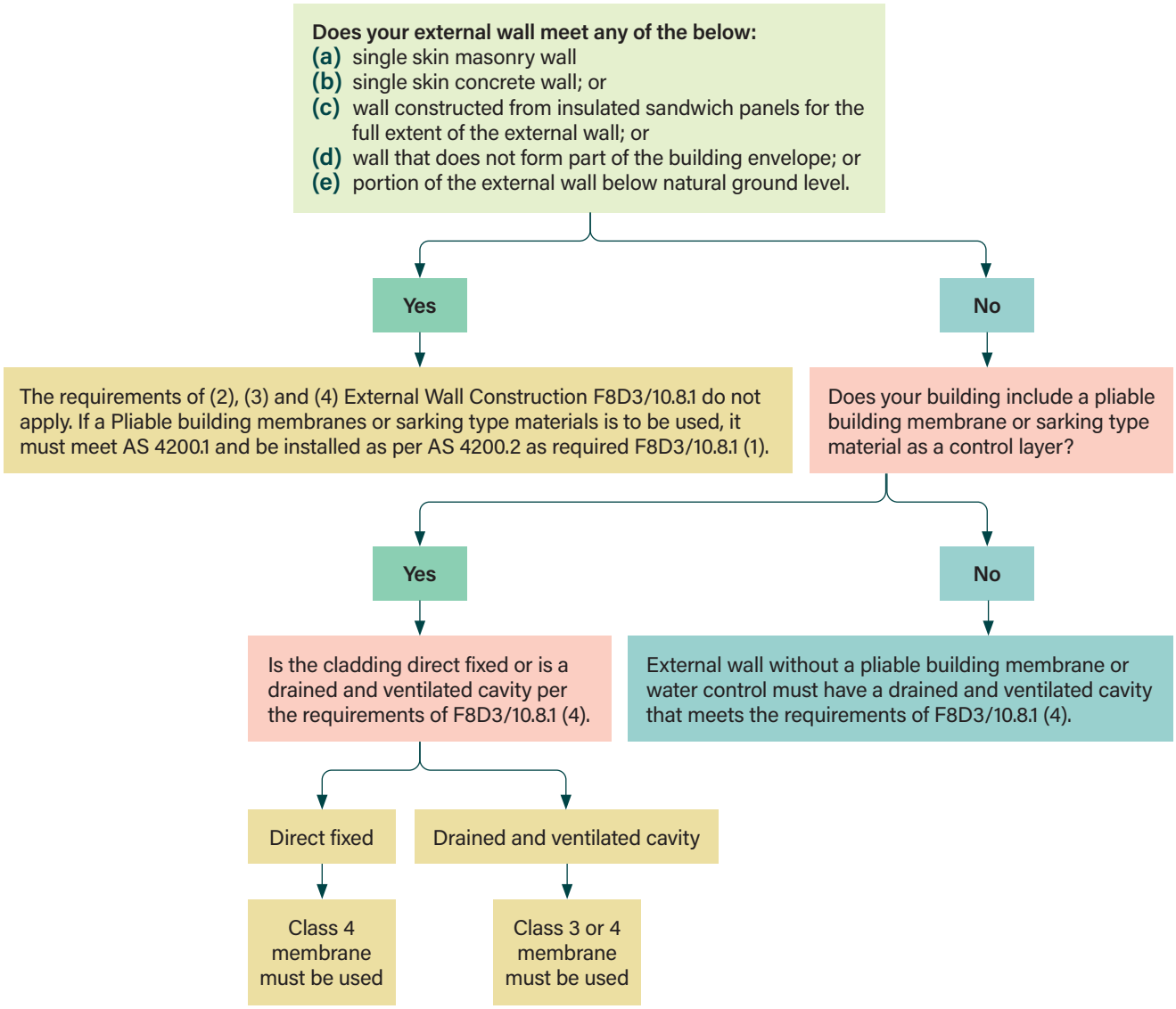
Climate zone 3 condensation management flow chart



Fletcher Insulation product recommendation

Cavity type	Recommendation
Direct fixed	Sisalation® Vapawrap® Residential Wall Wrap
Drained and vented cavity	Sisalation® Tuff Wrap™ Wall Wrap Standard (497) or Sisalation® Vapawrap® Residential Wall Wrap

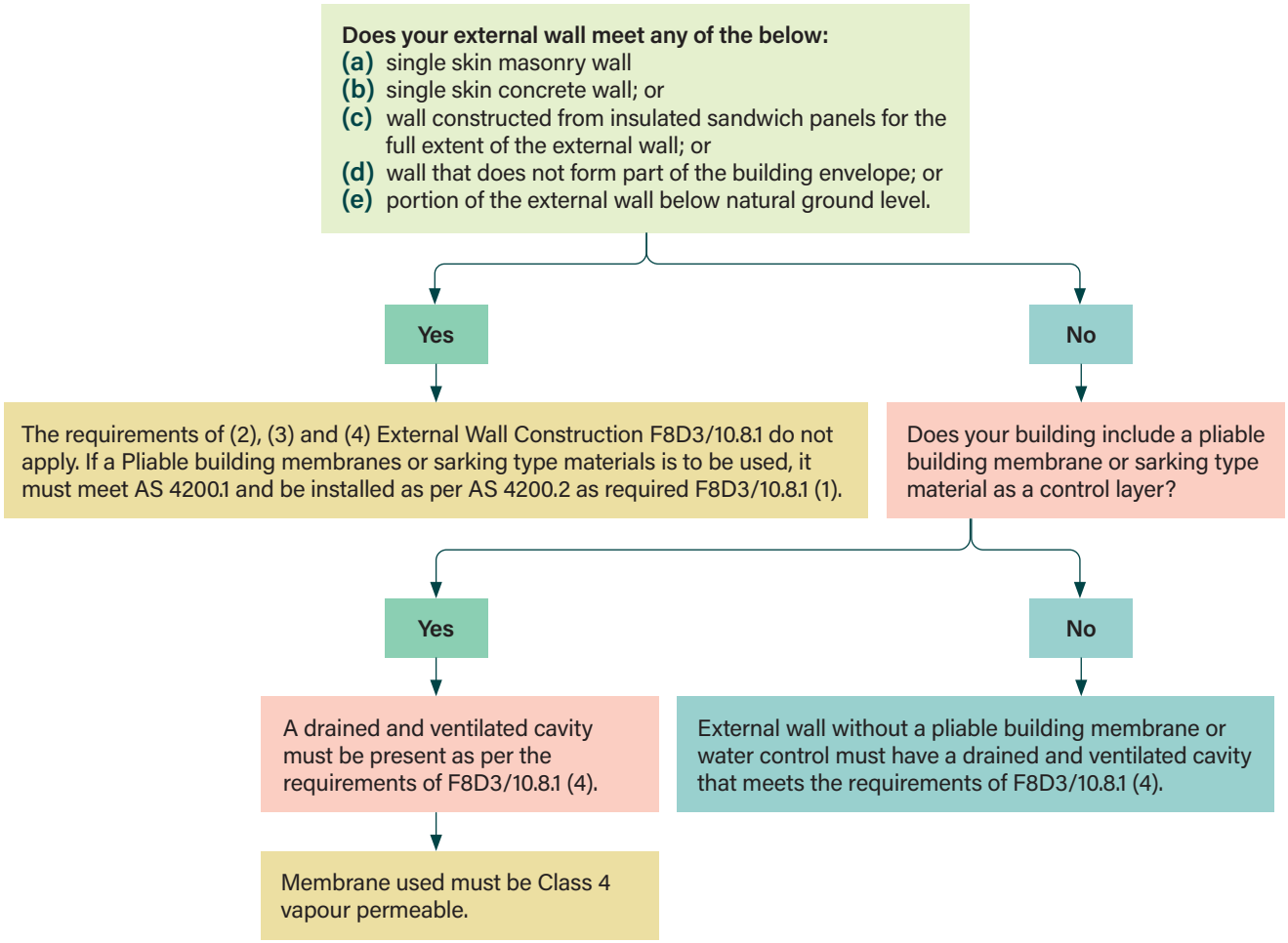
Climate zone 4 & 5 condensation management flow chart



Fletcher Insulation product recommendation

Cavity type	Recommendation
Direct fixed	Sisalation® Vapawrap® Residential Wall Wrap
Drained and vented cavity	Sisalation® Vapawrap® Residential Wall Wrap

Climate zone 6–8 condensation management flow chart



Fletcher Insulation product recommendation

Cavity type	Recommendation
Direct fixed	N/A
Drained and vented cavity	Sisalation® Vapawrap® Residential Wall Wrap