

## **FS125-18**

**IBC: TABLE 1404.3.2, 1404.3.2**

**Proponent:** Jay Crandell, P.E., ARES Consulting, representing Foam Sheathing Committee of the American Chemistry Council

**2018 International Building Code**

**Revise as follows:**

**TABLE 1404.3.2  
CLASS III VAPOR RETARDERS**

<b>ZONE</b>	<b>CLASS III VAPOR RETARDERS PERMITTED FOR:<sup>a</sup></b>
Marine-4	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation with $R$ -value $\geq R2.5$ over 2 $\times$ 4 wall Continuous insulation with $R$ -value $\geq R3.75$ over 2 $\times$ 6 wall
5	Vented cladding over wood structural panels Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation with $R$ -value $\geq R5$ over 2 $\times$ 4 wall Continuous insulation with $R$ -value $\geq R7.5$ over 2 $\times$ 6 wall
6	Vented cladding over fiberboard Vented cladding over gypsum Continuous insulation with $R$ -value $\geq R7.5$ over 2 $\times$ 4 wall Continuous insulation with $R$ - value $\geq R11.25$ over 2 $\times$ 6 wall
7 and 8	Continuous insulation with $R$ -value $\geq R10$ over 2 $\times$ 4 wall Continuous insulation with $R$ -value $\geq R15$ over 2 $\times$ 6 wall

For SI: 1 pound per cubic foot = 16 kg/m<sup>3</sup>.

- a. Spray foam with a maximum permanence of 1.5 perms at the installed thickness applied to the interior cavity side of wood structural panels, fiberboard, insulating sheathing or gypsum is deemed to meet the continuous insulation requirement where the spray foam *R*-value meets or exceeds the specified insulating sheathing *R*-value.

**1404.3.2 Class III vapor retarders.** Class III vapor retarders shall be permitted in Climate Zones 1 through 3 and where any one of the conditions in Table 1404.3.2 is met. Only Class III vapor retarders shall be used on the interior side of frame walls where foam plastic insulating sheathing with a perm rating of less than 1 is applied in accordance with Table 1404.3.2 on the exterior side of the frame wall.

**Reason:**

Section 1404.3.2 is revised to recognize that Class III vapor retarders also are permitted in Climate Zones 1-3 without having to comply with the conditions in Table 1404.3.2 intended for colder climate applications. This clarifies the code as intended and resolves an interpretation problem where it is unclear that Class III vapor retarders are OK to use in Climate Zones 1-3. In fact, latex paint often complies with a Class III vapor retarder and is commonly used in all climate zones for interior finish, even if not declared to be a Class III vapor retarder.

Table 1404.3.2 is revised so that the requirements for Climate Zone "Marine 4" are applied to all of Climate Zone 4. The Marine 4 climate zone is actually a warmer-in-winter climate zone than the remainder of Climate Zone 4. Thus, if conditions are necessary to control water vapor in Marine 4 it should also be required in all of Climate Zone 4 and especially in the "moist" (A) regions of Climate Zone 4. This need has been confirmed by experience, field data, testing and analysis in recent years. Refer to the bibliography for additional information and substantiation.

**Bibliography:**

Assessment of Hygrothermal Performance and Design Guidance for Modern Light-Frame Wall Assemblies, ASTM STP1599, J. H. Crandell, 2017, pp.362-394, [https://www.astm.org/DIGITAL\\_LIBRARY/STP/PAGES/STP159920160097.htm](https://www.astm.org/DIGITAL_LIBRARY/STP/PAGES/STP159920160097.htm)

Assessment of Water Vapor Control Methods for Modern Insulated Light-Frame Wall Assemblies, ABTG Research Report No. 1410-03, Applied Building Technology Group LLC, 2015, <https://www.appliedbuildingtech.com/rr/1410-03>

**Cost Impact**

The code change proposal will increase the cost of construction .

While this proposal will potentially increase cost of using a Class III vapor retarder in much of Climate Zone 4 (not Marine 4), one interpretation is that this proposal actually adds the option of using a Class III vapor retarder in all of Climate Zone 4 and also in Climate Zones 1-3. In the latter case, the proposal may actually reduce costs by allowing interior latex paint to be used as the vapor retarder. From a moisture durability and risk standpoint, this proposal also should reduce associated costs after construction.

Internal ID: 1009

---