

FS121-18

IBC: 1404.3.1, 1404.3.2

Proponent: Mike Fischer, Kellen Company, representing The Polyisocyanurate Insulation Manufacturers Association (mfischer@kellencompany.com)

2018 International Building Code

Revise as follows:

1404.3.1 Class I and II vapor retarders. Class I and II vapor retarders shall not be provided on the interior side of frame walls in Zones 1 and 2. Class I vapor retarders shall not be provided on the interior side of frame walls in Zones 3 and 4 other than Marine 4. Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. The appropriate zone shall be selected in accordance with Chapter 3 [CE] of the International Energy Conservation Code-Commercial Provisions.

Exceptions:

1. Basement walls.
2. Below-grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.
4. ~~Conditions where Class III vapor retarders are required in Section 1404.3.2.~~

1404.3.2 Class III vapor retarders. Class III vapor retarders shall be permitted ~~where for~~ 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 walls.~~

Reason:

The clauses proposed for deletion were originally added to the code as an interim conservative measure while appropriate use of Class I and II vapor retarders on walls with foam plastic insulating sheathing were more thoroughly investigated. Now, an extensive review of data, analyses, and experience has been completed (refer to bibliography). The findings indicate that the concern with appropriate use of Class I and II vapor retarders concern is mainly a concern for walls without temperature moderation as provided by continuous insulation. Field data and analyses from several studies have demonstrated successful use of Class I and II vapor retarders on walls with exterior foam sheathing used as continuous insulation. As further confirmation, this method has been successfully used in Canada and explicitly recognized in the National Building Code of Canada since the 1995 edition. In addition, this proposal will make the IBC provisions consistent with the IRC provisions which were not changed to require use of only Class III vapor retarders with foam sheathing. Thus, this proposal will restore consistency between the IBC and IRC. It also simplifies the code.

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

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 decrease the cost of construction .

This proposal will allow (actually restore) vapor retarder options that provide at least equivalent performance for water vapor control at a lower cost than would occur where Class III vapor retarders are currently required to be used.

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