

Technical Bulletin #14

Vapor Retarder Location in the Building Envelope Assembly

The conventional approach to installing insulation and vapor retarders in building envelopes is to have the vapor retarder as the exposed inner surface. See Fig.1. This approach has been accepted as the norm for buildings located throughout the United States. The exposed interior vapor retarder limits the moisture contained in the warm interior air from coming in contact with the cold roof or cladding during the cooler months.

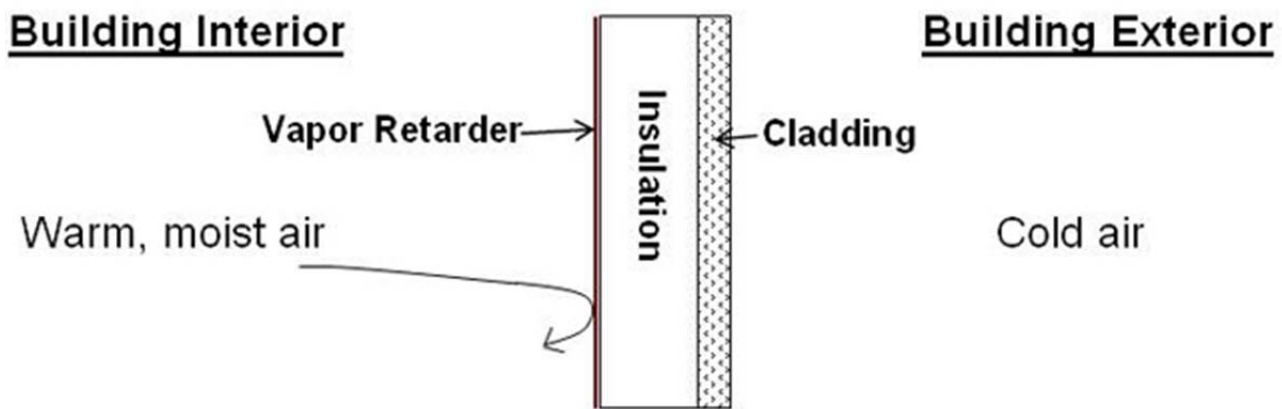


Figure 1

conditioned buildings operating in warm humid climates present different building dynamics. Warm, moist outside air can infiltrate around the exterior roof or cladding and condense in the insulation, where the dew point is reached. See Fig.2.

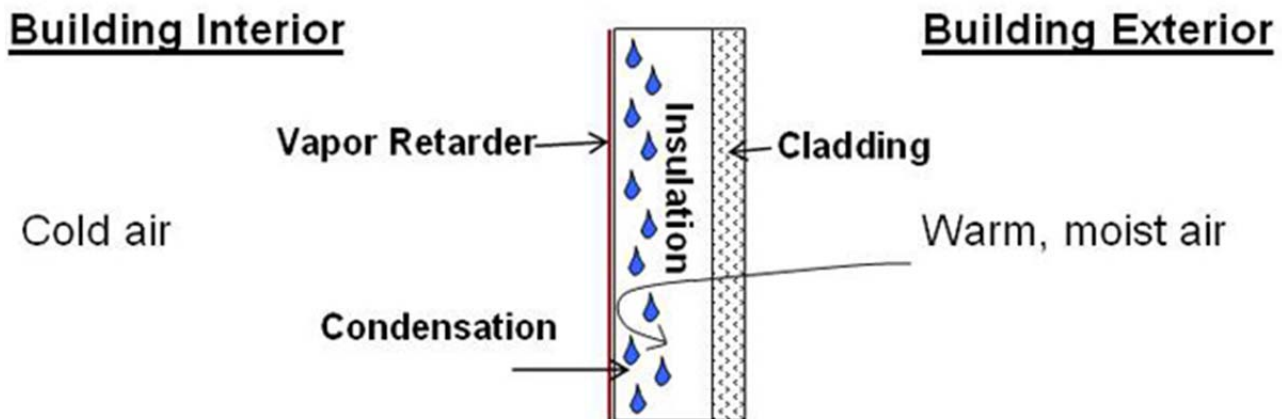


Figure 2

“LAMTEC” AND “WMP” ARE REGISTERED TRADEMARKS OF LAMTEC CORPORATION

5010 River Road Mount Bethel, Pennsylvania 18343-5610 U.S.A.
Phone: (570) 897-8200 Fax: (570) 897-6081 Web: www.lamtec.com

In this situation, architects may specify that the vapor retarder be placed to the outside of the building between the fiberglass and the roof or cladding. This orientation limits moisture infiltration from the outside of the building.

In applications where the vapor retarder is installed to the exterior side of the fiberglass, a perforated facing typically covers the interior side of the insulation. The small perforations allow the moisture that has passed through or around the external vapor retarder to permeate into the building interior. This unwanted moisture can then be removed by the HVAC building in the system. See Fig. 3

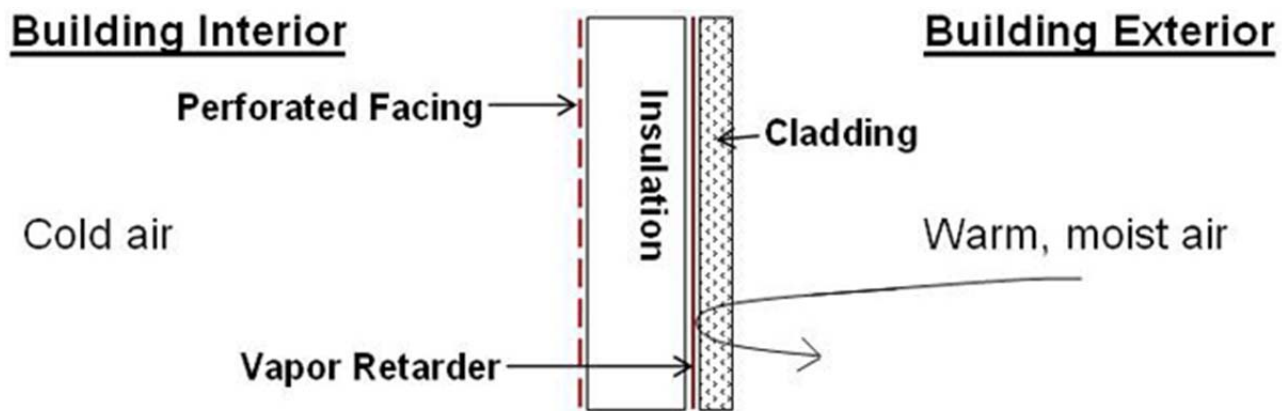


Figure3

Orienting vapor retarders to the exterior of the building is discussed in the ASHRAE handbook.¹ Interested parties are encouraged to read the text and consult local architects and building inspectors to decide whether their situation falls within this scope. Due to different building dynamics, systems, and environments, each case should be reviewed by a competent professional.

References

¹ 1993 ASHRAE Handbook – Fundamentals, pg 21.11 – 21.13