

I think that this problem needs to be clarified.

(1) Water vapor migrates from areas of high humidity to areas of low humidity. In most of the US, the biggest problem is water vapor migrating from "man-made" sources in bathrooms, kitchens, etc. through exterior walls to the air outside. When the exterior air is cooler than the interior air, the water vapor can condense within the wall structure, soaking wood studs, insulation, etc. The condensed liquid water supports the growth of fungi (dry rot), causes paint to peel, ruins plaster and gypsum board, and so on. There are two principal ways to combat this: use exhaust fans to vent the water vapor directly to the outside; or install a vapor barrier just behind the inside surface of the wall, to prevent water vapor from getting into the wall cavity.

(2) In those sections of the country where high exterior air temperatures and humidity levels are the norm (such as in the South), and people use air conditioning much of the year, the problem is to prevent water vapor from migrating from the exterior to lower-humidity air-conditioned spaces inside buildings. The water vapor can condense on the backs of wall coverings, for instance, and promote the growth of mold and mildew. In these instances, the vapor barrier needs to be installed just behind the outside surface of the wall, to keep water vapor out of the wall cavity. The rule-of-thumb is to install the vapor barrier on the "warm" side of the wall.

(3) Sometimes, water vapor can build up in a crawl space under a house, especially if the crawl space is closed off on the sides, and condense on the floor structure (if the building is air conditioned) or migrate through the house to the exterior walls (see above). This can be discouraged by ventilating the crawl space or by laying a vapor barrier on top of the ground under the crawl space.

(4) Capillary action is a different matter. Water rising from the ground through the building structure by capillary action is known as "rising damp" and can cause the same problems as condensing water vapor. However, the two are separate mechanisms and have to be deterred by different means.

- Mike Eversmeyer, AIA
- Perkins Eastman Architects, Pittsburgh

-----Original Message-----

From: Judy K. Cowling [SMTP:bajcowl@comteck.com]
Sent: Friday, May 07, 1999 9:27 AM
To: forum-l@lists.nationaltrust.org
Subject: Energy conservation re: windows

Most sources of vapor (moisture) originate from outside the

structure, except for those we create. Bathroom, kitchen and dryer vents help deal with the moisture people introduce into the building. A vapor barrier will aid in keeping the outside moisture out of the inside of the house. In an existing house, a vapor barrier can be installed in a crawl space. This helps decrease the source of moisture, which by capillary action can travel up the structure, impacting everything from paint to studs to plaster walls.

Judy Cowling
Historic Fairmount, Inc.