

TOTAL WALL

ISSUE # 1037

WALL SYSTEM DEW POINT INFORMATION

Dew point is defined as the temperature at which air with a given moisture content will begin to condense water. For example, 80°F air with a relative humidity of 50% will have a dew point of approximately 60.3°F.

The dew point in a wall system is determined by two factors as follows:

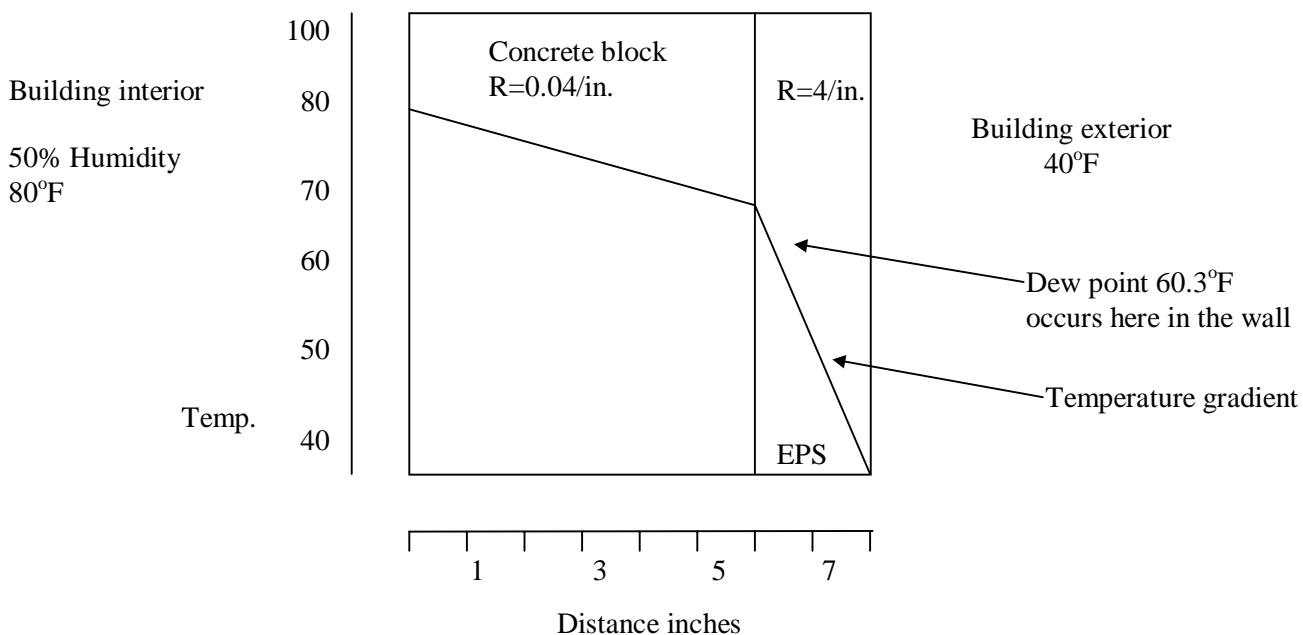
1. The temperature gradient through the wall and,
2. The moisture content combined with the permeability of the wall materials.

The R-value of the building materials, their thickness', and the interior and exterior temperatures determines the temperature gradient through the wall.

The system's permeability and the moisture content of surrounding air on the interior and exterior determine the moisture content of air in the wall system.

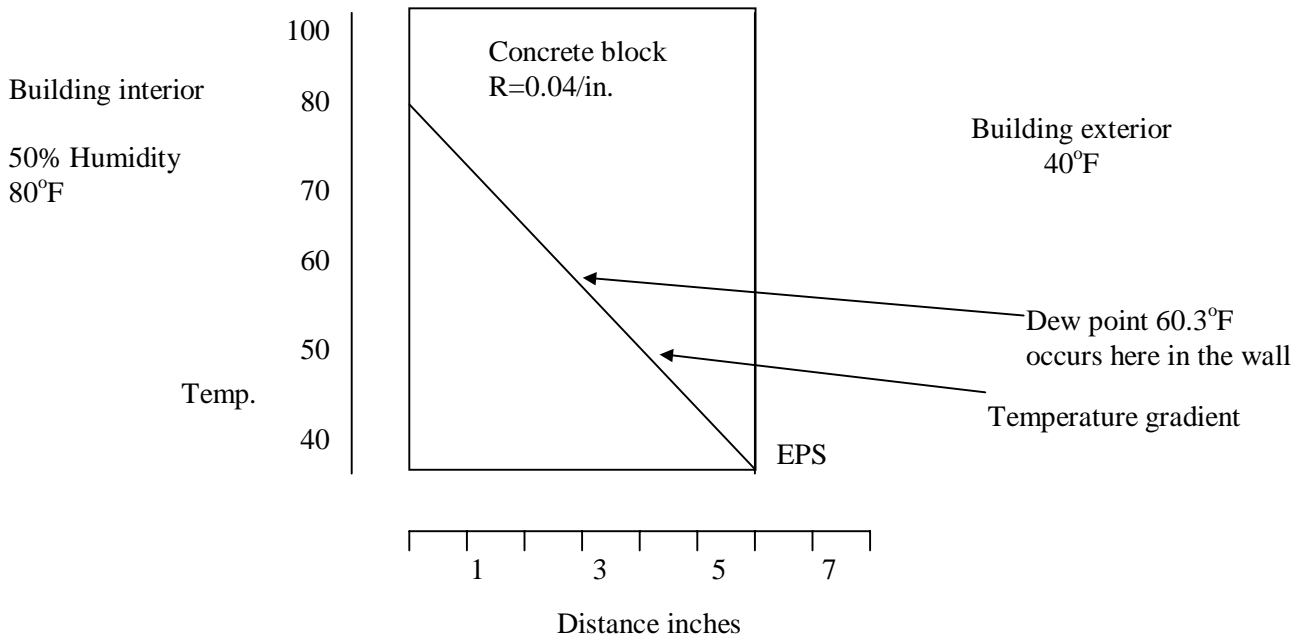
A vapor barrier placed in a wall system will prohibit moisture from moving past that point in either direction, thus making it desirable in some situations and not others. A moisture barrier should not be confused with a vapor barrier. A moisture barrier is breathable and will permit some water vapor to pass.

Temperature gradient - dew point example



As you can see, using exterior insulation moves the dew point toward the outside of the wall. To illustrate this further, below is a temperature gradient for concrete block only, which illustrate that dew point, occurs in the block when the exterior insulation is removed.

Temperature gradient - dew point example 2 with concrete only



The more exterior insulation is used, the more the dew point will be moved out of the wall and into the EIFS where it can do little harm. If an interior vapor barrier is used, the exterior insulation is beneficial because once again, under most conditions it will keep the dew point in the EPS in summer conditions as well. This is important, since a vapor barrier reduces a walls ability to dry when water does get into the cavity.

For additional technical assistance, you may call your local **TOTAL WALL** Distributor or you may call **TOTAL WALL**.

The **TOTAL WALL** Technical Department