Ask Jon Eakes

WHY SHOULD I CARE ABOUT THE NEUTRAL PLANE?

Last Updated: Thursday, March 28th, 2013, Created: Thursday, October 14th, 1999

Warm moist air leaking out of the house through the walls and ceilings is the major cause of condensation and water damage to the structure of the house. In the worst of cases it can cause paint to peel off the outside of the house, start mould growing in the walls, decrease the insulating value of your insulation (wet insulation doesn't insulate at all), soak the plaster or drywall enough to cause it to fall, or rot the studs and the beams. When we talk about the neutral plane we are talking about hidden condensation inside the walls and the attic -- not the simple problems of frosted windows.Cold outside air leaking into the house can be uncomfortable and make us think of all the money it costs to heat that air up. But on the bright side, cold air infiltrating through the walls will not cause condensation problems inside the walls because it carries almost no moisture with it and at the same time blocks the exist of warm moist air.To maintain dry, solid walls there should be as much as possible of the walls under inward drying pressure. If we accomplish this we will have a high neutral plane. So, we can simply say we want to work to raise the neutral plane as high as possible. It is the fact of having inward pressure, not the quantity of air passing through, that is important. Careful control of leaks -- planned leaks, not accidental ones -- allows us to create a high neutral plane and yet loose very little heat, by keeping the pressure right but reducing the movement of air.

Keywords:
Moisture, Condensation, Neutral Plane, Exhaust Fans, Ventilation