

MOISTURE CONTROL

The percentage of water vapor within air is referred to as the Relative Humidity (RH) and is present in all buildings. Water vapor can be generated from a variety of sources that sometimes cannot be eliminated or adequately controlled. Any time the interior water vapor pressure is higher than that of the exterior it will drive itself toward the outdoors (a physical property of gas pressure called equilibrium). As it comes into contact with various building materials it can condense on surfaces that are below the dew point (the combination of temperature and humidity where water vapor converts from a gas to a liquid).

It is for this reason that the insulation used in the walls and roofs of metal buildings is installed with a vapor retarder. Vapor retarders can be effective in limiting water vapor transmission but they do not totally eliminate the movement of water vapor. In the case of high indoor humidity, the water vapor will migrate directly through even the lowest perm rated¹ facing materials - not just the tab area - and will condense under the right conditions.

Good vapor retarders and mechanical techniques such as dehumidification are important means of controlling moisture

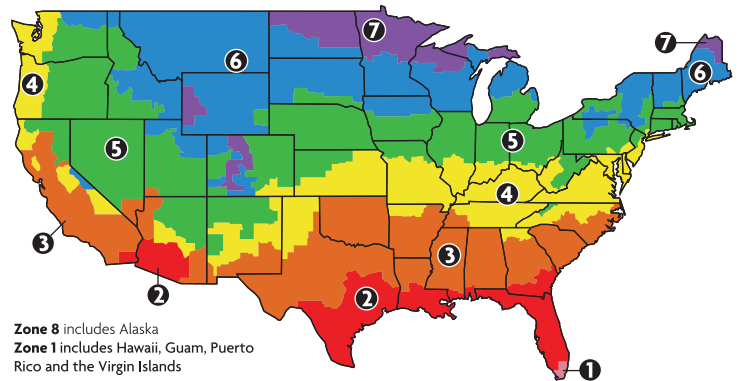
but those must be combined with proper building design and adequate ventilation (singly the most effective way to control interior moisture). All too often, facing materials may be cut or torn during the construction process. These openings must be resealed (patch tapes are available for all popular facings). Before a building is erected, construction conditions and end-use processes – both of which are related to moisture generation – should be carefully evaluated. A design professional, such as an HVAC engineer, should be consulted to establish the equipment and construction techniques necessary to reduce the moisture in the building. The accompanying map and chart provide a prudent guideline for interior humidity levels to minimize condensation problems.

The information contained herein is a technical guideline and should not be interpreted as a guarantee to avoid moisture related problems. It is important that the insulation system be designed or approved by a qualified professional.

HUMIDITY RECOMMENDATIONS

Ashrae Climate Zones	Maximum allowed indoor relative humidity (constant)	Maximum allowed indoor relative humidity (intermittent)
Zones 6, 7	30%	40%
Zones 4, 5	38%	45%
Zones 1, 2, 3	45%	50%

¹ Permeability is a measure of the amount of water vapor (moisture) that can pass through a specified material in a certain amount of time. Low perm ratings are in a range from approximately .02 to .10.



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