Humidity diagram (Mollière), the simple coherency air and the amount of the water vapour

The overleaf graphic seems to be very scientific; it can be understood very easily. It shows the coherency between the air temperature and their absorbability for water vapour at the appropriate temperatures. Approx. every 11° temperature rise, the abso rbability of the air for water vapour reduplicates. The curve at the right side corresponds to the max. saturation value and is also called dew point curve. Values which are lying on the right side or under it would mean condensation of water. The other curves are only lower values which are classified in the 10 % grids (and smaller); they should simplify the reading in the case of other humidity percent values. At the left side you will find the temperatures and at the lower boundary a table shows the absolute water content in g/kg air. On the whole world (in and outside a house) humidity follows these legalities, ergo also the weather.
Everything the climate offers can be deducted. But also it is possible to keep a building on an ideal humidity value by saving energy. For this is important that our energy saving method will be used at the correct time, because it is only possible to dry inside if the air outside is cooler than in the house. The reason for this is that cooler air can collect less water vapour as warmer air. It is false to belief that the air outside posses an exhaustless reservoir of dryness and it is possible to air whenever you want. NO, only with controlled ventilation with a high efficient WRG it is possible to achieve the correct result at each weather and at each season.

In a building, there are a lot of sources for humidity:

- **Conditionally by the construction:** If you posses a new built house, the walls contains a lot of humidity (some 100 l per room), which must be reduced rapidly in order to avoid mould.
- **Inhabitants**: Each inhabitant brings approx. 1, 5 l due to transpiration.
- **Bathing, showering, washing, cooking:** translated to the appropriate persons it bring further 0,5 – 1 l
- **False airing:** Particularly in the case of warm weather, there will be made the biggest faults. In approx. 99 % mould arises due to wet walls, construction damages by a) false airing or b) airing at the false time
- **Construction defects:** faulty leakiness, heat bridges, planning faults, construction faults are exceptional cases.

We show you the most energy saving method in order to eliminate humidity and to keep the air quality on a high level at the same time. In the diagram, the thick lines are an example of controlled ventilations and WRG-function in the winter and in the summer.

Winter: Incoming air with 0° (80%r.H.) only contains 3 g w ater per kg air and will be heated in the WT to 18°, the additionally air than only contains approx . 22% r. humidity. It will be mixed with the existing room air, which contains 50 % r. H. due to the inhabitation and due to the rest humidity of the walls. This air will be aspirated by the outgoing air ventilator and will be blown through the WT. It cools down and at 9° it begins partially to condensate and leaves the house with approx. 5° (exit air + condensate).The con - densation warms in the WT the heating of the fresh air. Depending of the volume adaption of the ventilators, a mixture of the room humidity is made more or less rapid. In the case of inhabitation there is additionally humidity, in fact approx. 10 % each person/hour. For this there will be compensation between drying effect and transpiration, which leads to an ideal humidity with the best comfort degree.

Summer: Here, the curve begins at the top right. Fresh air arrives with 35° and 50% r.h and cools down into the heat exchanger to 26° but 85% r.h, it will be mixed with the room air, which temperature will be determined from the cubic capacity of the rooms. The outgoing air has only 25° und 60% r.h. and cools down the fresh air into the heat exchanger. This is very agreeable. In the case of humidity you must be attentive, because the internal and external crease occurs at the same time. It growths. But the absorbing capacity of the wall plaster is helpful. A middle room with approx. 16 m² WF posses approx. 800 l plaster and is able to store some hundreds litres of water without the risk to mould. But there may be not too much! Through controlled airing at the day, you get only some water and this can be disposed in the cooler night (similar to the winter effect, only deferred, but lower). So you have to air stronger in order to dispose the collected water. In the brochure “controlled airing” you will find a comparison concerning airing with windows/controlled ventilation with CVS at the case of muggy weather.

Humidity/Temperature-Diagram