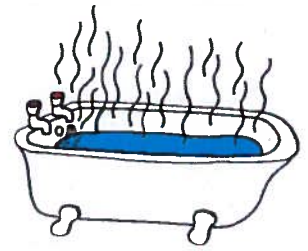


## Introduction

What is condensation?

Condensation is water out of the air that gathers on cold surfaces. It is introduced by steam or warm water vapour floating in the air and turning to water when it reaches cold areas. Warm air holds more water than cold air. Condensation is found on cold surfaces like the north walls of uninsulated rooms, and in stagnant cold areas, for example behind wardrobes and pictures, inside wardrobes and behind bedheads. Remember as people

breathe out they produce water vapour - to prove this blow on a cold surface. Four people breathing produce 2.5 litres of water a day.



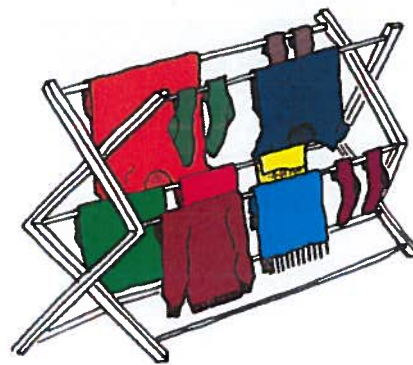
Condensation is really noticeable on windows where warm moist air meets a cold surface and condensation forms on the glass.

## Life Style

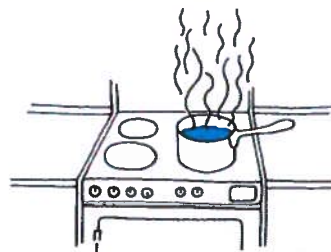
In the past there was a very different lifestyle. Houses were not closed up all day with every window and door tightly shut. The house was in constant use. Open fires combined with ill fitting windows, doors, floor boards etc., meant that water vapour did not get a chance to collect.

Houses are now better built and unless there is a greater understanding of the lifestyles that now exist and proper use of heating and ventilation, there is a risk of condensation occurring.

Houses are now generally double glazed and all doors and windows are draught proofed. In some apartments which are shared by young people there is a greater risk of condensation occurring due to the use of the apartment. The shower/bath is constantly used and kettles and saucepans are boiled on a gas or electric cooker. Clothes are left to dry inside the dwelling. All that water vapour generated goes into the air of the apartment. It cannot escape, because during the drying part of the day every opening is tightly shut. The apartments are empty at the weekends and all the moisture sealed in. It is no wonder that condensation occurs.



Condensation also occurs in cars. For example on a wet day or in the morning when you get into the car the windscreen and windows steam up. This is not a fault in the manufacturing of the car. To get rid of this condensation you open windows and turn on the fan and heater. The same applies to condensation in your home.



**THE GENERATION OF WATER VAPOUR THAT LEADS TO CONDENSATION OCCURRING IS NOT AS A RESULT OF THE WAY THAT THE BUILDING IS CONSTRUCTED BUT AS A RESULT OF THE WAY IT IS USED.**

## Mould growth

When walls, clothing, shoes, etc. become wet from condensation the dampness will show, but what shows even more is a mould growth which is likely to start. This is a type of minute fungus and like most fungi it prefers a moist area. The spore that causes this fungus - mould growth - is everywhere but only grows where it finds a condensation damp surface. The mould is unsightly, it can be black or brown and it needs only dampness to sustain it. It is not dangerous to health nor will it destroy the surface it is found on. It can be cleaned off with a damp cloth but the damp cloth will help it to return. It thrives best on some types of paint or wallpaper.

## Fungicidal wash

To get rid of mould growth use a fungicidal wash which can be bought in any hardware or paint store. This is a preparation made for the purpose of cleaning mould growth and killing the fungus. Take all precautions recommended and follow the makers instructions. Apply the solution to all affected areas. This is a job any householder can do. Do protect your eyes and skin. Cover up all areas such as cills, carpets, etc. that are not to be treated. The mould should be cleared away by one treatment, but if the condition is severe a second application may be necessary. Fungicidal wash is far more effective than a mixture using household bleach.

## Attack the source.

When you get rid of mould growth how do you get rid of the condensation that caused it? The first thing to do is to limit as far as possible the conditions that are causing the condensation. If you don't do that the mould growth will eventually reappear. Look back at the reasons given and take steps to eliminate the cause as far as possible.

## Keep steam escaping into the dwelling to a minimum

Run an extract fan while you are cooking or washing, keep the kitchen and bathroom door closed. Leave the kitchen and bathroom window open to let water vapour escape after you have finished and keep the door closed. Keep the lid on saucepans as they boil. Remember gas gives off water vapour as it burns so avoid gas and paraffin heaters if you have condensation problems. Burning one litre of paraffin puts one litre of water into the air.

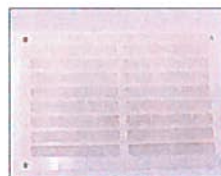
## Ventilate

Ventilation is essential to allow steam to escape and to keep condensation at bay.

When cooking or bathing keep the extract fan running and the windows open. When sleeping keep a vent open. Don't block up the built in ventilators. Ventilate when drying clothes. This is crucial because clothes drying can produce six litres of water while washing them can produce two litres. On dry windy days keep windows open as far as security precautions allow so that the rooms may dry out. You may be able to fit stops to windows to give security while they are open.



Keep windows open to let water vapour escape.



Don't block up the built in ventilators.



Condensation on car windscreen.



Mould growth due to condensation in hall.



Mould growth due to condensation in corner of room.



Mould growth due to condensation in corner of room.



### **Heat the dwelling**

Ventilation is vital but so too is heating as you have proved by the use of the fan and heater when you get condensation in your car. It may seem wasteful to heat your living space and then let the heat out of the windows, but remember the water vapour that is causing you trouble is going out too. The warmer the air is the more water vapour it can hold and therefore warmed air leaving the dwelling takes out more water vapour.

### **Condensation cycle**

Where water vapour collects and turns to water on glass which then drops down onto window sills, mop it up or put down cloths to collect it, and squeeze the water down the sink. Don't let it dry off naturally as that only leaves the water vapour to recirculate. What happens in a lot of dwellings is that a cycle is set up. When the building is cold water vapour turns to water. As the building heats up the water dries off to become water vapour to return again to water as the building cools. Avoid this happening by ridding the building of as much water vapour as possible and limiting its production. Obviously the effect is at its worst in winter.

### **Insulated areas**

It will be noticed that insulated warm areas do not gather condensation. There is never condensation on the chimney breast where a fire burns. It stands to reason that the better insulated walls are, the less risk they have of attracting condensation. But it is also true that if water vapour is trapped in a dwelling it will condense somewhere. If condensation mainly forms on the inside of the windows that is probably the easiest place to mop up the water formed and the water does least damage. Indeed some windows have channels to run the water away.

### **New houses and old houses**

As referred to earlier the better construction standards of new houses and the type of lifestyle that exists now mean that there is a greater likelihood of condensation occurring in new properties. Those who live in older houses should seek information on how to improve comfort yet not cause condensation problems. Basically the addition of insulation to walls should help. If windows are replaced with double glazed units this will give better insulation but will also reduce ventilation as they are better sealed than the old windows. This effect may therefore be to encourage more condensation on uninsulated walls. If draught sealers are used the comfort will be improved but again that alone may cause more condensation in some areas. The advice of an expert should be sought because each type of construction needs special treatment.

### **Comfort and no condensation problems**

It is quite possible to live in new or old dwellings with no condensation problems. A sensible approach to the restriction of steam production is the first step. Good insulation, ventilation and heating are the other factors.

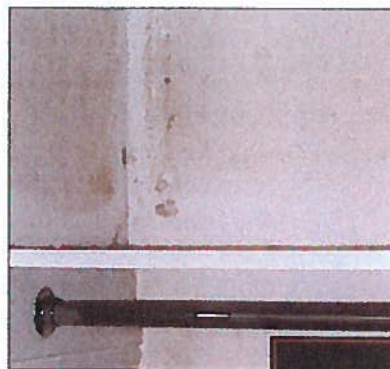
### **Roof spaces**

Houses are built so that water vapour passes up through the ceiling and is blown away by a well ventilated roof space. When the builder is building a new dwelling ventilation is provided to the roof space. This will be over the insulation at ceiling level and it is vital that the air paths are not blocked at rafter and wallplate level as this will increase the risk of condensation occurring in the attic.

## Ground floors

When a concrete ground floor is poured it contains a certain amount of water and will take time to dry out. The exact period of time will depend on the amount of heating and ventilation in existence.

Linoleum, rubber backed carpets and rubber underlay restrict the evaporation of moisture that is in a concrete floor and therefore may give high moisture readings in the concrete. This should not be taken as a defect in the construction of the floor or a breakdown in the damp proof membrane.



Mould growth in wardrobe due to condensation.



Mould growth in bedroom due to condensation.



Mould growth in bathroom due to condensation.



Mould growth on window frame due to condensation.

## What are the main points again

1. Heat and ventilate the dwelling.
2. When cooking and washing, use an extraction fan and keep internal doors closed. When you are finished, open a window to ventilate the room.
3. Keep the lid on saucepans as they boil.
4. Do not block up the built in ventilators.
5. When sleeping keep a vent open.
6. When drying clothes (this can cause as much as six litres of water to form), make sure there is plenty of ventilation.
7. Avoid the use of parafin and gas heaters if there is a problem with condensation.

## Remember another few points.

A new building is built with materials which contain a significant amount of water and will take time to dry out.

The generation of water vapour that leads to condensation occurring is not as a result of the way that the building is constructed but as a result of the way it is used.