

# CONDENSATION

## WHAT IS CONDENSATION?

Condensation is a situation where moisture is deposited on cooler surfaces, such as internal surfaces of external walls of a building and frequently gives rise to the growth of mould (especially where sustained high humidity is present). Such organisms need pure water as is produced by condensation, to sustain their life.

## WHAT CAUSES CONDENSATION?

Condensation can occur naturally as a result of changes in temperature or artificially by the actions of people themselves.

Air naturally contains water vapour (often referred to as “humidity”) in varying quantities and its capacity to do so is related to its temperature, warm air holds more moisture than cold air.

In Britain, condensation in flats and houses is often a winter problem particularly where warm moist air is generated in living areas and then penetrates to the cooler parts of the building. As long as the air is cooled sufficiently below its “Dew Point” by the colder surface it comes into contact with, moisture will be released.

In order to have condensation, moisture must be present in the air and this can come from a number of sources within a house. Water vapour is produced in relatively large quantities from normal day to day activities; a 5 person household puts about 10 kg of water into the air every day (without taking into account any heating);

Heating - especially paraffin and flue-less gas heaters. For every litre of paraffin burnt over one litre of moisture vaporises into air. Even carbon fuel produces some amount of water from combustion. (1 kg of water equates to about 1 litre).

Moisture can also be drawn from the structure of the building into the internal air; from below the floor or through the walls/ceilings. Buildings can often lack or have insufficient airbricks to allow adequate ventilation of the accommodation and structure.

The effect of moisture “generation” is made worse by keeping the moist air in the property. Usually in certain areas of a property (such as bathrooms and kitchens) the warmer air contains a lot more moisture than other parts of the building.

## **MOULD**

One of the most common visual effects of condensation, apart from water being deposited on cooler surfaces, is that of mould growth. This will often look like black spots (although it will completely cover a surface when conditions are right).

For mould growth to occur there needs to be a sufficient amount of clean water available (in relatively humid conditions) for extended periods of time.

Mould can be removed by washing down with a bleach type solution and special paints can be applied which may help prevent growth of mould but the only permanent cure is to reduce the amount of condensation in a property.

## **WAYS TO CONTROL CONDENSATION**

There are three primary measures that can be taken to prevent condensation. These are to:

1. Increase ventilation - to remove moist air from the building and not allow it to come into contact with cold surfaces;

2. Increase insulation - to prevent a cold surface reaching below “Dew Point”; and
3. Maintain consistent heating - to prevent the structure to become cold.

## PRACTICAL THINGS YOU CAN DO

- Leave some background heat on through the day in cold weather. Most dwellings take quite a long time to warm up and it may cost you more if you try to heat it up quickly in the evening;
- After a bath or shower, try to ventilate the room to the outside, not to the rest of the property - just opening a window or the extractor fan (and closing the door) will help;
- Ideally dry clothes out of doors. Where this is not possible, dry them in a cool area of the house or flat. Whilst this will take longer, less moisture can be held in colder air and with good ventilation, the risk of condensation is lower.
- When people come in with wet coats, hang them outside the living area to dry;
- Try to increase the change of air in the premises - increase ventilation. Trickle vents can be added to double glazed units;
- Add forced ventilation/extraction to areas which produce a lot of moisture (kitchens and bathrooms). Extractor fans are available with an air-moisture switch so that they operate automatically while the moisture in the air is above a set amount. Other units called heat exchangers (more expensive/complicated) are available which remove the moist air and reuse the thermal energy within it, which would otherwise be wasted;
- Consider using a dehumidifier - domestic types are now available and can remove a surprising amount of water from the air;
- Don't overfill cupboards and wardrobes, always make sure that some air can circulate freely by fitting ventilators in doors and leaving a space at the back of shelves; and
- Do not use paraffin or LPG heaters. They are probably not allowed in flats.

If condensation still persists there are still some other changes to try.

- Simple secondary glazing consists of little more than a sheet of glass (or plastic) screwed to the window frame with a seal in between can be fitted. This is relatively cheap. Fixed secondary

glazing must not be installed on all opening windows in a room as some ventilation is essential. DIY kits are available which allow the secondary glazing to be temporarily removed or opened to allow the original window to be opened for ventilation;

- Alternatively new double-glazing window can be considered. Although much more expensive than simple secondary glazing, there are additional benefits; existing wooden or metal window will need continuous maintaining and repair - with new double glazed windows, you get new window frames which will probably be low maintenance or maintenance free;
- Some decorative materials always have cold surfaces (i.e. ceramic tiles, mirrors etc.) and are well known for the formation of condensation. There is not much you can do where this occurs other than keeping the room (and so the tiles) evenly heated throughout the day or improve ventilation;
- Some wall surfaces can also be a problem. Where the wall is papered the situation may be made worse if there are many layers of paper (this can just act like blotting paper). All the layers should be stripped and the wall re-papered;
- Things can also be improved by lining the wall with thin expanded polystyrene (normally available from a wallpaper stockist) before you hang new wallpaper;
- Painted walls can also have a cold surface. If you do not want to paper it, consider lining it with wooden panelling or another material such as cork tiles;
- Ceilings under the roof will suffer from condensation if the original construction of the block does not provide any roof insulation. If there is no or little roof insulation, additional insulation should be installed and a false ceiling with insulation can be installed. For some groups of people, there are financial grants in the UK for such work - check with the Local Authority or advice centre for details. Additional insulation will not only reduce condensation, but also reduce energy loss and so save money;
- Where ceilings have a high gloss finish, consider covering with expanded polystyrene, cork or fibre tiles; alternatively wooden panelling can be installed; and
- Solid floors (i.e. a slab of concrete) are often cold because of their large thermal mass (they take a long time to warm up).