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Moisture management within a building.

Introduction:

With the ever increasing need to improve the thermal efficiency of buildings it's important to consider the implications of improving their insulation and the reduction of heat loss. Taken in isolation the result will indeed be much warmer homes with potentially lower energy costs, however it's important that consideration is given to moisture movement and information regarding the construction and use to which the building will be subjected. However we have put together this simple guide to dealing with one of the most common problems associated with buildings today, especially those which have been retrofitted with insulation materials, that of condensation.

Dealing with condensation:

Condensation is the dampness formed when air laden with water vapour is cooled by contact with a cold surface. The air we breathe can hold varying amounts of water vapour, depending on its temperature. Generally the warmer the air the more water vapour it contains. If warm moist air is cooled by a cold surface, such as a window or external wall, it is then no longer able to hold the same amount of water vapour. The moisture turns into droplets of water and appears as condensation on the cold surface.

Examples of the amount of moisture produced in 24 hours include:

- Washing clothes: 1-2 pints
- Drying clothes: 6-12 pints
- Cooking: 3-7 pints
- Bathing and showering: 1-2 pints
- Washing dishes: 1-2 pints
- Human sleeping: 1-2 pints overnight.

4 ways to reduce condensation:

Every home has evidence of condensation at some time. It's quite normal to find your bedroom window misted up in the morning after a cold night. There is nothing much you can do to stop this but you should wipe the moisture away before it attracts mould. However if condensation is a continuing problem in your home there are 4 main ways to deal with it:

1. **Produce less water vapour or steam in your home.**

   The amount of condensation in a building is directly linked to how much water vapour is in the air. Everyday activities such as cooking, drying clothes and bathing add to this level so it helps to minimise their effect. For example cover pans when cooking , hang washing outside or in the bathroom where ventilation can help disperse the vapour, vent tumble driers to the outside and when bathing keep the bathroom door shut and the room well ventilated.

2. **Don't let the water vapour or steam that is produced spread through the house.**

   Try to limit wet air to a few rooms that can be ventilated and keep doors shut to reduce the movement of moisture around the house. Doors to any unused or unheated rooms should be kept shut as these may be more susceptible to condensation. Bathrooms and kitchens tend to be wetter rooms due to the way they're used so also provide ventilation to prevent moisture spreading throughout the house.Try not to draught proof rooms where there is already evidence of condensation as it could make the problem worse.

3. **Keep your home ventilated.**

   Moisture laden air can be dissipated by providing adequate ventilation, so make good use of trickle vents or extractor fans. It's a good idea to open windows when bathing, washing or cooking as these create a lot of vapour in a comparatively short space of time but of course remember to ensure your home is still secure.

4. **Keep your home warm.**

   Heating your home can also help to resolve condensation problems but only if it's used in conjunction with the steps described above. As warm air holds more moisture or water vapour than cold, solely raising the temperature indoors could in fact make matters worse. It's essential to combine heating with the reduction of air movement through the house and ventilation to dispel moisture. It's important to ensure that any heating is sufficient to heat up the structure rather than just the air in a house. It's advisable to provide low level heating for a long time rather than heating for short periods in the morning or at night. This will ensure that the whole building heats up and remains warm reducing the likelihood of colder surfaces.

   Condensation can also occur in areas where air generally cannot circulate e.g. behind cupboards or wardrobes. This can become a greater problem as it's unseen and can lead to mould growth and mildew which will eventually spread from the wall covering to furnishings and clothing etc. It's also very unhealthy especially for those people subject to chest conditions.

   The mould can be removed by wiping down with detergents or specialist cleaners but can leave stains. However removal of the mould will not be a cure for its cause which is condensation unless the problems are removed i.e. by ventilation or moisture control throughout the house by the ways and means suggested above.

It's important to carry out all four methods for them to be effective although the first three are the most important and can be done at no cost.