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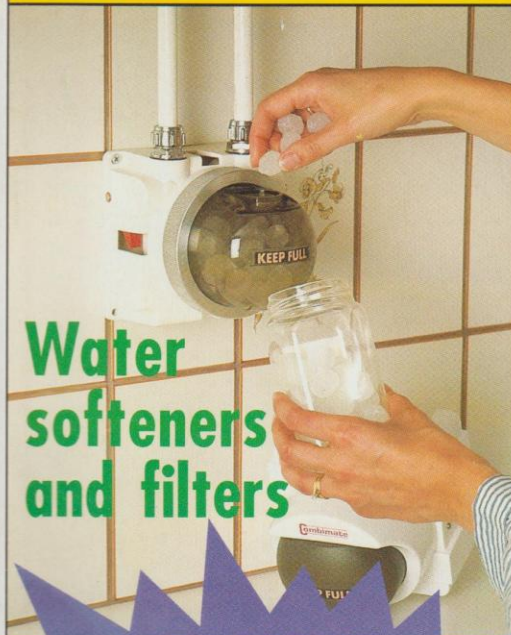
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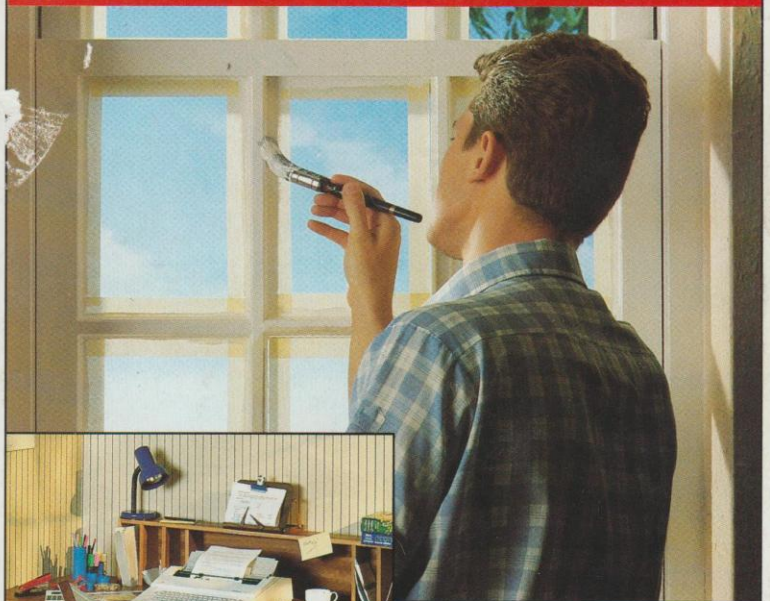
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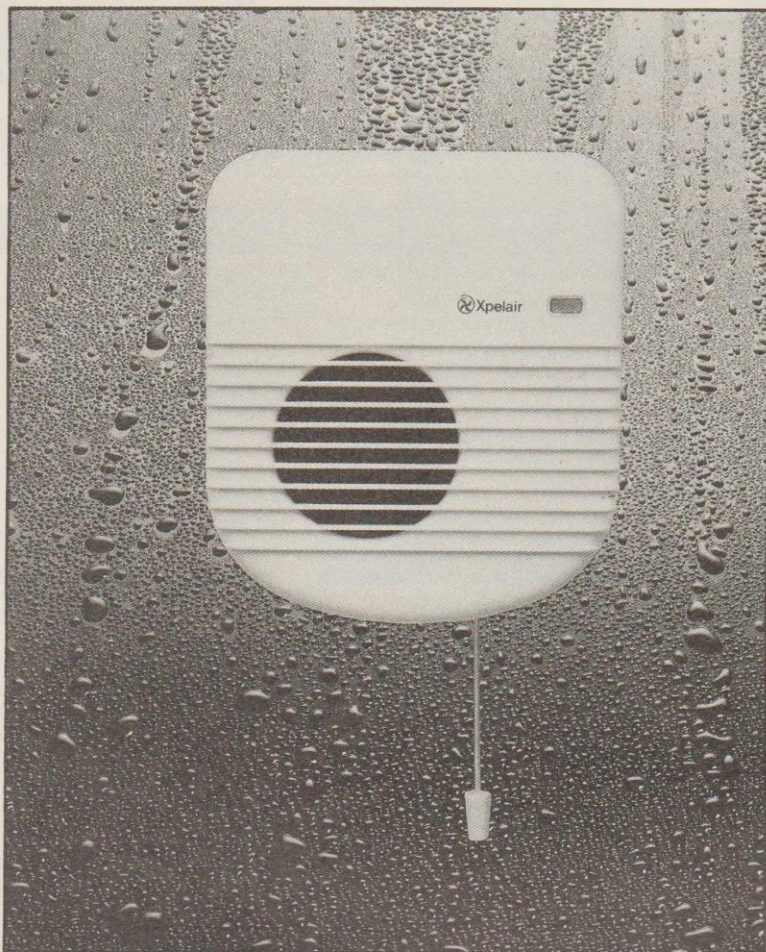
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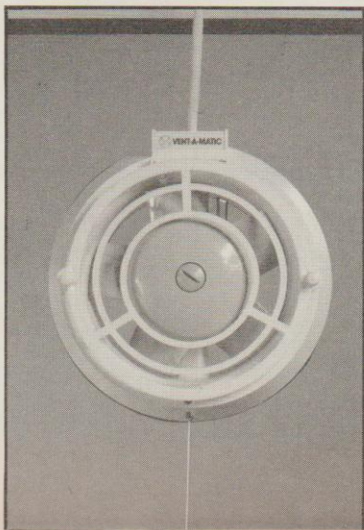
● **Misted-up windows, damp patches on walls, a musty smell or black mould could all be signs of condensation. David Martin looks at the causes and the cures.**

Condensation occurs when warm moist air meets a cold surface and is cooled. Cold air can hold less water vapour than warm and the excess is deposited on the cold surface as droplets of water.

Misting of windows and discolouration of decorations are among the more obvious

▲ The humidity-controlled CF 20 Condensation Control Unit from GEC-Xpelair is designed specifically to combat condensation. Cost from £105.

▼ R W Simon's Vent-A-Matic electric extractor fan fitted with new safety guard.



signs of condensation: more serious effects are mould, deterioration of brickwork and rotting of structural timbers.

Condensation is reckoned to be one of the major problems in today's houses – largely because we have draughtproofed them so well; in Victorian times, the problem was virtually unknown because there were so many draughts that the moisture levels were never able to build up.

We are also responsible for producing moisture – hot baths and showers, clothes drying and cooking all produce water vapour. Even breathing adds to the problem: the average family produces up to 20 litres of water vapour a day!

WHERE DOES CONDENSATION HAPPEN?

Anywhere where moist air comes into contact with a cold surface. Windows and walls are the main areas, but condensation can also occur in places where there is little air movement – inside bricked-up chimneys, in cellars and cupboards and, with improvements in loft insulation, in the roof space.



WHAT CAN BE DONE ABOUT IT?

It's possible to reduce the amount of water vapour in the home by keeping lids on saucepans when cooking, by using an automatic kettle, and by having cooker hoods in kitchens and extractor fans in bathrooms to remove moisture as it is being produced (tumble driers should also be fitted with venting kits). It's also advisable to keep bathroom and kitchen doors closed while the rooms are in use to prevent water vapour spreading to adjacent rooms.

Better heating will make surfaces generally warmer, but specific insulation of vulnerable surfaces will be less expensive. The main measures are **double glazing** of windows and **wall insulation**.

Improving ventilation will go a long way to reducing condensation. Opening windows to give the house a good airing is always a good idea – even when it is a cold wet day outside. Extractor fans and whole-house ventilation systems will provide controlled forced ventila-

tion, while chimney ventilators, roof ventilators, and window ventilators will also ease the problem.

Water vapour can be absorbed temporarily by the use of anti-condensation paint and permanently with a simple condensation absorber or an electrically-operated dehumidifier. A condensation collection channel will remove water droplets which have collected on windows.

DOUBLE GLAZING

When a window is double glazed, one of the effects is to increase the temperature on the inside of the inner pane, so that condensation is reduced.

Fitting replacement windows to solve a condensation problem is an expensive solution – though there will be numerous other benefits. However, there are some attractive do it yourself replacement windows, such as the ones from Wickes, which will be much less expensive than using a professional double-glazing firm. Note, however, that while replacement windows will remove a condensation problem from the windows, they



improve draughtproofing and can sometimes move the problem elsewhere, such as to nearby external walls.

Secondary double glazing is a good choice for the do it yourselfer and Scotch Magnetem Plus from 3M is a particularly neat and unobtrusive method of fitting acrylic sheet in a rigid white frame to an existing window.

If condensation occurs between the panes of double glazing, Scotch Condensation Killers can be used. Consisting of water-absorbing crystals, each pack contains an indicator paper which turns from pink when it is time to remove the crystals and dry them in the oven.

WALL INSULATION

Cavity wall insulation will remove the problem of condensation from walls (as well as reducing fuel bills by cutting down heat loss), but what if your home has solid walls?

Dry lining a wall with insulating plasterboard is the normal choice if you want to cut down heat loss and will be especially effective if a gap is left which can then be filled with

further insulating material. However, dry lining (even without this extra air gap) means complete removal of skirtings and mouldings, extending recesses for windows and doors and the repositioning of electric sockets and switches.

Thin polystyrene sheet will improve the insulation of the wall sufficiently to reduce condensation, but it will do little to reduce heat loss and the material is so soft that it dents easily, even under wallpaper.

One of the latest materials for insulating walls to prevent condensation (and also to cut down on heat loss) is Sempatap, made by Croxton & Garry. This 5mm thick wall lining material is stuck to the wall and has the same insulating properties as 17mm thick plasterboard. It also acts as a sound absorber and will bridge cracks up to 3.5mm wide. Once up, it can be covered with paint, wallpaper, plaster or tiles. Including the special adhesive, it costs around £115 a roll 1m wide and 12.5m long.

EXTRACTOR FANS

The main advantage of an extractor fan is that it will remove obnoxious smells from a



kitchen or bathroom as well as providing a flow of air to cut down on condensation. The disadvantage, of course, is that expensively-produced heat is also removed.

The siting of an extractor fan is important – it should be put in a wall or window opposite the main source of air replacement (usually the door leading to the rest of the house) and should also be near the source of vapour/smell production. In a large kitchen, you may need both a cooker hood over the hob (preferably the type vented to the outside rather than the simple recirculating type) and also an extractor fan positioned over the sink.

There is a good range of extractor fans available, costing from around £13. For a bathroom, consider a ceiling-mounted fan – situated near to a shower cubicle, say – and vented to the outside with ducting. The latest extractor fans have built-in humidity sensors, so that they come on automatically when the humidity reaches a certain level. Separate humidity sensors are also available which can be fitted to existing extractor fans.

WHOLE-HOUSE VENTILATION SYSTEMS

A whole-house ventilation system takes the principle of controlled extraction one stage further. There are two different types:

● With the Nu-aire Drimaster, fresh air is taken in through the eaves of the roof space and the electrically-driven unit in the loft pushes it into the house through a duct in the ceiling. The resulting slight pressurisation of the house then forces moist stale air out through gaps around windows and doors.

● Other systems, such as the one from the Colchester Fan Marketing Company and the one from Wickes, work in a different way. The unit in the loft both extracts warm moist air from the house and pushes dry air into the house, but the clever part is that the heat from the extracted air is passed to the incoming air – a process known as heat recovery. The CFM R2000 system costs around £1,200 fully installed; the less flexible Wickes Home Ventilation system costs around £300.



▲ Fitting Scotch Magnetem Plus:

1. cutting the frame to size;
2. marking out the position on the window;
3. fixing the magnetic strip to the window frame;
4. placing the framed acrylic sheet in place.

CHIMNEY VENTILATION

If you block off a fireplace, there is a very good chance that condensation will form within the disused flue.

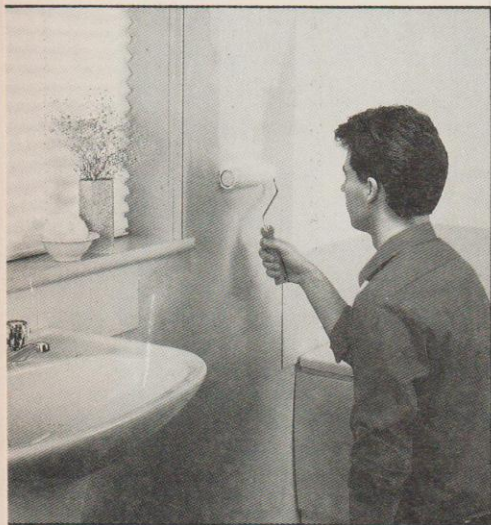
The first essential is a ventilator fitted in the bricked-up fireplace opening – these are readily available from builder's merchants and fit neatly into a brick-size opening with a plastic grille facing the room.

If you also remove the chimney pots and seal off the top of the chimney (flue), air bricks should be built into the sides of the chimney, near to the top, to allow a free flow of air.

ROOF VENTILATORS

One of the consequences of good insulation is

HOME MATTERS



to make the roof space extremely cold. As a result, moisture-laden air seeping through from the house will condense on the roof timbers, leading to future rot problems.

To stop the seepage, seal off all gaps into the house so that moist air cannot get through to the loft space. These gaps include even tiny holes round pipes and cables (seal with mastic) and the one round the loft hatch (fit draught excluder).

In addition, allow in plenty of fresh air to ventilate the loft space. When the roof is being recovered, this can be built in with something like the Redland 'Redvent' system which provides for incoming air at the eaves and outgoing air through both tile and ridge ventilators.

For an existing roof space, however, the two main courses of action are to add airbricks in gable end walls and add soffit ventilators to allow an airflow through the eaves – ensure that there are sufficient gaps in the loft insulation at the edges to allow for this air flow.

Swish Building Products makes a range of uPVC roof ventilators with 3mm slots, providing efficient air circulation while keeping out rodents, small birds and insects.

WINDOW VENTILATORS

A simple circular window ventilator, costing from around £5, will provide some amount of air flow. Firms like RW Simon offer designs with adjustable shutters, and ones which can be fitted into double-glazed units.

An easy way of providing a degree of ventilation to a room is with a trickle ventilator fitted into the frame above the window. Simply drill a number of holes in the window or the window frame and fit a plastic ventilator at the top. An adjustable lever allows you to choose whether or not to have an air flow. A typical system is made by DRG Sellotape.

ANTI-CONDENSATION PAINT

An anti-condensation paint, such as the one from International, acts as an insulant on cold surfaces delaying the point at which condensation occurs. With products such as Seculate from Pearl Paints, any moisture which does occur is absorbed by the paint and released when the air in the room can accept more

◀ *International Paint's Anti-Condensation Paint cuts down heat loss through the walls and inhibits mould.*

▶ *The central unit of the CFM 2000 whole-house ventilation system.*

back again. Seculate is widely used all over the world and is available direct from the factory or from some builders merchants. International Paint's Anti-Condensation paint is available from diy stores. Both contain fungicides to inhibit mould growth.

CONDENSATION CHANNELS

One way of coping with the particular problem of condensation on windows is to collect the moisture produced and direct it to the outside of the house.

The Mangers Condensation Channel has been specifically designed with diy installation in mind. The channel can be cut to size with a hacksaw and then attached to the inside of the window frame using self-adhesive tape. The moisture from the window is then collected and directed via a drain tube to the outside through a hole drilled in the window frame.

CONDENSATION ABSORBERS

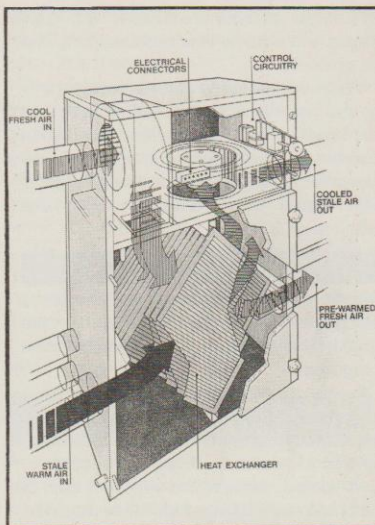
Condensation absorbers contain specially formulated crystals which absorb the moisture in the air, slowly filling up the container with water. The container can then be emptied and when the crystals have completely dissolved, they can be replaced.

Condensation absorbers are made by DRG Sellotape, Stig Ravn (Termotex) and Bison Adhesives and cost from around £6.

DEHUMIDIFIERS

The ultimate in moisture removal is an electrically-operated dehumidifier.

This is a little like a refrigerator working in reverse and provides a cold surface on which the moisture can condense, with the resulting



liquid being collected in a container which you then have to remove every few days. A typical dehumidifier costs from around £300 to buy and around 20p to 30p a day to run – but may be the only answer if you live in a well-sealed house with a serious condensation problem.

There is a wide range of dehumidifiers on the market made by such manufacturers as Eaton-Williams (Dry Aire), Ebac and Toshiba.

GETTING RID OF MOULD

Even if you manage to solve a condensation problem, you may still have to get rid of the black mould which has been formed.

There are several suitable fungicides on the market which will not only remove the mould from the surface (usually from a wall) but will prevent its regrowth. Manufacturers include Castle Products (Mould Busters) and Bio-kil. ●

FURTHER INFORMATION

Bio-Kil Chemicals, Brickyard Industrial Estate, New Road, Gillingham, Dorset SP8 4BR.

Bison Adhesives, Rowberry House, Cope Cross Street, Ross-on-Wye HR9 5PD.

Castle Products, 35 High Street, Wendover, Buckinghamshire HP22 6DU.

Colchester Fan Marketing, Hillbottom Road, Sands Industrial Estate, High Wycombe, Buckinghamshire HP12 4HR.

Croxton & Garry, Curtis Road, Dorking, Surrey RH4 1XA.

Dri-Sil Technics, The Bear Brand Complex, Allerton Road, Woolton, Liverpool L25 7RE.

Eaton-Williams Products, Station Road, Edenbridge, Kent TN8 6EG.

Ebac, St Helen Trading Estate, Bishop Auckland, Co Durham DL14 9AL.

GEC-Xpelair, PO Box 220, Deykin Avenue, Witton, Birmingham B6 7JH.

International Paint, 24-30 Canute Road, Southampton, Hampshire SO9 3AS.

J Manger & Son, Mansfield House, Wollaston Road, Irchester, Northamptonshire NN9 7DQ.

Nu-Aire, Western Industrial Estate, Caerphilly, Mid-Glamorgan CF8 1XH.

Pearl Paints, Severn Road, Treforest Industrial Estate, Pontypridd, Mid-Glamorgan CF37 5SR.

DRG Sellotape Products, Elstree Way, Borehamwood, Herts WD6 1RU.

RW Simon, System Works, Hatchmoor Industrial Estate, Torrington, Devon EX38 7HP.

Stig Ravn, Unit 4, Rockfort Industrial Estate, Hithercroft Road, Wallingford, Oxfordshire OX10 9DA.

Rentokil, Felcourt, East Grinstead, West Sussex RH19 2JY.

Swish Products, Tamworth, Staffordshire B79 7TW.

3M, 3M House, PO Box 1, Bracknell, Berkshire RG12 1JU.

Toshiba (UK), Toshiba House, Frimley, Camberley, Surrey GU16 5JJ.

Vent-Axia, Fleming Way, Crawley, Sussex RH10 2NN.

Westra Environmental Equipment, The Green, Southall, Middlesex UB2 4DE.

Wickes Building Supplies, Wickes House, 120/138 Station Road, Harrow, Middlesex HA1 2QB.



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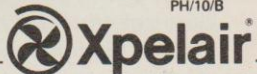
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