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NOVEMBER 1987

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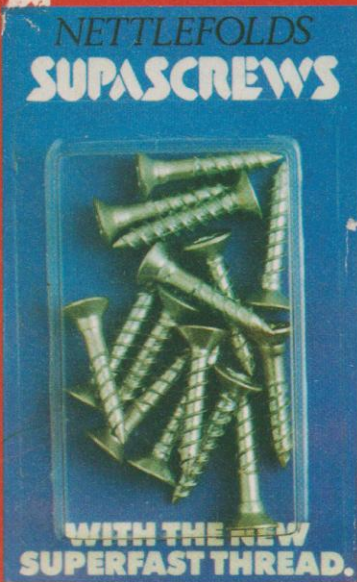
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Also in this issue:

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Keep condensation at bay

**ADDING A LIGHT**

Follow our simple guide

PLUS: Gutters and drains.

Generators

**FANTASTIC COMPETITIONS ~ £4500 IN PRIZES**

Win fitted wardrobes and a handy mixing machine

# Do it yourself

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Bosch 850.2RLT Drill

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## 6 Power tools

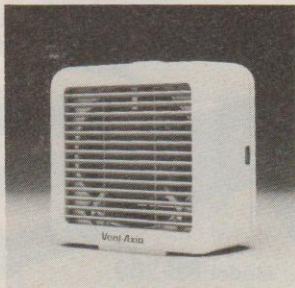
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## YOUR COVER GIFT NETTLEFOLDS SUPASCREWS

The Nettlefolds Supascrews on the front cover of this month's magazine are rather special screws with nine benefits over conventional steel woodscrews, as shown below.



Once you have tried the screws for yourself all these benefits will soon become obvious. Supplies of these screws in a wide range of sizes are available from your local d-i-y store, together with the slotted head version, which is called the Mastascrew. See our feature on screws on page 71

## A BREATH OF FRESH AIR

Ventilation is something many of us take for granted, but it is essential to provide a fresh, clean and comfortable atmosphere inside the home. In the past it didn't require much thought, as older homes had an excess of ventilation through draughts and the like. In the last twenty years all this has changed. The demise of the open fire and the increasing use of double glazing, weatherstripping, and impermeable decorations have all contributed to making today's houses far more air tight.

However, providing a pleasant environment is not the only purpose of ventilation. Increasingly, it has been discovered to be just as important in keeping the building itself healthy. Floors and lofts are well-known examples, but in the last few years flat roofs have also been found to suffer from lack of proper ventilation.

### Calculating ventilation

Different rooms need different levels of ventilation. For a start,

Building Regulations state that habitable rooms should have opening windows (excluding doors) equal to at least 1/20 of the room's floor area. This may sound like a lot but, for a room measuring 12ft. x 12ft., would mean only a small casement measuring 3ft. x 2ft.4in. Of course, this takes no account of the activities in the room: a bathroom, after all, will need more ventilation than a lounge. Add to this the fact that you won't always have windows open, and you can see why a more scientific means of measuring ventilation is needed.

The usual method is to calculate the number of air changes needed per hour. As it suggests, this means finding the number of times a volume of air equal to the volume of the room has to be removed every hour.

### Bathrooms

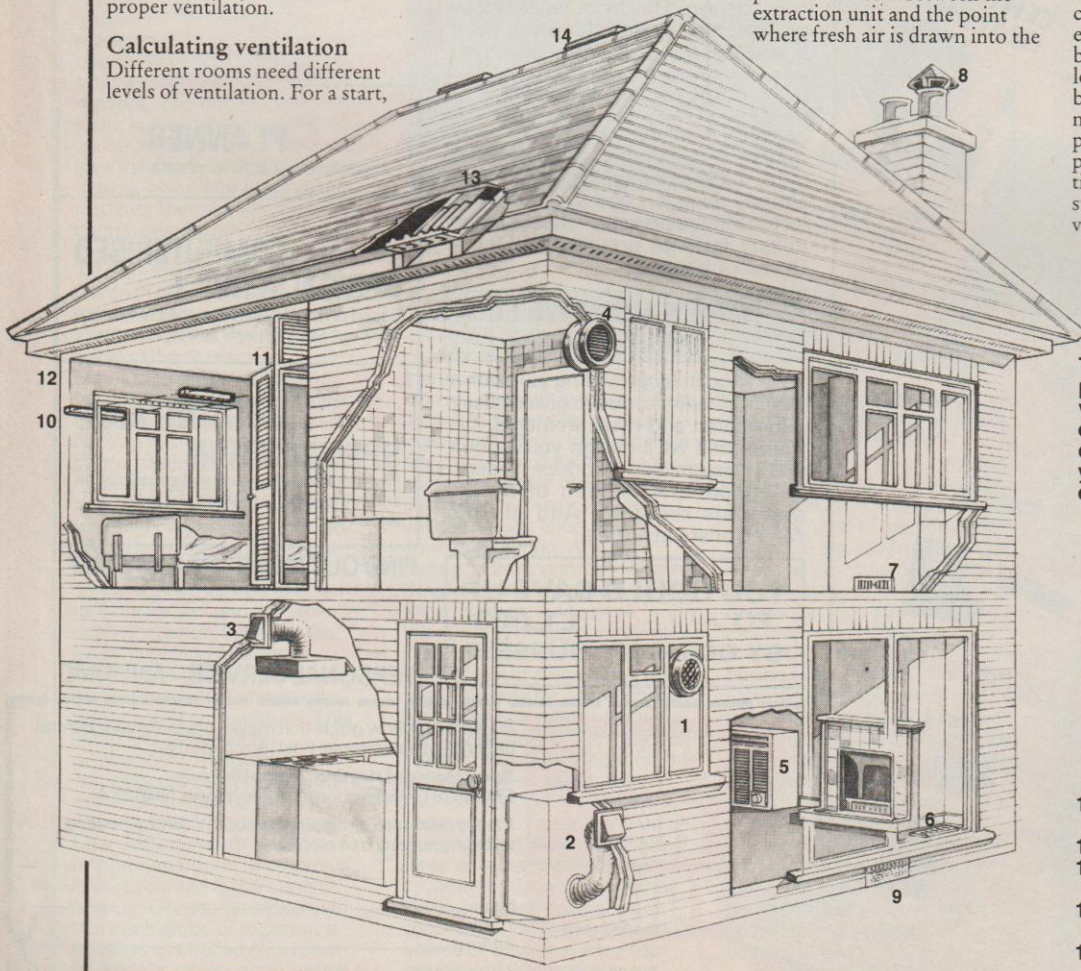
Baths and hot steaming showers produce large quantities of moisture vapour, which need to be evacuated. Not surprisingly, then, bathrooms need a lot of ventilation: something in the order of six air changes each hour. This could be provided by opening a window, although it would be rather uncomfortable in winter. A better alternative is to use an extractor fan. Not only will it remove moisture-laden air, but it will replace it by drawing in air from the adjoining rooms, rather than cold gusts from outside. Providing the adjoining rooms are heated, this should keep the temperature inside the bathroom more constant.

In a bathroom, in particular, it is very important to position an extractor fan correctly. It must be sited to create the best possible air flow between the extraction unit and the point where fresh air is drawn into the

room. For example, it is best not to position the unit directly opposite a door, as this will give only partially effective ventilation (especially if the bath is not in the direct path). A diagonal flow across the room is best. The position of windows should not prevent you doing this, as most models for d-i-y installation can be wall or window mounted.

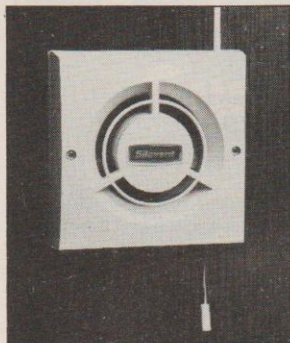
To calculate the size of extractor fan needed, first work out the volume of the room; then multiply this by the number of air changes required per hour. This will give you the total volume of air to be removed every hour. Extractor fans are specified according to their extraction rate, given in cubic metres per hour. All you have to do is pick the model with the nearest extraction rate to the figure in your calculations.

However, though they are cheap to run (using only the equivalent of an ordinary light bulb), many people dislike the low hum of extractor fans. If the bathroom is well-heated, moisture vapour will be less of a problem, especially if it has permanent decorations, such as tiles. In this case it may be sufficient to install a window ventilator wheel.



This illustration shows the possible locations of the various types of ventilation equipment. It helps you choose the best solution to your ventilation and condensation problems.

- 1 Extractor fan in kitchen window
- 2 Exhaust from tumble dryer
- 3 Cooker hood extractor
- 4 Wall fan in bathroom
- 5 De-humidifier in lounge
- 6 Floor vent to provide air for fire
- 7 Ventilation grille in dis-used flue
- 8 Ventilation cap on dis-used chimney pot
- 9 Under-floor ventilation
- 10 Security vent in window frame
- 11 Louvre doors to wardrobe
- 12 Eaves grilles for roof ventilation
- 13 Ventilator strips between rafters
- 14 Ridge vents



This 4in. window fan is from a range made by Silavent

### Kitchens

Adequate ventilation in kitchens is even more important, as they have to cope with high levels of heat, moisture and cooking odours. Simmering saucepans, boiling kettles, clothes washing and drying can all lead to serious condensation problems. Then there is the problem of grease and fat. These, too, are transported in cooking vapours and allowed to deposit on walls and ceilings, ruining decorations.

The usual amount of ventilation required for kitchens during use is between 15 and 20 air changes per hour. Obviously this calls for some form of mechanical extraction device. Extractor fans are again a popular solution. As the amount of ventilation required varies according to number and type of activities at any particular time, it is wise to pay a little more for a two speed model. Another point to consider when buying is whether or not the fan can be dismantled easily, as it will need cleaning every 2-3 months.

One reason why natural ventilation is often not sufficient in a kitchen is that it won't create satisfactory circulation of air. This means that the air above cookers and hobs isn't removed quickly enough, which means fat

is allowed to condense on wallcoverings. One method of preventing this is to remove the pollution at source by installing a cooker hood. These basically consist of a fan that draws steam and cooking smells up inside a canopy. There are two types of cooker hood: recirculating and extraction. Recirculating hoods do not remove air, they simply pass it through a series of filters intended to draw out water vapour, grease and odours. Extraction hoods are widely thought to be more effective, although they require ducting to an outside wall, and so are less convenient to install.

Apart from installing a mechanical ventilator, it is sensible to try and reduce the amount of moisture vapour being introduced into the atmosphere by using vents. Tumble dryers probably produce more moisture vapour than any other appliance in the kitchen. Again this can be removed at source by venting directly to the outside using a product such as the Oracstar Tumble Dryer Vent Kit.

### Other rooms

Living rooms need relatively little ventilation; usually only around 4 to 6 air changes per hour. Mostly, this can be provided quite happily with opening lights in windows. However, those rooms that tend to get stuffy in winter may benefit from having a trickle ventilator installed in the window frame to allow constant, but comfortable ventilation. If this proves insufficient, a ventilator wheel may be the answer.

### Condensation

Condensation is one of the most common problems that can arise from poor ventilation, leading to mildew, mould growth and spoilt decorations. However, this is not the only cause. There are three factors to consider: air temperature, surface temperature and ventilation. Air can only hold so much moisture at a given temperature. If it is allowed to cool (due to inadequate heating) or come into contact with a colder surface (due to lack of insulation); or the level of moisture vapour is allowed to increase (through insufficient ventilation), condensation will result.

Curing condensation depends on getting the balance of these three things right. In kitchens and bathrooms in particular, better ventilation is often a major part of the solution. One method is to use an extractor fan

connected to a humidistat, which can switch it on automatically when the level of humidity gets too high.

However, ventilation may not be the answer for other areas. For example, in houses without central heating, bedrooms and other poorly heated rooms often suffer from condensation, often noticeable as mould growth in corners where air does not circulate freely. Although ventilation would appear to be the answer, the best solution is to increase insulation. This will raise the temperature of the surface, without the expense of continual heating, so preventing moisture droplets forming.

### Lofts

There are many people with lofts that absolutely drip with condensation after they have been insulated. This is because, now deprived of the heat rising from the floors below, the temperature of the air in the loft space falls, and is unable to hold so much moisture. It, therefore, deposits condensation on the underside of the roof cladding and other cold surfaces.

The damp that results from

this can often cause severe problems, such as rotting of ceiling joists and even roof rafters. It must therefore be prevented with adequate ventilation. This normally takes the form of a vent in the soffits on either side of the roof. Houses with a roof pitch of 15 degrees or more need openings equivalent to a continuous 10mm gap along the soffit on either side; if the pitch is less than this, a 25mm gap is needed.

If your loft does not have such ventilation, you can buy plastic soffit ventilators from builders' merchants. These ventilators are protected with their own insect mesh. They are fitted at intervals along the soffit, by simply cutting a hole with a padsaw and screwing the vent in place. Often, insulation will restrict the flow of air at the soffit. To prevent this you can also buy plastic or cardboard eaves vents. These are sandwiched between the ceiling joists, and are shaped to keep the insulation out of the way.

In some cases, soffit ventilators alone won't be sufficient. In complicated roofscapes, the circulation of air

## CONDENSATION CONTROL

If you live in a modern dwelling with insulated walls and roof, double glazed windows and draughtproofing at every door, you are almost certain to find under these near hermetically sealed conditions that you are plagued with condensation.

Ventilation is, of course, one of the best solutions to this problem, but security demands that doors and windows should be closed and fastened, especially for ground floor flats and bungalows.

An alternative is a dehumidifier. These machines take the moisture out of the air before it can do any damage by condensing on windows, in cupboards and other places where it promotes the growth of mould and fungus. You can have either fixed or portable models. The fixed type being ideal for kitchens and bathrooms, but where condensation is a more general problem the portable models can be moved from room to room as required.

### Dehumidifier on test

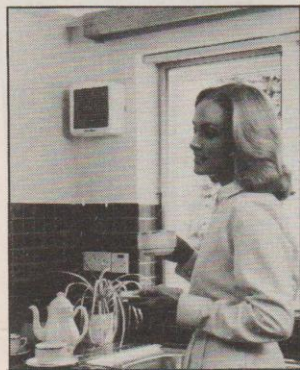
For the past nine months, we have been testing a Westra DH30 portable dehumidifier in a ground floor flat which was suffering from a musty smell, where mildew grew on footwear and there was a general air of dampness.

An improvement was noticeable within the first day of the machine being introduced. The water level in the atmosphere was such that the one gallon water container was filled in 24 hours. Soon the musty smell began to fade and shoes could be kept in the wardrobe without growing mildew.

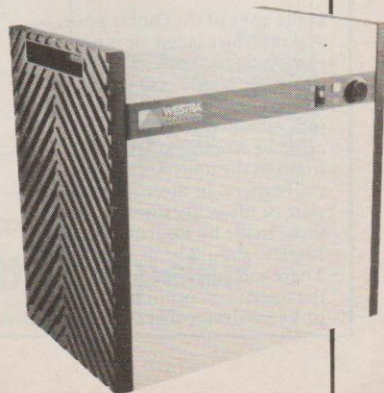
The easy glide castors enabled the machine to be moved to different positions to find the most suitable places. When operating, the

DH30 produces a low humming sound which, though almost unnoticeable during the day, could be irritating to some people if kept on all night in a bedroom where they were trying to sleep. This model was therefore either switched off at night or moved to another room where it could go on working until the water container was full and the machine then switched itself off automatically.

After operating all through the winter and into the summer, our tests proved to be 100% successful; bedrooms are now completely free from damp and mildew. Running cost worked out at about 1p per hour, as near as we could judge. As a bonus, the distilled water could be used for car batteries, steam irons and even watering the house plants. Further information on the DH30, which costs £340, from - Westra Environmental Equipment Ltd., 24 Mark Road, Hemel Hempstead, Herts, HP2 7DN. Tel: 0442-212601.

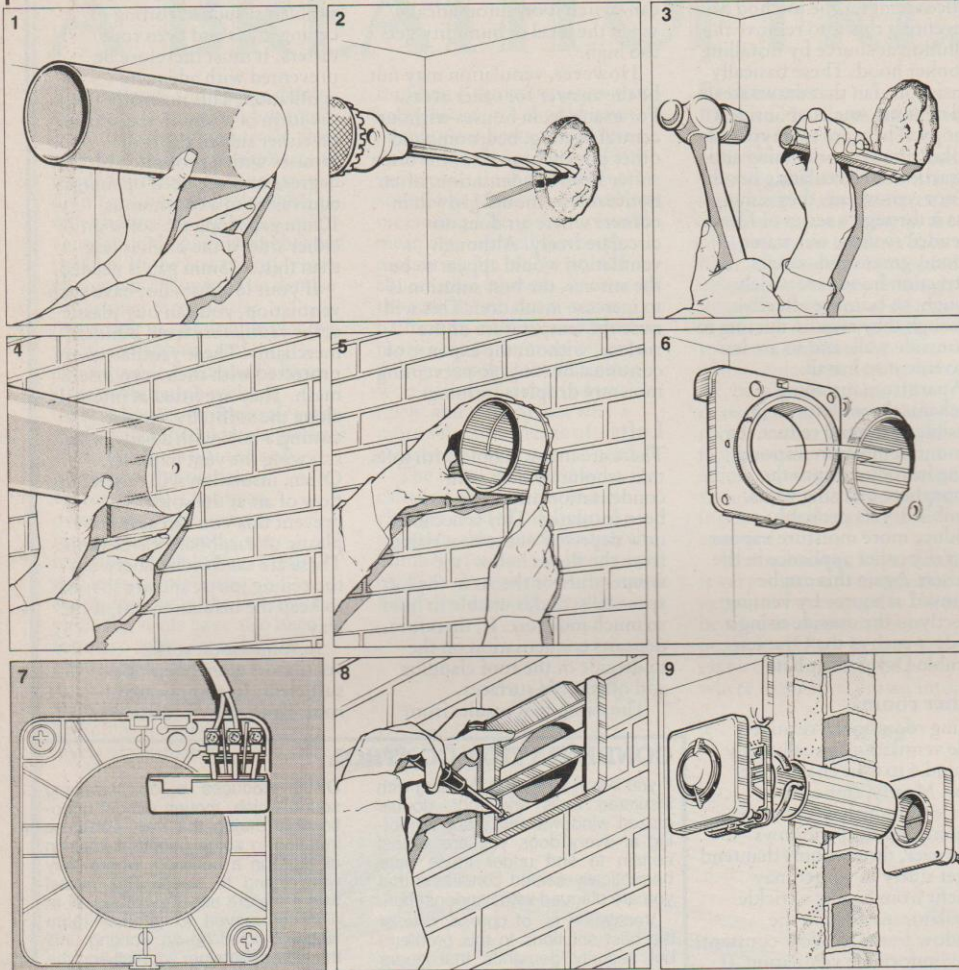


A Vent-Axia wall fan installed in a kitchen



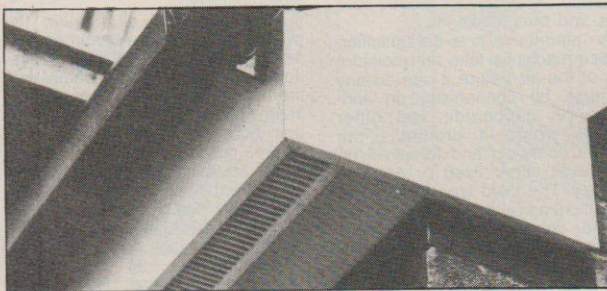
# VENTILATION

## Fitting a wall extractor fan



1. Mark the position of the fan duct inside the room
2. Chip away the plaster and, with a long bit, drill a hole right through the wall to indicate the position on the outside
3. Use a heavy hammer and cold chisel to cut away the interior masonry
4. Centre the duct over the small hole; mark and cut out the exterior masonry
5. Fit the duct, mark it and cut it to length
6. Plug and screw the back plate to the interior
7. Make the electrical connections and fit the fan unit
8. The louvre is fitted to the exterior
9. An exploded section showing the parts and their positions

Illustrations show a typical GEC Xpelair fan installation



Swish soffit ventilation strip fitted into Celuka trimmed eaves

at the apex of the roof is poor, and moisture laden air is not removed efficiently. This will definitely be the case where a new room has been added in the loft, effectively cutting off the apex, or where insulation is fitted to the underside of the roof rafters. In these instances slate or tile ventilators, such as those made by Redland and Marley, should be installed. These can take the form of a new tile or slate incorporating a vent; or a vent device that is fixed to an

existing one. Again these can be bought from builders' merchants.

### Flat roofs

It is equally important that flat roofs are properly ventilated to avoid similar structural damage. There are two types: hot and cold, referring to whether the roof insulation is fixed under the roof void and on top of the ceiling below; or whether it is on top of the void. Cold roofs need ventilation to prevent

condensation. Similar eaves vents can usually be installed to do this. However, where the joists run at a right angle to the main building the air won't be able to escape at the other end. To enable this, an outlet vent must be installed in the middle of the roof. These are made by manufacturers like Eurorof.

### Underfloor ventilation

Lack of ventilation under floors can lead to dry rot. Air bricks are installed to allow air to circulate between the joists of suspended floors and the oversite concrete. Generally speaking, there should be air bricks every 2m or so in external walls. Make sure they are kept free, both from dirt and debris externally, and lagging for pipes, etc, internally. In some cases the construction of sleeper walls can restrict airflow leading to pockets of dry rot in isolated corners. If you encounter this, after curing the rot, install an extra air brick to provide additional ventilation.

### For further information . . .

- Eurorof Ltd.**, Denton Drive, Northwich, Cheshire, CW9 7LU. Tel: 0606-48222.
- Marley Roof Tile Co.**, London Road, Riverhead, Sevenoaks, Kent, TN13 2DS. Tel: 0732-455255
- Redland Roof Tiles Ltd.**, Reigate, Surrey, RH2 0SJ. Tel: 073-72 42488
- Timloc Building Products**, Rawcliffe Road, Goole, N. Humberside, DN14 6UQ. Tel: 0405-5567/3691 (ventilators)
- Venta-Axia**, Fleming Way, Crawley, W. Sussex. Tel: 0293-26062.
- GEC Xpelair**, PO Box 220, Deykin Avenue, Witton, Birmingham, B6 7JH. Tel: 021-327 1984.
- Airflow Developments Ltd.**, Lancaster Road, Wycombe, Bucks, HP12 3QP. Tel: 0494-25252.
- Swish Products Ltd.**, Lichfield Road Industrial Estate, Tamworth, Staffs, B79 7TW. Tel: 0827-63811.
- Greenwood Airvac Ventilation**, P.O. Box 3, Brookside Industrial Estate, Rustington, Littlehampton, BN16 3LH. Tel: 0903 771021
- Hunter Building Products**, Nathan Way, London SE28. Tel: 01-855 9851.
- Kenflex Ltd.**, Unit 3, Barratt Industrial Park, St. Oswalds Road, Gloucester, GL1 2SH. Tel: 0452-419400. (Kenvent)
- Nu-Aire Ltd.**, Western Industrial Estate, Caerphilly, Mid-Glam, CF8 1XH. Tel: 0222-885911.
- Oracstar Ltd.**, Perram Works, Merrow, Guildford, Surrey. Tel: 0483-505011.
- Silavent Ltd.**, 32 Blyth Road, Hayes, Middx. Tel: 01-573 2822.



# SHOWER CONDENSATION?

Nothing like a nice refreshing shower to start the day, but condensation and mould on wallpaper or paintwork will soon dampen the scene. An Xpelair wall or ceiling fan is perfect for extracting moisture laden air that can't escape naturally.

Cut out this advertisement and we'll send you our new booklet guide to home ventilation.

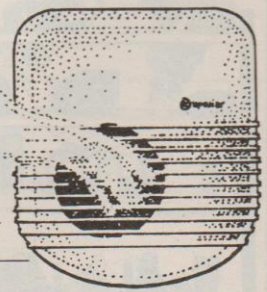


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DIY 11

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