PRACTICAL HOUSEHOLDER

NOVEMBER 1971 12½p.

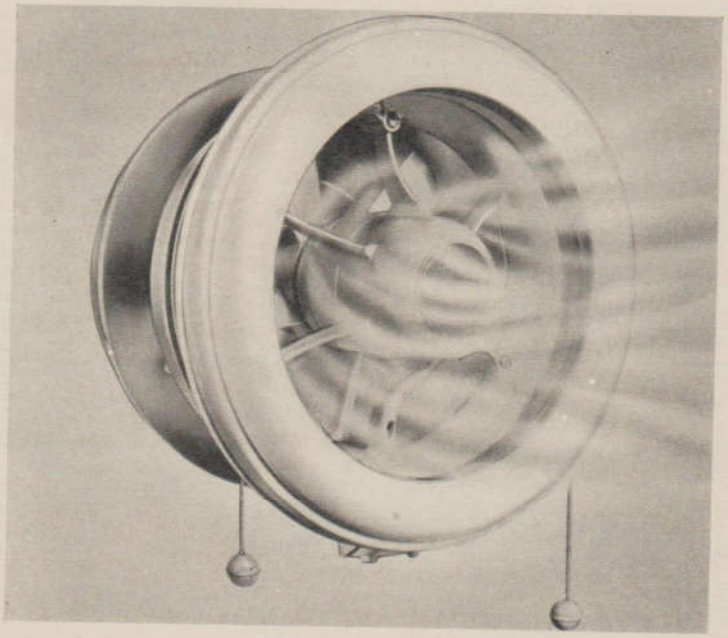
SPECIAL ISSUE

YOUR HOME IN WINTER

CENTRAL HEATING SYSTEMS • INSULATION • VENTILATION
DOUBLE GLAZING • CONDENSATION • HUMIDIFICATION
BARGAIN OFFER OF 2 HUMIDIFIERS

YOUR HOME IN WINTER

VENTILATION



How important is ventilation ? This aspect of home comfort sets the pattern for a healthy and sound household

HOME environments seem to become more complicated as development produces appliances and materials which make our home life better than it was a generation ago.

Central heating, itself a great boon, will nevertheless create environmental problems which can affect structures, furnishings and the physical well-being of occupants.

And as one 'improves' conditions by utilising the ancillaries of central heating—insulation, draught-proofing and double-glazing—the inherent 'problem' conditions of the structure which may have been insignificant beforehand, may become acutely pronounced—even exaggerated.

These conditions are produced quite innocently, as we have noted in the section dealing with condensation—because it is mainly condensation that creates bad structural and physical conditions.

This may seem rather perplexing when, also in this series, we have dealt with the need, in certain types of conditions, for actually *increasing* the humidity of the house atmosphere !

But you don't need 'A' levels to know that there are different types of living conditions, from home to home and family to family. What should be thoroughly understood is the fact that adequate ventilation is the key to good physical conditions in any building and, of all the measures taken to create a comfort level in the home it is ventilation that dictates the extremes of your environment: lack of it promotes poor physical and structural conditions while too much of it can cost a bomb in fuel wastage.

The rate for the room

Air change rates are thus all-important and there is a definite scale laid down for the type of room. These change rates are scaled to the entire heat assessment programme. The system used multiplies the room volume assessment by the number of air changes required per hour.

But, and there is always a but, the particular mode of living in a household may demand a higher or lower change rate, as would the method of heating.

A retired couple, for instance, living in an electrically-heated house, with all appliances running off electricity, would require a normal exchange rate, plus, in most cases, humidification.

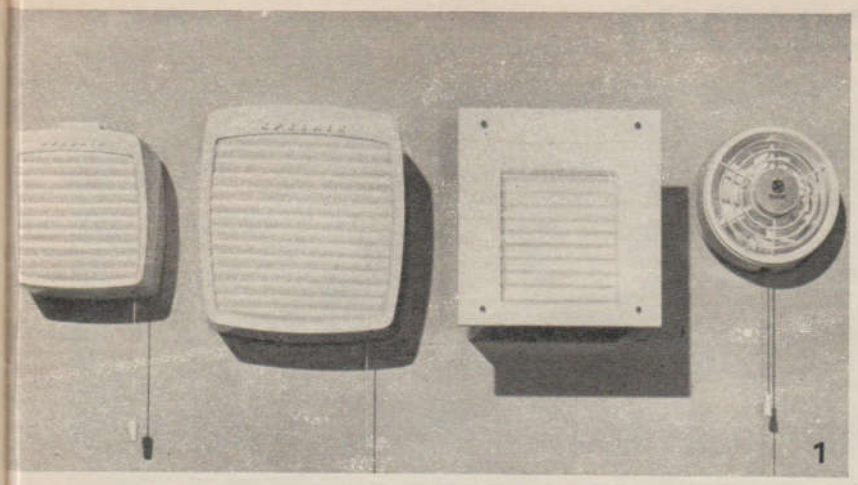
On the other hand a young family, with gas as the main source of fuel, with perhaps, an unflued gas radiator in the hall, gas cooking, independent gas fires, kiddies' washing going through the machine all the time, plus a dog and a cat would require a much higher air exchange rate because of the high density of living and volume production of water vapour.

So while standard rates of air exchange are laid down for the basic design of heating systems it is also necessary to make allowances for the type of conditions created and, on this basis, the retired couple, while paying for an expensive power, would find it much cheaper to maintain their conditions than the young family using a slightly cheaper fuel.

Such considerations are what make central heating design something of a science; systems have to be designed to suit the structure of the dwelling and the requirements of the occupants.

The economic environment

This careful regard for physical conditions will have a very direct bearing on two important factors: the household environment and its economic running. The more equable the home atmosphere the better it is for the structure and the physical well-being of the family. It could well be a false economy to hold on to the atmosphere of a house which, while saving fuel costs, may create conditions which will depress family health and



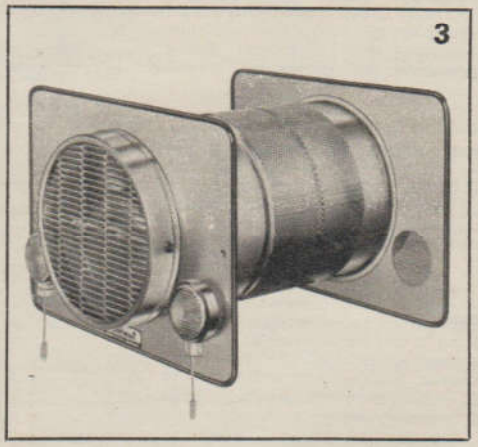
1 Left to right: the range of Xpelair domestic extractor fans. The window or wall mounted GXC6 and GXC9, built-in wall fan WX6 and the popular window mounted FXC6. All have back-draught shutters/covers

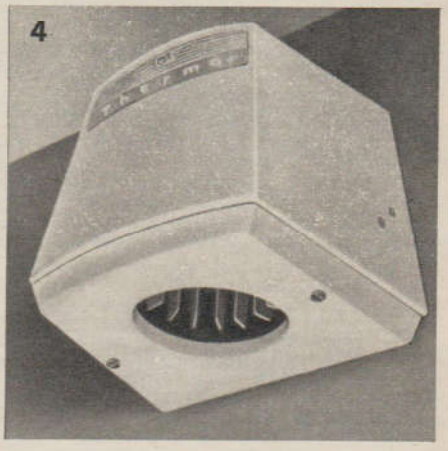
2 Novel and practical Philips extractor fan has transparent plastic wind tunnel, fan blades and shutter to reduce light loss. For window fitting

3 The new Ventwall Venstage, by R. W. Beach, has a new approach to the need for non-mechanical air supply when the fan is off. Fits into air brick

4 Ideal for fitting above a cooker or sink, etc.: the Thermor wall mounting extraction canopy

Heading picture (left) shows a veteran Vent-Axia unit, window fitting, with reversible control





progressively damage decorations or structure.

Dealing with variables

The crunch comes, of course, when, in spite of a carefully planned natural ventilation scheme the conditions change, either naturally or by a variation in the terms of occupation.

This sort of condition arises when a sudden change in exterior humidity level runs parallel with, say, a large entertaining programme when a lot of water is used in bathroom and kitchen and much more cooking is undertaken.

These demand an immediate but temporary change in the ventilation rate. This variable is best attained by mechanical means, so that temporary changes can be met immediately they arise without interfering with the normal designed ventilation arrangements.

Extractor fans for domestic use have now been developed for practically any known application.

The ranges cover window fitting types, which can neatly fit into a slot in the top of a large pane; or the small, neat round type, which fit into a hole cut in a pane; or unobtrusive units that can be fitted into walls, either by cutting a special hole or removing an air brick, in an outside wall.

Most of these types incorporate an exterior flap or louvre which can be closed manually or automatically when the fan is not used.

Replacement air

Most of these fans work on the extraction principle, removing unwanted air—so it is of vital importance to ensure that air is freshly taken in from outside to replace it; indeed extractor fans will not work efficiently unless this provision is made.

Even more important a consideration is the provision of air for combustion of appliances because, unless this is arranged properly an extractor fan could literally pull the products of combustion (flue gases) from a heating appliance into the house.

So replacement air from outside must be so arranged that it enters from a point as nearly opposite the extraction point as possible, thus creating a through change of air.

This step can be extended by arranging for inter-room ventilation, to one extraction point, by means of partition ventilators, set into walls or doors.

Combustion air can be introduced independently (as indeed it always should) by grilles in exterior walls, near appliances, or in floorboards adjacent to fires, etc.

A very neat means of introducing fresh air, at a controlled rate but without mechanical aid, is by means of window ventilators, neatly produced in clear plastic, which have a rotating vaned unit operating on the difference between internal and external air pressures.

Assessing the duty required of a mechanical fan is relatively easy as the manufacturers always quote the maximum displacement the unit can achieve in cubic feet.

Thus if you take a small kitchen with a room volume of 1,000 cubic feet an extractor fan with a capacity for dealing with 8,000 cubic feet an hour, then it would appear that, in theory at least, the fan could change the air in the room eight times in an hour.

Bear in mind however, that the duty imposed on the fan is heavier than just the extraction rate: it must displace the air and replace it from somewhere else so that, in all probability such a fan would be ideal for that sort of kitchen in that it can be expected to disperse unfavourable conditions relatively quickly, when it can be switched off. In any case speed control switches are available for most makes of fan which make the appropriate exchange rate easy to achieve.

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