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always be assessed. This approach could allow existing equipment to remain on site and would possibly lead to a shorter period of disruption whilst systems are updated to take R134a or R407C. The benefits of this approach are that a retrofit can be planned well in advance and the immediacy of legislative deadlines can be offset.

If no immediate action for retrofits or replacement programmes can be made, the urgency to buy replacement refrigerant whilst it is still legally available is essential.

Purchasing stocks of refrigerant to last until the end of year 2000 will be advisable if existing chillers cannot be replaced immediately or retrofitted. By buying refrigerant now, an extra 12 months can be bought, providing time to make the other necessary changes and budgets for retrofits and replacements agreed. However, it must be stressed that stockpiling refrigerant is a short-term solution and not a long-term measure.

After year 2000, end users who continue to operate equipment utilising banned refrigerants risk heavy penalties.

Partnership

The final option, and long-term solution, is to change equipment. This can be done as part of a general process of upgrading facilities and meeting additional demand. New units can be selected which have small footprints, and offer lower operating costs. We are currently working with many blue-chip organisations in the pharmaceutical and process-manufacturing sectors, to create a replacement programme. Screw-chiller technology, for example, allows end users to benefit from highly efficient chillers utilising HFC refrigerants.

By working in partnership with a manufacturer, facilities managers and end users can work out programmes which take away the knee-jerk reaction to legislative change. The great fear for us in the current situation is that by the end of 1999, many end users will still not have considered the next step to meeting legislative requirements.

The effect of a glut of orders for replacements and retrofit chillers, will be extended manufacturing lead times, premium prices and delivery schedules which fail to meet the deadlines as they come into effect. This will not benefit the industry, and may well unfortunately leave some end users without operating equipment as we enter 2001.

New Loraine is business manager — chiller business unit with McQuay Ltd, Unit 34, Leslie Hough Way, Salford University Business Park, Salford, Manchester M6 6AJ.

A BREATH OF FRESH AIR

Ventilation responds to the carbon-dioxide challenge

Energy efficient ventilation has a key role to play in achieving the Government's objectives for reducing carbon-dioxide emissions. Ian Andrews discusses the background to the issues.

With the European Union now formally committed to reduce emissions of greenhouse gases by 8% and the UK Government pushing hard for a reduction of UK CO_2 emissions to 20% below 1990 levels by the year 2010, the pressure is on to save energy.

Effective action

In its drive to translate the Rio, Kyoto and now Buenos Aires summit undertakings into effective action, the DETR once more has Building Regulations Document L 'Conservation of fuel and power' under strategic review — as already evidenced by the recent round of consultative workshops run on its behalf by Oscar Faber.

"The energy performance of the existing building stock is now under the spotlight — not just new buildings as at present"

By assessing the practical scope for energy savings achievable through revisions to the Building Regulations, the workshops were a significant first phase of the review, where FETA representation and the work of the FETA Document L steering committee has ensured that the industry's views have been clearly presented and absorbed.

FETA involvement is continuing to provide a key input to any future legislative developments — currently through the industry advisory groups (IAG) which have been recently re-established by the DETR for the next stage of its review of the energy efficiency requirements in the Building Regulations.

So what is driving the agenda, so far as domestic ventilation is concerned?

The most significant development is that the energy performance of the existing building stock is now under the spotlight — not just new buildings as at present. The DETR is anxious to stress that the workshop sessions were designed to stimulate debate, prior to the current phase of evaluation before finally making policy proposals. Nevertheless, feedback so far indicates that we might well expect regular, in-service testing and rating of existing buildings. This could involve pressurisation tests for air-tightness, thermographic assessment of insulation performance and tougher planning controls being applied when buildings are

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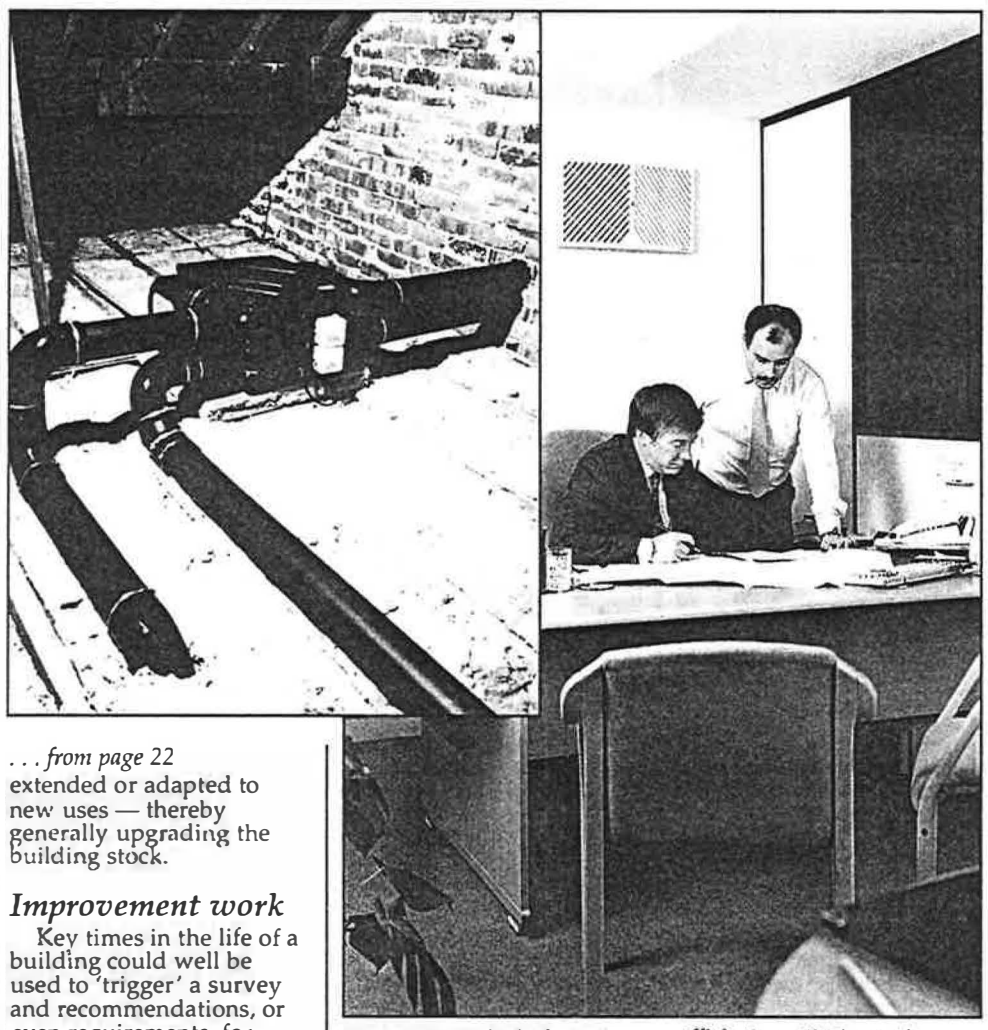

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extended or adapted to new uses — thereby generally upgrading the building stock.

Improvement work

Key times in the life of a building could well be used to 'trigger' a survey and recommendations, or even requirements, for improvement work — for example a change of owner or tenant, a rent review or even a specified seven-year review. Obviously it is impractical to bring all existing buildings up to the standards set for new ones, but it will be practical and effective to set realistic targets in line with building age and construction — relating these targets to an energy performance of CO_2 index.

It has also been proposed that the duties of local authorities under the Housing Conservation Act 1995, requiring them to improve the average energy efficiency of houses within their boundaries by 30% over a 15-year period, should be more closely integrated with the requirements of the Building Regulations and, moreover, extended to include non-domestic buildings. Such a move would give local authorities considerably more power as well as accountability in developing our national energy efficiency.

Retro-fit

All these prospects imply not only high standards of maintenance, but also programmed upgrading of buildings and a corresponding demand for ever-more energy-efficient products to be retro-fitted to the existing stock.

And the technology exists — FETA manufacturer members are seeing to that.

Starting with the objective of ensuring a comfortable, condensation-free and, therefore, healthier indoor environment, electronic controls have been developed which respond automatically to humidity levels, airborne pollutant gases and vapours, and personnel proximity as well as temperature and time — simultaneously minimising both the extraction of valuable warm air in winter and electricity-consuming fan run-times.

Heat recovery is the key to energy-efficient ventilation and helping meet the Government's objectives for reducing carbon-dioxide emissions. The vent-Axia HR500 heat-recovery ventilation unit (right) provides a replacement for extract fans, while Baxi's heat-recovery distributive system can ventilate whole houses.

Heat-reclaim

Taking things further still, unitary and whole-house heat reclaim systems can save up to 70% of the warmth that would otherwise be extracted by essential ventilation. The advent of low cost multi-plate heat exchangers is a significant factor in making such products much more cost-effective.

And challenging a few assumptions about conventional a.c. motors has created a new generation of brushless d.c. motor fan drives which further reduce electrical consumption in domestic sized fans by 80%. With tens of millions of houses to ventilate, the Joules soon add up to a national treasure.

Until now, the challenge for FETA has been to persuade the market that these advances are fully cost-effective — a tough job when energy is in effect, inexpensive. But the long-term environmental cost of energy wastage is incalculable — a fact which makes legislation a more realistic route to improvement than market forces alone.

Far from producing a restrictive regime, the DETR is effectively opening up considerable opportunities for manufacturers to offer ever-more-efficient domestic ventilation products. And FETA is participating fully in the dwellings industry advisory group precisely to ensure this positive outcome.

Complementary work by FETA is ensuring that low-energy fans are recognised with the National Energy Service (NES) National Home Energy Rating (NHER) scheme, and that both the standard assessment procedure for domestic buildings (which is part of Document L) and the NHER ventilation requirement defaults to a minimum of two fans per dwelling.

FETA is also moving things in the right direction for manufacturers of heat-recovery ventilation products. Draft European standards were initially biased towards centralised ducted systems, but they are being examined to include the unitary products which represent a major sector of UK manufacture.

Responsibility

We all must recognise our responsibility for reducing energy consumption, and FETA is making a very active contribution at both strategic and tactical level to ensure the implementation of practical means to achieve the desired result, in terms of a better global environment — and better business for the HVAC industry.

Ian Andrews is with Vent Axia Ltd, a member of the Federation of Environmental Trade Associations.