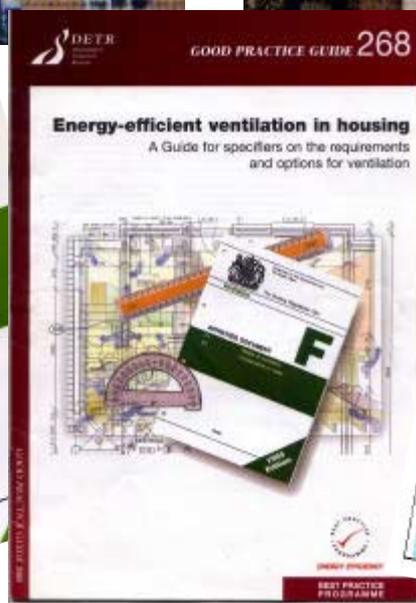
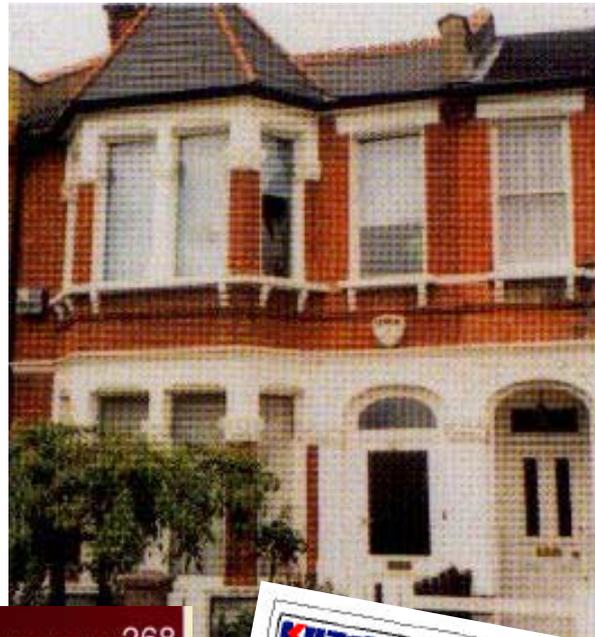


Total eradication of dampness from the housing stock
Energy efficient ventilation
Emissions targets met
The Fitness Standards met
Healthy Indoor Air Quality



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Submitted by **Kair Ventilation Ltd - Howard Morley & Patrick Gallagher.**

Total eradication of dampness from the housing stock.

Energy efficient ventilation.

Emissions targets met.

The Fitness Standards met.

Healthy Indoor Air Quality.

‘We are born - We die - What matters is the quality of our lives in between’.

The purpose of this report is to show how, by changing existing strategies, by embracing new ideas, by using existing, EST (Energy Savings Trust) approved, low risk technology and by re-directing existing funding and personnel, healthy, energy efficient improvements can be made to the Nations housing stock.

The strategy we propose will ensure that statutory fitness standards will be achieved, emissions targets will be met, millions of pounds will be saved and there will be a dramatic improvement in the quality of life of the occupants.

BACKGROUND DETAILS:

In June 1989, the British Medical journal published a paper with the objective of examining the relationship between damp and mould growth and symptomatic ill health.

In 1989, The Chartered Institute of Environmental Health Professional Practice, volume 1, showed the serious consequences to health of living in damp mould ridden homes.

In 1994, The National Housing Forum, sponsored by the Joseph Rowntree Foundation published its report ‘Papering over the cracks’ containing damning evidence of the impact on health of living with dampness, inadequate ventilation, condensation and mould growth problems and giving figures on fitness factors affecting the nation’s housing stock.

Since then there have been numerous reports on the Nation’s housing stock, journal editorials and a mountain of website information from around the world, all highlighting the incidence of ill health in houses with dampness, condensation and mould growth problems.

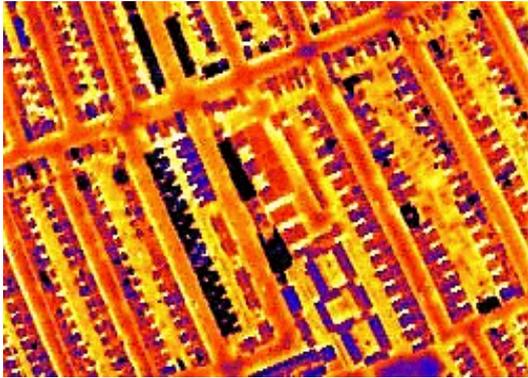
‘Dampness in dwellings is a major factor with regard to Fuel Poverty’. The stresses and strains of living in damp mould ridden homes has a detrimental effect on the mental health of the occupants. The NHS have stated that it is costing the nation **£2.64 Billion per annum** as a direct result of treating people living in damp, cold, condensation and mould-ridden homes.

Despite this torrent of information, over 40% of the housing stock still remains, to one extent or another, unfit due to damp or air pollution related problems.

This unfitness, particularly in public sector housing, leads to thousands of uninhabited dwellings or ‘voids’ and in many cases buildings have been demolished because the internal conditions were perceived to be too costly to remedy. At a time when the Government is desperately in need of more ‘affordable homes’, existing strategies for improving and maintaining the existing housing stock are clearly failing. ‘Getting it wrong’ impacts on the quality of life of the occupants.



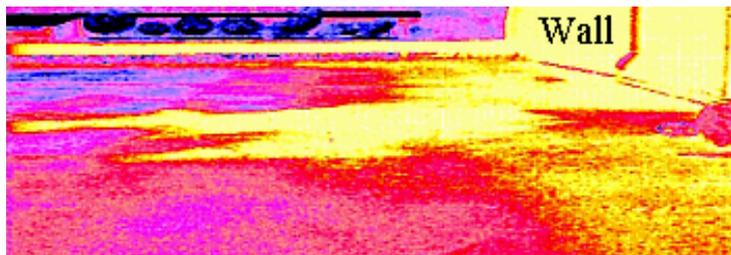
In addition to causing ill health, dampness in dwellings causes massive heat loss, up to 50 times the rate of heat loss which occurs in 'dry' buildings. This phenomenon has been the subject of many an editorial and in almost every report produced by researchers looking into the causes of fuel poverty, dampness has been mentioned as a significant contributory factor.



This thermal image of typical housing stock clearly reveals empty property, poorly insulated homes and the results of insulation schemes.



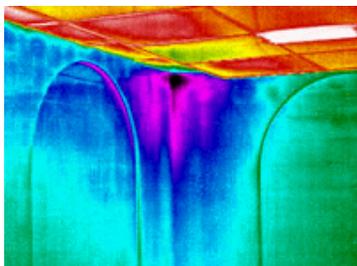
This thermal image of the 10 storey tower block shows damp areas and insulation voids. The image was filmed with super wide angle thermal imaging equipment



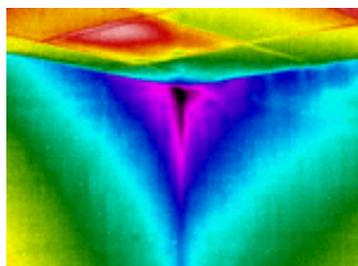
Yellow areas show moisture beneath roofing felt



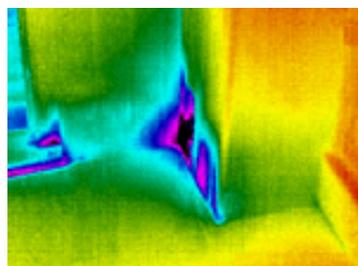
Damp applications - the image on the left clearly locates where the d.p.c. is failing. The second image shows the effect of a leaking drainpipe and highlights the degree of saturation.



Moisture penetration through roof slab



Cold bridging and possible condensation in corner of room



Damp rising from source at floor level

A tenant under the aegis of social housing, is entitled to 'quiet enjoyment of a home, which should be fit for human habitation'.

Under the Fitness Standards, the judgement call as to fitness in housing lies with the Local Authority, it has to be said, that in a great many cases, they are calling it wrong, and therefore failing in their 'duty of care' to the occupants, to the Government and the Nation.

It is inconceivable that public servants would 'knowingly' pursue a housing policy which led to health hazards, excessive energy losses and financial hardship for the occupants, at best that would be incompetence, at worst negligence, even misfeasance.

It is obvious therefore that they do not possess what Taxi Drivers call 'The Knowledge', how to get from A to B, avoiding the bottle necks and problems, the detailed information, 'the links' between building defects, consequential damage, ill health and energy efficiency which would lead them along 'the right road'.

Individual Authority personnel however, do have some strange ideas.

One Legal Repairs Surveyor (**London Borough**) stated that he and his colleagues have been advised to leave ventilation out of the equation because they do not want to be admitting liability for condensation and mould growth problems, as this may lead to compensation claims. Instead of serving the public they are protecting their rears, in the full knowledge that they have not provided the best practicable solution.

Another high ranking officer who lays down the policy of his Local Authority, (**London Borough**) said "bring them on", with regard to legal cases for condensation and mould growth, "we will drag it out until most of them lose interest, and we will settle out of court with those who persevere".

Another Surveyor (**London Borough**) said that their policy is to "drag the complaints out in the hope that they will go away".

Another (**London Borough**) said that "we have been advised that we cannot be sued in condensation cases as it was tenants' lifestyle which caused the problem"

Yet another (**London Borough**) said that they had to go for the cheapest option rather than energy efficient heat recovery because it was the tenant who got the benefit of the energy saving, not the authority.

Yet another (**Nationwide Housing Association**) said that he would like to use heat recovery ventilation, but that his immediate superior, despite being aware that their existing strategies were not working, refused to allow him to do so because it was 'too expensive'.

The Chief Environmental Health Officer of one **London Borough** said that he knew that condensation and mould growth problems were a health hazard, that heat recovery ventilation would solve the problems and that he would like to see them specified by his authority.

He said that he would have no compunction in serving notice on private sector housing landlords, but the 'political implications' of serving notices on his own council and colleagues were too serious to contemplate such a course of action.

An energy conservation officer from a **Yorkshire Council** stated that they were only obliged to carry out a random selection of 200 dwellings for their energy audit, far too few to be able to make an accurate assessment who then compounded this by saying that they recommended conventional extractor fans, 100% energy wasters.

An energy conservation officer from a **London Borough** with a housing stock of 50,000 said that he had become somewhat cynical as a result of 'banging his head against a wall of apathy'; He had promoted various options to his superiors only to have them tell him that they could not afford them and that they did not attach priority to health or energy efficiency over the need to cover additional houses in their roofing project or their heating project. He was informed that at the time of our conversation, one of his Borough projects was about to commence with energy wasting extractor fans and energy inefficient input ventilators included in the specification.

When it was suggested to him that he should advise the project team that the specification be altered to include energy efficient, heat recovery ventilators in place of the other items, which would save at least 320KW hours per unit, per annum, he said that he had no authority or influence over housing management.

There are dozens more instances of authority personnel making similar statements, our case history file is full of them.

All of these public servants are at best misguided, quite clearly they are failing in their 'duty of care' to their tenants and whether by design or default, they are prepared to allow massive heat loss, extensive collateral damages, admin costs etc to escalate, resulting in a ludicrous, unnecessary waste of existing resources.

Central government has done everything right. They have provided huge amounts of funding, provided clear unambiguous guidelines, defined the standards to be met and have placed great emphasis on the need to improve the quality of the nation's housing stock, to improve energy efficiency and eliminate fuel poverty.

The Minister for Local Government, at the Local Government Task Force London conference urged local authorities to do more. "Getting construction right is vital to ensure we are getting maximum whole life value and delivering products and services to best effect".

The Minister laid the responsibility squarely on the shoulders of the senior officers when he said "Best Value and Rethinking Construction are both about better delivery".

Grants have been made available, in most cases means tested, which given the fact that dampness, energy loss, air pollution and ill health does not affect people according to their financial status, is perhaps regrettable. Nevertheless, **funding has always been provided by central government, to enable dwellings to be made healthy, energy efficient and fit for habitation.**

Provided the local authority has carried out its fitness and energy audits, identified the defects and decided upon the necessary remedial measures, they can apply for funding to make the dwellings fit. Sadly, too many Authorities and Housing Associations have not fulfilled their statutory obligation to carry out their housing stock audits and therefore much of the available funding has not been claimed, the necessary remedial works have not been put into action and the housing stock continues to degrade.

Even more regrettable, it has to be said, is that most of the funding they have received, and continue to receive has not been and is not used wisely; They have not made the links, they have not absorbed the Knowledge, they have not taken the 'right road'. In too many cases, where funding has been applied for or where grants have been given, the money has been spent on ineffectual, often 'cosmetic' works, doomed to fail, inevitably and inexorably leading to further collateral damage, massive heat loss and a further drain on precious resources.

'Best value' has certainly not been achieved and the 'best practicable' solutions have certainly not been provided with regard to unhealthy condensation and mould growth problems or energy efficiency.

Opportunities to use this existing funding to make huge inroads into the Governments emissions targets and to make dramatic improvements to the health of the nation have been missed.

The covert cost to the Nation of this failure is enormous, with regard to energy waste, NHS costs, administration costs, compensation, damages, legal costs etc. The tenants at best receive only a fraction of the potential benefits the available funding could provide, in reality, they receive little or no benefit from existing strategies. (see appendix 1 to 3).

In one case for example, the tenant was living in a dwelling severely affected by condensation and mould growth, a dwelling which the authority denied was unfit, yet she was threatened by the same Authority's Social Services Department, with having her children taken away because the condensation and mould growth problems in the home rendered the dwelling unfit for her children to live in.

The mould growth was seen as the tenant being 'dirty' rather than the dwelling being unfit, whereas in Law, 'it is the effect of the defect rather than the defect itself, which is important in condensation cases in that it is the physical condition of the premises rather than the way they are used' (GLC - v - Tower Hamlets LBC 1983), when the judge made it clear the landlord was responsible for ensuring that there was adequate provision for ventilation, insulation and heating. (see appendix 4).

PROGRESS TO DATE:

Some enlightened councils and housing associations have opted for change, have adapted their health and housing strategies, have adopted new innovative ideas and embraced, existing, low risk technology to great effect, unfortunately **most have not.**

All the indications are that the NHS is to update their National Air Quality strategy, (at present dealing only with external air quality), to include the internal air supply. There is no doubt that if such a strategy was implemented it would lead to the total eradication of condensation and mould growth problems and create a dramatic, positive, impact on the health of the Nation.

The search for energy efficiency and the need to reduce carbon emissions is at last driving local authorities in the direction of heat recovery ventilation, as they explore every avenue in their search for renewable energy options.

Heat recovery ventilators, particularly when combined into a 'hybrid' system, provide the most cost effective and energy efficient form of single room or 'whole house' ventilation available and by recovering and re-cycling up to 86% of all the heat in a dwelling, it is quite clear that the local authorities emissions targets would be met merely by 'switching' from conventional extractor fans or passive ventilators to these units.

This energy efficient, 'whole house' ventilation capability is precisely the reason why 'hybrid' heat recovery systems totally eradicate condensation and mould growth problems from any dwelling in which they are fitted and why they create such a dramatic healthy improvement in the quality of the indoor air supply.

As previously stated, if dampness, condensation, mould growth and internal air pollution problems were to be totally eradicated, a huge 'reservoir' of existing resources would become available, precious resources which at present are being used on futile works doomed to fail, on 'covert' administration costs, damages, compensation, collateral damage to the fabric not to mention the **£2.64 Billion a year in NHS costs of people living with dampness, condensation and mould growth.**

A great deal of work has been and is being done to persuade local authority personnel of the efficacy and cost effectiveness of such a policy. The majority of local authorities, at present however, mistakenly believe that they 'cannot afford' to embrace such a policy, in reality they can and should. If the Government, via the NHS National Air Strategy, issued a directive, they would.

NEXT STEPS - THE FUTURE:

Our personnel have over 20 years experience in dealing with Social Housing, successfully resolving their damp related problems, (some of our surveyors are, in fact, ex-council employees) and we are therefore uniquely placed to identify and comment on the shortcomings of the existing strategies.

What is needed is an immediate, 'Road to Damascus', conversion from existing strategies to a 'new way forward', a re-direction of existing resources into more energy efficient, effective ways and means of dealing with dampness, condensation and mould growth problems in the nation's housing stock. Local Authority personnel must go 'back to school', specialist training of personnel must be provided to enable them to gain 'the knowledge', to make the 'leap of faith' from existing failed strategies to enable them to take 'the right road'. All the information with regard to the health hazards of living with condensation and mould growth and the remedial efficacy and energy efficiency of heat recovery ventilation is freely available and has been for years, yet, as previously stated, very little has changed. The links to the standards have not been identified.

'The Knowledge'

From the moment a dwelling is completed, mother nature begins a process of degradation and the most potent weapon in her armoury is water. A minimal amount of water ingress or vapour can create a huge amount of collateral damage, requiring extensive, expensive repair works and equally significant, massive heat loss.

In the construction of a building, 4 or 5,000 litres of water will be used. **All of this needs to 'dry out'. In an inadequately ventilated dwelling it will not.** A reservoir of construction water will therefore, be held within the building fabric. This will not only degrade the fabric, it will lead to extensive heat loss.

In addition to this, when the dwelling is occupied, the inhabitants will in the course of just one year, introduce another 4000 litres of water in the form of vapour or steam, the consequence of day to day activities such as cooking, bathing, washing and even breathing.

All of this water vapour, in an inadequately ventilated property remains 'trapped' or is absorbed into the fabric, into the curtains, carpets, wall plaster, bedding, clothing and into anything capable of absorbing moisture. It is 'fertile ground' for mould growth.

All of this 'hidden' moisture creates damp, cold surfaces, which drain expensively produced heat from the dwelling remorselessly, 24 hours a day.

It is 'day night' robbery.

'Water is the 'spark' that ignites the flame of heat loss'

A 'breeze block' is full of air bubbles, when dry, the air bubbles are an 'insulator' and impede the transfer of heat.

When wet, the reverse is true, the air bubbles become filled with a 'mass' of water, the breeze block therefore becomes dense, heavier, and like any other dense material, it will allow heat to transfer more quickly through it.

The same can be said of every conceivable form of insulation; When dry, it holds its thermal characteristics, when wet, the reverse is true.

Moisture from internal water vapour-creating activities will be continuously absorbed into every surface in a dwelling, into wall plaster, ceiling plaster, even carpets, curtains, furniture and bedding. The insulating material in a damp or inadequately ventilated dwelling becomes just another 'moisture trap' or reservoir, the material may well, on paper, provide significant thermal benefits. In practice however, **the presence of moisture in or on the insulating material will totally negate these benefits and actually exacerbate the heat loss.**

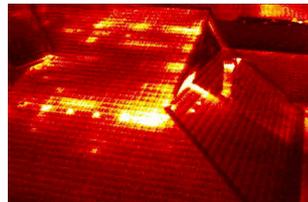
It is essential therefore that the dwelling be made and kept 'dry' and that internal humidity levels are controlled at the healthy optimum of 50% relative humidity, if insulation measures are to have any beneficial effect whatsoever.



Nationwide Damp Advisory Centre



Infra-red view of damp wall



Moist insulation conducting heat from within building

'Heat Recovery Ventilators re-cycle existing heat'

In addition to the heat generated by the heating appliances, there is heat generated by each and every household electrical appliance, this **'casual heat'** is substantial. Touch a switched on light bulb, a toaster, a kettle, an iron, a hair dryer and you will 'burn your fingers'. Even our bodies give off heat.



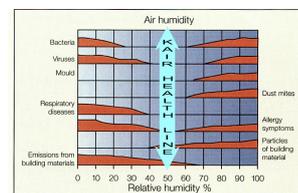
All of this casual heat, particularly from light bulbs, rises and sits at ceiling height before dissipating through the walls or into the ceilings thence into the roof and out of the dwelling.

All of this casual heat is 'lost' unless the dwelling is dry, has heat recovery ventilation, and is properly insulated.

There is also **'free heat', provided by solar radiation**. It falls upon every roof, upon every external wall, into the surrounding ground upon which a dwelling is built. When it hits a pane of glass the heat is actually 'magnified', if the pane of glass was 'shaped', the magnification could be increased, creating even more heat and light. This 'free heat', when combined with the casual heat created inside the dwelling, is a 'bonus' which can be collected and re-cycled in a dry home with heat recovery ventilation.

In a damp home, with high humidity levels and conventional extractor ventilation it will be totally lost.

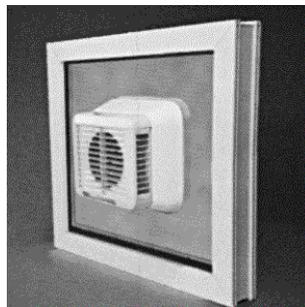
Heat recovery ventilators, when combined into a 'hybrid' system, totally change all the air in every room, every hour. **Simultaneously, they provide up to 86% heat recovery of all the heat in a dwelling, including all the 'casual heat' and the 'free heat'**. Any other form of ventilation, conventional extractor fans, passive ventilators or trickle vents will create 100% heat loss.



In addition to the heat recovered via the heat exchanger, there are other dividends created by the action of the heat recovery ventilator, **continuous air movement across all the surfaces in the room.**

Continuous air movement creates surface evaporation. A 'drying out' process takes place, just like washing, hanging in the breeze.

Continuous air movement forms an 'air curtains' in front of window glass, or natural leakage points, anywhere where cold draughts come in, or heat is transferred through the fabric. **This minimises heat loss.**



Continuous air movement recycles warm air around the dwelling, it pushes warm air normally held at ceiling height down and around not only the room, but the entire dwelling. Instead of warm ears and cold feet there is an ambient temperature, air from a warm room is transferred to a cold room, repeatedly, until ultimately the temperature throughout the dwelling becomes uniform.

None of these benefits can be provided by any conventional form of ventilation, none by insulation measures.

If heat recovery ventilation is installed as the first priority, the building fabric, being micro porous, will 'dry out'. The 'pores' in the bricks and mortar, the concrete and wall plaster, instead of retaining, cold, water, will be filled with warm air.

The dry, warm fabric will then become an 'insulator' in its own right, at which point, all other external and internal insulation measures will become 100% effective, providing all the heat saving benefits their manufacturers claim.

Most Authorities and Housing Associations have Legal Repairs Sections or 'Task Forces' to deal with the most urgent and potentially litigious cases of dampness, condensation and mould growth problems.

Their sole purpose is to minimise the legal and administrative costs and to keep their Chief Executive safe from penal notices under the Environmental Protection Act.

Unfortunately, they often get their priorities and remedial solutions wrong. **Many of the 'expert' witnesses and consultants they use are trained in the old ways. The existing 'failed' strategies are promoted and pursued, resulting in further collateral damage, covert admin costs and often, further litigation.**

The extensive collateral damage caused by dampness, condensation and mould growth, its effect on the health of the occupants, the energy waste it causes, the covert admin costs etc, means that dampness, condensation and mould growth must be seen as the serious problem that they are, and should be given the highest priority, rather than pushed aside or deferred in favour of cosmetic repairs as is so often the case.



Every Authority and Housing Association should set up a 'working party' consisting of a senior officer from Housing, Environmental Health and Energy Conservation departments, the departments with statutory obligations and therefore 'access' to the huge amounts of funding provided by Central Government. They in turn should appoint a special 'Task Force', with executive powers, who will be responsible for dealing with all damp and ventilation related problems.



These 'Task Forces' must be able to provide immediate response to complaints of dampness, condensation and mould growth, to protect the fabric of the dwelling, to reduce heat losses, to minimise accrued and 'covert' admin costs, to reduce the risk of prosecution under Section 82 of the Environmental Protection Act and various other housing acts .



The task force need only consist of a qualified building surveyor, two technical officers and an administrator but it must have available to it, the services of specialist contractors and consultants to provide CPD training, technical 'back up' and expertise.

To get people to embrace new, innovative ideas can be difficult and proper training of the task force is vital. It is not 'rocket science' however, rather a change of emphasis and a re-direction of resources and the basic necessary 'knowledge' can be easily absorbed by the surveyor and his assistants in a series of short 'crash' courses.



There are standards which have to be achieved in order to resolve problems and ensure that statutory obligations are met.

The standards to be achieved to provide a fit, healthy, energy efficient dwelling are:

The dwelling must be free from dampness.

Department of the Environment ' The Fitness Standard', Housing Act 1985.)

The dwelling must be free from mould growth.

Department of the Environment ' The Fitness Standard'
Building Regulations F1 Guidance ' Means of Ventilation'

Relative humidity should be maintained at, but not exceed, 50%.

Above this level, condensation, mould growth and increased activity by bacteria, germs, viruses and dust mites occurs (See Humidity Health chart).

The moisture content of the structural timbers should not exceed 15%.

Above this level wood-rotting fungi can develop and thrive.

The moisture content of the brickwork and plaster should not exceed 10% .

Above this level fabric deterioration, salt contamination etc takes place.

There must be no build up of polluted air, gasses, from heating appliances or organic decomposition.

National Health Service ' Health Strategy for London'.

There must be a complete air change throughout the whole property every hour.

Department of the Environment Transport and the Regions, 'Energy Efficient Ventilation in Housing', Good Practice Guide 268.

The best practicable Energy Conservation measures should be taken and heat losses must be kept to the minimum whilst providing adequate ventilation.

The Home Energy Conservation Act - Building Regulations F1- DETR 'Energy Efficient Ventilation in Housing' - ' Private Sector Renewal'

These standards are the minimum requirements under diverse Acts of Parliament, numerous regulations or guidelines, even individual needs or aspirations. They are Standards which will ensure that dwellings are free from the health hazards of dampness, condensation and mould growth.

Though easily achievable, these standards are, all too often, neglected, usually in the search for cost cutting, although often simply because of a lack of awareness as to the availability of equipment, products or systems capable of meeting all these criteria.

A properly trained 'Task Force' will be able to identify the defects, devise a remedial solution and 'action' a works programme to resolve all damp related problems with the minimum of delay. This will minimise 'collateral damage'.

The task force should, for example, have the services of an 'in house' plumber to deal immediately with any complaints of water ingress or damage as a result of leaks or pipe bursts.

If, for example, the ball valve washer in a toilet cistern wears out, the overflow pipe allows water to cascade down the external wall. If repaired immediately, very little damage will occur, if left for any length of time, litres of water will ingress into the building and do untold damage to the internal wall plaster and decorations.

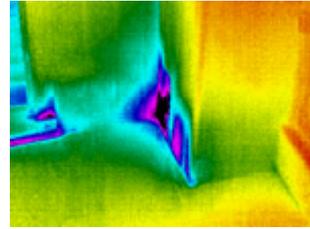


In the past, council estates often had a 'porter' or 'janitor', who, in addition to keeping the estate clean, used to deal with emergency plumbing leaks himself, or by calling in an emergency plumber. He also received complaints or reminders from tenants and was able to chase up the housing department for action.

If, for example, he had to clean out a gutter, gully or rainwater hopper, he would pop a 'balloon' cage over the opening to prevent future blockages. The cost was minimal, and so was the future collateral damage, instead of having the same problem re-occur every few months, it might be years before it happened again. He made the 'right decision', he took the 'right road'.



Damp wall plaster will inevitably lead to extensive heat loss. **Damp, cold surfaces dissipate heat, remorselessly, up to 50 times the rate of dry walls.**



The task force should have the services of a specialist damp proofing company to deal with any rising or penetrating dampness problems, both of which, if left for any length of time, cause extensive damage to the internal wall plaster and decorations, both of which lead to extensive heat loss.

The task force should have the services of a roofing contractor to deal with defective slates, tiles or gutters, all of which allow huge quantities of water to ingress the building and if left for any length of time, lead to extensive internal damage and heat loss.

The task force should have the services of a specialist ventilation contractor to totally eradicate condensation and mould growth problems from their housing stock, both problems impact on health and heat loss.

If all the damp related problems were dealt with swiftly, damage to the fabric would be avoided. The dwellings would be dry and healthy and huge amounts of administrative costs, would be saved and legal cases, damages, compensation claims and collateral repair works and energy losses would be minimised.

It does not require increases in personnel, merely more effective use of existing staff and their nominated contractors.

The Task Forces must work hand in hand with the Energy Conservation Officers and the Environmental Health Officers. They should compliment each other and should all be able to identify and draw on existing funding to improve their housing stock.

What is imperative is that all the Authority's fitness and energy audits be completed so that they can 'draw the line', Identify and prioritise the problems and prepare and implement the necessary remedial measures or projects.

In addition to rapid response, there is of course a need for long term planning, so as to be able to co-ordinate and incorporate heating, insulation projects and other necessary refurbishment works.

Be they 2, 5 or 10 year plans, what matters is that they 'start from scratch', with clear objectives and a clear understanding of the savings and benefits which will accrue by taking the right road, by making the creation of dry, adequately ventilated, healthy homes their first priority, before ever contemplating, double glazing, central heating, insulation, re-decoration and other expensive refurbishment projects.

The objective must be to bring all housing up to the standards laid down by Central Government, preferably, for simplicity, on a room by room basis. Considering problems on a room by room basis will clearly help when establishing priorities with regard to fitness, labour resources and financial requirements.

If, for example, a bedroom was affected by mould growth, it should logically be a 'first priority', because of the health implications.



The installation of a single room heat recovery ventilator would totally resolve the problem in any room in which it is fitted and would represent either a third or a quarter of the ventilation requirement for a whole flat or house, other units could then be added as and when funding or priorities dictated.

FINANCIAL DETAILS

When assessing the cost of setting up a special task force, it must be born in mind that **the cost of continuing in the 'old ways' is enormous.**

Many authorities spend huge amounts of money yet still fail to resolve problems of condensation and mould growth. (see Case Histories appendix)

In the case of one London Borough, over a six year period, the administration and legal costs alone, of their attempt to resolve a condensation and mould growth problem were obviously well in excess of £25,000. In addition to this, the personnel involved, by not being available for other duties during the time they were dealing with the problem, inevitably caused additional wages and costs to be incurred simply because other council employees or agency staff had to 'fill the gap'.

Another London Borough requested a report on condensation and mould growth problems in 1998. The problems were so severe that they paid out £5000 in compensation to the tenant.

Despite receiving a report that pointed out the severity of the problem, that there was a health risk, that it could be totally resolved for a maximum cost of £1600, they opted for a supposedly cheaper solution.

In May 2003, their Legal Repairs section requested another survey on the property in response to a solicitor's letter.

The survey was carried out and the problems were found to be worse than they were to start with. The Authority now faces another claim for compensation, higher than the £5000 they already paid and a bill for £1600 to actually eradicate the problem.

The longer a problem lasts, the more senior the personnel who become involved, the more meetings held, on site or in house, the higher the cost, particularly when you get to the stage of lawyers being involved, where court costs are of the order of **£2000 per day.**

Many social housing landlords are paying out millions of pounds in covert costs and damages, every year, for damp related problems such as Section 82s under the Environmental Protection Act.

Central Government in fact could do worse than actually ask individual District Auditors, specifically, 'How much?' We would expect this information to give strength to our argument and urgency to our proposed strategies.

One London Borough Legal Repairs Surveyor told us that his authority had over 2000 legal cases on their books, another London Borough Surveyor told us they had 1100 cases, another gave a figure of 800 cases. In almost every case, dampness, condensation and mould growth problems and the consequential collateral damage were the main factors behind the complaints.

A Task Force, to be able to cover every eventuality, has to have technical expertise, executive powers and the contracting capability to be able to respond swiftly. Above all, it must have personnel who are 'hands on' and committed to resolving the problems with the aim of maintaining and improving the standards of their housing stock.

As previously stated, it does not necessarily require increases in personnel, rather a more effective use of existing financial resources, of existing personnel, their support staff, their main and nominated contractors, will in most cases suffice.

There is no reason why additional expenditure should be required unless of course there are no qualified surveyors 'in house'. Existing personnel will already be dealing with the problems in some form or other, they will merely require re-training to embrace new ideas and strategies.

Once the personnel have been identified, CPD training of the task force can be done over three or four days, with a review once a month to identify problems and 'fine tune' the procedures until they achieve maximum efficacy .

(See 'Setting up the Task Force, training the personnel and establishing procedures and priorities' appendix).

RESOURCES DETAILS

Re-distribution and better use of existing funding and personnel resources to save huge amounts of money and energy is the objective of the new strategy. **Dealing with repairs in the correct order of priority is the 'key'.**

The most obvious 'priority', is with regard to the health hazard and the collateral damage caused by dampness, condensation and mould growth problems.

If remedial action is delayed, incorrectly diagnosed, or avoided, because of a perceived lack of funding, the costs escalate, day by day.

Take for example a leaking overflow pipe in a ground floor flat.

If left unattended for a prolonged period, collateral damage will occur, water will ingress the dwelling causing damage or degradation of the brickwork. The brick pointing, the internal wall plaster, the window frames and the skirting boards may be affected by fungal decay such as wet rot or dry rot and the decorations will be spoiled. **The repair bill for this could easily top £1000.**

If swiftly repaired, water ingress will be minimal and collateral damage will be avoided. **The cost of an emergency repair, using in house personnel or existing main contractors will rarely exceed £125. (see emergency repair diagram).**

If the leaking overflow is from a flat 3 stories higher, the collateral damage will encompass not only the flat with the leak, but also the two flats underneath. The water ingress will spread wider afield as it diffuses down and through the other dwellings, and **the collateral damage could easily top £3000.**

A long term leaking rainwater pipe or gutter will have an even more devastating effect, as the quantities of water ingress will be enormous, far in excess of a leaking overflow and **the collateral damage will be three or four times as much, and could easily top £10,000.**

A leaking rainwater pipe or gutter will, even if scaffolding or cherry pickers are required, cost no more than £1000 for an emergency repair.

A leaking radiator or waste pipe, will create similar collateral damage, ceilings will be damaged and water can fall on carpets and furnishings leading to compensation claims for personal effects, again **a figure of £5000 is perfectly feasible.**

A leaking radiator or waste pipe will cost £200 for an emergency repair.

Condensation and mould growth problems, if left, are worse than anything else because of their impact on health, on every room , on personal property and on energy efficiency.

According to published information, Central Government, via the NHS, are paying in excess of £2.6 Billion a year just dealing with the health problems of people living in damp, mould ridden homes.

The Government are providing millions of pounds in grants for energy efficiency measures, all of which are rendered ineffectual by internal water vapour being absorbed into the fabric creating cold surfaces and massive heat losses. Fifty times higher than would be the case if the surfaces were dry..

The Government are providing Billions of pounds to local authorities to look after their housing stock and their tenants, much of it is wasted on unnecessary administration costs, futile works, unintentional heat losses, energy wasting ventilation policies, compensation and legal fees (Section 82s), simply because of their failure to correctly prioritise their repair works so as to minimise collateral damage.

The savings to be made by adopting new strategies, by embracing existing, safe, low risk technology, by recycling existing heat are enormous. The 'knock on' effect of a dramatic improvement in the quality of the housing stock, a reduction in the number of 'voids', a reduction in covert administration costs and collateral damage payments will mean that precious resources, from existing funding will become available to pay for other badly needed improvements in public services.

It is not wishful thinking - the sums add up.

Ways in which existing funding could be much more effectively used can easily be identified. If, for example, it is the policy of the council to fit energy wasting conventional extractor fans or passive ventilators in kitchens and bathrooms, they will already be spending approximately **£600 per dwelling, incurring 100% heat loss for their tenants and without resolving unhealthy condensation and mould growth problems.**

If they install two heat recovery ventilators, they will immediately reduce energy waste by 640 Kilowatt per annum. Simultaneously, they will exhaust polluted stale air, provide a supply of clean, fresh, healthy air, totally resolve condensation and mould growth problems in the bathrooms and kitchens as well going some way towards improving conditions in the rest of the dwelling. **The cost of switching to two heat recovery ventilators would be at worst, an additional £100.**

If, for example, existing funding is being used to provide insulation, draught proofing measures, double glazing or central heating in an attempt to resolve condensation and mould growth problems or to reduce energy waste, without provision being made for heat recovery ventilation, it will, as previously shown, be a total waste of money. Covert administration / contracting costs and massive heat loss will be incurred because of collateral damage.

Provide heat recovery ventilation and you will eradicate condensation and mould growth problems. You will avoid the collateral damage, the heat loss and the covert administration costs.

The £2000 grant available for energy saving measures is far more than would be required for a 'whole house' hybrid heat recovery system, a system which would be guaranteed to totally eradicate condensation and mould growth problems, to create energy efficiency, to minimise heat loss, to control humidity levels and create a dry, healthy home. **The cost of a 'whole house' hybrid heat recovery system would be between £1200 and £1600.**

These costs could of course be considerably reduced by quantity discounts, symbiotic partnership arrangements with specialist contractors and other measures.

When properties are declared unfit or refurbishment projects are being prepared, funding will be requested for ventilation, damp proofing measures, condensation and mould growth problems, roof and gutter leaks and other necessary repairs. Most of this money will be provided by central government for expenditure on these items.

In practice the amount of money requested and provided by central government is not always spent on these items, it is 'lost'/'swallowed up'.

All too often, when 'money is tight' and savings are sought, the project managers will reduce the specification on these items, or omit some part of them, usually the ventilation, with the result that the newly refurbished dwelling will, within a short space of time, develop condensation and mould growth problems and further monies will have to be spent bringing it up to standard and repairing the collateral damage.

If, for example, the project design team opt for energy wasting conventional extractor fans rather than energy efficient heat recovery ventilators, on the grounds of cost, they will be making a mistake and not be achieving 'best value' or the 'best practicable' solution.

They may specify a quality extractor fan, but under the 'or similar' rule, the contractor is likely to fit a cheaper, inferior model, with the same air change performance capability.

The fan will likely only last a year or two, by which time the properties will have been handed into the care of the housing maintenance department, who will then have to find resources from their budget, to replace the fan and deal with any collateral damage.

They will probably opt for a replacement 'like for like' which will again break down after a couple of years and the whole process will be repeated.

In the case of one London Borough for example, the authority having found that 40% of their housing stock was affected by dampness, condensation and mould growth, having asked their tenants via a questionnaire their repair priorities, and having been told by their tenants that the eradication of dampness, condensation and mould growth problems was their top priority, applied for funding to do just that.

Having received the money, having spent it, though according to their published accounts, not being able to specify exactly where it went, (expenditure on dampness was shown as an X) they find that they still have large numbers of properties still affected by dampness, condensation and mould growth.

Certainly there are flats which have been refurbished in the last 2 years which are suffering serious condensation and mould growth problems, excessive heat losses, with damage being done to the health of the occupants, their decorations and their personal property.

All of this could have been avoided by better use of existing funding and more attention given to the provision of heat recovery ventilation.

A clearly defined policy, carried out by a properly trained task force, with executive powers, would have been able to ensure that the mistakes were not made; A great deal of money could have been saved, and the dwellings made energy efficient.

Existing resources could be much more effectively used to provide dramatic, healthy, improvements in Internal Air Quality, to provide energy efficiency measures which will enable emissions targets to be met.

The Government has to provide, via the power stations, the energy required to heat the housing stock to a healthy 'comfort' level of say 21 degrees. At best the power station will be only 50% efficient and it will cost a further 10% to deliver the power to the consumer, via The National Grid cables. Clearly, reducing demand will save everyone a great deal of money and will lead to huge carbon savings.

The Government also have to provide functional guidelines which enable the housebuilder, landlord or house owner to provide adequate ventilation.

If those functional guidelines are not prescriptive and leave people to make a choice, they will inevitably opt for the cheapest, minimum specification available.

At this point in time, for example, it is generally perceived that a conventional extractor fan in the kitchen, bathroom and wc, together with a passive air brick in rooms with gas appliances (boiler, gas fire or cooker) will provide adequate ventilation.

Even if this were true, which is highly debatable, such a ventilation system inevitably creates massive energy waste and can in no way be seen as energy efficient.

Likewise, it is perceived that a passive stack ventilation system provides energy efficient ventilation, it cannot possibly be so.

A Passive Stack system is basically a 'chimney pipe', it encourages warm air to rise up, out of the dwelling and replacement air is drawn into the building from outside, via vents in the external walls. Air then has to be heated all over again, to bring the temperature back up to comfort levels.

If the humidity levels are high, making the air 'heavy', if the air change requirement is large, or the design layout of the dwelling is complex, the passive stack system has to be fan assisted (40 watt consumption), to enable the warm humid air to be drawn from areas which are not directly in line with the vertical 'chimney pipe'.

In such cases, the system becomes just another mechanical extract system, and even less energy efficient.

Perhaps the most significant point with both conventional extraction and passive ventilation, with regard to energy waste is that they exhaust the maximum amount of warm air during the winter months, when internal humidity levels are at their highest, condensation problems are prevalent, the outside air is at its coldest and the demand for heating at its optimum.

Take for example, a dwelling with room spaces equivalent to 250 cubic metres, which has either of these systems installed in an attempt to achieve the DETR definition of adequate ventilation. (A whole house air change every hour).

If adequate ventilation is provided, by conventional extraction or passive stack ventilation, there will be 250 cubic metres of warm air exhausted from that dwelling every hour, every day, of the 'heating period', approximately 7 months of the year. The heat loss will be enormous.

The replacement air, which comes in from outside the dwelling, will then have to be heated back up to achieve the comfort levels (21 degrees) only for it to again be exhausted from the dwelling.

Portsmouth University data tells us that it is cheaper to run a heat recovery ventilator than it is to open a window.

As the requirement for heating and ventilation is at its maximum, during the winter months, when condensation and mould growth problems are at their worst, heat recovery ventilation is quite clearly the 'best value' and therefore a much more effective use of existing resources.

For people on low incomes or in fuel poverty, the use of heat recovery ventilators will mean real reductions in their heating bills.

Heat recovery ventilators, by creating 'pressurised' air movement eliminate draughts, control humidity levels, eradicate heat dissipating dampness by 'drying out the fabric', totally eradicate condensation and mould growth problems and create an 'air curtain' in front of window glass and other cold surfaces. All processes which minimise heat losses.

The recycling and continuous circulation of existing heat energy around the dwelling includes not only the heat generated by the heating appliance, fire, boiler, radiators, storage heaters, the heat from vapour-creating activities such as cooking, bathing, washing and drying etc, it includes the 'casual' heat created by every electrical appliance in the dwelling and also, the 'free heat' available from solar gain.

'Getting it wrong' is costing the nation huge sums of money.

'Everybody wins' if the proposed strategies are implemented.



If the existing strategy is changed, and re-direction of resources occurs, the benefits are manifold.

Everybody wins.

Central Government, The NHS, The Local Authorities, The Occupants, the Nation and The Environment.



Everybody saves money.

**Central Government
The National Health Service
The Local Authorities
The Occupants
The Nation and the Environment**



Central Government

By embracing the new strategy and by redirecting existing funding and Authority personnel and resources, millions of pounds could be saved on administration, huge reductions in covert and direct costs, leaving the local authorities more money, more time and more personnel, to fulfil their sole objective which is to provide the community with better, more efficient public services.

The energy waste from the housing stock would be minimal and the energy savings would be such as to enable the Government's emissions targets to be easily met.



The Local Authorities

The Authority emissions targets would be easily met. 'Best Value and Rethinking Construction', 'whole life value' and 'Best practicable solutions' would be provided.

The Governments statutory standards and guidelines would be achieved.

The quality of the housing stock would improve, there would be far fewer 'void' social housing properties, and far less demand on their housing budget.



The National Health Service

It costs the NHS £2.6 Billion per annum in providing medical care to people living in damp and mould-ridden homes. By providing clean fresh healthy Indoor Air Quality to the housing stock, this expenditure would no longer be required.



The Occupants

The energy savings alone would result in more money in their pocket. The strategy would definitely reduce 'fuel poverty'.

The health of the occupants, both mental and physical, would improve. They would take less time off work and there would be no damage to their personal effects, furniture, curtains, clothing, bedding and decorations. Again, more money in their pockets.



The Nation

Apart from the NHS savings, there would be less absenteeism, less energy consumption, less repetitive, futile, repair work with consequential savings in the energy used in the production, the transport and application of the remedial equipment, products and services.



The Environment

The huge reduction in carbon emissions and the entrapment in the heat recovery ventilator filters, of many household pollutants, would clearly benefit the Environment.

'Everybody wins'

