

## **NICE (National Institute for Health and Care Excellence): Excess winter deaths and illnesses – guideline consultation**

**July 2014**

NICE is developing public health guidelines on excess winter deaths and illnesses: identifying and supporting vulnerable children and older people. All registered stakeholders for this public health guidance were invited to comment on the provisional recommendations during a 6 week consultation with stakeholders. The guideline makes recommendations on how to reduce the risk of death and ill health associated with living in a cold home.

This response was drawn up by AECB, on behalf of AECB, Severn Wye Energy Agency and the Sustainable Traditional Buildings Alliance.

### **Who we are:**

#### **AECB the Association for Environment Conscious Building**

AECB, The Association for Environment Conscious Building, is a network of individuals and companies with a common aim of promoting sustainable building. It brings together builders, architects, designers, manufacturers, housing associations and local authorities, to develop, share and promote best practice in environmentally sustainable building.

The AECB was established in 1989 to increase awareness within the construction industry of the need to respect the environment.

The AECB is run by its members and is an independent, not for profit organisation. We promote excellence in design and construction, rather than gimmicks and green accounting tricks. The AECB's standards and advice are founded on a detailed and realistic understanding of the performance of buildings, constructed and refurbished in the real world, for real users.

The sustainable building industry is growing year on year and the AECB is increasingly seen as the prime source of independent, robust advice in this field.

#### AECB Charter

The objective and aims of the AECB is to facilitate environmentally responsible practices within building.

Specifically the AECB aims to:-

- promote the use of products and materials which are safe, healthy and sustainable
- encourage members' projects that respect protect and enhance the environment

- make available comprehensive information and guidance about products, methods and projects
- support the interests and endeavours of members in achieving these aims

### **Severn Wye Energy Agency**

<http://www.severnwye.org.uk/>

Severn Wye was established in 1999 under the European Commission SAVE programme, and we're one of around 300 such European local and regional energy 'demand management' agencies.

We are an independent charity and not-for-profit company which aims to promote sustainable energy and affordable warmth.

Our charitable aims are:

- The advancement of education for the public benefit in relation to energy conservation, energy efficiency and the use of renewable sources of energy
- The relief of fuel poverty and the preservation and protection of health by promoting the efficient use of energy and use of renewable sources of energy.

### Severn Wye's Mission:

We use our practical expertise to help individuals, groups, businesses and other organisations become more energy efficient and sustainable, and to help people out of fuel poverty. We do this by working from the strategic level through to practical action on the ground, developing projects and solutions, offering impartial advice and technical support, and providing training and education for people of all ages and backgrounds.

### **The Sustainable Traditional Buildings Alliance**

(STBA, [www.stbauk.org](http://www.stbauk.org))

STBA is a membership organisation representing 40 heritage, sustainability and professional bodies in the built environment sector in the UK, including RIBA, RICS, CIOB, CIAT, the Usable Buildings Trust, academic and heritage bodies, as well as the AECB.

Its focus is pre-1919 buildings which constitute about 25% of the UK building stock. In its terms of reference and mission statement "the Health of Building Occupants" is the first priority, with the Energy Efficiency of Traditional Buildings being another major priority.

STBA has produced research and guidance into the retrofit of traditional buildings, including a gap analysis (Responsible Retrofit of Buildings) the Retrofit Guidance Wheel and Knowledge Centre (which gives guidance for a holistic approach to retrofit [www.responsible-retrofit.org/greenwheel](http://www.responsible-retrofit.org/greenwheel)), and the recent Moisture Risk Assessment and Guidance (which looks at health and energy efficiency measures), all for the Department of Energy and Climate Change.

## Cold is not the whole story

“The health problems associated with cold homes are experienced during ‘normal’ winter temperatures (when outdoor temperatures drop below 6°C), not just during extreme cold weather.”

You are correct to place attention beyond just cold snaps. And though “cold” homes is a handy shorthand for a cluster of related miserable and unhealthy circumstances, it would be a mistake to assume that excess winter deaths are all directly mediated by low temperatures.

All cold homes are unhealthy (pretty much), and many unhealthy homes will have cold as one of the contributing hazards, but focusing on temperature alone misses one of the main causes of housing-related ill-health, which is poor internal air quality (IAQ) and indoor toxins. Poor IAQ is much likelier in cold homes and generally gets worse in winter, so is clearly related, but the causes are a combination of temperature, water/damp penetration and badly-functioning ventilation.

The draft guidance emphasises the danger of “cold homes” but says a lot less about moisture, indoor toxins, and IAQ. Yet these factors unquestionably play a role in excess winter deaths and illnesses (EWDI).\*

Our experience suggests that:

- Excess winter deaths are linked to both cold and damp – insulation and heating on their own are not enough to guarantee a healthy home; good ventilation and fabric in good condition, are also necessary.
- Sadly much current retrofit guidance overlooks this- this needs correcting in all official advice, but health guidance is an excellent place to start
- It is unhelpful to see internal air quality and thermal performance as “trade-offs” – they work together to keep the occupants comfortable and safe.
- Ventilation practice in this country is very poor and has been for a long time - it is changing, but not necessarily improving. (links to more information on this are available at <http://www.katedeselincourt.co.uk/does-natural-ventilation-work-references-and-links/> )

Though damp, mould and poor IAQ are harmful all year round, in winter, especially in the homes of the fuel poor, damp & pollution hazards may increase, because:

- Windows and vents are more likely to be shut, leading to higher indoor humidity and other indoor pollutants
- Condensation is likelier on colder indoor surfaces (eg low quality windows and uninsulated walls;
- In some areas there may be more driving rain in winter; where fabric is poorly constructed, poorly upgraded, or in disrepair this can lead to cold, wet surfaces, and possible mould growth (including hidden within the walls).

While warmer homes and cheaper heat are always desirable and in many cases can help reduce these other indoor environmental hazards, this cannot be taken for granted. Simply making a home warmer is not guaranteed to make it healthier.

\*30- 40% of the excess winter deaths are from cardiovascular causes, almost as many are from respiratory problems. Many of these are related to winter flu epidemics, but mould, dust mite, CO, NO<sub>2</sub> and VOCs are all pollutants that exacerbate respiratory conditions, and all tend to be found in higher concentrations in winter when people tend to reduce their ventilation.

Excess winter illnesses are less well quantified, as NICE acknowledge, but dampness and indoor pollution (as above) are implicated in many chronic respiratory conditions such as asthma and COPD (chronic obstructive pulmonary disease) that tend to worsen in winter. Some of these pollutants (notably CO and VOCs) are also thought to contribute to cardiovascular disease. See for example <http://www.epa.gov/region1/healthyhomes/iaq.html>

### Recommendation 1

Include the health consequences of living in a cold home in the joint strategic needs assessment process and develop a strategy to address this issue. The strategy should include:

- Identifying people whose health is at risk from cold homes.
- Assessing how **heating and insulation needs to be improved** to raise properties to an acceptable standard assessment procedure (SAP) rating. As a minimum, properties should be raised to a band D (55), and ideally to a band B (81) rating.
- A tailored programme to make any necessary changes, including preventive measures all year round – not just in the winter.
- Provision for ‘normal’ winter temperatures – not just periods of severe cold.
- Preventing ill health as well as deaths from cold homes. This includes mental health and wellbeing, as well as physical health.”

### Advice and guidance on recommended measures to improve homes

We would recommend replacing the phrase ‘Assessing how **heating and insulation needs to be improved**’ with “assessing how **the building** needs to be improved’. Heating and insulation are obviously key, but ventilation is also critical, and it should be appreciated that a building operates as a system.

NICE should warn the readers of this guidance that (as the ongoing work by AECB , STBA and others sets out) in some situations, isolated measures carried out to make a home warmer, such as replacing windows or insulating walls, may unfortunately leave significant hazards untouched or occasionally even make them worse. These hazards however are overlooked by much of the mainstream guidance and advice on retrofitting homes, and they are not picked up by a SAP analysis (which can in fact be carried out without visiting the property). (See also comment on 4.15 p 24/5 ‘health economics II’)

Unless these dangers, and their interlinkages, are understood and acknowledged, there is a danger that this guidance may lead to the promotion of “cold homes” measures that either fail to help the occupiers (because they leave too many harmful factors in place) or at worst, even harm the intended beneficiaries. In a carbon and energy saving strategy this is reckless – but in a health strategy it is clearly absurd.

Ongoing work by the AECB, STBA and others is in train to investigate and characterise these risks. It is not possible to give a definitive list; however, to give a flavour here are examples reported anecdotally:

- Upgrading windows and doors to exclude draughts in a building with inadequate purpose-provided ventilation may reduce air changes to below safe levels and thereby increase indoor humidity and indoor pollution.
- Installing cavity insulation or internal wall insulation without taking account of the conditions of the outside wall and where moisture will travel (from inside, outside or both) can lead to dampness and mould growth between the insulation and the outside wall.

(See also comments under “recommendations for research” section 5 below).

### **Ventilation**

It is important not to conflate “improving airtightness” with “reducing ventilation”. Improving airtightness is essential for comfort and warmth in leaky buildings – it is impossible to tackle fuel poverty if homes remain draughty. Ventilation is a separate issue.

Purpose-provided ventilation should supply a reliable rate of air exchange, even in still weather, in a way that does not subject occupants to over-ventilation and draughts in cold/windy weather. Effective ventilation is as important to health as warm, dry, draught proof fabric; both should be considered as integral to improving the safety and healthiness of homes.

We welcome the reference in recommendations 11 and 13 to the need for effective ventilation. However, by emphasising the concept of “cold” homes, using SAP ratings as the index of adequacy, and referring to the current home improvement funding streams, which seldom if ever offer finance for ventilation, there is a danger that in practice ventilation will continue to be relegated to something to be ‘kept an eye on’ while the ‘real’ improvement work of insulation et cetera is carried out – rather than placing air quality centre stage alongside healthy indoor temperatures.

This is also an opportunity to alert the health services to measures that can improve homes that are warm but still unhealthy. While winter deaths probably have the most political “traction”, other unhealthy homes issues are also badly neglected. NICE should acknowledge the potential to improve people’s health (and thereby cut prescribing bills) by making home improvements beyond warming cold homes.

Note on SAP ratings (the suggested index for improving cold homes). These are a measure of the affordability of heat, which is an important aspect of healthy homes. However SAP is a less good indicator of fabric performance, and no measure at all of the state of the fabric, or of the adequacy of ventilation.

Even in relation to thermal comfort, SAP ratings are not a reliable indicator of adequate performance outcomes. We need more robust indicators for fabric improvements, plus quality assurance. This requires either improvements to SAP or the use of alternative analysis that really tells you what the comfort of the finished building will be. The AECB has found the PHPP (the Passivhaus Planning Package) valuable for this and is developing a training and advice package (the CarbonLite Retrofit Programme, CLR). Quality assurance for building interventions is also needed - CLR will be one way to offer this, Passivhaus certification is another.

Any strategy to make homes healthier should also build in steps to reduce the overheating risk. Although this may sound contradictory, many of the measures that improve energy affordability and comfort in winter, such as efficient services, insulation and good ventilation, also contribute to cutting overheating risk.

Additional points to watch would include ensuring that any replacement windows open widely enough to offer good cross-ventilation for cooling, and any heating and hot water systems are properly insulated (lagged) to keep bills down and minimise unwanted heat gains in summer. Again, SAP is not a good guide here.

SAP ratings – see comment above, p4

**Advice services:**

***“Provide services via a 1-stop local health and housing referral service for people living in cold homes”***

Health and wellbeing boards and their partners (see who should take action?) should ensure the referral service provides:

- Access to housing insulation and heating, more affordable fuel options (where available) and advice on how to avoid the health risks of cold homes....
- Access to insulation and heating improvement programmes and grants. (These should be led, or endorsed, by the local authority and include those available from energy suppliers.)...
- Tailored solutions to address identified needs (rather than providing off-the-shelf solutions).”

We welcome the emphasis on the importance of local advice services. Locally delivered energy advice and retrofit programmes delivered by qualified and experienced advisers, closely linked in to local services and community groups, are crucial, to enable effective and supported follow through of referrals, as opposed to sending vulnerable householders into the ‘black hole’ of national listings of advisors and installers.

Local provision via qualified and experienced advisors also enables advice to be delivered at the appropriate level and in the appropriate form and medium, according to need – which may range from a technical assessment of a home to a personal home visit to help with bills, use of controls, ventilation and so on.

A local expert service can also provide an effective back up to community volunteers of front line health and social care workers identifying households in fuel poverty – for technical support and regular top-up briefings as well as a local service to make referrals to. Where energy assessments of homes have been carried out, this can also provide the much needed ‘follow through to action’ support, which may be over an extended period of time and require multiple contacts, ideally with the same adviser/assessor or at least one working in close contact with them.

To make the graphic (figure 1) more representative of the real world, there should be a link from ‘cold internal temperatures’ to ‘lack of ventilation’, and then a link to to a new box ‘condensation, damp and mould growth’ and from there to ‘cold related ill health’.

Experienced energy advisors confirm that this is a major, and perhaps the most common mechanism driving fuel poverty-related ill health. They regularly see households that are not able to afford heat, so do not ventilate, leading to condensation and mould, horrible internal conditions, and where there is any vulnerability, respiratory illness “The Committee noted the importance of using a trusted intermediary to help negotiate arrangements with a range of potential contractors to address problems caused by living in a cold home. Members noted that this is best achieved face to face.”

See comments under ‘advice services’ (section 1 p6), above

### **Ventilation – who can understand it, who can put it right?**

**“Recommendation 11 *“Train heating engineers, meter installers and those providing building insulation to help vulnerable people at home”***

Employers who install and maintain heating systems, electricity and gas meters and building insulation should ensure employees who visit vulnerable people are:

...Able to identify if there is not enough ventilation – and have the ability to take appropriate remedial action.

We welcome the reference here and in recommendation 13 to the need for effective ventilation.

Identifying that there is “not enough ventilation” is not simply a matter of checking what is installed, it is, crucially, a matter of checking what is being used (see for example Ventilation and Indoor Air Quality in Part F 2006 Homes BD 2702 DCLG 2010

<http://www.scribd.com/doc/43637758/Ventilation-and-Indoor-Air-Quality-in-Part-F-2006-Homes>, and <http://www.goodhomes.org.uk/downloads/members/ian-mawditt-operation-and-behaviour.pdf>). A ventilation installation can be regs compliant and theoretically capable of

delivering a healthy rate of air exchange, but due either to the fact that it causes excessive discomfort (eg cold, draughts, noise) of the occupant's circumstances (excessively cold home, fear of unaffordable electricity consumption by mechanical fans). This is a more subtle thing to detect.

It is also the case that ventilation that has been signed off by building control will not necessarily meet the DCLG guidance – and indeed even if it does meet the guidance, it may not deliver adequate air quality (ref DCLG 2010 as above).

It is not always going to be possible for an installer or engineer to be able to identify this – though it would certainly be very valuable to increase their awareness of the issue. Local advice officers also have a role to play here. However some of the systemic problems can only be addressed with a deeper change to guidance and practice relating to ventilation. The health community may have a useful role to play in driving this change (see also comments under section 5, recommendations for research).

However, most heating engineers, meter installers and insulation contractors will have no ability whatsoever to take remedial action. Although social landlords to take heed of this issue, there is no provision in the mainstream energy improvement programmes, and no funding. If readers of this guidance agree that this is a priority – and they should! – new powers and new resources need to be summoned up. (See also section 1 p 12, recommendation 13 below)

**“Recommendation 13 *Ensure buildings meet ventilation and other building and trading standards***

“Building control officers, environmental health officers and trading standards professionals should:

- Ensure changes to buildings are carried out at least to the standard required by Building Regulations (see the government's Planning Portal), in particular, with respect to ventilation.
- Use existing powers to identify housing (particularly in the private rented sector) that may expose vulnerable residents (see recommendation 5) to the cold. Existing powers fall under both the housing health and safety rating system and trading standards legislation (in relation to energy performance certificates).
- **Ensure any problems are addressed.”**

This (last line) is not really helpful advice, unless there are clear steps for action, given the great difficulties in actually arranging for repairs and improvements to take place. (See recommendation 11 above).

As we understand it environmental health officers are already fairly well-informed about the relationship between building fabric, building services, user circumstances and health – this for example was borne out in the evidence collected in the course of the Good Homes Alliance



research into overheating. (Preventing Overheating, Good Homes Alliance, 2014)<sup>1</sup> However EHOs have limited powers, as they reported in that document.

This is particularly an issue in the private rental sector, as the authors of a paper published by the Chartered Institute of Environmental Health warn. Not only are landlords frequently uninterested in improving their properties: “Some tenants do not want intervention, fearing eviction [‘revenge eviction’], rental increase or homelessness, and working in this sector can sometimes be a thankless task. However, it is at the bottom end of the private rented sector, including HMOs, where some of our most acute and stubborn health inequalities exist and perpetuate.”  
<http://www.cieh.org/WorkArea/showcontent.aspx?id=46516>

### **National Policy**

“People on a low income may need to use more fuel to keep warm in poorly insulated housing. So **any increase in fuel prices, either as a result of funding for insulation schemes or to reduce fuel use**, will push some people into (or deeper into) fuel poverty, unless this increase is in conjunction with other changes, such as improvements to the insulation of their homes.” (our emphasis)

This is to some extent a red herring, in that the main driver for changes in energy bills at the moment are changes in wholesale prices of the various energy sources. However, were retrofit activity to be scaled up to a meaningful extent (as by implication NICE is suggesting) it is quite probably the case that this could not be accommodated by a levy on energy companies, as per the current DECC strategy (Green Deal and ECO). In fact we saw just before Christmas 2013 that even the current trivial level of spending is vulnerable to the politics of energy bills.

This makes it all the more important that NICE and the health establishment gather evidence and press for policy changes that would allow more joined-up funding of building improvements, more reflective of the joined-up benefits. (See comments under Health Economics sections 4.13 & 4.15 below)

### **Health Economics I**

“The Committee acknowledged that the economic analysis under-estimated the non-health benefits from a societal perspective by focusing on energy cost savings. Members noted that housing energy efficiency improvements could also lead to savings on carbon and on social care costs. It could also lead to productivity gains by reducing sickness absence from work. “

NICE could add to this the dividend from the “infrastructure investment” aspect of tackling cold homes – as with any infrastructure investment, as well as the direct benefit from the work, there is benefit from increased trade and employment, increased tax and national insurance revenues, and decreased benefit payments to any lifted onto higher incomes through employment in the programme. It has been estimated in Germany that “For every €1 of public funds spent on the KfW Energy-efficient Construction and Refurbishment programme in Germany in 2010, over €15 were invested in construction and retrofit, and more than €4 went back to the public finances in

taxes and reduced welfare spending.” <http://www.ukgbc.org/resources/publication/housing-stock-fit-future-making-home-energy-efficiency-national-infrastructure>

“The Committee noted that, under normal circumstances, interventions to ensure homes are warm enough are not funded directly by health services but by the energy and distribution companies. The likely cost to the health sector is in identifying those who are most at risk of health problems from the cold and helping to ensure they receive the necessary support.”

This begs the question of whether “normal circumstances” are acceptable, and whether resources in these programmes are adequate. It also ignores the fact that some clinical commissioning groups are in fact moving ahead of this, and involving themselves directly in funding home retrofits for health benefit.

Some health authorities\* (for example, Oldham CCG) \*\* have taken a view as to the expected dividend to their budget, via avoided hospitalisations, of home improvements and are investing directly in a shared programme (ie leveraging work on their chosen recipients homes) by making a cash contribution that they judge will be cost-effective for them. Other similar schemes are under way.\* These projects are being well studied, and will provide invaluable cost-benefit information that NICE should share.

Our view is that there is a much bigger role for the health professions and the biomedical research community, not only in prioritising whose homes are tackled first, but also in shaping and influencing the decisions about how homes are improved. We also see a role for health bodies in directly supporting and commissioning interventions that put occupant health clearly centre stage. (See comments on additional research, section 5)

Direct contributions to the funding of works would give health bodies the authority to require that interventions put occupant health at the centre of decisions about what measures were implemented – something that does not necessarily happen at the moment.

\*“Local initiatives are already combining health and fuel poverty improvements, such as Liverpool City council’s Healthy homes on prescription programme with 55 GP surgeries, and housing provider Gentoo Group’s Boiler on prescription pilot scheme in the North East. The consultation from the Department of Energy and Climate Change (DECC) says that more research is needed into the links between fuel poverty and excess winter deaths. It wants to help remove barriers to joining up action on health and energy efficiency, and is working with the Royal College of General Physicians and National Association of Primary Care to raise awareness among health care professionals. It also plans to explore the potential for building health into eligibility criteria for fuel poverty interventions.”

<http://www.building4change.com/article.jsp?id=2457#.U9EYc0Db6Sp>

\*\*“In August 2012 Oldham Council, the Oldham Clinical Commissioning Group (CCG) and Oldham Housing Investment Partnership (OHIP) signed the country’s first ‘Joint Investment Agreement’ to help tackle fuel poverty in the Borough. The joint investment agreement aims to lift a thousand

individuals out of fuel poverty over the course of a year by investing £200,000 up front in preventative measures. Oldham Council and OHIP will invest £77,500 each and the CCG will invest £45,000.”

<http://www.oldhamccg.nhs.uk/Portals/0/Docs/BoardPapers/July2013/AI%206.4%20Fuel%20Poverty%20Update%20April%202013.pdf>

“The cost of the new delivery model would be approximately £200,000 per annum – this is based on a target of lifting 1000 people out of fuel poverty in year one, as this is the number necessary in order to achieve the scale of impact necessary to achieve cashable savings within the health service....It is anticipated savings of £300,000 could be released by lifting 1000 people out of fuel poverty in 12 months (April 2013-14). It is proposed the savings are cashed on a payment by results basis for every person lifted out of fuel poverty.

### **...Projected savings**

Projected savings have been modelled for the CCG and the Council of:

- £250 per person savings to the CCG
- £50 per person savings to the Council

(“These projected savings are based on the premise that demands for reactive health and social care. Support will reduce as people are supported out of fuel poverty and become healthier/avoid serious health problems and reduce their care support needs. The basis for these projections can be provided on request.)”

[http://www.agma.gov.uk/cms\\_media/files/121031\\_h\\_sc7\\_oldham\\_fuel\\_poverty.pdf?static=1](http://www.agma.gov.uk/cms_media/files/121031_h_sc7_oldham_fuel_poverty.pdf?static=1)

### **Health Economics II**

“Overall, however, housing energy efficiency interventions (such as roof insulation, double-glazing or boiler replacement) are cost-effective compared with current practice. This is particularly true of interventions aimed at households with a low standard assessment procedure (SAP) rating or aimed at vulnerable people. In both cases, these target groups gained the greatest health benefits.”

Beware the piecemeal approach – although the interventions above undoubtedly benefit most recipients, the nation will see better value if individual investors contribute to strategic whole-house, or even whole-neighbourhood interventions where possible. There is no reason to think the ‘payoff’ to each investor would be lower if resources are pooled in this way.

(Some RSLs are currently exploring the benefits to themselves as landlords, to tier tenants, and to the wider community of “deep whole house retrofit” of low SAP rated dwellings – see for example [http://www.encraft.co.uk/?attachment\\_id=2036](http://www.encraft.co.uk/?attachment_id=2036), (see presentation by Steve Groves)

Just as it would be a shame to improve the carbon emissions performance without addressing health issues, it would be a shame to focus narrowly on health when carbon emissions, energy security, job creation and other dividends could also be harnessed.

### **National Policy/Private Rental Sector**

“Average SAP scores vary for different tenures. Average SAPs in the social sector (local authority and registered social landlord housing) are generally higher (around 60). They are generally lower in the owner-occupied sector (around 50) and particularly the private rented sector (around 45).”

We are pleased to see the committee recognises that there is particular problem in the private rented sector. We would note that there has been criticism of the July 2014 “fuel poverty strategy” from DECC as this is considerably less ambitious in terms of fabric improvements than your own recommendations, and, furthermore, with regards to the private rental sector it only obliges landlords to take action if funding is available, without pledging to ensure that the funding is, indeed, available. (“Any energy efficiency improvements must be financeable without any compulsory upfront cost to the landlord.”)

In fact the fuel poverty strategy as a whole has been subject to criticism, for example, the ambition to bring all fuel poor homes up to EPC Band C by 2030 has been described as “too far away and critics are concerned that “the Government are only committing themselves to these targets ‘as far as reasonably practicable’” (see <http://www.ukace.org/2014/07/governments-fuel-poverty-plans-are-too-little-too-late/> and <http://www.energybillrevolution.org/media/government-strategy-to-plug-fuel-poor-homes-is-full-of-holes/>

“The Committee heard that, generally, health and wellbeing boards were not involved in planning all-year-round action to combat the more enduring ill effects of cold homes.”

NICE correctly implies this is wholly inadequate. Measures that make a significant impact on the “healthiness” of homes clearly require months and years of planning.

“The Committee heard of examples where funding from clinical commissioning groups had been invaluable in coordinating and targeting services. (Many of the services used were funded via national or utility company programmes.)”

See ‘Health Economics’ comments above. These examples are very welcome. However as touched on above (‘health economics’ section 13 p24), there is scope for CCGs to go a lot further, investing directly in works (probably led and co-funded by other agencies), and realising direct benefits. CCGs could offer very valuable, reliable match funding, making other investment possibly likelier and definitely more effective, effectively leveraging additional health benefit while remaining “in pocket”.

### **Recommendations for research**

We absolutely welcome and endorse the proposal for more occupant-centred research into buildings and building improvements.

Only by combining forces between building science and biomedical science and basing action on a combination of sound science in both arenas will we make a real dent in the toll from the many diseases provoked by unhealthy indoor environments.

“The Public Health Advisory Committee (PHAC) recommends that the following research questions should be addressed. It notes that ‘effectiveness’ in this context relates not only to the size of the effect, but also to cost effectiveness and duration of effect. It also takes into account any harmful or negative side effects.”

It is for this very reason (‘harmful or negative side effects’ that we believe it is crucial that research and, subsequently, guidance, addresses issues of temperature, moisture and indoor pollution as an integrated whole, rather than focusing on thermal performance alone. While there is no question that improving thermal performance generally offers a great health and wellbeing dividend, it is also the case that under certain circumstances, that are not all currently well-characterised, interventions to improve the thermal performance may introduce or worsen health hazards.

Research to gather empirical information from the national stock and investigating the consequences of interventions is urgently needed. AECB considers the following issues require investigation as a matter of priority, to ensure that ‘harmful or negative’ side effects are minimised:

- Internal wall insulation where voids are created between wall and insulation create significant risk of mould spore pollution. Existing installations may be the cause of significant indoor air pollution.
- Basement and crawlspaces suffer significant indoor air quality problems which are very likely to be affecting air quality in the living space. Good quality retrofit measures will usually improve this but at risk of joist decay.
- Adding woodstoves (for example, under the Renewable Heat Incentive from DECC) may increase the spore concentrations indoors by pulling air into room through these voids.
- Ventilation needs to be consistent across the range of possible weather conditions, and this may be better delivered by mechanical ventilation. However the impact of the various ventilation strategies on indoor air quality and in particular on the long term impact on the health of occupants is underinvestigated and therefore very poorly understood.

All these are areas where the interventions are the responsibility of the construction industry but the impacts would best be investigated by the construction industry and the health/science communities working closely together.

On the biomedical side, more information on the relationship between indoor conditions and asthma, particularly in relation to the activity of house dust mites, would be helpful. While DCLG guidance (Part F of the building regulations) recommends you aim to keep internal humidity levels below 65% most of the time. AS we understand it this is based fairly crudely on the aim of eliminating the risk of surface condensation. Other sources recommend aiming for humidities

below 60 or even 50% (though also warning of deleterious impacts when RH drops below 40%)  
Clearer guidance on these figures, and whether there is any clinically important difference between optimum humidities at different temperatures, would be valuable, in particular in relation to the drafting of national guidance.

(See also [Advice and guidance on recommended measures to improve homes](#), above).

“What is the effect of **cold homes** on the rate of illness and death among different groups of vulnerable people? This includes the effect and interaction of multiple vulnerabilities (such as age and pre-existing disease). It also includes the effects of intervening factors like fuel poverty and poor housing. Analysis is needed of existing UK-based databases.” (our emphasis). The impact of temperature, air quality, and fabric condition should be studied together.

“Among people vulnerable to cold-related illness and death, what do quantitative and qualitative research findings tell us about the barriers to, and facilitators for, action and **coping strategies with respect to the cold**? (This includes self-disconnection when using pre-payment meters.)”  
Alas it is very clear that one ‘coping strategy’ is to restrict ventilation. Ventilation behaviour should be included in any research.

How effective are different forms of intervention designed to address cold-related illness and death? Studies should capture the full range of costs and benefits associated with implementation of changes (including fuel bill savings), as well as adverse effects (such as changes to indoor air pollution levels). They should be of a sufficient scale to be meaningful, use objective measurements and include ‘natural experiments’. (The latter might include the roll-out of smart meter technology.)

Health professionals, academic departments, housing providers and others are currently involved in a great deal of research, including, critically, field research on the impact of home retrofit, including benefiting people with specific health problems such as COPD.

As well as the work under way or published by AECB, STBA, Good Homes Alliance and many others, Portsmouth City Council is working with the Universities of Southampton and Portsmouth to track the social impacts of a deep retrofit to 107 of their dwellings; Sunderland Clinical Commissioning Group and the local director of public health are assessing the impact of energy efficiency improvements in the homes of sufferers with COPD; Sheffield Hallam University, BRE; - and many others are involved in similar research. Most of these programmes are new and there are few results back in.

See for example [http://www.encraft.co.uk/?attachment\\_id=2036](http://www.encraft.co.uk/?attachment_id=2036), (see presentation by Steve Groves), <http://www.insidehousing.co.uk/healthy-progress/6528437.article>,

It is however important to investigate the impact of interventions on the indoor environment as a whole (cold, damp, indoor pollution), and to investigate correlations between the range of altered hazards, and observed health impacts (positive and negative) as mentioned above

## Conclusion

In conclusion, rather than focusing narrowly on temperature and warmth, and taking the mainstream guidance on home improvement to be the best advice for reducing the health toll from unhealthy homes, we hope NICE will advise readers of this guidance to prioritise improving indoor conditions as a whole. This means that temperature, air quality, and fabric integrity must be tackled in an integrated way.