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INDUSTRY VIEWFINDER
FEBRUARY/MARCH 2022

HOUSING
MANAGEMENT
& MAINTENANCE

THE IMPORTANCE OF HEALTHY HOMES

PRODUCED IN ASSOCIATION WITH



Property MOT+

envirovent

FireAngel

glideVALE
protect

mitsubishi
ELECTRIC
Channel for the Electric



Image: Envirovent. See page 12

CONTENTS

03	EXECUTIVE SUMMARY
04	INTRODUCTION
05	PROBLEM ASSESSMENT
06	COMMON COMPLAINTS
09	CASE STUDIES
09	CASE STUDY 1: GLIDEVALE PROTECT
10	CASE STUDY 2: AICO
11	CASE STUDY 3: CORNERSTONE – PROPERTY MOT
12	CASE STUDY 4: ENVIROVENT
13	CASE STUDY 5: FIREANGEL
14	CASE STUDY 6: MITSUBISHI ELECTRIC
15	CONCLUSION

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EXECUTIVE SUMMARY

Poor quality housing can have a serious detrimental impact on both the physical and mental wellbeing of tenants, with the potential to cause many preventable diseases and injuries, and even death.

In 2018, 17,000 people died because they couldn't afford to heat their homes (E3G), and in the following year, 4.1 million homes were found to fall short of even the basic minimum requirements of the Decent Homes Standard, with almost half of these homes occupied by people over the age of 55 (MHCLG).

Even when looked at from a purely economic standpoint, the annual cost to the NHS attributed to low-quality housing is estimated at £1.4 billion for first year treatment costs (Nicol et al). Research from the King's Fund shows that money spent on remediating such housing would outweigh those costs in savings for the NHS.

This problem has not gone unrecognised by the Government, with a review of the Decent Homes Standard currently underway. As part of the review, recommendations were made by a report from the Good Home Inquiry, which helps to define what a decent, good, or healthy home is. Calling for a national strategy to improve England's existing housing stock, the inquiry has defined a good home as safe, secure, easy to warm and cool, affordable, and not damaging the life chances of its inhabitants, either through its design, location or connectedness.

Remediation is a key part of this, with a huge number of homes in England in need of retrofit works to ensure their safety and suitability for future tenants. It is estimated that more than 80% of the homes that will be needed by 2050 already exist today, so the Government's current focus on new build is arguably severely misplaced.

Though this is a gargantuan task for the industry, the benefits of acting now could literally be life saving, and research has shown that unhealthy homes are only likely to cause more issues in the future. According to the Office for National Statistics (ONS), by 2041, one in four people in England will be aged 65 or over, likely leading to a skyrocketing number

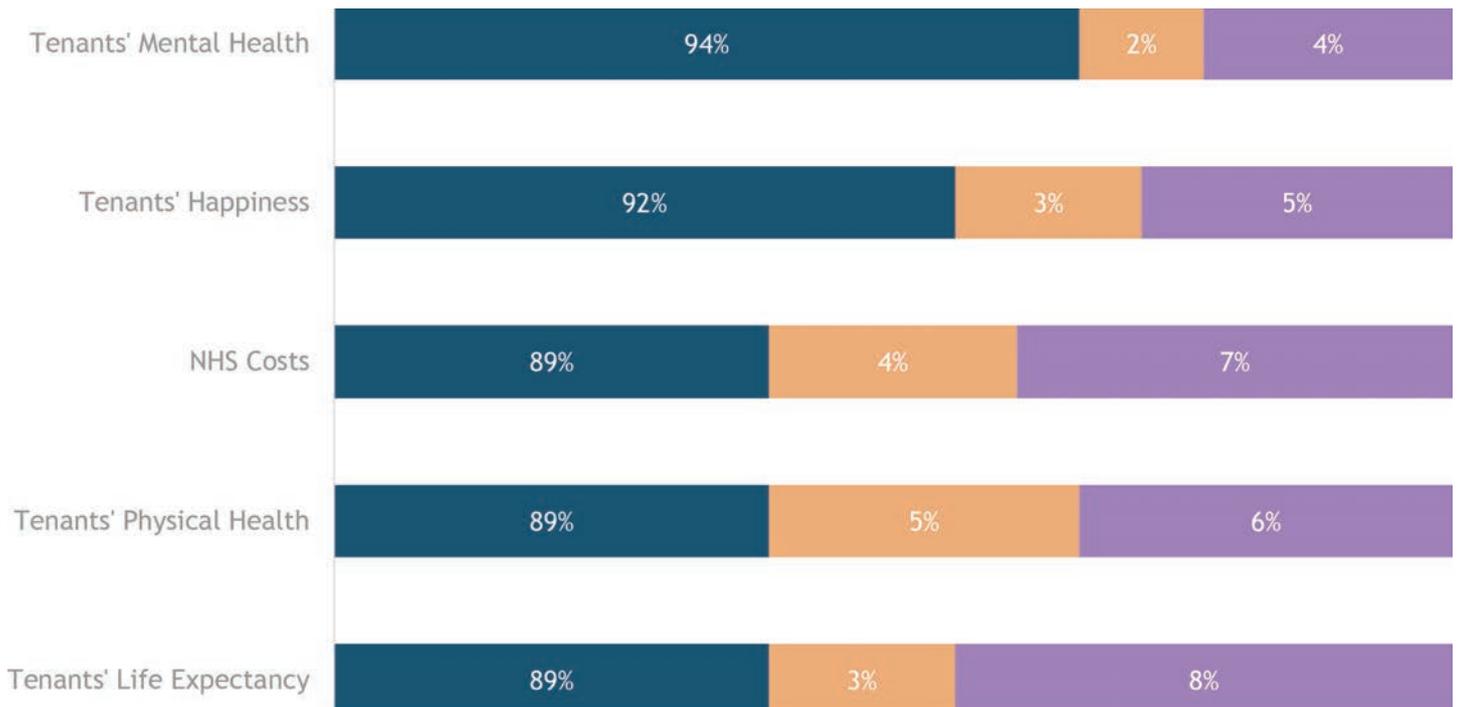
In 2018, 17,000 people died because they couldn't afford to heat their homes (E3G), and in the following year, 4.1 million homes were found to fall short of even the basic minimum requirements of the Decent Homes Standard

of vulnerable tenants in the next few decades, and many argue that the UK housing stock is falling in quality as it ages alongside the population.

At first, with such dire consequences apparent, it would seem a simple choice to follow the Inquiry's recommendations – to use the highest quality products, designs and repairs available to bring housing stock up to a higher standard – but Housing Management & Maintenance's research of 120 landlords and housing professionals has highlighted a number of barriers to doing so, ranging from costs to a lack of Government attention on retrofit.

In our survey, of which 54% of the respondents were in the position of director, with an average of 1,163 homes managed, we hoped to ascertain not just the barriers to improving housing stock, but what housing professionals perceive a healthy home to be, and how much of their stock they would describe as such.

With the vast majority of respondents (89%) believing that healthy homes can increase tenants' life expectancy being contrasted with a shocking 1 in 3 respondents (35%) reporting that they would only describe 50% or less of their housing stock as healthy, this white paper provides an interesting insight into the industry's position on this dilemma.



"Do you believe a healthy home can positively affect the following?" ■ Yes ■ No ■ Unsure/Don't Know

INTRODUCTION

From a broader perspective, housing in England has improved dramatically over time, from the inception of housing regulation and the Garden City Association – which would later become the Town and Country Planning Association – in the 19th century, to the boom in social housing in the early 20th century, to the slum clearances throughout the century’s remaining decades.

In more recent times, however, progress seems to have stalled somewhat, and England’s housing stock has been shown to be woefully inadequate.

When we asked our respondents whether they believe that homes have become more healthy at all in recent decades, only a small majority (53%) agreed, and almost half (47%) argued that homes have in fact become less healthy in the same timeframe.

When asked what portion of the housing stock our respondents had owned or worked on they would describe as healthy, 2% said they would define none of their housing as such, 7% said between 10-20% of their housing stock, 11% said 30-40%, 24% said between 50-60%, 32% between 70-80%, and a quarter (25%) report 90-100%.

This shocking amount of unsuitable housing supported the estimations of the Good Homes Inquiry. The Inquiry argued that the English Housing Survey’s data – which claimed that 10 million people in England are living in homes classified as ‘non decent’ – is an underestimation, not factoring in accessibility, for example. Even this potentially low-ball figure represents 17% of the total housing stock, and our data is double this, with 35% of our respondents’ housing stock being self-described as unhealthy.

PROGRESS

Despite this doom and gloom, there is perhaps reason to hope for improvement in the near future, with rising awareness in the industry and a number of new standards and bills in the works to put the health of a home into legislation.

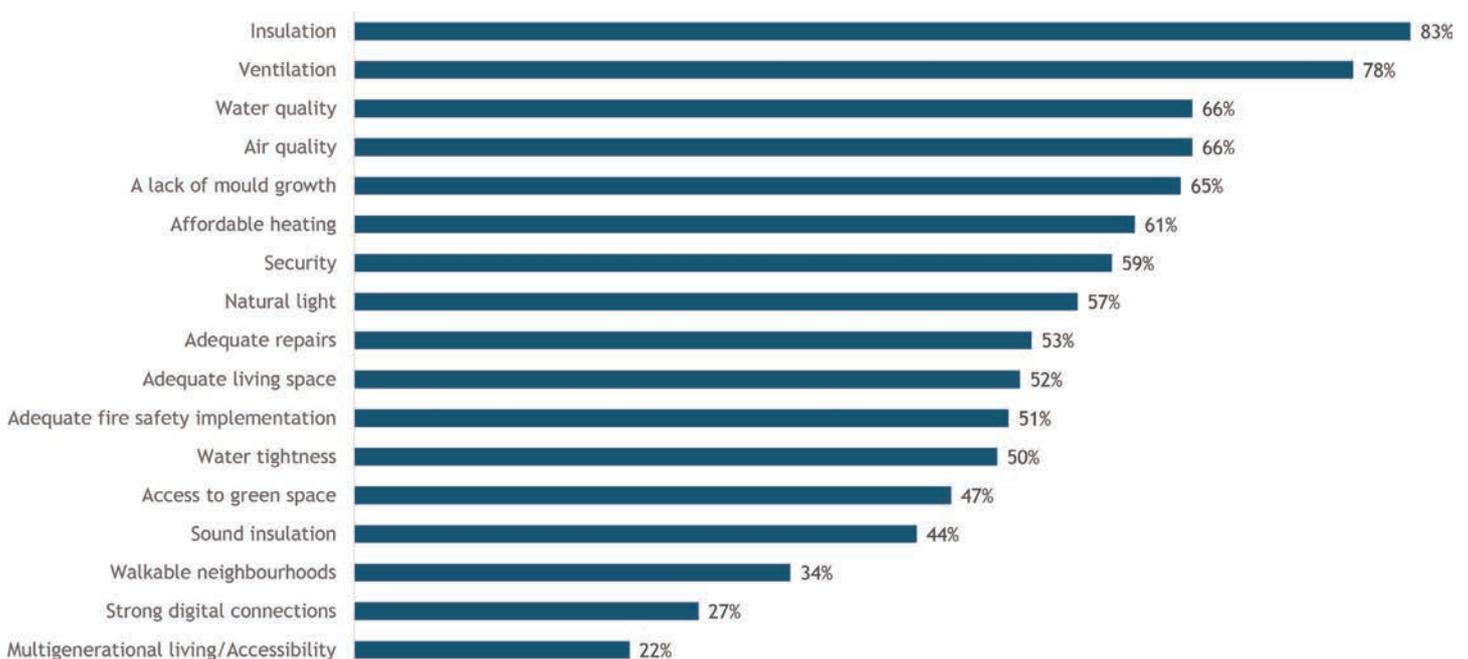
The Town and Country Planning Association’s Healthy Homes campaign, for example, recommends that the Building Safety Bill

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be amended to cover a building’s health as well as safety, alongside increasing the Bill’s coverage to buildings of all heights. This would improve upon local councils’ capacity to provide tailored support and to have more control of the quality of development. The aforementioned Decent Homes Standard Review could make tangible changes to the quality of housing in regulations.

As these movements continue in policy, however, it is only natural to wonder, what are the reasons behind the current lack of movement from the industry itself?

Our survey attempts to find the answer to this by ascertaining three things: are housing professionals aware of and ready for these upcoming changes; do they understand what a healthy home is, and accept that unhealthy homes need to be addressed; and, if so, what then are the barriers to the adoption of these measures?



“Which of the following elements do you believe are most important in a healthy home?”



“Do you agree with any of the following statements?”

PROBLEM ASSESSMENT

UNDERSTANDING HEALTHY HOMES

When it came to understanding the benefits of a healthy home, our respondents were clear.

Asked whether they believed such homes can positively affect a tenant’s life expectancy, 89% said yes. When asked the same question about their happiness, 92% said yes. 89% said healthy homes would positively affect their physical health, 94% their mental health, and 89% that it would reduce the NHS’s spending.

Discussing what elements are most important in making a home healthy, however, was slightly less clear, with a wide range of cited properties.

The most commonly cited elements considered important to a healthy home, agreed upon by over half of respondents, were insulation at 83%, followed by ventilation (78%), water and air quality at 66% each, then a lack of mould growth (65%), affordable heating (61%), security (59%), natural light (57%), adequate repairs (53%), adequate living space (52%), adequate fire safety implementation (51%), and water tightness (50%).

The elements cited by less than half our respondents included access to green space (47%), followed by sound insulation (44%), walkable neighborhoods (34%), strong digital connections (27%), and lastly, multigenerational living/accessibility, at 22%.

It is important to note though that the vast majority of these elements were cited by more than a third of respondents, indicating some agreement on the most important healthy aspects of a home, and that all such aspects are at least relatively important.

BARRIERS TO ADOPTION

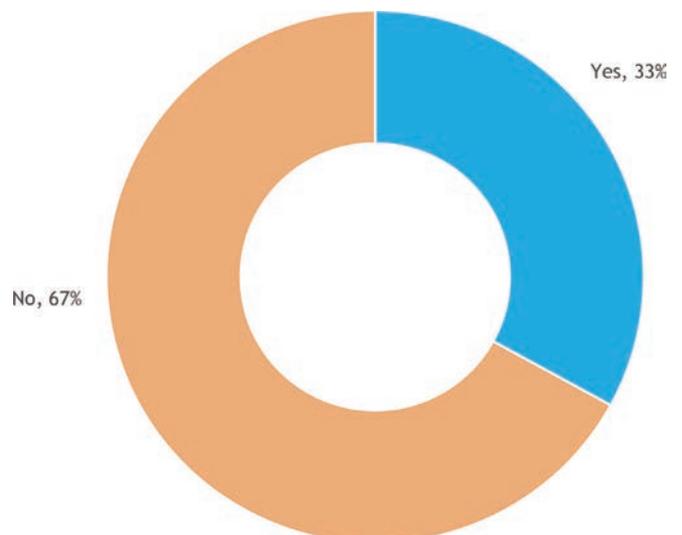
With such a strong consensus on the benefits of making homes more healthy, and many of the problems behind unhealthy homes being fairly common to most of our respondents, it is clear that there are major barriers preventing housing professionals from actioning the necessary changes.

When asked what respondents believed to be these barriers to be, the most commonly cited issue by far was costs, at 61%. These costs do

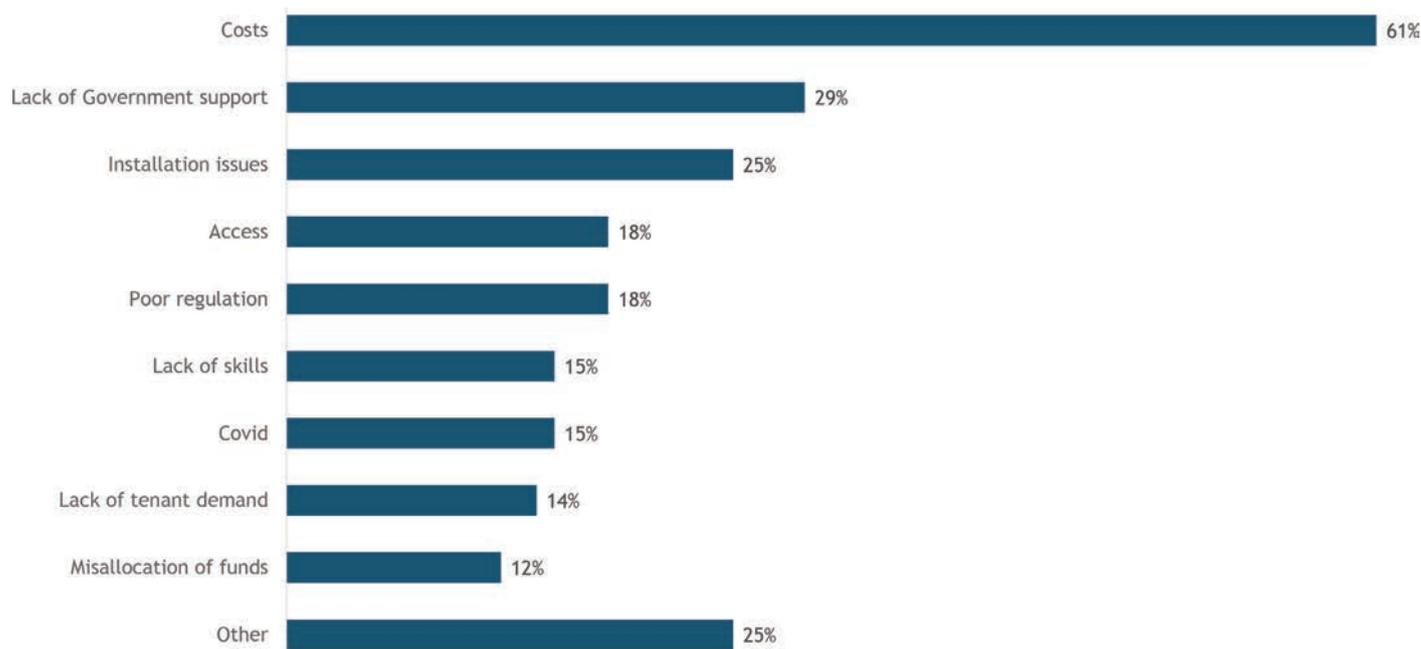
however appear to mainly be at the outset, with 67% shown in a different question to argue that healthier properties do not cost more to maintain.

The next most commonly cited issue was a lack of Government support at 29%. Following this in descending order were installation issues (25%), access (18%), poor regulation (17%), lack of skills (15%), Covid (15%), lack of tenant demand (14%), and misallocation of funds (12%).

With the finger still pointing at the Government, one relatively strong opinion shown in our poll was when respondents were asked if they think the Government is paying too little attention to retrofitting older properties, with 71% believing this to be true.



“Do you believe a ‘healthier’ property costs more to maintain?”



"What are the main barriers to addressing these issues?"

CHANGES IN POLICY

A lack of information and understanding of the expected changes in relevant policies was also shown to be an issue, with early engagement likely to be far less strong with such little awareness of major upcoming movements.

When it came to their understanding of the Decent Homes Standard, for example, a slightly smaller percentage of respondents believe the Decent Homes Standard should be reviewed (38%) than have heard of the review itself (37%), and a higher percentage believe the Standard needs to be enforced more strictly in the future (52%), something the review could achieve. One of the review's recommendations to address

these issues, property MOTs – approaching property maintenance in a similar way to vehicles, performing regular checks and assessments – was shown to be even less recognised than the Review itself, with 46% having not heard of property MOTs before, and a further 32% having heard about them, but knowing very little about what they entail.

This trend continued to an even higher degree with the TCPA's Healthy Homes Campaign, with 42% having not heard of it, and a further 48% having heard of it but having little understanding of it. This is unfortunate, because the same share (48%) were shown in a different question to believe that healthy properties should be added to the Building Safety Bill, which is one of the tenets of the TCPA's campaign.

COMMON COMPLAINTS

With so many barriers facing housing professionals, it is helpful to consider what the main unhealthy aspects residents complain of are, and reaffirm the advantages of remediating these issues.

There are a wide range of issues to contend with when making a home healthy, and our respondents noted a number of tenant complaints in their own housing stock, with occurrences ranging from constantly for some landlords, to never with others.

EXTERNAL ENVIRONMENT

A healthy home begins not just through the front door, but from the environment around the home, with proven health and wellbeing benefits from air quality, reasonable density and noise levels, and green and walkable spaces.

When it comes to outdoor air quality, for example, a report from the Royal College of Physicians estimated there are 40,000 deaths each year

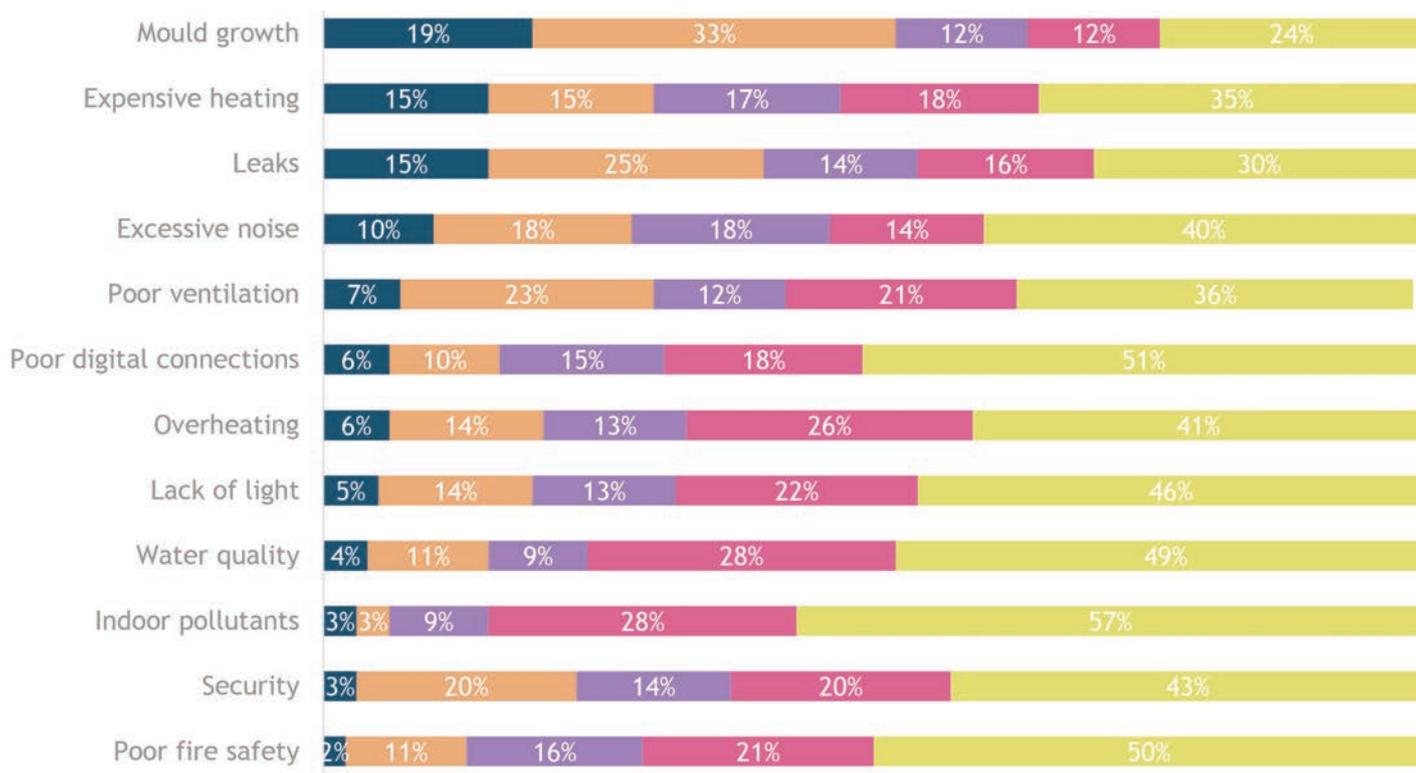
in the UK attributable to exposure to outdoor air pollution.

Nearby green spaces, for another – as shown earlier to be of importance to almost half of our respondents – have been demonstrated in multiple studies to provide tangible benefits to the health of residents, affecting cortisol levels, pulse rates, blood pressure and more. This is further compounded by walkable neighborhoods, also shown earlier to be considered important by a third of our respondents.

When it came to issues that our respondents' tenants had reported in their own properties, however, the only one covered was excessive noise, with 40% having never had the issue reported, 14% rarely, 36% sometimes/occasionally, and 10% constantly, perhaps indicating that tenants see many of these external issues as beyond a landlord's control.

TEMPERATURE

While directly addressing some of the above issues may be out of the remit of the average landlord – unable to improve on land they



"How often have tenants reported the following issues in your properties?" ■ Constantly ■ Occasionally ■ Sometimes ■ Rarely ■ Never

don't own, or that's already fully developed – there are many protections a home can provide to help defend residents from negative aspects of their exterior environment.

Outside temperatures for example, can have a major impact on health when a home is not adequately treated; homes that are too cold or hot killed 17,000 people in the UK in 2018 (E3G, 2018), with many of those deaths linked to fuel poverty.

As such it stands to reason that a healthy home should offer sufficiently tight building fabric to retain heat in homes, thus reducing energy bills and keeping residents at a healthy temperature affordably, as well as offering efficient heating products that use less energy or employing smart solutions to do the same.

According to our respondents, 41% said their tenants have never reported issues of overheating, 26% rarely, 27% sometimes/occasionally, and 6% constantly.

Slightly more common, 35% said their tenants have never reported issues of unaffordable heating, with 18% receiving such complaints rarely, 32% sometimes/occasionally, and 15% constantly.

DAYLIGHT

A connected external issue that can significantly affect a resident's wellbeing is natural light.

Daylighting has been shown to have a positive impact on mental and physical health, as well as having the potential to reduce energy consumption and consequently heating costs. A healthy home therefore should be optimised to offer generous access to sunlight.

Natural light levels have important effects on our bodies, informing us of the passage of time, and influencing the secretion of hormones such as melatonin and serotonin, regulating our circadian rhythms. This can be hugely important in a home – research from the University of Oxford has linked mental illness to abnormal circadian rhythms, and as such a home that denies a resident access to this natural light is likely harmful, and could not be described as healthy.

Again, past the design and construction stages of a home, it can

be difficult to introduce new light into a home, but there are many solutions when retrofitting properties to introduce more light, such as the installation of additional or improved glazing, or the removal of internal partitions to open up spaces.

Not one of the most commonly reported issues in our survey, of our respondents 46% reported that their tenants have never reported a lack of light, 22% rarely, 27% sometimes/occasionally, and 5% constantly.

VENTILATION

Air quality is another clearly important factor of a healthy home, with poor ventilation causing pollutants build up in indoor air, which potentially cause significant health issues.

Without adequate ventilation, for example, there is an increased risk of condensation occurring, which itself can cause mould growth, especially where thermal bridging has not been addressed. Not only unsightly, mould growth can cause a range of health issues, ranging from an increased risk of asthma to skin conditions such as eczema.

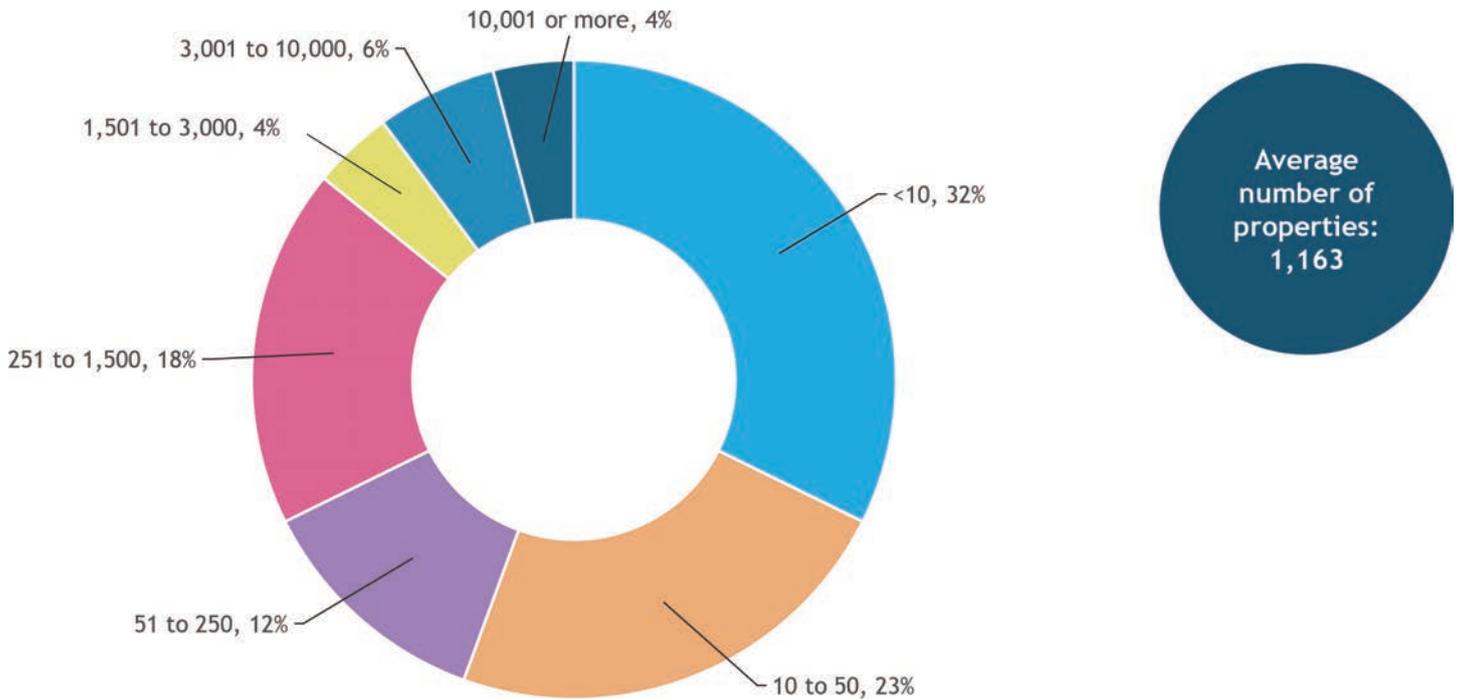
Mould growth was one of the most commonly reported issues among our respondents' tenants, with 19% constantly receiving such complaints, 45% sometimes/occasionally, 12% rarely, and 24% never.

Somewhat unexpectedly, poor ventilation – a likely cause behind such growth – was reported less, with 7% constantly receiving complaints around this, 35% sometimes/occasionally, 21% rarely, and 36% never.

Another issue reported, though one of the least common among our respondents, is a further dangerous consequence of poor air quality: the presence of indoor pollutants.

This can range from external pollutants making their way inside, such as nitrogen dioxide from vehicles or construction dust, to those produced internally, such as moisture from drying clothes, chemicals from fabric softeners, or contaminants from building materials or cleaning products – all of which can be solved by adequate ventilation and air treatment.

Just 3% of our respondents reported their tenants to constantly complain about indoor pollutants, with 12% occasionally/sometimes, 28% rarely, and 57% never.



“How many rental properties do you have in management?”

WATER

Just like air, the quality of all water supplies in a house can be extremely important to a tenant’s health.

As an example, one of the most common – and serious – issues that occurs in a water supply is Legionella. This bacteria can cause Legionnaires’ disease, which is a potentially fatal form of pneumonia caused by the inhalation of small droplets of water contaminated by the bacteria, and less commonly by drinking such contaminated water (with the water needing to reach the lungs).

All hot and cold water systems are likely at some point to provide a favourable environment for Legionella to grow, which ranges from 20 to 50 degrees. Leaving a building vacant, causing water system stagnation, can produce a greater degree of risk here, with just a week of no movement risking unsafe growth.

When asked about the most frequent issues their tenants reported to them, just 4% of our respondents listed water quality as being a constant complaint, with 20% occasionally/sometimes, 28% rarely, and 49% having never received such a complaint.

Continuing the theme of water – as well as tight building fabric – leaks also cause clear health and safety risks. When asked how often leaks are reported by their tenants, it ranked among one of the most common complaints, with 15% hearing such reports constantly, 39% occasionally/sometimes, 16% rarely, and 30% never having received such a complaint.

SAFETY AND SECURITY

Feeling safe is an important part of a healthy home.

Worry itself can be massively detrimental to mental health, and of course the potential harm to physical health from fires or poor security is clear.

Unfortunately, these issues are not uncommon. There are approximately 200 fire related deaths each year in the UK, with 37,000 house fires occurring in the same timeframe; and it is estimated that there is a burglary every 40 seconds in the UK.

Any issue of safety and security can be made far worse by inadequate specification, with a working smoke alarm reportedly increasing your likelihood of surviving a fire by four times, for instance, and smart products only increasing their effectiveness in recent years.

Thankfully, poor fire safety was the least common complaint among

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our respondents’ tenants, though it sadly remains an issue for half of those surveyed, with 2% constantly receiving fire safety complaints, 27% occasionally/sometimes, 21% rarely, and 50% never.

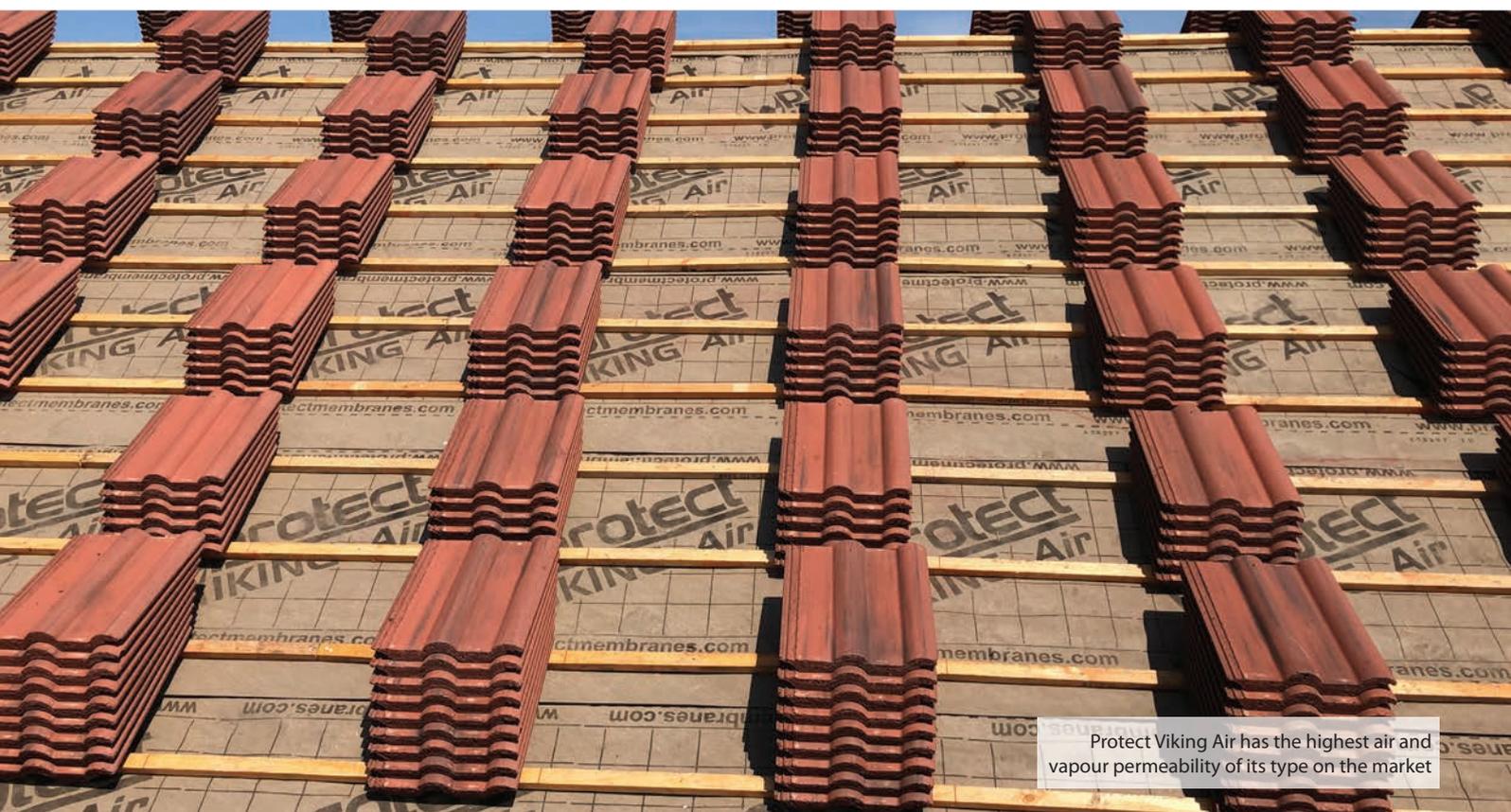
Lacking security was the second least common complaint here, with 3% constantly receiving such complaints, 34% occasionally/sometimes, 20% rarely, and 43% never.

INTERNET CONNECTION

Perhaps less important than some of these aspects of a healthy home – and as such one that is sometimes overlooked – is a strong and stable digital connection.

Connection to the internet is in fact essential to everyday life in the modern world, and, post-Covid especially. It can literally provide you with not just information on health, but access to healthcare itself. Access to the internet is also often essential for a wide variety of daily tasks, including contact with landlords, job applications, or access to bills.

According to our survey, poor digital connections are constantly reported by tenants to 6% of landlords, with 25% receiving such complaints occasionally/sometimes, 18% rarely, and 51% never receiving such complaints.



Protect Viking Air has the highest air and vapour permeability of its type on the market

CASE STUDY 1: GLIDEVALE PROTECT

Innovative roof underlay helps provide healthier homes

A scheme to install a new roofing membrane from Glidevale Protect is improving homes in a County Durham town for believe housing, one of the largest housing associations in the North East.

Nearly 80 homes in the Woodhouse Close area of Bishop Auckland have received new roofs as part of a programme to upgrade believe housing's affordable homes in the area. The properties were re-roofed with air and vapour permeable roofing membrane Protect Viking Air, with the aim of increasing ventilation and air circulation within the homes. Protect Viking Air can make an improvement in older homes, which were originally not designed with eaves ventilation. Following a successful trial, the underlay is now being installed on approximately 200 homes in Central Durham.

Building Surveyor at believe housing, Daryl Reed, said: "We decided to modify our specification for re-roofing and use an air permeable membrane to give a good level of ventilation. A lot of our homes were originally constructed without ventilation in their eaves, so this material promotes increased natural ventilation and creates a healthier home."

Senior Product Manager at Glidevale Protect, John Mellor commented: "We are delighted that believe housing has successfully trialled this innovative pitched roofing underlay, which has the highest air and vapour permeability of its type on the market. Ventilation to the roofspace can contribute positively to the health and wellbeing of tenants; Protect Viking Air can deliver a solution without the requirement for

additional ventilation. We look forward to working closely with all teams as the membrane is rolled out for further housing upgrades in the region."

This installation of the air permeable roofing underlay at Woodhouse Close is part of a 10-year, £138m programme to improve existing affordable homes in the region by believe housing in a range of communities stretching from rural Weardale to the coast. The project aims to make homes cheaper to run, providing high-quality affordable housing. The refurbishments are being carried out in partnership with specialist contractors EQUANS.

Alan Maskell, Refurbishment Director at EQUANS, said: "We actively support and encourage our partners in utilising new technologies and trialling new ideas which will ultimately benefit the lives of residents."

For more information visit www.glidevaleprotect.com, please email info@glidevaleprotect.com or call +44 (0)161 905 5700, quoting 'believe housing.'

Protect Viking Air is a premium air and vapour permeable (LR) roofing underlay for pitched roofs, with full independent certification by BM TRADA.

By delivering class-leading air and vapour permeability, Viking Air ensures a high level of airflow and ventilation is provided into the roof space, reducing condensation risk in line with BS 5250. The product can be used without additional ventilation, which is acceptable to the NHBC for a cold roof construction.

The product has the highest wind uplift resistance of its type in the market, being suitable for use in wind zones 1-4 at 345mm batten gauge to BS 5534, with no need to tape laps or use additional counter battens. This ensures wide coverage across the UK and throughout Ireland. When the membrane is installed at 310mm batten gauge or on sarking boards, it provides unrestricted use, meeting the full wind uplift requirements in zones 1-5.

CASE STUDY 2: AICO

Barnet Homes roll-out Aico|HomeLINK IoT Platform

Barnet Homes currently has over 3,000 homes connected to the Aico|HomeLINK IoT platform accounting for 20% of their total stock. The technology has demonstrably saved people's lives and generated net savings; a comprehensive business case identified cashable savings of £8.9m. Following a smooth roll-out, Barnet Homes have confirmed they will complete a full roll-out of 15,000 homes by 2025. Savings areas include:

1. INCREASED ASSET LIFETIME

The industry average time an alarm spends on the ceiling is estimated to be 6-8 years. This is short of the 10-year recommendations given by most reputable manufacturers because installers and asset managers err on the side of caution to decrease the risk that alarms go out of date. While this approach improves compliance, it can be more financially and environmentally costly. The Aico|HomeLINK platform provides transparency about average alarm replacement age and alarms that are out of date; reducing non-compliance risk whilst enabling a data-led, strategic approach to replacements.

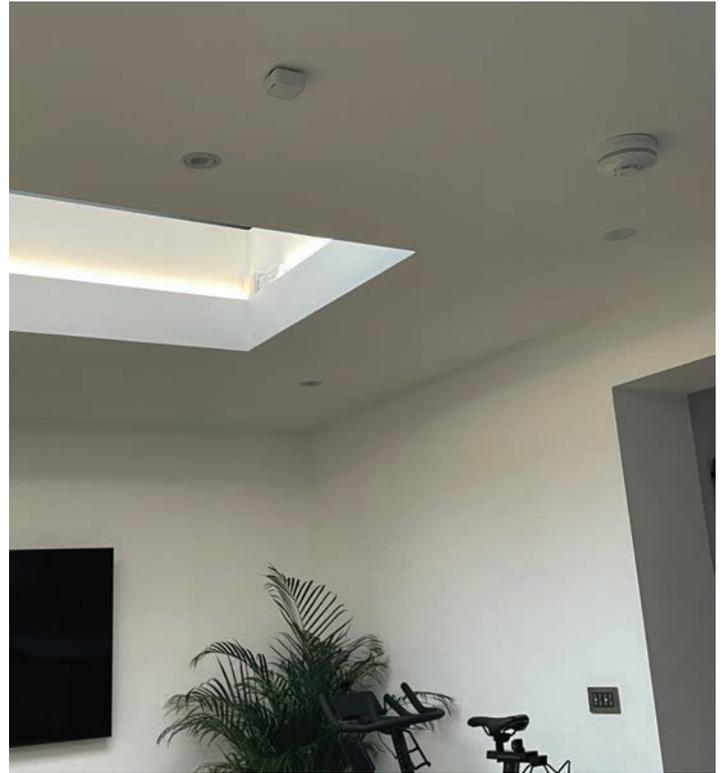
2. REDUCING VISITS

Physical annual smoke and Carbon Monoxide alarm tests are often no longer required. While most of these checks were completed concurrently as part of gas servicing, there is still a cost associated with them.

3. IMPROVING SAFETY AND COMPLIANCE

Savings areas include improved and more efficient compliance reporting, reduced risk of fines, reduced legal expenses, less and more efficient repairs/callouts, and lower probability of reputational costs associated with accidents resulting in near misses, injury, or death.

The business case is both conservative and strong, but the primary motivator for Barnet Homes is the potential to improve the safety and healthiness of their residents' homes. For example, Barnet have already identified three homes that had low levels of Carbon Monoxide and one home that had high levels. In all cases, Barnet Homes sent an engineer immediately to rectify the problems ranging from a faulty cooker to an unclean cooker. From a compliance perspective, these are very different



scenarios, but the net result is the same for the resident: at best rapidly deteriorating physical and mental health; at worst, death.

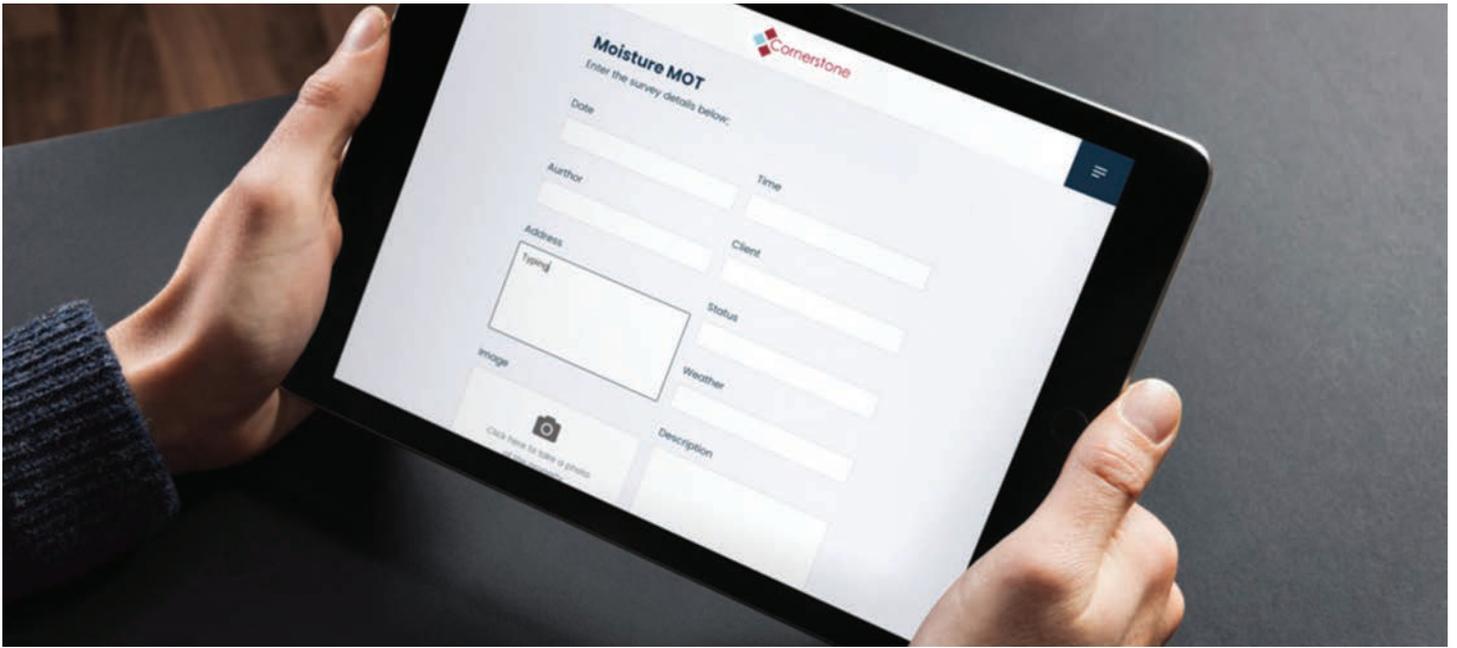
Industry 4.0 refers to a new phase in the Industrial Revolution that focuses on interconnectivity, automation, machine learning, and real-time data. While Barnet Homes leads the way, many other social landlords are on the same IoT adoption trajectory as them. This is more evidence that Industry 4.0 has arrived for social landlords in the form of compliance.

To date, Aico|HomeLINK have already brought online IoT solutions for nearly 14,000 socially rented homes in the UK. Based on feedback from customers who are currently scaling this technology, Aico|HomeLINK will have at least 750,000 by the end of 2025.

Gavin Bass, Senior Compliance Manager of Barnet Homes comments, "We can see a huge amount of value in the environmental sensors. From improving resident health and wellbeing to ensuring we are compliant with things that are very difficult and expensive to measure such as damp and mould locations and causes. It is clear from the Ombudsman's report that Landlords are expected to take a proactive approach to solve these problems, non-compliance will no longer be tolerated, and disrepair legal claims are likely to increase."

For more information please visit www.aico.co.uk.





CASE STUDY 3: CORNERSTONE – PROPERTY MOT

Full damp survey taken following reported damp and mould suffered to areas of client's structure

The property is a 1990's 2-bedroom ground floor flat of cavity wall construction with PVCu fenestration throughout. A block and beam suspended floor with insulation below the screed and thermoplastic floor tiles are noted. Perimeter walls are predominantly plastered internal dry wall construction.

A recent leak in the bathroom has been repaired and understand surface drying only prior to reinstatement of the bathroom was undertaken. The occupants moved out three weeks ago prior to this damp survey.

A moisture survey was undertaken and the readings indicated the property was dry with the exception of elevated readings from the bathroom sub-floor extending to survey location P in bedroom 1.

A leak in the bathroom in early 2015 appears to only have been surface dried as the insulation below is still wet (section 6.1). A non-permeable membrane below the insulation and screed on the block and beam floor will possibly trap moisture from the previous reported incident and is the authors opinion that the sub floor condition is checked.

We understand one adult and two young children normally reside at



the property and previous atmospheric monitoring suggests the internal atmosphere has been recorded as high over the monitoring period (see section 8.0).

With regard to existing ventilation measures, all windows have trickle vents at the head of the frame and were open at the time of survey. In addition, a passive vent was noted to the wall in bedroom 1.

There was no forced extraction unit fitted in the kitchen and the unit in the bathroom could not be tested for its effectiveness due to the absence of electrics in the property at the time of the survey.

A tumble dryer located in the kitchen had a flexible outlet hose connected to it and will rely on manual intervention to ensure it is vented to the exterior when in use (section 6.2).

During the survey, the tenant advised of mould on clothes in the cupboard in bedroom 2 and is indicative of heightened atmospheric conditions within the property during occupancy.

For more information, please visit www.propertymot.uk.





CASE STUDY 4: ENVIROVENT

Envirovent's ventilation solution chosen for 'homes of the future' pilot

A ventilation system from leading manufacturer EnviroVent has been chosen for a flagship new build scheme that could shape the Government's 'Future Homes Standard'.

EnviroVent's enigiSava 250 MVHR (Mechanical Ventilation Heat Recovery) system has been specified for Project 80, a new development by Birmingham housing association Midland Heart. The development of 12 homes will meet the Government's Future Homes Standard, reducing carbon emissions by up to 80%. These homes will be monitored constantly as this research project will be used to inform the Government's next consultation about the Future Homes Standard, which will be compulsory for all new homes built by 2025.

EnviroVent's Managing Director Andy Makin explains: "We're very excited to be working with Midland Heart on this innovative low carbon project. The fact that this project is being closely monitored in line with the government's consultation on the Future Homes Standard just goes to show the role that low carbon, low energy ventilation systems have to play in the homes of the future in providing good indoor air quality."

Director of Development at Midland Heart, Chris Miller, said: "We're really proud to be leading this pioneering project and look forward to working with EnviroVent as one of our partners and welcoming new residents to this unique development."

"The homes here will be 'normal homes', constructed largely using regular materials which have been sourced locally, demonstrating the practicability of the Future Homes Standard."

The enigiSava® 250 MVHR unit is a popular choice with housing associations for newbuild projects as it provides optimum ventilation for a property with a minimum loss of energy. It extracts moisture-laden air from the wet rooms such as bathrooms, WCs, kitchen and shower rooms, at the same time it supplies fresh air into the living areas, recovering the energy from the extracted air. The importance of good indoor air quality

all year round, free from the issues of condensation and mould, will be imperative as homes continue to be built tighter.

This unique ventilation system incorporates Intellitrac® Technology, which monitors and controls humidity. It operates continuously at a low level to ensure that the home is correctly ventilated, providing good indoor air quality with no user intervention required. As humidity rises and falls, the motor speed rises and falls in correlation. This controls condensation and reduces the time that the system operates on maximum speed, helping to save energy.

A highly collaborative programme encompassing industry, academia and the public sector, Midland Heart is working in partnership with local construction company Tricas Construction Ltd to build the homes. The Building Alliance and Birmingham City University are also working with Midland Heart to support the project. The University will provide in depth research to evidence all aspects of the design and delivery of the homes of the future to measure cost-effectiveness, with residents to understand their experience of the new technology.

The project will also offer a living lab for student learning. The evidence gathered will help to inform future policy on climate change adaptation in the built environment. The homes are due for completion by Easter 2022, three years ahead of the Government's target.

For more details about Midland Heart, visit www.midlandheart.org.uk

For more information about ventilation products and services, visit www.envirovent.com.



CASE STUDY 5: FIREANGEL

How housing associations can take a “zero-tolerance” approach to damp & mould with FireAngel Connected

With energy costs continuing to rise at an extraordinary rate, and the price cap predicted to double in April 2022, the number of families in fuel poverty is expected to soar by 200%. Recent research suggests six out of 10 British adults would significantly reduce their heating use if the cost of heating doubles. However, under heated homes are linked to the onset of mental health conditions and can have severe health implications, with nearly 10,000 deaths caused each year as a result of fuel poverty.

Cold homes also cause a myriad of physical and property issues, such as condensation, damp and mould - reported to be harming the health of one in five renters in England, or 1.9 million households. Mould and damp problems pose considerable cost implications to housing associations, with remedial fixes for small condensation issues being high and often being followed by more expensive improvements to combat the cause of condensation, damp and mould in a property.

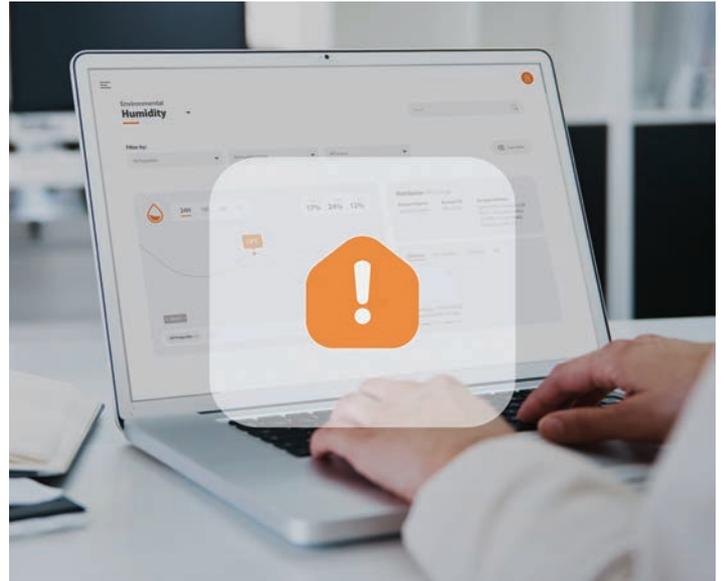
Shelter’s chief executive, Polly Neate said: “The cost of poor housing is spilling out into overwhelmed GP surgeries, mental health services, and hours lost from work. Listening to the calls flooding into our helpline there is no doubt that health and housing go hand in hand.

“Yet, millions of renters are living in homes that make them sick because they are mouldy, cold, unaffordable and grossly insecure.”

Following guidelines outlined in the Charter for Social Housing white paper, the Housing Ombudsman has recently called for landlords to take a “zero-tolerance” approach to damp and mould in properties, identifying 26 recommendations for landlords to implement.

One of these recommendations is to use a “data driven, risk-based approach with respect to damp and mould. This will reduce over reliance on residents to report issues, help landlords identify hidden issues and support landlords to anticipate and prioritise interventions before a complaint or disrepair claim is made.”

There are a variety of new solutions available that enable housing providers to take a data driven approach to monitoring humidity and



temperature levels in a property to proactively tackle condensation, damp and mould.

IoT sensors discretely utilised in residents’ homes provide real-time data on a property environment, enabling early interventions to pre-empt the dangers of damp and mould.

“FireAngel Connected enables housing providers to create a tailored network of sensors and devices to detect everything from fire and carbon monoxide, to water leaks and room occupancy,” explains Nick Rutter, Co-Founder & Chief Product Officer at FireAngel.

“IoT devices and sensors are wirelessly connected to the platform through our New Generation Cellular Gateway using Smart RF and Zigbee technology, and comes with temperature and humidity sensing as standard. Housing associations can then access each device’s data using our intuitive dashboard, allowing them to identify environments that could lead to damp and mould.”

By integrating humidity and temperature data into housing teams’ existing asset management systems, insight can be gathered to allocate resources more efficiently. FireAngel’s Gateway is designed to use cellular signals alongside a wi-fi back-up, to give housing providers the confidence that it’s always on and always connected.

By acting early, housing providers can stop costs escalating. Damp is less likely to become an expensive headache to fix, and with better living conditions, tenants will feel more comfortable and safer in their home environment.

For more information on FireAngel’s Cellular Gateway or Connected for social housing providers, please visit www.fireangel.co.uk/connected or contact your local specification manager.





CASE STUDY 6: MITSUBISHI ELECTRIC

Bespoke luxury homes in the Garden of England

Clarendon Homes has established a reputation for providing high-quality, unique homes in the most picturesque and sought-after locations in Kent. They are also committed to considering the environmental impact and producing eco-friendly homes for their customers.

So, when a new 14-house project launched at Weavers Park, the environmental impact of the development was at the top of the list of considerations. The development is nestled within the beautiful countryside village of Headcorn and built to offer an exceptional range of 4 & 5 bedroom luxury homes.

All 14 houses have been fitted with Mitsubishi Electric's Ecodan Air Source Heat Pumps which help to massively cut the dwellings' carbon emissions produced by the homes heating and hot water demands.

"The pre-sales team at Mitsubishi Electric sized and designed the Ecodan air source heat pump systems to suit the various house types we were building. This made the installation very straight forward for us" commented Clarendon Homes.

Each home has been designed with the ultimate attention to detail, featuring contemporary living spaces finished to the highest quality specification. The open plan bespoke kitchens feature stone worktops

and a range of fully fitted appliances making them a pleasure to cook and socialise in.

For added convenience the heating and lighting can be controlled wirelessly via the ABB integrated system and music can be played via the installed Sonos music system.

Cutting-edge wet rooms create a look that is timeless elegant, complemented by contemporary bathroom suites. Each property boasts a landscaped garden and private offroad parking including a double electric garage. The finishing touches of elegant fireplaces, oak veneered internal doors and underfloor heating really do make this a place anyone would be delighted to call home.

At design stage, Clarendon Homes also had to ensure the local infrastructure could support 14 properties heated by Air source heat pumps, some of the load of which would be provided by solar PV.

The company's commitment to quality also meant that they wanted to provide the new homeowner with the best handover experience and therefore they put their own Installers through Mitsubishi Electric's comprehensive Ecodan training to learn more about the system and installation.

Now an official Partner, Clarendon Homes can offer a 5-year guarantee to the homeowner which is a very attractive selling point.

"We believe it is vital that our staff help to educate the homeowner on the system, how it works, what its benefits are, and how to get the best use out of the system. Mitsubishi's technical department is always willing to advise us and sort any issues out – something we didn't get with our previous brands.

Additionally, there is a customer helpline for the end user which is really helpful if the client needs help out of hours." Clarendon Homes

Ecodan Air Source Heat pumps also achieve extra points towards overall Energy Performance Certificates (EPC) which is an added benefit for housing developers.

Visit les.mitsubishielectric.co.uk for more information.



CONCLUSION

There is no getting around it; unhealthy homes risk lives, and the UK's housing stock has been found to be lacking.

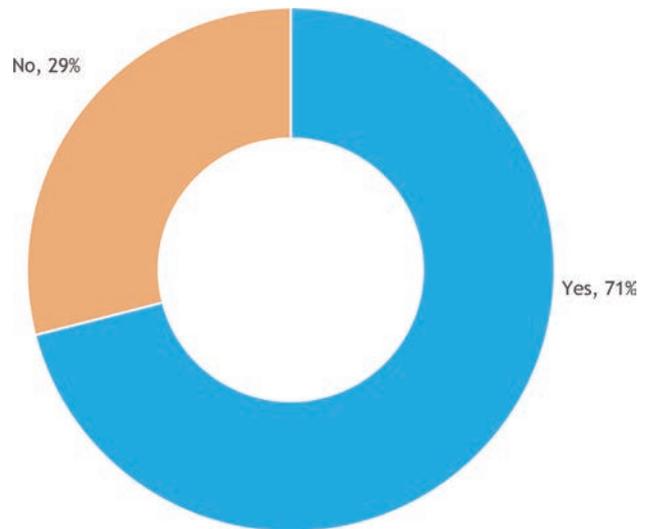
Poor design, specification and repair can lead to homes that strangle their inhabitants, some by encouraging fuel poverty, others by poisoning the air they breathe, or by denying them simple human necessities such as clean water or daylight.

Our survey demonstrated a wide acceptance of the dangers of unhealthy homes, and the benefits of their healthy counterparts. Though their perception of the most important aspects of such a home varied somewhat, the vast majority of our respondents believe that healthy homes lead to longer, happier lives for their inhabitants.

Despite this, just a quarter of our respondents would describe 90-100% of their own housing stock as healthy, with an average of over a third of our respondents' stock being self-described as unhealthy, and a shocking 47% believing that the country's homes as a whole have become less healthy over recent decades.

The research identified a number of barriers to making a property healthy, with costs coming up front and centre. Failings of the Government were also highlighted here, with respondents complaining of a lack of focus on retrofitting properties, as well as insufficient financial support for landlords and housing associations in doing so, and poor regulations.

When it came to our respondents' understanding of such regulations, and the industry's current movements to improve the country's housing stock, this too proved to be a barrier, with many not aware that the Decent Homes Standard is being reviewed – something that could bring sweeping changes to the regulations behind a home's health.



"Do you believe the Government is paying too little attention to retrofitting older properties?"

Whatever the movements or barriers are, however, the message is clear: the UK's ageing housing stock needs to be addressed at pace, and housing professionals know it. Change must happen now, and inaction puts lives at risk.



Image: Mitsubishi Electric. See page 13