Unit 12 Barnwell Business Park
Barnwell Drive, Cambridge
Cambridgeshire, CB5 8UY
01223 244515
info@app-protect.co.uk
www.app-protect.co.uk

230197D
MC/STA
25 April 2023

Mrs Karen French
The Garden House
Beacon Rd Ditching
Hassocks
West Sussex
BN6 8XB

2 CHURCH WAY, HASLINGFIELD

INSTRUCTIONS

Carry out tests on all accessible walls, report on any dampness and provide recommendations for necessary remedial works.

SCOPE OF SURVEY

This report is based on standard non-destructive survey and will involve the use of an electronic moisture detection meter where appropriate. The surveyor will not undertake investigation where there is a risk of damage to the decorations, fixings, fittings and the property in general. Removing skirtings, wallpaper, plaster, drilling holes in walls etc. - are effectively '*destructive*' and likely to cause damage. Such acts are very unlikely to be allowed in a vendor's property and in most owner-occupied houses.

Furthermore, to undertake a destructive investigation will require considerably more time, effort and facilities than the standard non-destructive survey.

The findings in this report therefore are based on the interpretation of the results from a standard non-destructive inspection as described above. If you require confirmatory/definitive diagnosis of our findings, then this can be undertaken by the use of destructive methods of investigation: this will involve some damage and costs and in the case of a pre-sale survey the consent of the vendor.

CONSTRUCTION

A late 16th / early 17th Century cottage constructed with a timber frame over a brick base, with rendered roughcast elevations and a thatched roof. The property has been split into three separate dwellings.

SURVEY NOTES

The weather was dry following a shower of rain at the time of the inspection.

The inspection was made by Michael Campbell A. CABE. C.S.T.D.B. on 14th April 2023.

The property was furnished and occupied at the time of the inspection. The surveyor has used the moisture detection meter on accessible wall surfaces without moving large items of furniture, fitted units electrical appliances etc. A further inspection may be necessary when the property has been cleared, to assess the full extent of any damp problems.

Titles are given facing the property from the front on Church Way.

The property is understood to be a listed building, and the advice of the local authority conservation officer must be sought. Listed Building consent may be required for remedial works.

Moisture readings using the Protimeter MMS instrument will be recorded in percentages for wood and wood moisture equivalent (WME) for masonry. (Scale 0-100).

Percentage moisture contents in timber of over 18% could be subject to fungal decay.

WME of 20 and above are considered to be damp. WME up to say 35 might be reduced if simple remedial measures were undertaken and drying and ventilation measures introduced.

With WME above 40 a judgement must be made as to the source of the moisture and whether or not this can be eliminated; and then will the fabric dry out or is remedial work going to be required. E.g., hacking off and replastering. With WME at the top third of the scale (65-100) plaster removal, rectification of the moisture inducing defect, drying out time and replastering is very likely to be necessary. As a rough guide we recommend doubling up of the BRE advice on drying times for a new masonry wall of an "inch a month" to 12.5mm per month. E.g., a 225mm wall subject to rising damp and salt contamination might be expected to take up to eighteen months to dry out with natural drying. It can therefore be seen that drying out and the choice of plasters can be critical.

REPORT

No damp-proof course is visible in the walls, however, as the building was built before 1875 after which it became more common to include a damp-proof course in the walls, it is unlikely to have been incorporated as built.

An external inspection revealed that all external elevations have been covered with a roughcast cement-based render, concealing the timber frame. This rendering is in poor condition, with numerous hairline cracks, holes (drilled for fixings etc), and some large vertical splits. This will allow rainwater to penetrate the walls and cause dampness internally to the timber frame, and the plastered finishes.

Cement based renders are not suitable for ancient timber framed buildings such as this, due to their poor drying qualities that can allow moisture to become trapped behind the render, leading to fungal decay of the timber frame. It is recommended that the cement render be removed entirely and replaced with a new lime-rendered finished. Lime has superior drying qualities compared to cement, so any moisture can more freely evaporate away.

The existing render currently runs down into contact with the ground, allowing rainwater to rise up into the walls, causing damage to the bottom of the render, and dampness to the timber frame. When the render is replaced, the new rendering should be finished above internal floor level and incorporate a bell mouth drip at the base.

The external ground levels have been built up, so they sit above internal floor level which has a significant step down as you enter the property. This allows moisture to track laterally into the walls, causing dampness internally. If possible lower the external ground level to at least 75mm below internal floor level, preferably 150mm below, if this cannot be achieved permanently, temporary excavation and the installation of a studded vertical damp-proof membrane and backfilling should be considered.

The masonry base at the bottom of the walls is heavily spalled and may allow rainwater to penetrate the walls. It is recommended that they be repointed with lime-mortar and that any heavily damaged brickwork is removed and replaced with new masonry equivalent.

The timber barge boards along the single-story toilet extension are suffering from wet rot decay and `may allow rainwater to penetrate the walls. It is recommended that all decayed timber is removed and replaced with a new tanalised timber equivalent.

The concrete verge on the single-story toilet extension is cracked at numerous points and allowing rainwater to enter the walls. It is recommended that this be repaired using sand and cement.

The doors and windows have been replaced with new PVC double glazed units. The doors and windows were found to be poorly sealed against the external render, and gaps were visible around many of the fixtures which may allow rainwater to penetrate the walls. It is recommended that all doors and windows are sealed against the rendering with a bead of water-proof mastic sealant.

The chimney stack has been repointed with a sand and cement based mortar. This is not an appropriate material for a historic building such as this, and it is recommended that all cement mortar is raked out and replaced with new lime-mortar.

The fireplaces have had their opening blocked up internally without the provision of ventilation. The chimney is, therefore, at risk from in-flue condensation which can cause hygroscopic salts to leach into the plaster and damp patches to appear. This is visible externally where heavy staining is occurring on the chimney brickwork, causing the painted finish to bubble and fail. Chimneys which are no longer used should be swept and capped or cowled and ventilated both at stack and fireplace level. The condition of all flashings, flaunching & pointing should also be checked and overhauled, as necessary.

These repairs should be completed by a competent builder familiar with working on historic buildings, and using traditional lime based materials.

An internal inspection revealed that many of the walls are plastered with a lime plaster over timber laths onto timber studwork walls. The plaster between the studwork was found to be generally dry with no obvious staining or dampness recorded.

Dampness was present to varying degrees on many of the exposed brick bases which have been rendered in sand and cement. As the building lacks a damp-proof course, this is not surprising.

Where walls have insufficient masonry base, or where the external or internal level is at or above the sole plate and cannot be lowered, it will be necessary for a physical damp-proof course to be installed below the sole plates by a local builder using traditional methods. At the same time repairing or replacing the timber frame as necessary using Tanalised timber. Alternatively, if damp-proofing the masonry is not possible, then isolate the sole plates with a physical damp-proof course.

The exposed brickwork on the chimney breasts at both ground and first floors were found to be damp. This is caused by the rainwater penetration via the defective render on the adjacent walls, and by condensation due to all openings being covered up internally. As these areas are constructed with exposed brickwork they should dry naturally once the external defects are corrected, and the openings are unblocked internally. If these chimneys are to be replastered in the future, then the use of a membrane system prior to replastering is strongly recommended due to the salt contamination within the brickwork. APP can quote for this work upon request.

Without excavation, we are unable to confirm that the floors are laid on a consolidated hardcore base or whether or not an effective damp-proof membrane exists. Floors were fitted with coverings, restricting the inspection.

This report describes the conditions found on the date of the inspection and it must be appreciated that good ventilation is important in the control of dampness in any property and if inadequate ventilation is present along with other factors, condensation & mould may occur particularly during the winter months.

Ventilation should be provided to all moisture creating rooms in the form of a good quality extractor fan, incorporating continuous background ventilation with further boost setting that can be operated by humidity. APP can supply the Nuaire FAITH extractor fan to be installed in both the kitchen and bathroom. Each unit is typically supplied and installed for the sum of £695.00 + VAT, we would need to make a further inspection together with an electrical sub-contractor to determine the location for the installation together with confirming the price.

In addition to extraction, positive input ventilation can be introduced. This is becoming increasingly recognised as the "best value" approach to ventilating a home. Essentially, the concept is to introduce air to the home at a continuous low rate, encouraging movement of air from inside to outside.

A leaflet on the Drimaster DRI ECO Heat Positive Input Whole Home Ventilation unit is enclosed. The unit is normally supplied and installed for the sum of £1225.00 +VAT and is covered by NuAire's unique 5 year warranty. If this system is of interest to you, please contact APP to arrange for a visit the property to assess the property and the suitability of the roof void for the installation, together with confirming the price.

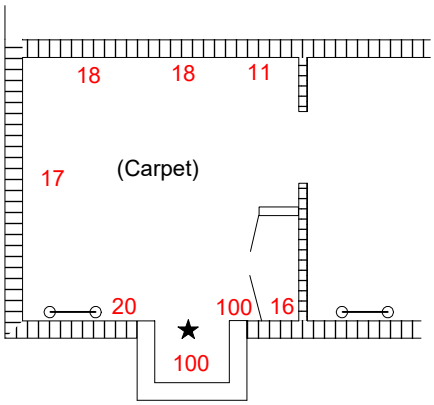
An inspection of the roof revealed that it had been insulated, though slightly unevenly. It is recommended that the insulation is lifted, re-laid, and topped up where necessary to provide an even 270mm of insulation across the entire roof, including across the back of the hatch.

Please also find attached general notes on condensation which may be given to the tenants.

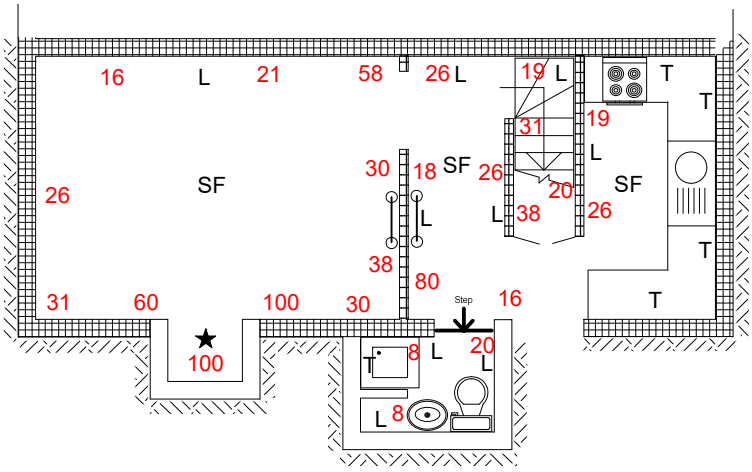
SUMMARY OF RECOMMENDATIONS

- Overhaul external defects as described in this report.
- Unblock the vents to the ground and first floor chimney breast. Allow time for the chimney breasts to dry. If they are to be replastered, contact APP for a quote.
- Builder to insert physical damp-proof course into masonry base to prevent rising dampness. Alternatively, if damp-proofing the masonry is not possible, then isolate the sole plates with a physical damp-proof course.
- APP to install Nuaire FAITH extractor fans and PIV unit (pending permission from the conservation office).
- Ensure the main roof void is insulated to 270mm depth including across the back of the loft hatch.

Michael Campbell ACABE, CSTDB
APP Protect



FIRST FLOOR PART PLAN



GROUND FLOOR PLAN

T = Tiled	LF = Laminate Floor		
B = Boarded	TF = Tiled Flooring		
C = Carlite Plaster	✚ = New Airbrick		
CH = Ceiling Height	= High Ground		
SH = Cill Height	= Radiator		
D = Dado	● = Render to be cut back		
X = Existing Airbricks	■ = Solid or no Skirting		
L = Lined	= Timber Floor		
QTF = Quarry Tile Floor	★ = Unplastered		
SF = Solid Floor	= Vertical Injection		
PR = Picture Rail			
H = Hard Render To Be Cut Back			
(H) = Hard Render Excluded From Works			

A·P·P PROTECT Damp Control Specialists

Report No.	230197
Date of Survey	13 April 2023
Surveyor	MC

2 Church Way
Haslingfield
Cambs
CB23 1JR

This drawing should be in colour. If not - please telephone 01223 249526 for a colour copy.

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nuaire

New!

Faith

Fresh Air in Total Harmony.

COMPLIES TO PART F&L BUILDING REGULATIONS

ADVANCED PERFORMANCE

5 YEAR * WARRANTY

Faith extract has been specially designed to meet the requirements of Social Housing. This compact filterless and aesthetically pleasing fan operates as a continuously-running fan to provide energy-efficient ventilation and comfort for your tenants.

Features and benefits

- Constant flow sensor – guaranteed install performance
- Night time delay and intelligent run-on timer – saves energy and prevents noise disturbance
- Intelligent and energy-saving humidity tracker – slowly boosts the fan by measuring humidity levels
- Low maintenance and life cycle costs – cost-effective ventilation solution
- Daily run monitor – records tenants' operation
- Wall, ceiling and window mounted – fits every application
- Quiet and unobtrusive – tenant acceptability
- 230V and 12V versions
- Suitable for all zones

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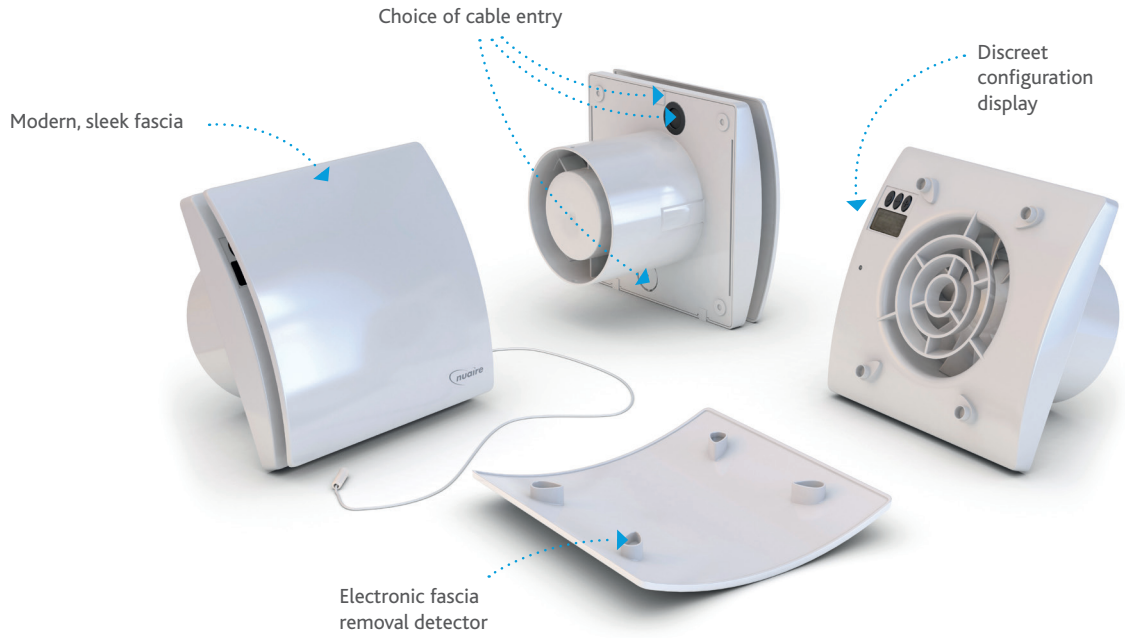
Nuaire. The Complete Ventilation Solution



Conform to these building regulations

Ancillaries available including window kits and wall plates

Table 5.1b **Whole dwelling ventilation rates**

	Minimum rate				
No. of bedrooms	1	2	3	4	5
Whole dwelling ventilation rate (l/s)	13	17	21	25	29

Table 5.1a **Extract Ventilation rates**

Room	Continuous extract	
	Minimum high rate	Minimum low rate
Kitchen	13 l/s	Total extract rate should be at least the **whole dwelling ventilation** rate given in Table 5.1b
Utility room	8 l/s	
Bathroom	8 l/s	
Sanitary accommodation	6 l/s	

Many fans do not deliver the correct amount of airflow to meet building regulations... have 'FAITH' with Nuaire and you will!

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NUAIRE'S **PIV: HALL CONTROL**

The DRIMASTER*eco* Range

The DRIMASTER-ECO range provides whole home ventilation using the Positive Input Ventilation principle, which introduces fresh filtered air into the dwelling at a continuous rate, encouraging movement of air from inside to outside. To achieve this the unit is mounted in the loft space, drawing air through the filters and inputting it, at ceiling level, into the property.

The DRIMASTER-ECO units are fitted with an internal temperature sensor, which continuously monitors the temperature in the loft and boosts the air volume when the loft temperature is above a set level (heat recovery mode). If the loft temperature becomes excessive, the unit will switch to standby mode (no airflow). Once installed, the airflow can be set to suit the house size and if required, the way it responds to the temperature changes within.

BBA APPROVAL INSPECTION TESTING CERTIFICATION

DRI-ECO-HC

The DRI-ECO-HC enhances Nuaire's PIV technology with the added benefit of having the system controls located in the contemporary ceiling diffuser. This unique feature offers the homeowner complete control of the unit, without having to enter the loft space. Not only can settings be altered with the push of a button on the contemporary diffuser, but there is also a 7 segment display which notifies the user of the need for filter change and what setting the DRIMASTER-ECO is running on.

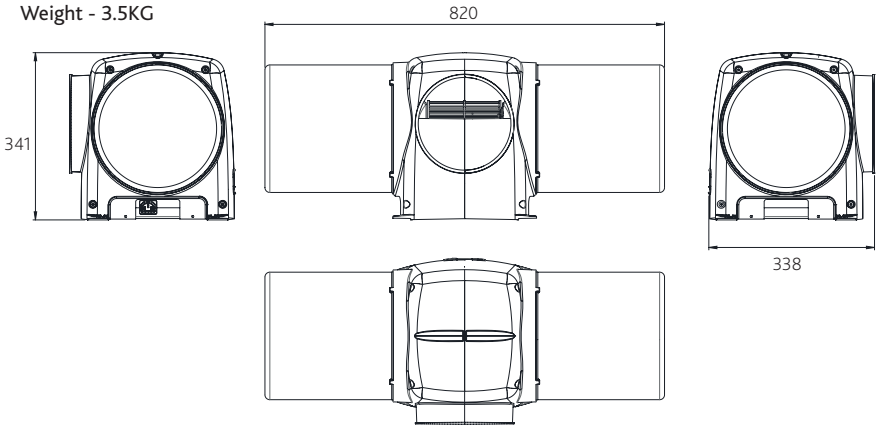
7 YEAR WARRANTY

DRI-ECO-HC INSTALLATION

Technical

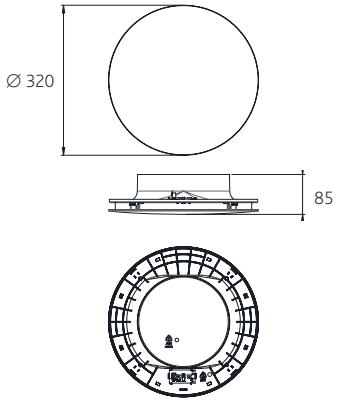
DIMENSIONS (mm) & UNIT WEIGHT

Weight - 3.5KG



DIFFUSER (mm)

Weight - 1KG



Wiring

The unit is supplied with a pre-wired power supply. This power supply unit has a metal bracket incorporating fixing holes, which should be used to fit the power supply to a suitable surface e.g. a wooden joist. The fan unit is also supplied with a fused spur.

The 2 core mains cable from the power supply should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

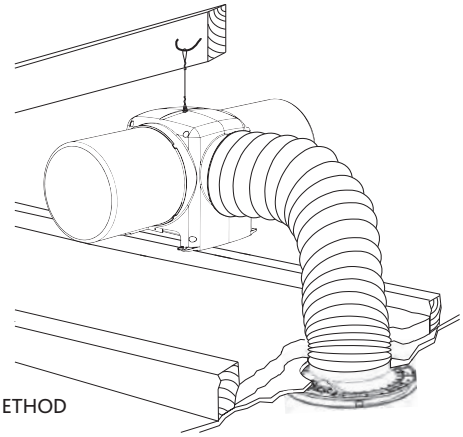
Electrical Details

	Voltage	Consumption
DRI-ECO-HC	230V 1ph 50Hz	1.6W(min) 17W(max)

Typical Installation

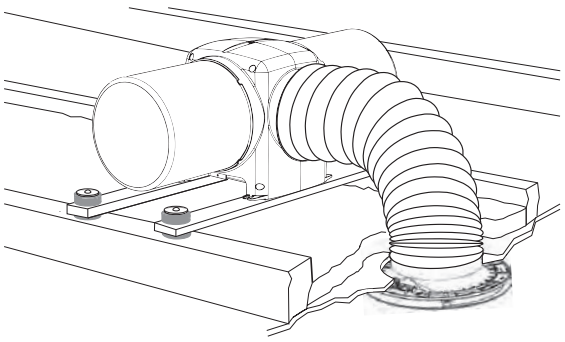
INSTALLATION OPTIONS

Roof structure



STANDARD METHOD
OF FIXING

This method will take advantage of solar gain within the loft



OPTIONAL METHOD OF FIXING.
(AV MOUNTING KIT ON TO ROOF JOISTS)

Part Code 771393

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NUAIRE'S **PIV: HALL CONTROL**

DRI-ECO-LINK-HC

The DRI-ECO-LINK-HC sees Nuaire offer its long-standing PIV technology alongside wireless control and sensor capabilities.

By offering a choice of interactive sensors Nuaire has created an adaptable, market-leading PIV product. Homeowners can choose to use one or all of the sensors available for optimum system performance, in addition to the unique controls sited at our re-designed, modern ceiling diffuser.

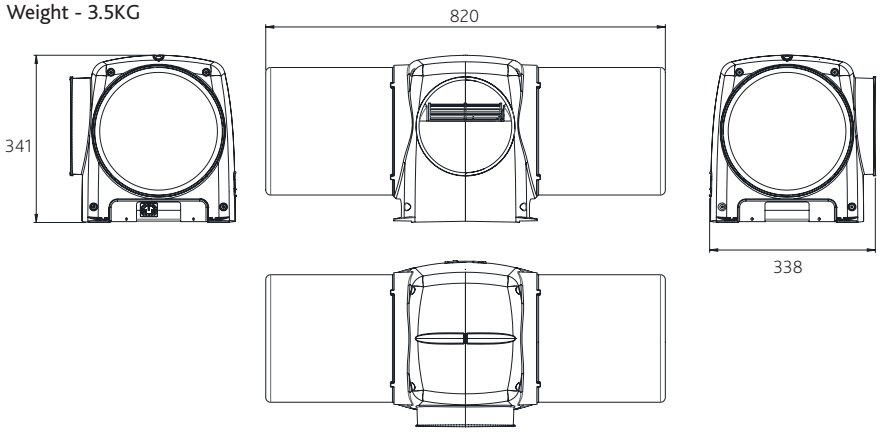
7 YEAR WARRANTY

DRI-ECO-LINK-HC INSTALLATION

Technical

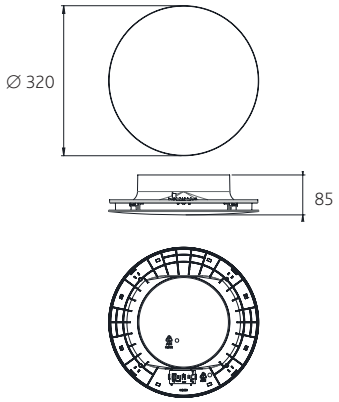
DIMENSIONS (mm) & UNIT WEIGHT

Weight - 3.5KG



DIFFUSER (mm)

Weight - 1KG



Wiring

The unit is supplied with a pre-wired power supply. This power supply unit has a metal bracket incorporating fixing holes, which should be used to fit the power supply to a suitable surface e.g. a wooden joist. The fan unit is also supplied with a fused spur.

The 2 core mains cable from the power supply should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

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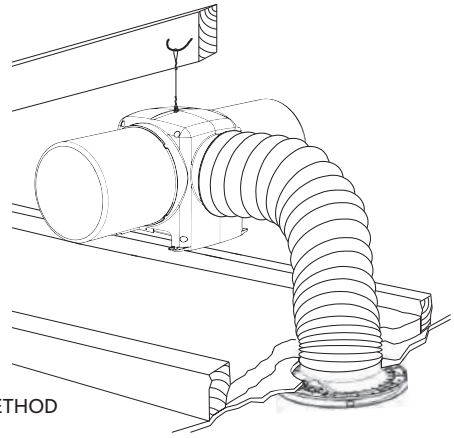
Electrical Details

	Voltage	Consumption
DRI-ECO-LINK-HC	230V 1ph 50Hz	1.6W(min) 17W(max)

Typical Installation

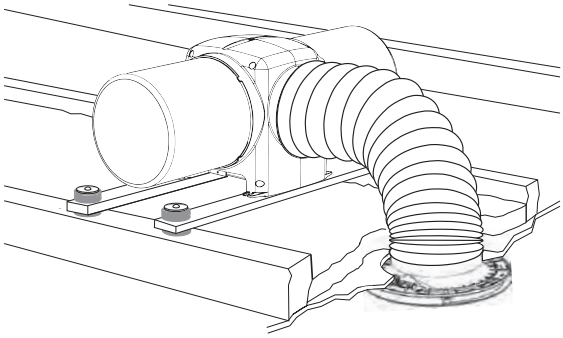
INSTALLATION OPTIONS

Roof structure



STANDARD METHOD
OF FIXING

This method will take advantage of solar gain within the loft



OPTIONAL METHOD OF FIXING.
(AV MOUNTING KIT ON TO ROOF JOISTS)

Part Code 771393

Remote/Wired Sensors

DRI-ECO-2S
A 2 button switch that gives the homeowner control to increase the airflow within the property when required.

DRI-ECO-CO_2
A Carbon Dioxide CO_2 sensor which must be wired directly in to the mains power supply. This ancillary will provide complete confidence in the property's air quality by automatically boosting the fan speed should high levels of CO_2 rise above a set point.

DRI-ECO-RH
Nuaire's latest Relative Humidity sensor monitors the humidity levels within the home and instructs the unit within the loft to adjust the speed in order to maintain optimum comfort.

DRI-ECO-RM
The Remote Monitoring device will allow readings to be taken from outside the property to determine how long the unit has been running and the operating speed of the unit. This will benefit the social housing provider when checks are carried out to ensure measures put in place to alleviate condensation issues are being adhered to, without having to enter the property.

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NUAIRE'S **PIV: HALL CONTROL**

DRI-ECO-HEAT-HC

The unique DRI-ECO-HEAT-HC incorporates all of the wireless functions of our DRI-ECO-LINK-HC unit but with the benefit of an integral heating element, located between the flexible duct and ceiling diffuser.

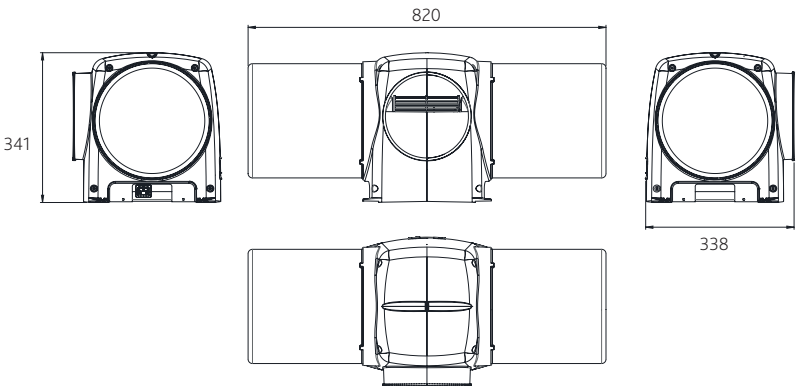
This heating component will temper the air which is distributed through the property via the ceiling diffuser, thus ensuring a comfortable living environment. This pioneering design sees the low watt heater (400w) react efficiently and effectively, guaranteeing an economically friendly product.

DRI-ECO-HEAT-HC INSTALLATION

Technical

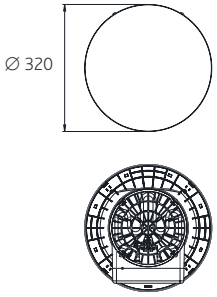
DIMENSIONS (mm) & UNIT WEIGHT

Weight - 3.5KG



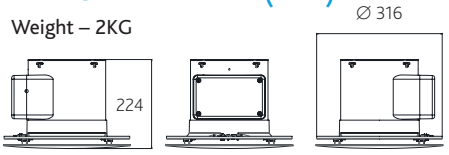
DIFFUSER (mm)

Weight - 1KG



INTEGRAL HEATER (mm)

Weight – 2KG



Wiring

The unit is supplied with a pre-wired power supply. The fan unit is also supplied with a fused spur. The 3 core mains cable from the power supply should be connected to a fixed wiring installation in accordance with current IEE wiring regulations.

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Electrical Details

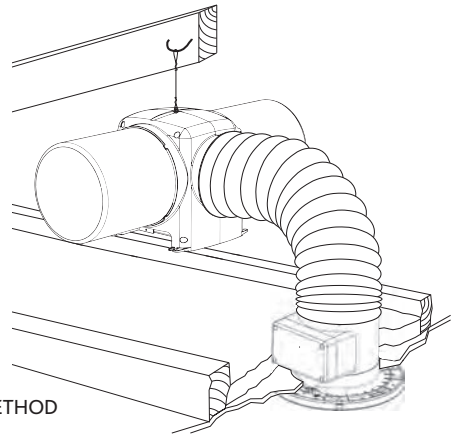
	Voltage	Consumption
DRI-ECO-HEAT-HC	230V 1ph 50Hz	1.6W(min) 17W(max)

Standard running: 1.6W(min) 15.3W(max) Up to 400W with heater at full load.

Typical Installation

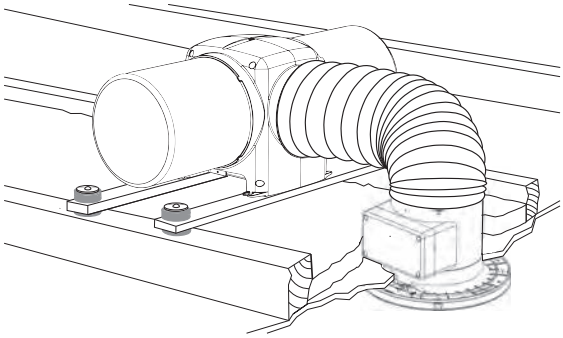
INSTALLATION OPTIONS

Roof structure



STANDARD METHOD
OF FIXING

This method will take advantage of solar gain within the loft



OPTIONAL METHOD OF FIXING.
(AV MOUNTING KIT ON TO ROOF JOISTS)

Part Code 771393

Remote/Wired Sensors

DRI-ECO-4S
A 4 button switch that gives the homeowner control to increase the airflow within the property when required.

DRI-ECO-CO_2
A Carbon Dioxide CO_2 sensor which must be wired directly in to the mains power supply. This ancillary will provide complete confidence in the property's air quality by automatically boosting the fan speed should high levels of CO_2 rise above a set point.

DRI-ECO-RH
Nuaire's latest Relative Humidity sensor monitors the humidity levels within the home and instructs the unit within the loft to adjust the speed in order to maintain optimum comfort.

DRI-ECO-RM
The Remote Monitoring device will allow readings to be taken from outside the property to determine how long the unit has been running and the operating speed of the unit. This will benefit the social housing provider when checks are carried out to ensure measures put in place to alleviate condensation issues are being adhered to, without having to enter the property.

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Tel: 01223 244 515 | Email: info@app-protect.co.uk | www.app-protect.co.uk

Consultants Specification

Low energy Positive Input Ventilation system for use in homes with a loft.

The unit shall be robustly constructed from ABS polymer.

Flame retardant filters of G4 grade, surface area approximately 0.47m^2 (with 5 year typical maintenance period) shall be fitted, which may be removed from the unit without the use of tools. The filters shall be arranged such as to prevent their obstruction in the loft space.

The unit shall incorporate a forward curved centrifugal impeller and high efficiency brushless DC motor fitted with sealed for life, self-lubricating bearings and locked rotor protection. The unit's average power consumption shall be 0.17 watts per l/s airflow; excluding power consumed by the heating element within DRI-ECO-HEAT-HC when running..

The unit shall be supplied with a 2m length of flexible ducting and all necessary connectors and fittings.

The unit shall weigh 3.5kg and we recommend the unit is suspended from the roof structure. The unit shall be supplied with a purpose designed flame retardant polymer diffuser for efficient, directable air input. The diffuser design shall be optimised for use in areas where smoke detectors are fitted. The unit shall include 5 programmable temperature control strategies, 6 volume control settings and an optional high duty boost setting, providing an airflow rate of 70 l/s for optimum performance and occupant comfort. All control/duty strategies shall be optimised for maximum performance and occupant comfort.

An internal run motor shall record the unit's operational time. For information on reducing radon egress, it is suggested that the details given in Positive Pressurisation: A BRE Guide to Radon Remedial Measures in Existing Dwellings may be considered.

DRI-ECO-HC

The DRI-ECO-HC fan unit includes an internal sensor to regulate the fan speed according to the temperature of the loft. The internal sensor will increase airflow to the dwelling when the temperature in the loft space is anywhere between 19-24 degrees celsius. The unit's 'Fixed Temperature Heat Recovery' strategy shall be achieved via a sensor located in the unit and shall improve energy performance accordingly. This unit has all of the controls for the fan in the ceiling vent allowing the user to control, programme and monitor the unit from inside the property.

The unit shall be offered with a 7 year warranty.

DRI-ECO-LINK-HC

The DRI-ECO-LINK-HC fan unit includes an internal sensor to regulate the fan speed according to the temperature of the loft. The internal sensor will increase airflow to the dwelling when the temperature in the loft is anywhere between 19-24 degrees celsius. If the DRI-ECO-RH is purchased then the temperature sensor integral to this ancillary will be used to communicate with the PIV unit and should the temperature in the loft become warmer than the dwelling, the fan will boost. The unit's 'Fixed Temperature Heat Recovery' strategies shall be achieved via these sensors and shall improve energy performance accordingly. This unit has all the controls for the fan in the ceiling vent allowing the user to control, programme and monitor the unit from inside the property. It also has the ability to be controlled using a radio frequency function and can be boosted from a remote wall mounted switch, remote CO_2 detector and an remote humidity sensor.

The unit shall be offered with a 7 year warranty; 1 year parts and labour, remaining years parts only. This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled or not installed, commissioned and maintained in accordance with the details contained in the I&M manual and general good practice.

DRI-ECO-HEAT-HC

The DRI-ECO-HEAT-HC fan unit includes an internal sensor to regulate the fan speed according to the temperature of the loft. The internal sensor will increase airflow to the dwelling when the temperature in the loft is anywhere between 19-24 degrees celsius. If the DRI-ECO-RH is purchased then the temperature sensor integral to this ancillary will be used to communicate with the PIV unit and should the temperature in the loft become warmer than the dwelling, the fan will boost. The unit's 'Fixed Temperature Heat Recovery' strategies shall be achieved via these sensors and shall improve energy performance accordingly. This unit has all the controls for the fan in the ceiling vent allowing the user to control, programme and monitor the unit from inside the property. A heater section incorporating a 400w heating element shall be fitted to the diffuser. It shall be electronically controlled so as to minimise energy use. A temperature sensor shall be fitted to the outlet of the heater and will control the output of the heater in an attempt to maintain the set point. The set point will be adjustable between 6˚C and 20˚C. It also has the ability to be controlled using a radio frequency function and can be boosted from a remote wall mounted switch, remote CO_2 detector and an remote humidity sensor.

The unit shall be offered with a 7 year warranty; 1 year parts and labour, remaining years parts only. This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled or not installed, commissioned and maintained in accordance with the details contained in the I&M manual and general good practice.

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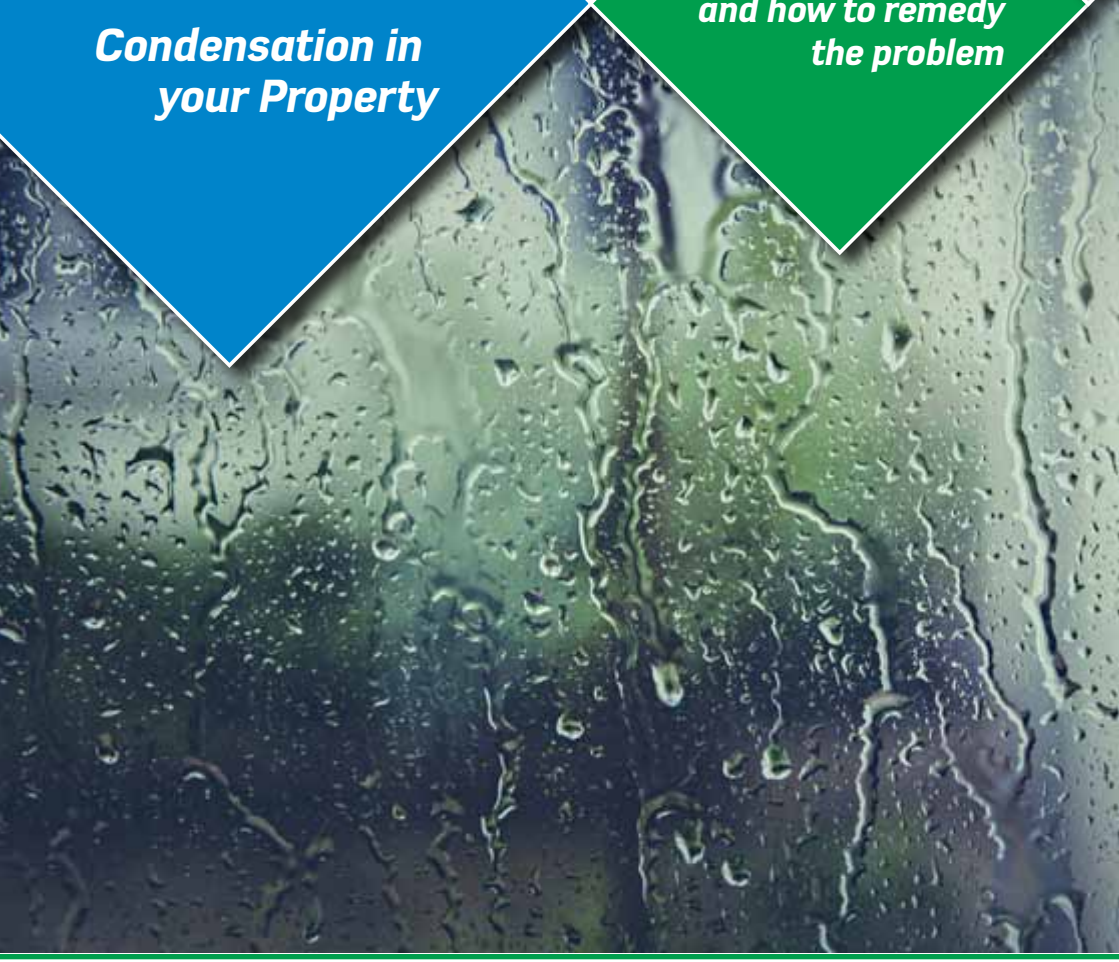
A Homeowners guide to

Condensation in your Property

A guide to the causes and how to remedy the problem



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Condensation in your home... is your home damp?

What is dampness?

Dampness can originate from:

- Leaking pipes, wastes, drainage and overflows
- Rain water from defective roof coverings, blocked or leaking gutters and broken pipes
- Penetrating dampness around windows, through walls and due to raised ground levels
- Rising damp due to lack of, or no effective, damp proof course

CONDENSATION DAMPNESS

is a condition that affects many homes and has probably become the major cause of 'environmental' dampness within a property. Condensation is particularly common in homes which are poorly heated and poorly insulated and usually gets worse in the colder winter months i.e. 'the condensation season'.

What is condensation?

There is always some moisture in the air, even if you cannot see it. If the air gets colder, it cannot hold all the moisture and tiny drops of water appear – the Dew Point. This is condensation. You also notice it when you see your breath on a cold day, or when the mirror mists over when you have a bath. Kitchens and bathrooms are often primary sources of atmospheric water.

Moisture is released into the air through normal daily activities such as washing, cooking, drying clothes, showering and bathing. Condensation can occur commonly on windows or external walls, or cold surfaces within the fabric of the property. Look for it in corners, on or near windows, in or behind wardrobes and cupboards. It often forms on north-facing walls.

Condensation is often associated with poor heating and ventilation in buildings. It is more apparent in winter, as the external air temperature is low and walls and windows are cold. The usual sequence of events is as follows:

- Cold air enters the building
- The air is warmed for the comfort of the occupants
- The warm air takes up moisture
- The warm, moist air comes into contact with cold surfaces (walls, windows, etc.) and is cooled below its Dew Point
- Condensation occurs as the excess moisture is released

Problems caused by condensation

Running water on windows and walls is perhaps the most immediate indication of a condensation problem. If ignored this can lead to a deterioration in the decorative condition of the property, stained curtains, decay in window frames and the appearance of moulds on the surface of wallpapers and paints in poorly ventilated areas. Condensation can also occur under

suspended floors and in roof voids, greatly increasing the chances of fungal decay.

Mould

The development of mould growth is the most common tell-tale sign that is frequently associated with condensation. It can lead to staining, damage to wallpaper, wall surfaces, window frames, furniture and clothing. The appearance of mould may be black, white, yellow or green in colour, depending on the specific type of mould and the surface on which it grows.

Moulds are hydrophilic fungi in that they require high levels of moisture. Capillary held dampness (such as that originating through rising dampness) is not sufficient to cause mould growth. The mould requires free moisture on the surfaces to germinate and grow.

Tiny spores produced by the mould and the higher numbers of dust mites due to the moist conditions can increase the risk of asthma and respiratory illnesses in some people.

In the short-term you should wipe off the condensed water from windows and sills every morning during the condensation season. Wring out the cloth into a sink rather than drying out on a radiator.

Maintaining a reasonable balance between heating, ventilation and insulation can reduce excessive condensation. However, a review of lifestyle and occupation of the property is often necessary.

Mould Cleaning

Regular cleaning away of mould is vital. To remove mould, wipe down walls and window frames with a preparatory mouldicide or fungicidal wash (one which carries a Health and Safety Executive approval number). Spray containers of mouldicide can be obtained from chemists and retailers and mould kits can be obtained from specialist suppliers. Follow the manufacturer's instructions precisely which will provide longer term prevention.

Handy Tips

- Dry-clean mildewed clothes
- Shampoo carpets
- Avoid disturbing the mould by brushing or vacuum cleaning
- Following treatment, redecorate using a good quality fungicidal paint to prevent mould
- Do not over-coat with ordinary paint, emulsion or wallpaper. Use a mouldicide solution additive to mix with the paint, or wallpaper paste containing a fungicide
- Using a dehumidifier will help control the airborne moisture and help reduce the problem, however, dehumidifiers will not solve the cause(s) of the condensation problem

AVOIDING MOULD

The only lasting way of avoiding severe mould is to eliminate the cause of the dampness – condensation.

How to avoid condensation

Produce less moisture

Reduce the potential for condensation by producing less water. Cooking with pan lids on and turning the heat down once the water has boiled, will greatly reduce condensation. Only use the minimum amount of water for cooking vegetables and when filling the bath, run the cold water first then add the hot – it will reduce the steam which leads to condensation by up to 90%.

Avoid drying laundry on radiators and where possible, dry washing outdoors or place in the bathroom with the door closed and the window open/extractor fan on.

When using a tumble dryer, make sure it is vented to the outside (DIY kits are available for this) or is a condenser dryer.

Do not use your gas cooker to heat your kitchen as it produces moisture when burning gas – you will notice the windows misting up.

Ideally, extractor fans should be constant duty fans or be humidistat controlled. Most will be solely activated by a light switch. If you are purchasing a new fan, it will be worth investigating the automatic function.

TEA TIME!

- Cook with pan lids on and turn the heat down once the water has boiled.

There are many different types of extractor fans available such as those that run continuously in the background or those which incorporate a humidistat which will control the operation of the fan within certain humidity limits. It is also possible to install fans that have an integrated heat exchanger, and these have the advantage of providing effective ventilation while reducing heat loss from the property. It is very important that these types of fans are professionally specified and commissioned by a suitably trained and qualified specialist.

Ventilate to remove moisture

You can ventilate your home without making draughts. Some ventilation is needed to get rid of the moisture being produced at the time, including that from people's breathing. Keep trickle vents open at all times or alternatively, open small window/top lights.

Use passive Vapour Vents if no trickle vents are fitted to windows.

Do not have airbricks fitted at low levels.

The installation of suitable extractor fans in the moisture producing rooms of a property such as the kitchen, bathroom and en-suites, will help remove the majority of this moisture-laden air from these areas (that are most responsible for condensation), with minimal running costs. This is a requirement of the Building Regulations for new properties, whilst also applying to existing buildings.

Kitchen and bathrooms require more ventilation due to cooking, washing, bathing and drying creating high levels of moisture. Close the bathroom and kitchen doors when these rooms are in use, even if the kitchen or bathroom extractor fans are on. This stops the moisture reaching other rooms, especially bedrooms which are often colder and more vulnerable for condensation.

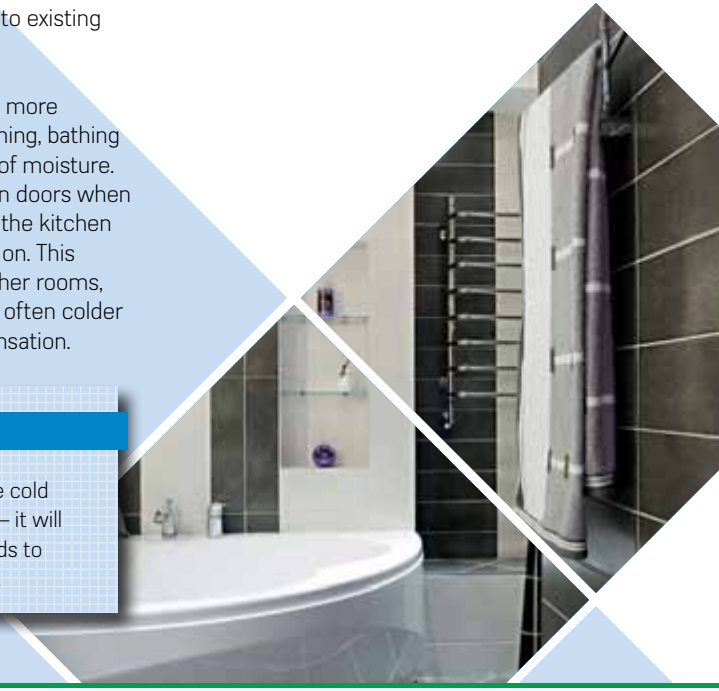
BATH TIME

- When filling the bath, run the cold water first then add the hot – it will reduce the steam which leads to condensation by up to 90%.

Tips to circulate the air

Allow space for the air to circulate in and around your furniture:

- Open doors to ventilate cupboards and wardrobes
- Leave space between the backs of wardrobes and the wall. Where possible, position wardrobes and furniture against internal walls i.e. walls which have a room on both sides rather than external walls
- Avoid overfilling wardrobes and cupboards as it restricts air circulation
- To reduce the risk of mildew on clothes and other stored items, allow air to circulate round them by removing 'false' wardrobe backs or drilling breather holes in them. You can place furniture on blocks to allow air to circulate beneath



Heat your home a little more

In cold weather, the most efficient way to keep rooms warm enough to avoid condensation is to have low background heating on all day – even when there is no one at home. This is very important in flats, bungalows and homes where the bedrooms are not above a warm living room.

If you have central heating, set it to provide background warmth in ALL rooms including any unused rooms. Use the heating system on a regular balanced cycle with all radiators working to all rooms during colder periods.

Otherwise install suitable thermostatically controlled heaters where necessary. The thermostats will help control heating and costs.

Do not use paraffin or bottle gas heaters for this purpose.

Insulate and draft proof

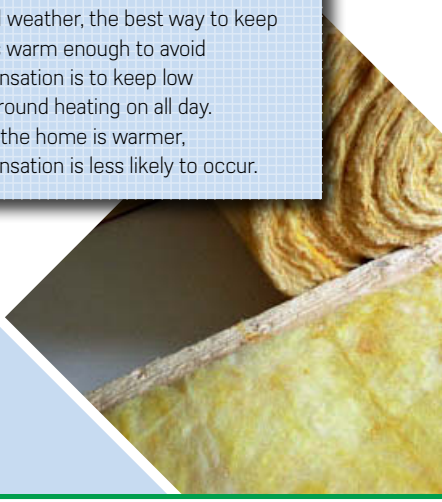
Draughtproofing of windows and outside doors will help keep your home warm and should result in lower fuel bills. When draftproofing:

- Do not block permanent ventilators
- Do not block unused chimney breasts – fit a ventilator/air brick
- Do not draughtproof rooms where there is a fuel burning heater (e.g. gas fire)
- Do not draughtproof windows in bathrooms and kitchens

Insulation should also be considered for roofs, cavity walls and sloping ceilings (soffit) as these are traditionally poorly insulated.

KEEP WARM!

- In cold weather, the best way to keep rooms warm enough to avoid condensation is to keep low background heating on all day. When the home is warmer, condensation is less likely to occur.



Professional advice is available

A much less common form of condensation occurs when the Dew Point is reached, not on the surface of a wall but within the structure of the building itself. This is known as interstitial condensation and can easily be mistaken for rising damp or penetrating damp.

Condensation is a real problem and where it persists, a specialist surveyor should be engaged to explore the cause of the problem and provide advice or propose solutions.

Simply heating the air is unlikely to be a satisfactory solution, not only on grounds of cost, but also of practicality. Unless cold surfaces are eliminated and there is sufficient background ventilation, condensation is almost inevitable. Any remedial action, therefore, must involve lowering of moisture levels, ensuring sufficient ventilation and the elimination of cold surfaces.

Improved heating and ventilation coupled with specific action in relation to cold spots will usually result in a significant improvement in conditions, although there may be circumstances in which alternative methods are required. A modest but constant background heat is preferable to intermittent heating since this will help to maintain a higher ambient temperature in the fabric of the building.

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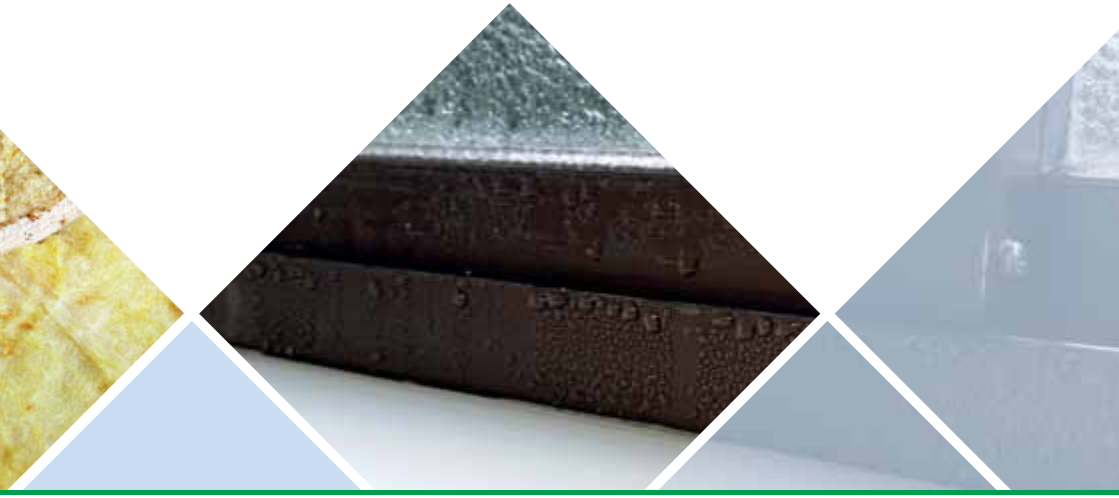

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OLD TIMBER FRAME BUILDINGS

It is seldom possible to make conclusive inspections of the timbers of ancient timber-framed buildings because a greater part of their surface is covered by the surrounding or in-filling fabric. Main structural members such as corner posts and horizontal plates, which carry roof and first floors, are often completely hidden, especially at the bearing ends most subject to insect and fungal attack.

FLOORS

Construction of upper floors frequently prevents access to the undersides of floorboards - where joists or beams are exposed in the ceiling below, ceiling materials are often fixed directly to the undersides of the floorboards. In other cases, the original floorboards may be covered by a second layer. It is common to find insulation materials under the floorboards and between joists.

Use of wooden ground floors was not usual until the 19th century, up until when earth or bricks were used. Where wooden floors have been added, ventilation is likely to be inadequate, and joists have often been laid on the earth. Thus, the floors are prone to fungal decay, and require replacement or extensive repair and excavation work.

RENOVATION

When extensive renovation has been carried out on a building, it is even more difficult to assess the condition of the timbers, because the more obvious defects may have been removed and others covered by elaborate and often expensive decoration. Timbers exposed internally have often received a decorative finish which seals them and makes insecticidal treatment impossible without removal of the finish.

DAMPNESS

Timber framed houses present many difficulties in detecting and eliminating dampness, stemming from the construction. The majority were built prior to 1900 and do not normally have a damp-proof course. It can be expected that rising dampness will be occurring at the base of most houses of this type, often causing the sole plate, i.e. the base plate of the timber frame, to decay. Often the timber framework is rendered externally and plastered internally, possibly more recently using sand/cement which often makes testing with an electrical moisture detection meter inconclusive. Even when dampness is visible or can be found by the use of a moisture meter, there may be no masonry base suitable for injecting a chemical damp-proof course, due to the floor or ground level being up to or above the sole plate.

If the walls have insufficient masonry base, or where the external or internal level is at or above the sole plate and cannot be lowered, it will be necessary for a physical damp-proof course to be installed by a local builder using traditional methods. The timber frame should be repaired or replaced as necessary, using Tanalised timber.