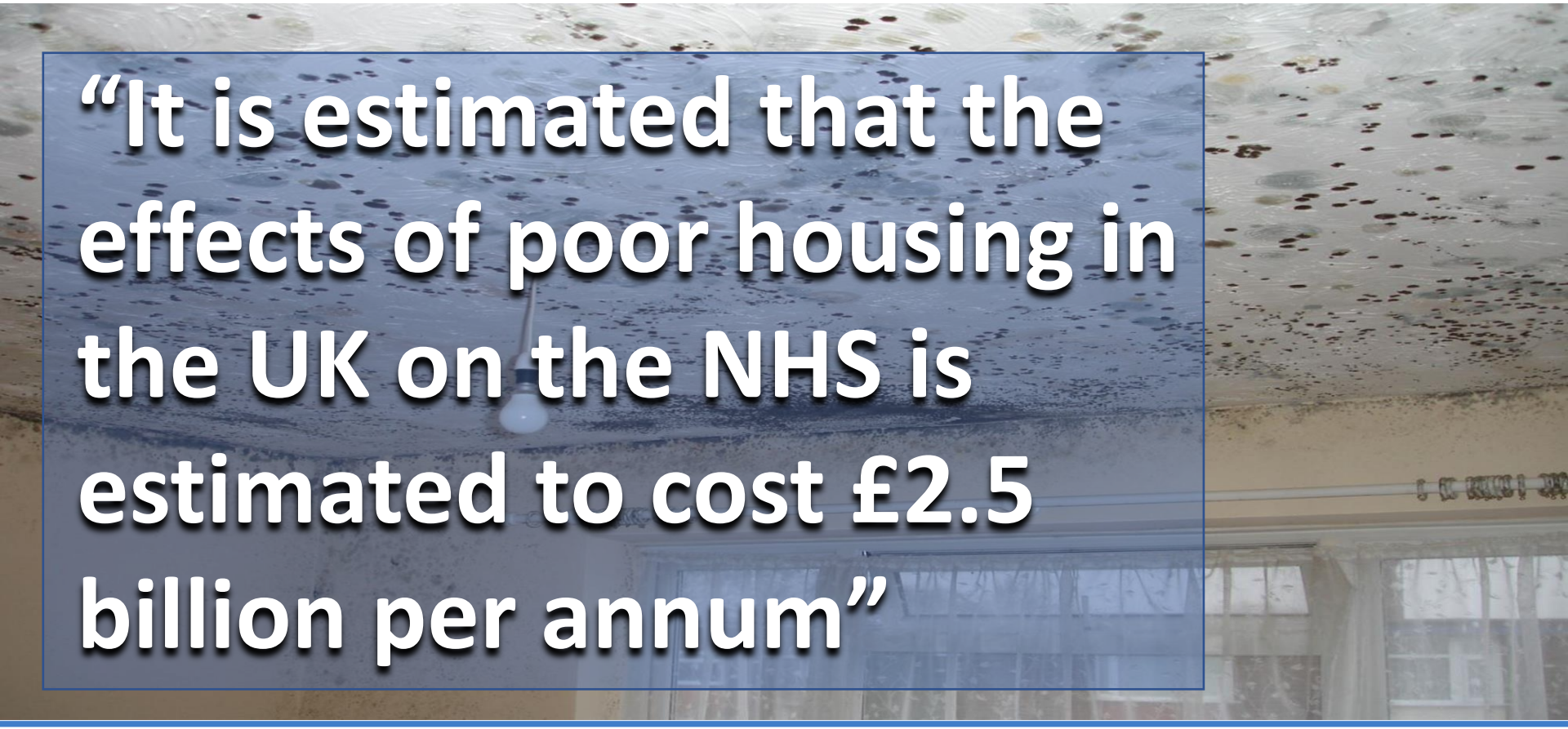
Damp & Mould

The basics

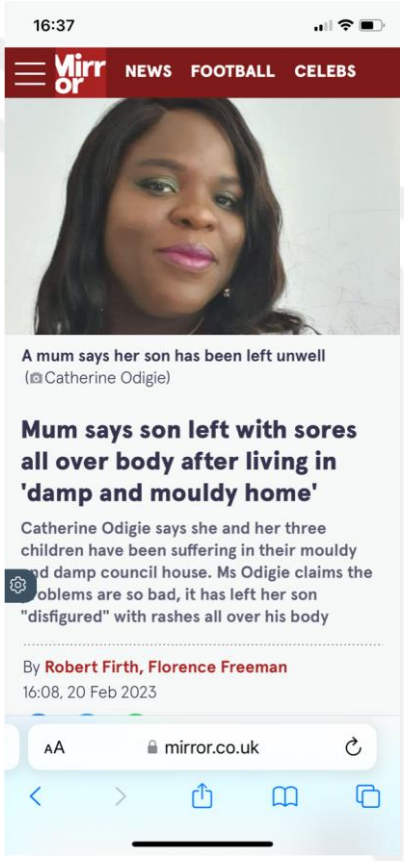
PCA
Property Care
ASSOCIATION

Dampness in domestic dwellings

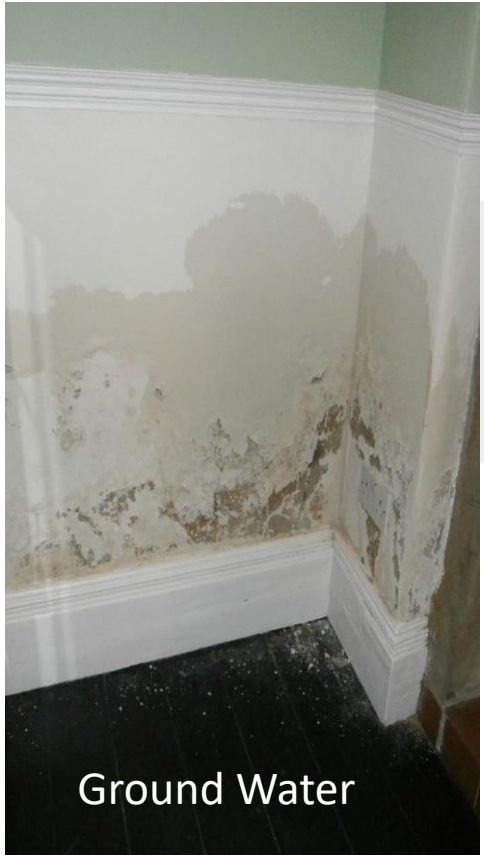


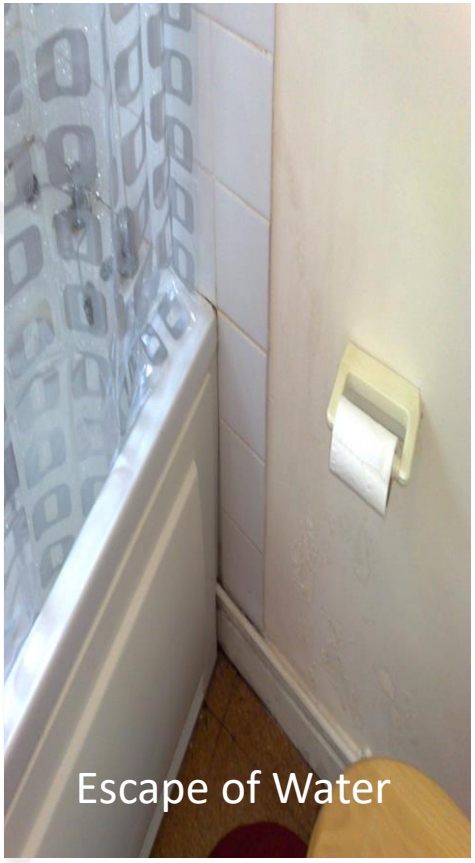
Why has this year been so bad?

Just a few from one day last week!

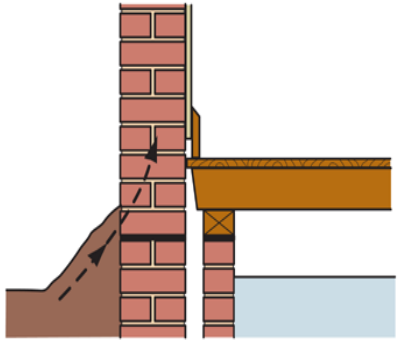


Broadly Speaking.....

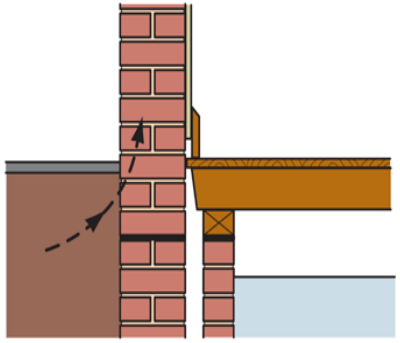




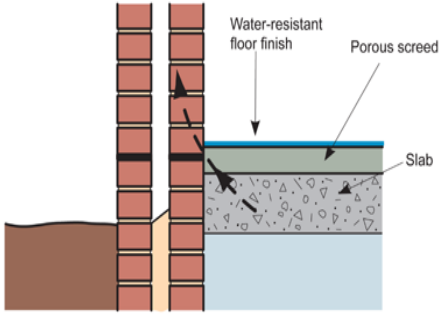
Reproduced from BRE Digest 245 (2007) “Rising Damp in Walls: Diagnosis and Treatment”



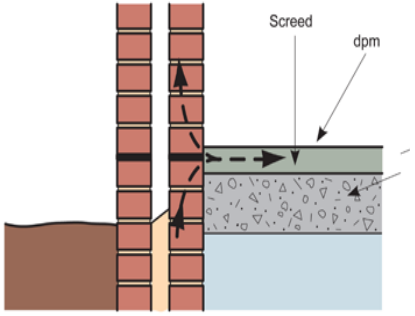
Bridging by earth



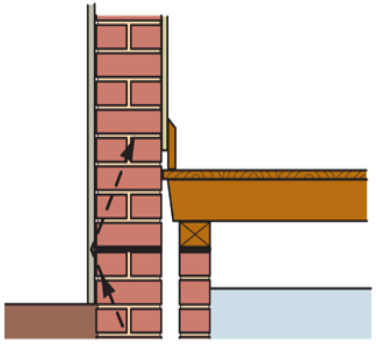
Bridging by path



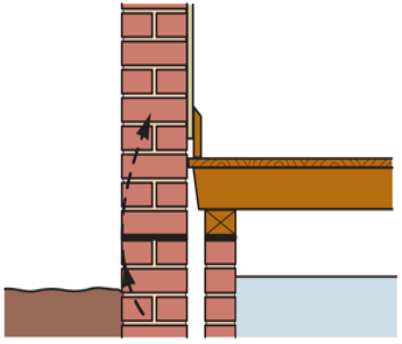
Bridging by floor screed



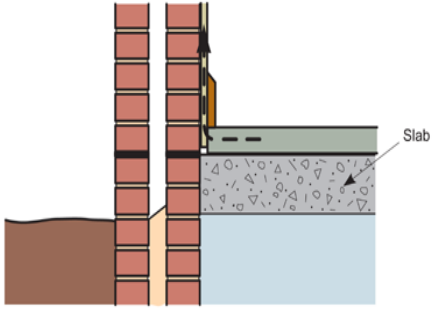
Bridging by floor screed



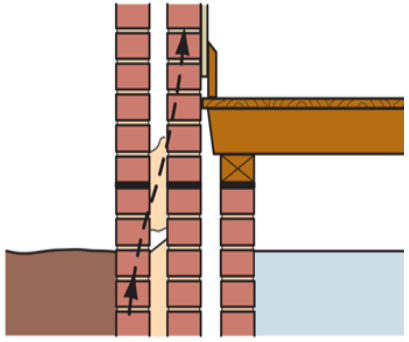
Bridging by rendering



Bridging by mortar pointing over DPM



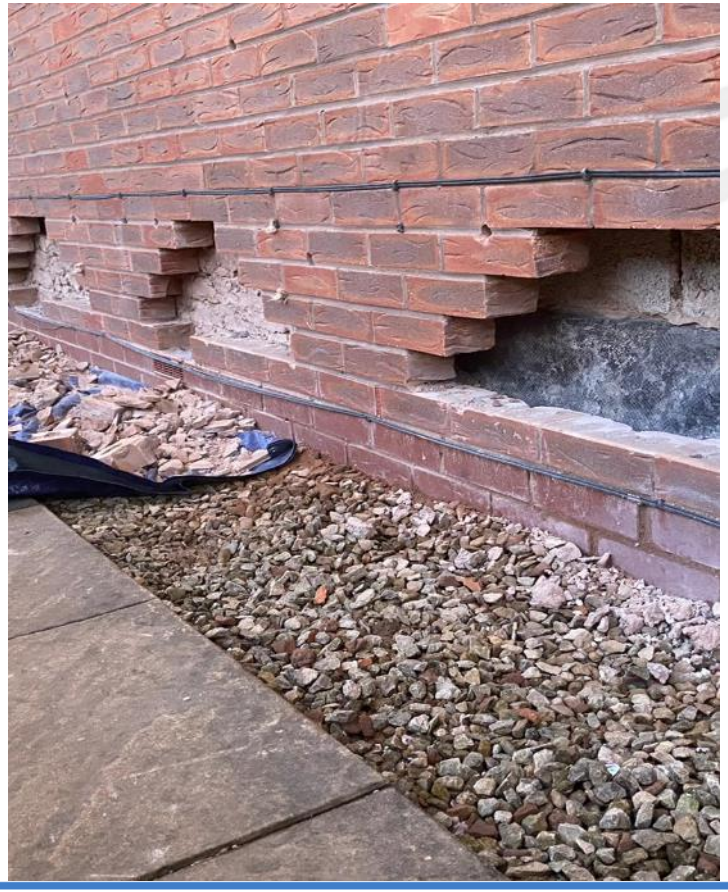
Bridging by plaster taken below
finished floor level

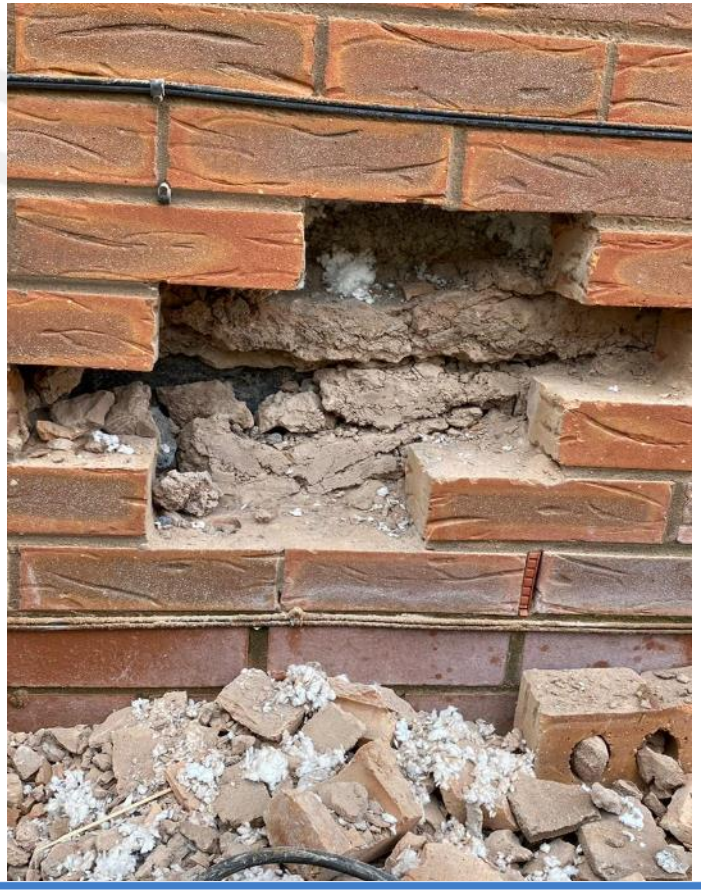


Bridging by mortar dropping in cavity


PCA
Property Care
ASSOCIATION

Debris in Cavity?

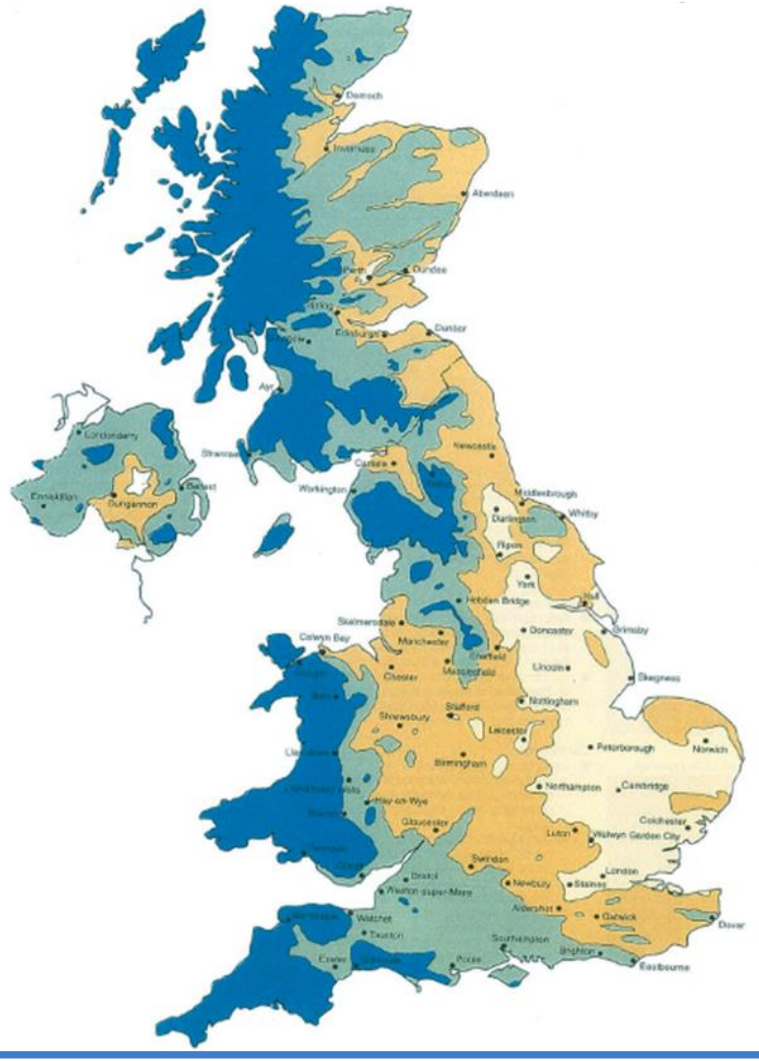




Rainwater Penetration

UK Weather Exposure Zones

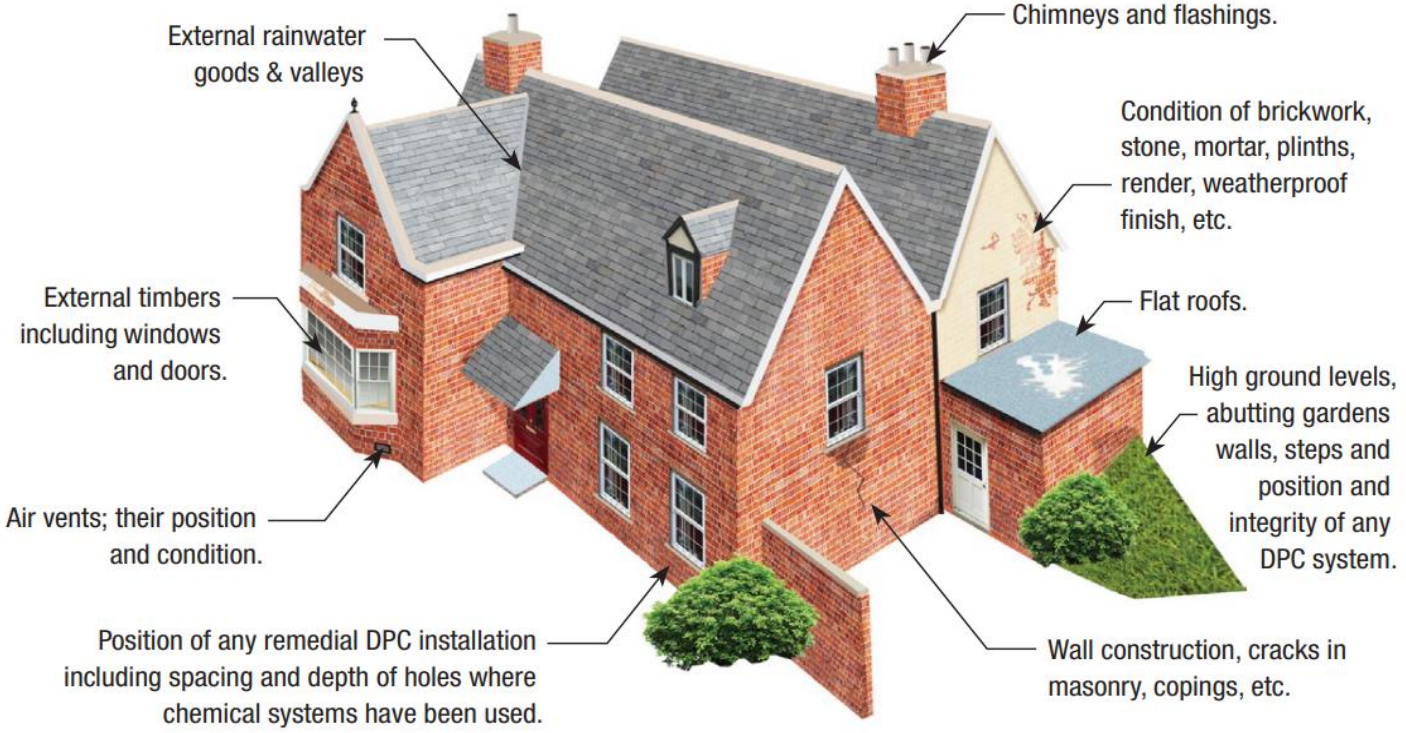
- BRE rainwater penetration map
- From BRE 262



Exposure zones		Approximate wind-driven rain* (litres/m² per spell)
1	Sheltered	less than 33
2	Moderate	33 to less than 56.5
3	Severe	56.5 to less than 100
4	Very severe	100 or more

* Maximum wall spell index derived from BS 8104

Rainwater Penetration



Diagnostic features - Guide

Rising damp	Rainwater Penetration	Plumbing Defect	Condensation
No mould growth	Signs of external defect	Possible mould growth	Mould growth
Tide mark	Can be very wet conditions	May be similar to rainwater penetration but not weather dependent	Samples from within the wall will not be damp if surface condensation is the sole cause
Presence of salts	Will be influenced by external weather	Can be very wet conditions	Water beading on the surface
Base of the wall			Corners, high and low level, behind furniture items
Remains unchanged over long periods			Seasonal
			Run Marks
			No Salts

The consequences of excess water

- Fungal Decay
- Insect Infestation
- Mould Growth
- Reduction in thermal performance
- Salt Migration
  - Chemical attack
  - Expansion of salts as they crystallise
- Freeze and thaw
- Debonding of moisture soluble structures
- Possible health effects – physical and phycological

Dry Rot *Serpula lacrymans*

PCA
Property Care
ASSOCIATION


PCA
Property Care
ASSOCIATION
Dry Rot Serpula lacrymans


PCA
Property Care
ASSOCIATION

Brief mechanics of Condensation and Mould

Mould and Condensation caused by an imbalance in the internal environment;

- Moisture production
- Ventilation
- Heating
- Surface temperature

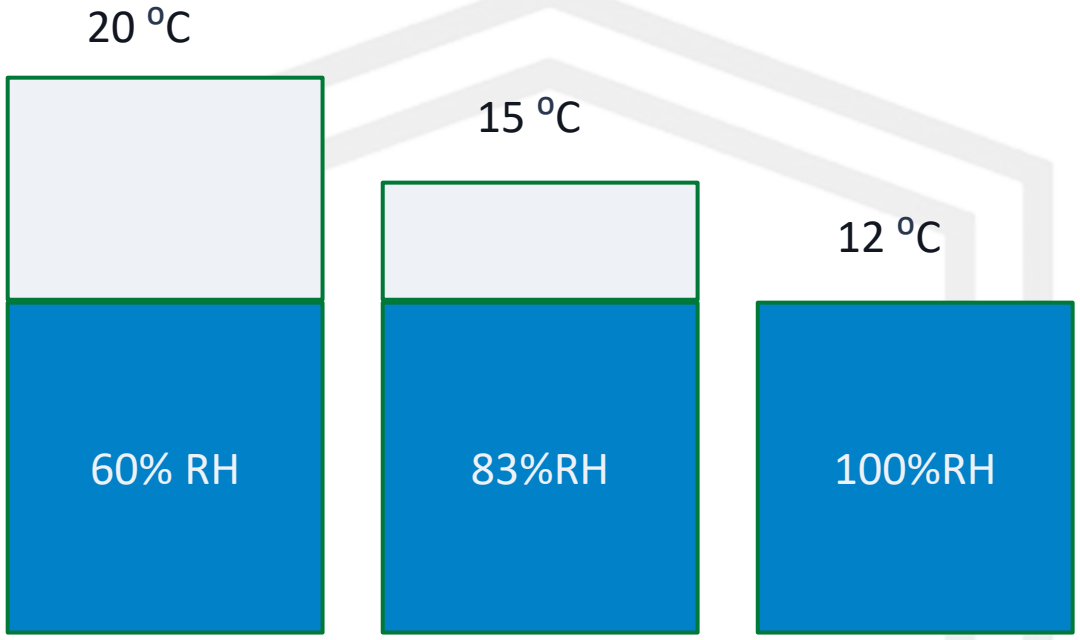
Brief mechanics of Condensation and Mould

- Condensation occurs when water changes from its ‘gaseous state’ to its ‘liquid state’.

- This only happens when the air reaches a relative humidity of 100%

- The point at which the water changes state as saturation occurs is known as the ‘Dew Point’

Effects of cooling air on Relative Humidity (RH)



Brief mechanics of Condensation and Mould growth

- Mould growth can occur well below 100 percent RH
- Different species have different substrate preferences
- Duration of the conditions also a significant factor

Mould Growth Conditions

Moving average period	Room air relative humidity
1 month	65%
1 week	75%
1 day	85%

It’s not lifestyle?

- Avoid blame – likely to cause conflict and break down in relationship
- Lifestyle suggests that it is the residence choice to live that way.
- Personal circumstance may heavily influence conditions

Moisture production

We must accept that moisture production in dwellings is inevitable;

Cooking, showering, breathing etc..

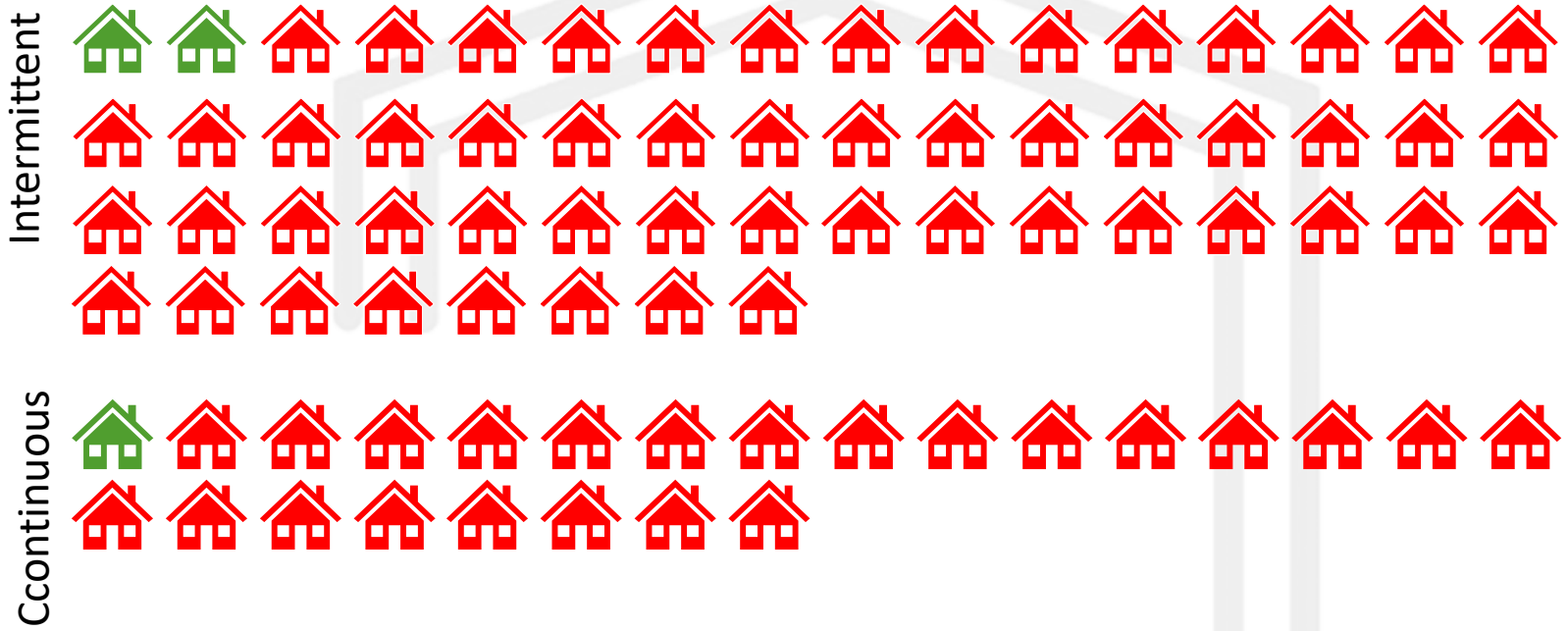
We must therefore ensure that the building has means to manage it….

Ventilation and indoor Air Quality in New Homes

Study of 80 homes between

November 2015 and February 2016

Ventilation and indoor Air Quality in New Homes



Ventilation in New Homes

Condensation in kitchen cupboards

Another example.....

Positive Input Ventilation

Undercuts

- To ensure a good transfer of air through the dwelling
- 10mm under cuts to doors
- 20mm if floor unfinished

Air flow rate testing

- Flow rate for all mechanical fans should be tested. Including Intermittent fans, oven hoods, continuous supply and extract fans.
- All internal and external doors and windows need to be shut
- Device must be calibrated (UKAS accredited), and have an accuracy of ±5 %.

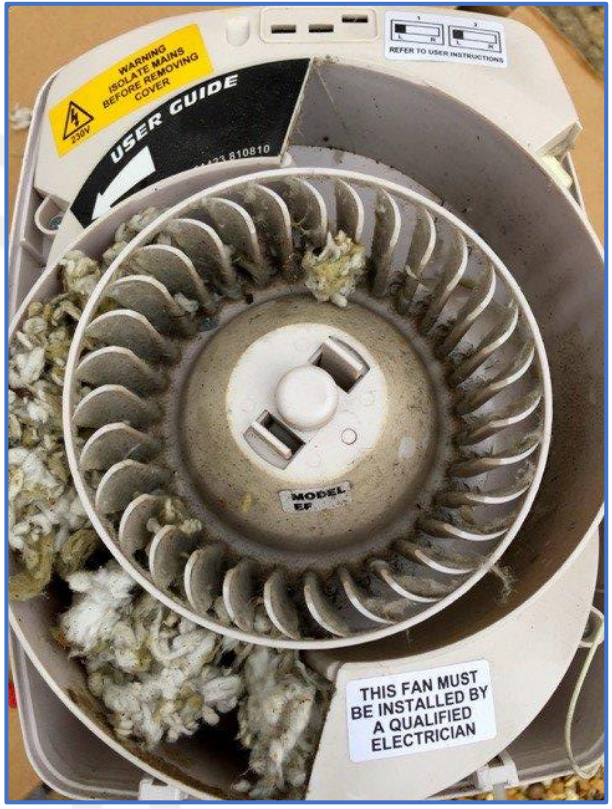

PCA
Property Care
ASSOCIATION

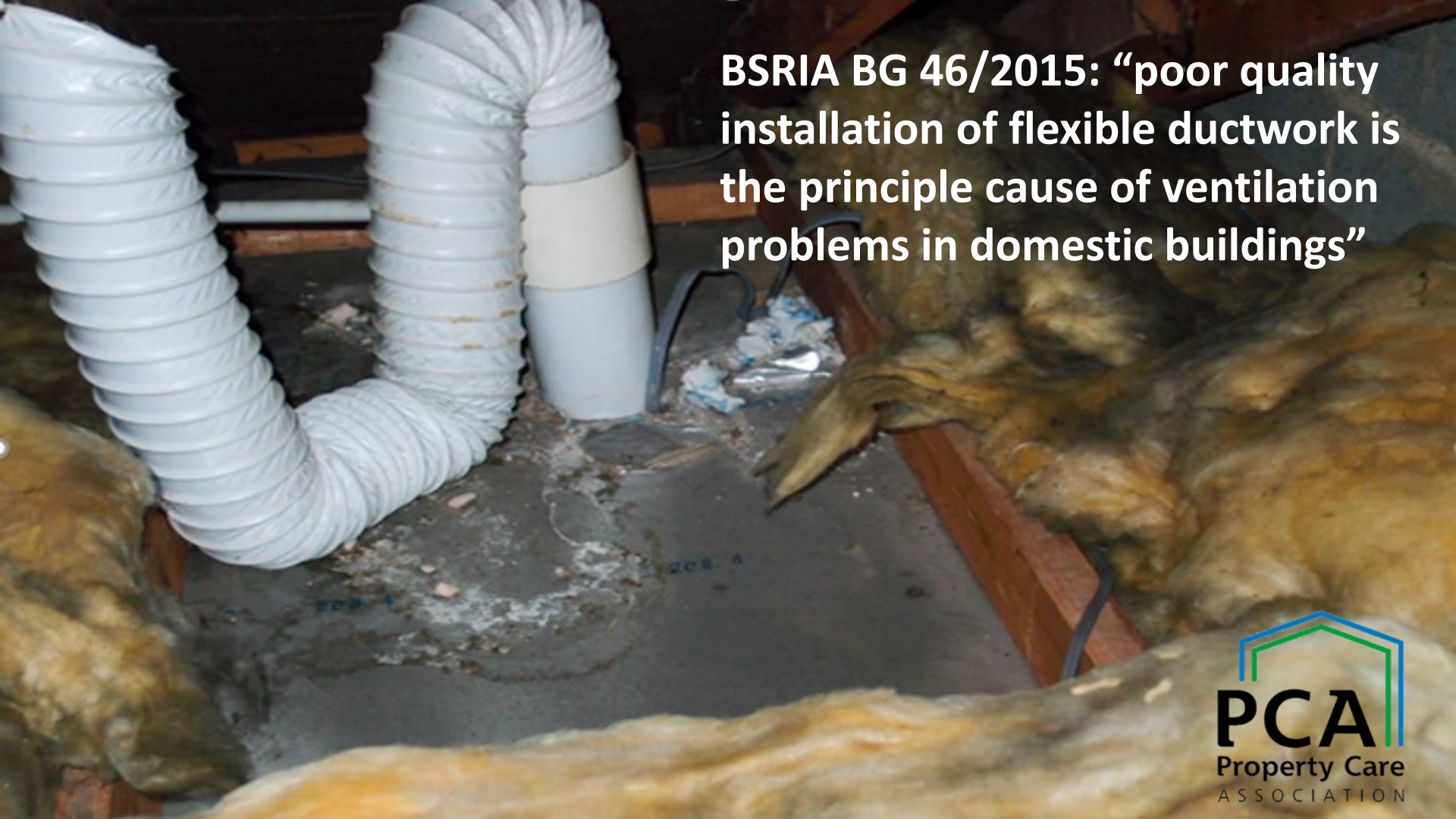
Long term success

A fan will only work for as long as it is properly maintained.

Within five days of completion information needs to be provided to owner about the ventilation system and its maintenance

Provided in a clear non-technical way




BSRIA BG 46/2015: “poor quality installation of flexible ductwork is the principle cause of ventilation problems in domestic buildings”
PCA
Property Care
ASSOCIATION

PCA
Property Care
ASSOCIATION


PCA
Property Care
ASSOCIATION

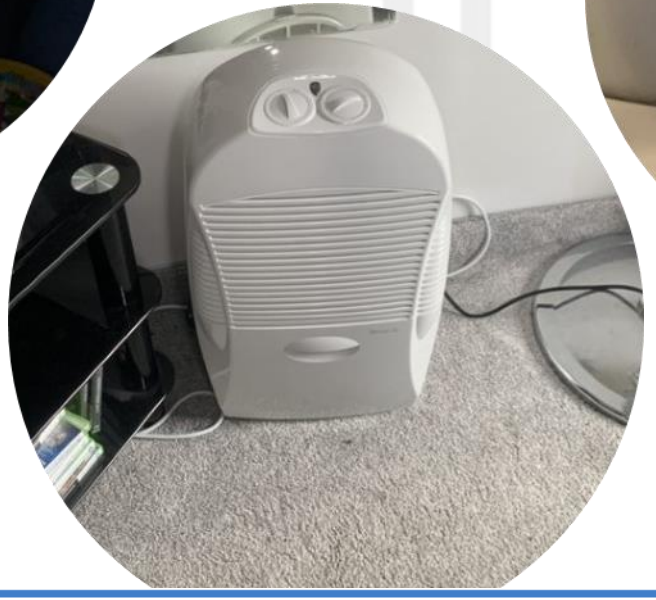
PCA
Property Care
ASSOCIATION

PCA
Property Care
ASSOCIATION

Picture: Dryfix

PCA
Property Care
ASSOCIATION

Dealing with the root cause



Which should we turn to first?

Data Driven Approach

- Can we look to preempt issues?
- Technology now allows us to access environmental conditions
- Allows us to support our observations with data and focus any remediation

We want to Share what we Know…
…and Discover what we Don't Know!

Training

Damp and diagnostics for surveyors
Timber decay and wood destroying insects

- Understanding indoor moisture
- Ventilation masterclass
- Evaluating ventilation in existing buildings
- Inspecting buildings with retrofit Insulation

- ✓ Annual Conference
- ✓ Continuous Professional Development
- ✓ Newsletters, blogs and webinars

THANKS For Listening

For more help, information, technical docs or general updates,
check out the links below

www.property-care.org

Linkedin.com/company/property-care-association

Facebook.com/PropertyCareAssociation

Twitter.com/pcapropertycare

PCA
Property Care
ASSOCIATION