

# Ventilation and Risk of Damp in Solid Wall Installations

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# Introduction

- 20 Years' Industry Experience
- Managing Director of EWI Specialist Installer
- Chairman Solid Wall Council of NIA  
(National Insulation Association)
- Board member of SWIGA  
(Solid Wall Insulation Guarantee Agency)



# Effective Ventilation

- Effective ventilation in buildings provides a safe and comfortable environment for the occupants.
- Effective ventilation on an insulated building, especially that of Solid Wall Construction, is paramount.
- With energy efficiency improvements to a building, passive vapour dissipation and the adventitious ventilation on a typical solid wall construction is reduced; therefore changes in the ventilation and occupants' behaviour are needed.
- Basic precautions and maintenance can significantly reduce problems caused by condensation and inadequate ventilation.



# Insufficient Ventilation

- The risks and causes are often misunderstood.
- We support Kent in ensuring this message is understood.

*“Thermal insulation, heating and ventilation should be considered as part of a total design, which takes into account all heat gains and losses.” \**

*\*BRE REPORT Thermal Insulation*



# Insufficient Ventilation – The Risks

Failure to Ventilate can lead to:

- unsatisfactory internal conditions
- condensation and mould
- inefficient use of energy due to:
  - overheating
  - need to use mechanical cooling.





# Insufficient Ventilation – The Risks



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# Insufficient Ventilation – The Risks

Damp and mould growth includes threats to physical and mental health from:

- House dust mites;
- Mould or
- Fungal growth.



# Insufficient Ventilation – The Risks

Health risks include:

- Breathing difficulties – caused by house dust mite and mould;
- Depression and anxiety – because of the conditions;
- Asthma, rhinitis, etc; and
- Fungal infection – which could affect people taking treatment for cancer.



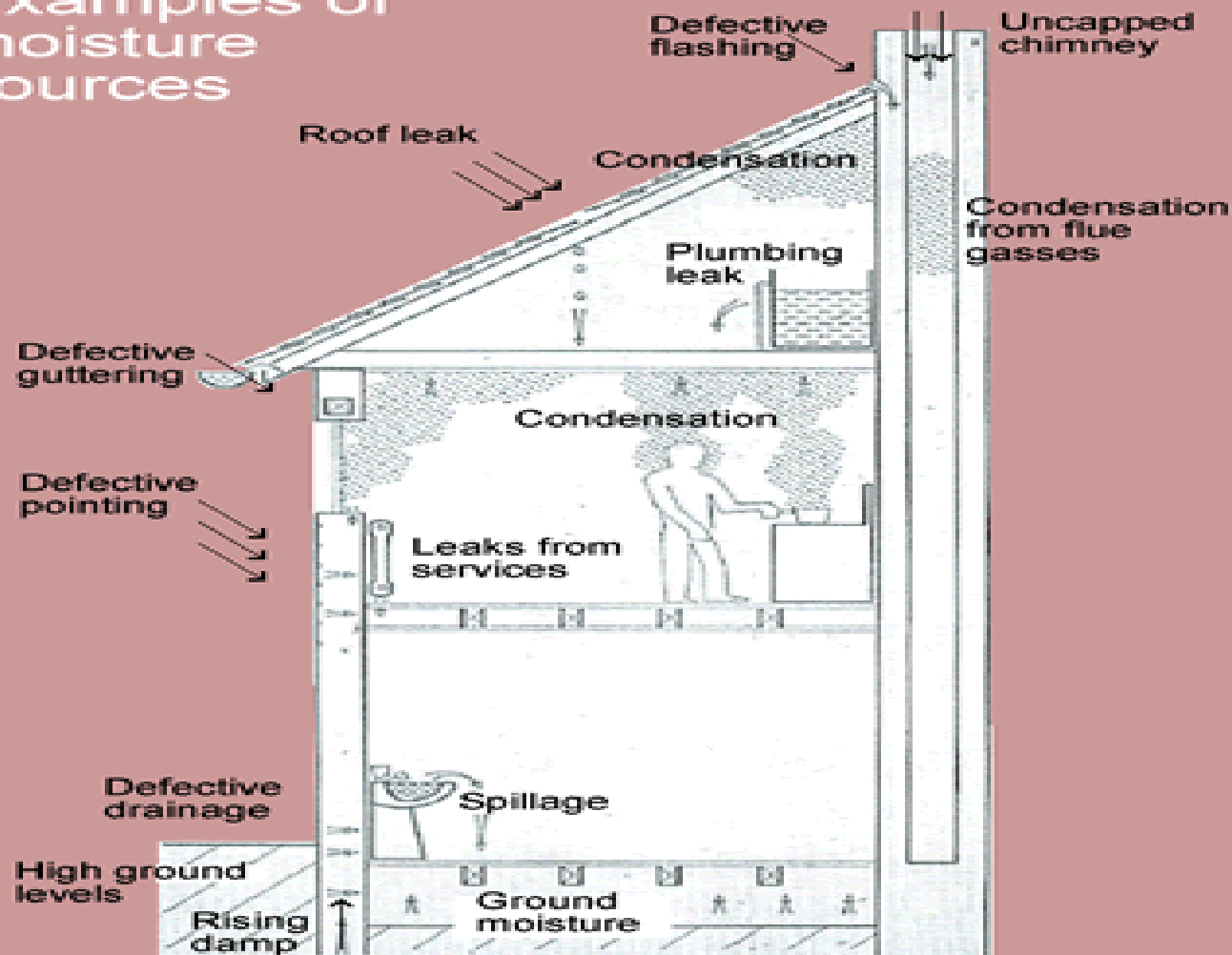
# Insufficient Ventilation – The Effect

*“Condensation can occur on surfaces within the construction if water vapour from inside the building is unable to permeate through the external insulation system or be ventilated safely away.”\**

*\*BRE REPORT Thermal Insulation*



# Examples of moisture sources



[www.buildingconservation.com](http://www.buildingconservation.com)



[www.lawtechltd.co.uk](http://www.lawtechltd.co.uk)



# Insufficient Ventilation – The Causes

- Trickle vents not installed or blocked by curtains, air bricks being blocked or not used resulting in insufficient ***background ventilation***.
- Windows not being opened to allow for ***trickle or purge ventilation***.
- Fan assisted ***mechanical ventilation*** not installed or not effective in ‘wet’ rooms such as bathrooms and kitchens.
- Inappropriate heating regimes that can lead to large temperature changes and consequential condensation.



# Insufficient Ventilation – The Causes

- Modern living styles that generate large quantities of water vapour (cooking, showering, washing, air drying of laundry in closed rooms).
- Piecemeal thermal insulation can isolate inadequately insulated components; this might exacerbate condensation.
- Thermally efficient external walls might result in previously unaffected items such as windows, doors and surrounds attracting condensation.



# Insufficient Ventilation – The Causes

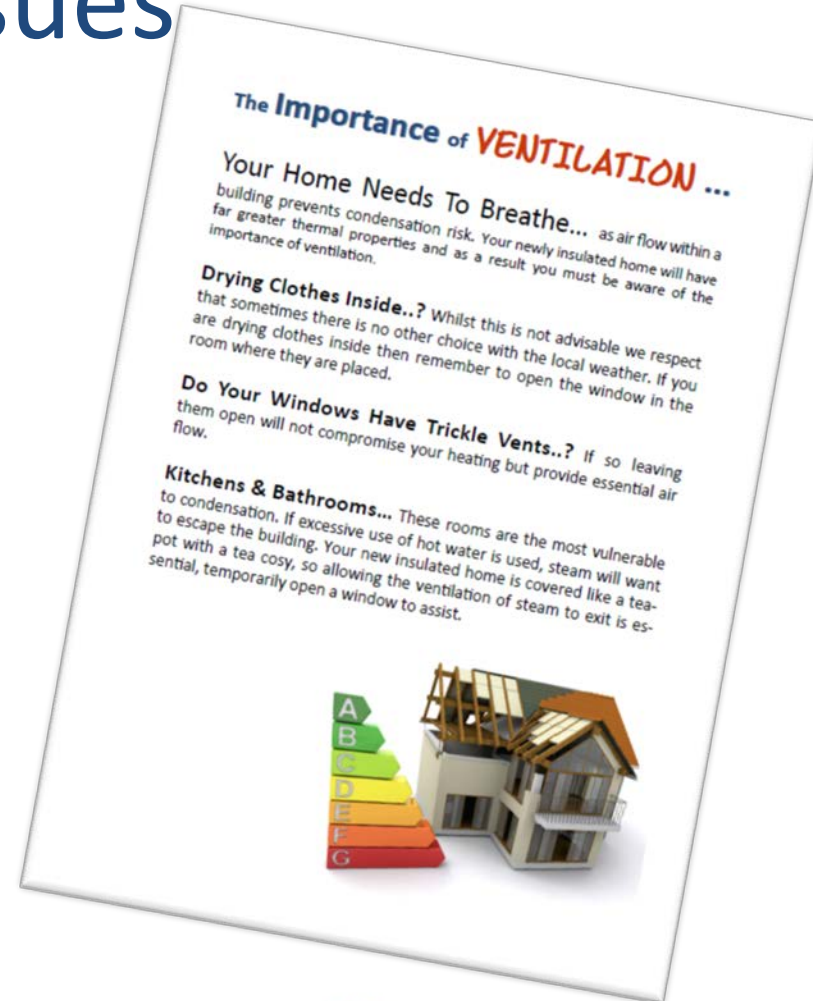
- Poor, piecemeal or ill thought through Retrofit





# How to Avoid The Issues

- Condensation risk analysis.
- Management of ventilation within the building.
- Controlling moisture laden air.
- Internal surfaces maintained above dew point temperature.
- Adopting appropriate heating regimes.
- Education.
- Behavioural Change.





# Further Issues Around Damp

- Existing dampness issues should be remedied prior to installation of EWI.
- The cause of Damp / Condensation should be identified before embarking on remedial works.
- As far as practicable treat the cause not the symptoms.
- Cladding design should be tailored to suit the circumstances.
- Some EWI systems have greater vapour diffusion rates than others and can allow a building to “breathe”.
- Additional background (passive) or mechanical (active) ventilation may be needed as part of an EWI scheme.



# Further Reading:

- BRE Report: Thermal insulation: avoiding risks (2<sup>nd</sup> Edition)
- <http://www.english-heritage.org.uk/publications/external-wall-insulation-traditional-buildings/>
- <http://www.1stassociated.co.uk/condensation-cold-bridging.asp>
- <http://www.1stassociated.co.uk/articles/condensation-mould-air-movement-in-home.asp>
- <http://www.buildingconservation.com/articles/condensation/condensation.htm>

