



# WELSH TRADITIONAL BUILDINGS FORUM

## FFORWM ADEILADAU TRADDODIADOL CYMRU

Level 3 Award

Energy Efficiency Measures in Older  
and Traditional Buildings

Dyfarniad Lefel 3

Mesurau Effeithlonrwydd Ynni ar  
gyfer Adeiladau Hŷn a  
Thraddodiadol

# CONDENSATION



# CONDENSATION

Condensation occurs when water vapour condenses into a liquid

This happens at the dew point

When Relative Humidity reaches 100%

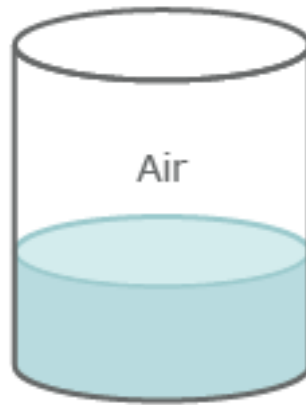
# CONDENSATION



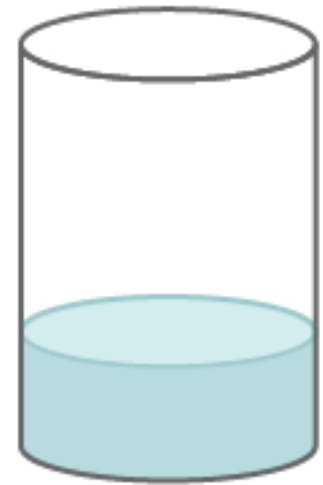
# ABSOLUTE HUMIDITY v RELATIVE HUMIDITY



Relative humidity **increases**  
Absolute humidity stays the same



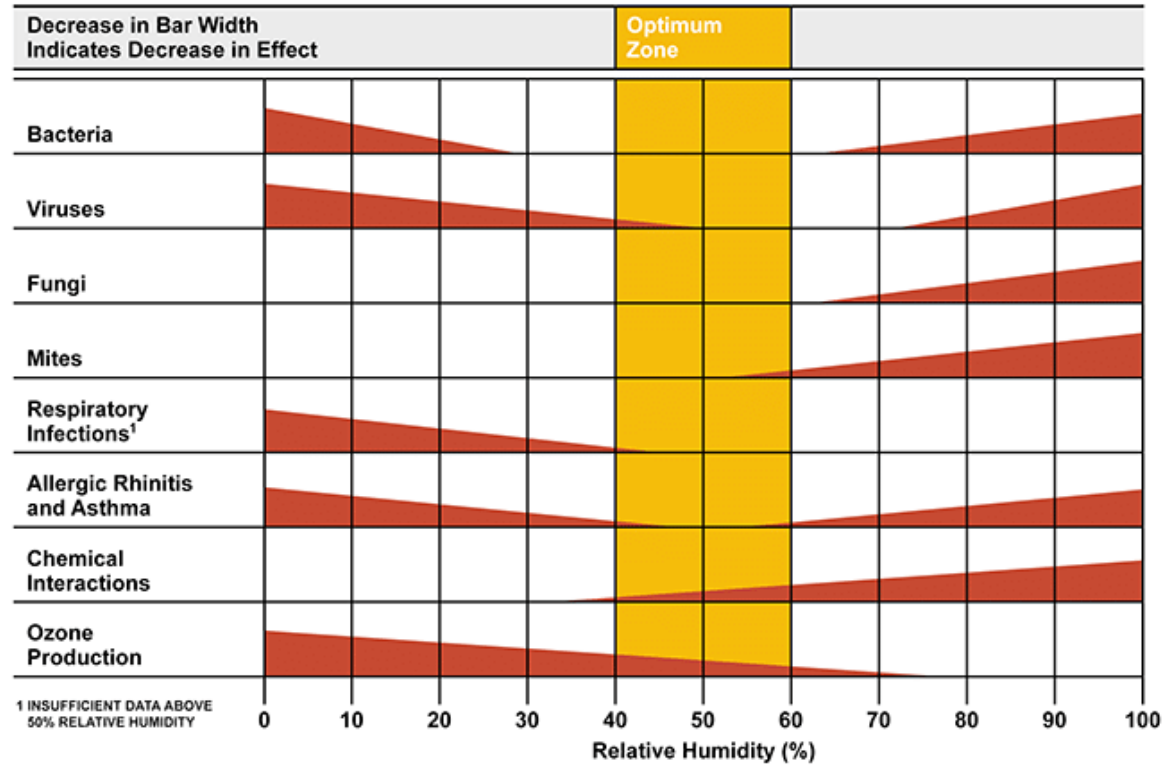
Humid air



Relative humidity **decreases**  
Absolute humidity stays the same

# RELATIVE HUMIDITY

## Optimum Relative Humidity Range for Minimizing Adverse Health Effects

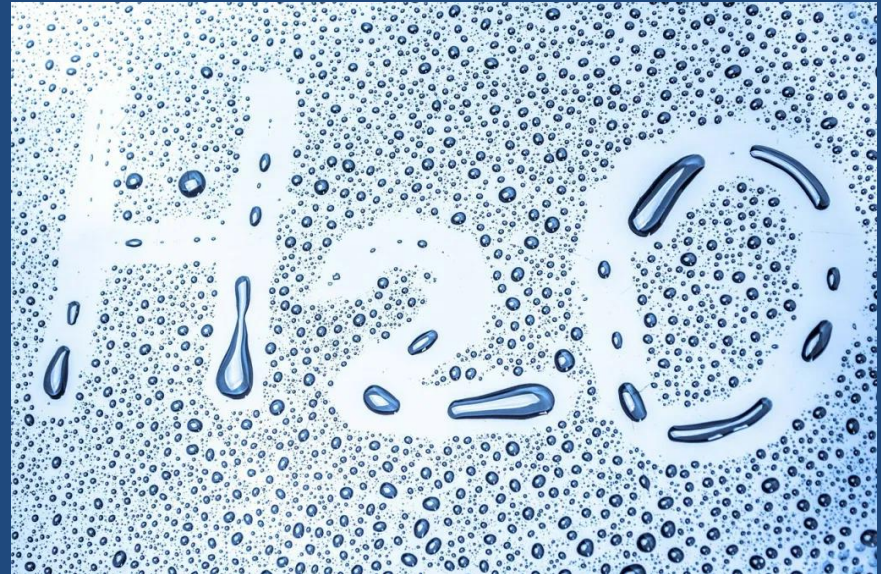




# CAUSE OR SOURCE OF CONDENSATION



Condensation caused by  
warm moist air meets a  
cold surface



# CAUSE OR SOURCE OF CONDENSATION



Condensation comes from  
our use of buildings  
Boiling water





# CAUSE OR SOURCE OF CONDENSATION



Condensation comes from  
our use of buildings  
Bathing



# CAUSE OR SOURCE OF CONDENSATION



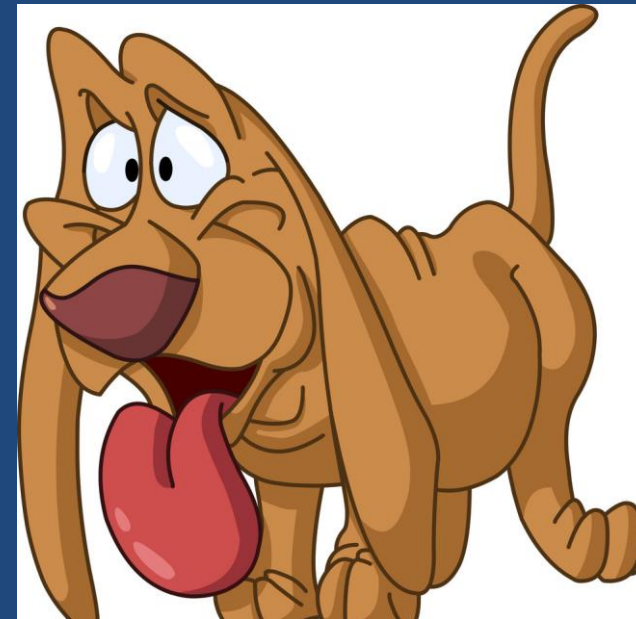
Condensation comes from  
our use of buildings  
Washing and drying  
clothes



# CAUSE OR SOURCE OF CONDENSATION



Condensation comes from  
us and pets





# Mechanical extraction

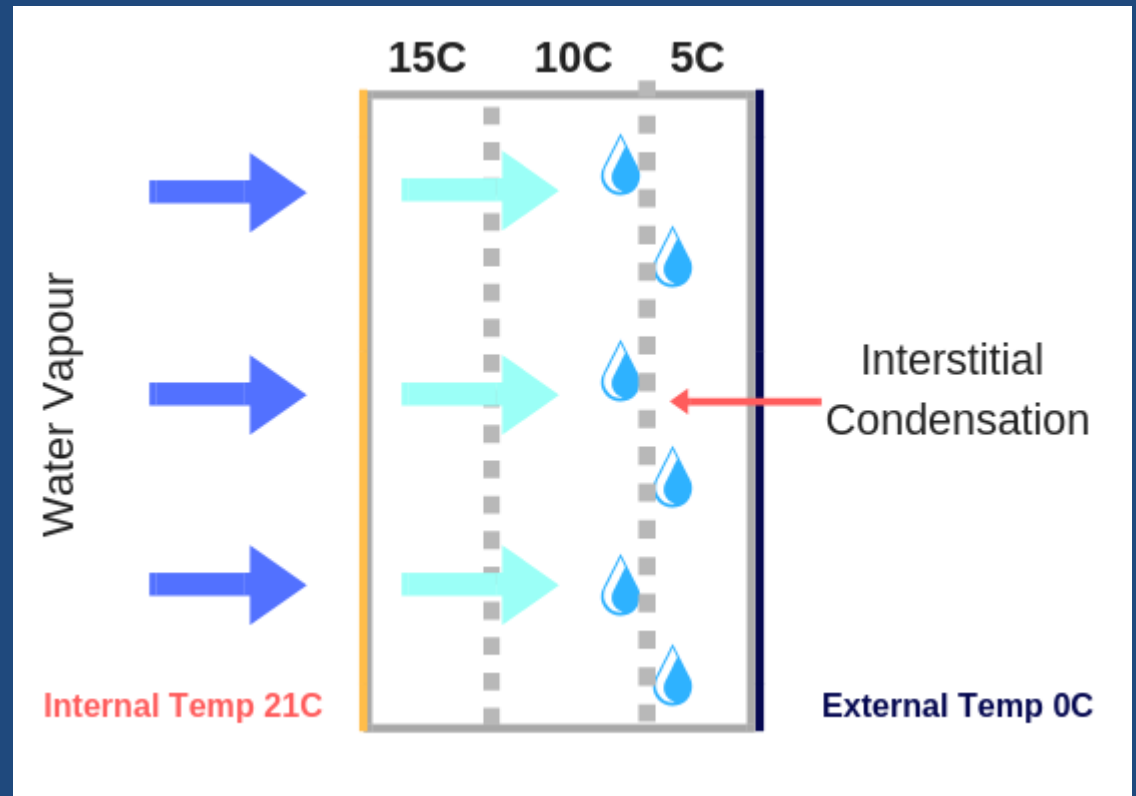


**Extraction of air requires replenishment**



# INTERSTITIAL CONDENSATION

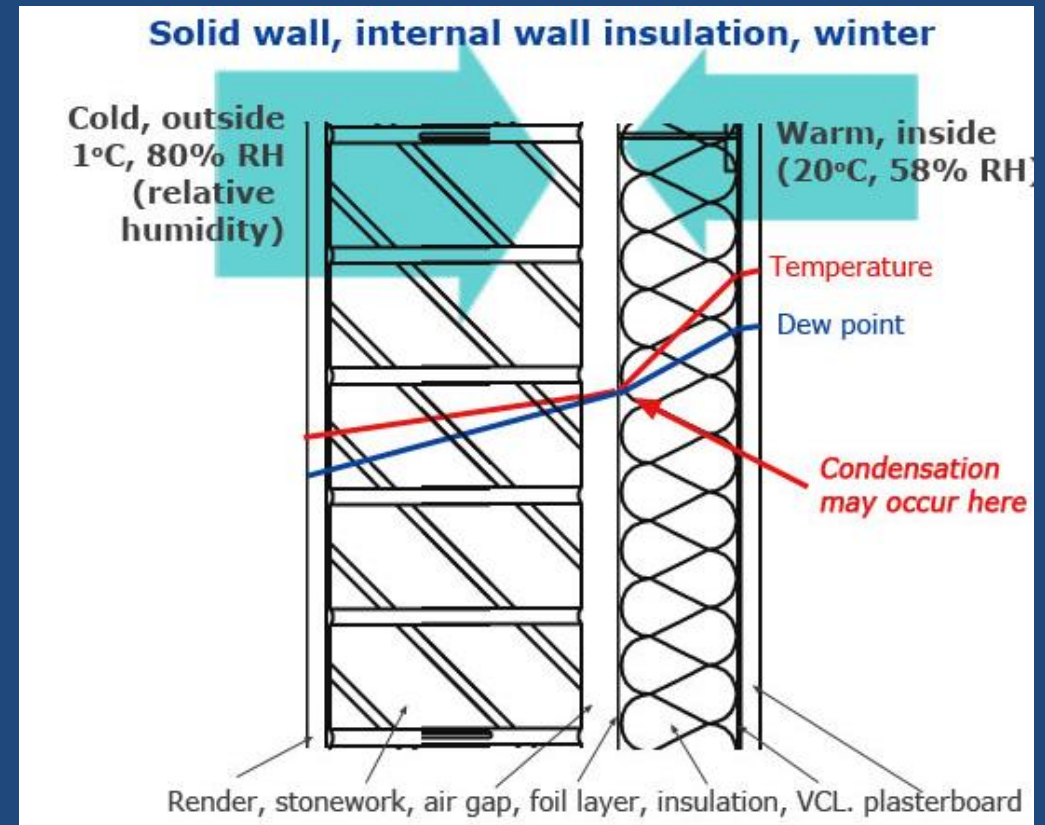
Occurs when warm moist air penetrates into a building element condensing when it reaches dew point



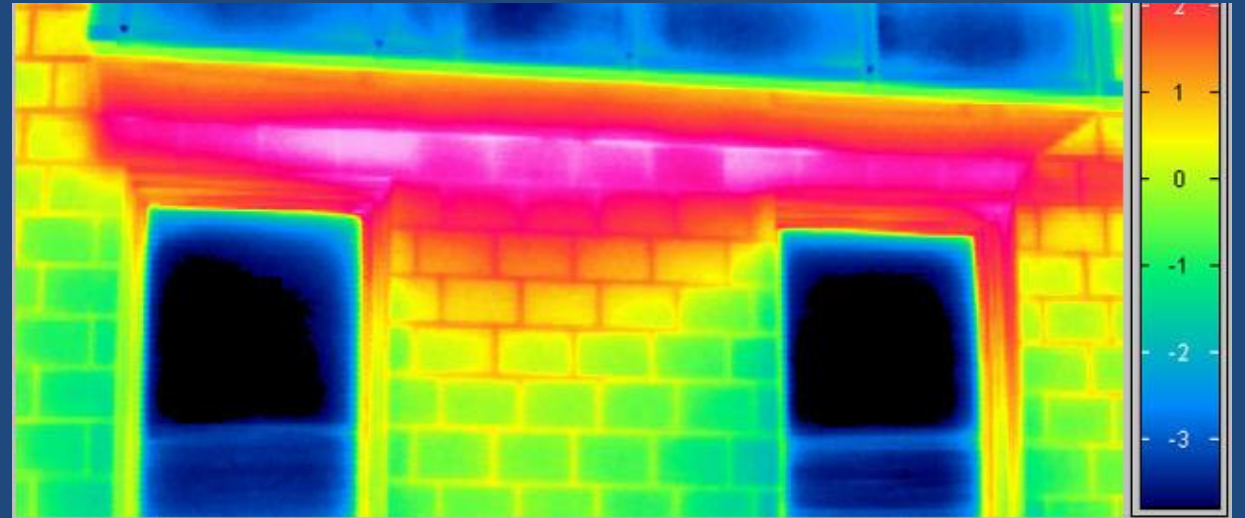


# INTERSTITIAL CONDENSATION

The position of the dew point will vary depending upon temperature, air pressure and humidity.

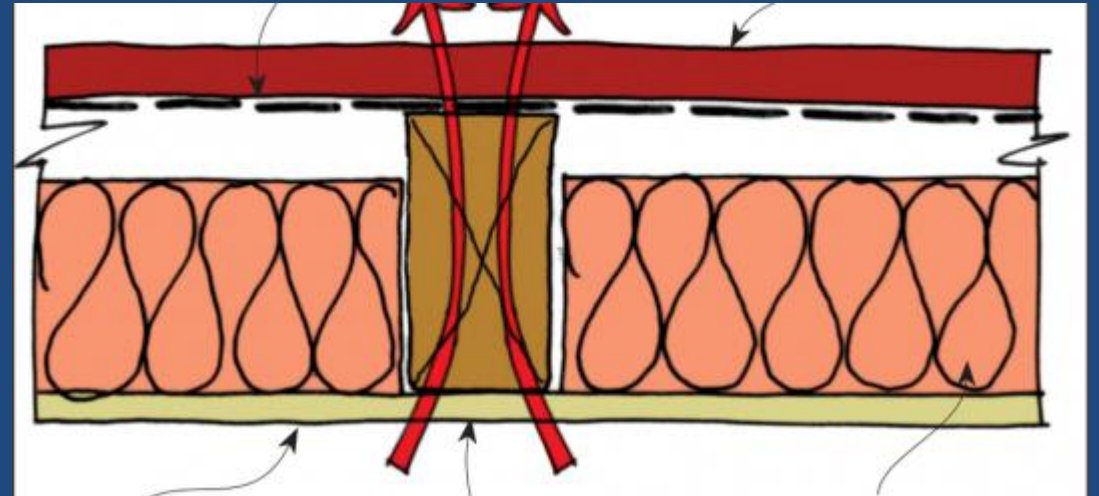
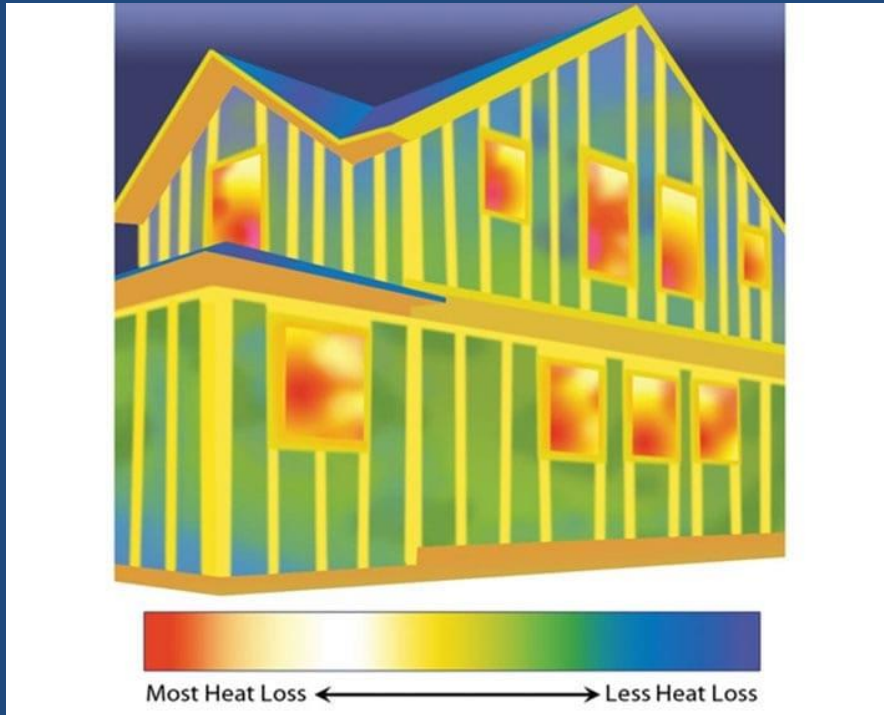


# THERMAL BRIDGING



A solid concrete lintel non-repeating thermal bridge

# THERMAL BRIDGING



Timber joists or framing acts as a repeating thermal bridge

# THERMAL BRIDGING



Perimeter insulation for a solid floor system reduces the heat loss into masonry – often this is omitted

# WELSH TRADITIONAL BUILDINGS FORUM

## FFORWM ADEILADAU TRADDODIADOL CYMRU

The Welsh Traditional Buildings Forum promotes the development of traditional building skills and sustainability issues relating to all old buildings across Wales.

Thank you to the CITB for funding the Heritage Construction in Wales project, and the Wales Cultural Recovery Fund for funding the final stages of the project. This funding enabled this information to be made available to all those wishing to learn about the appropriate energy efficiency measures for older and traditional buildings.

For further information contact:

<https://www.wtbf.co.uk/>

Mae Fforwm Adeiladau Traddodiadol Cymru yn hyrwyddo datblygiad sgiliau adeiladu traddodiadol a materion cynaliadwyedd sy'n ymwneud â phob hen adeilad ledled Cymru.

Diolch i'r CITB am ariannu'r prosiect Adeiladu Treftadaeth yng Nghymru, a Chronfa Adfer Diwylliannol Cymru am ariannu camau olaf y prosiect. Fe wnaeth yr arian hwn alluogi'r wybodaeth hon i fod ar gael i bawb sy'n dymuno dysgu am y mesurau effeithlonrwydd ynni priodol ar gyfer adeiladau hŷn a thraddodiadol.

Am wybodaeth bellach cysylltwch â:

<https://www.wtbf.co.uk/>