

# Traditional Buildings: why we must treat them differently

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# Living, Breathing History



- Symbol of accumulation of wealth and power but craftsmanship/beauty
- An appreciation of beauty in time worn and weathered surfaces
- Positive contribution to the built environment
- Living, breathing 3D history



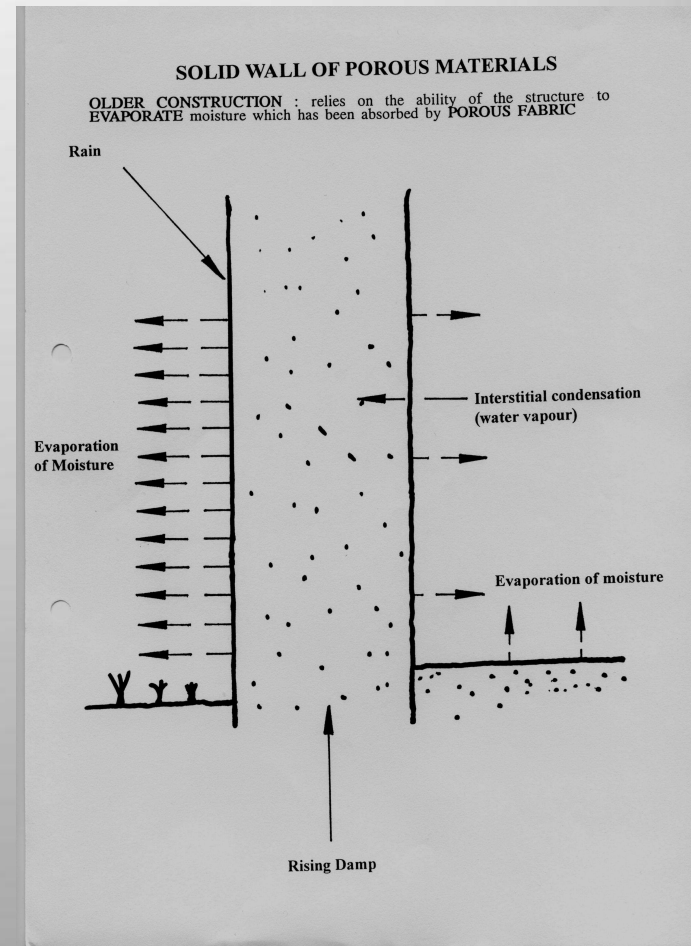
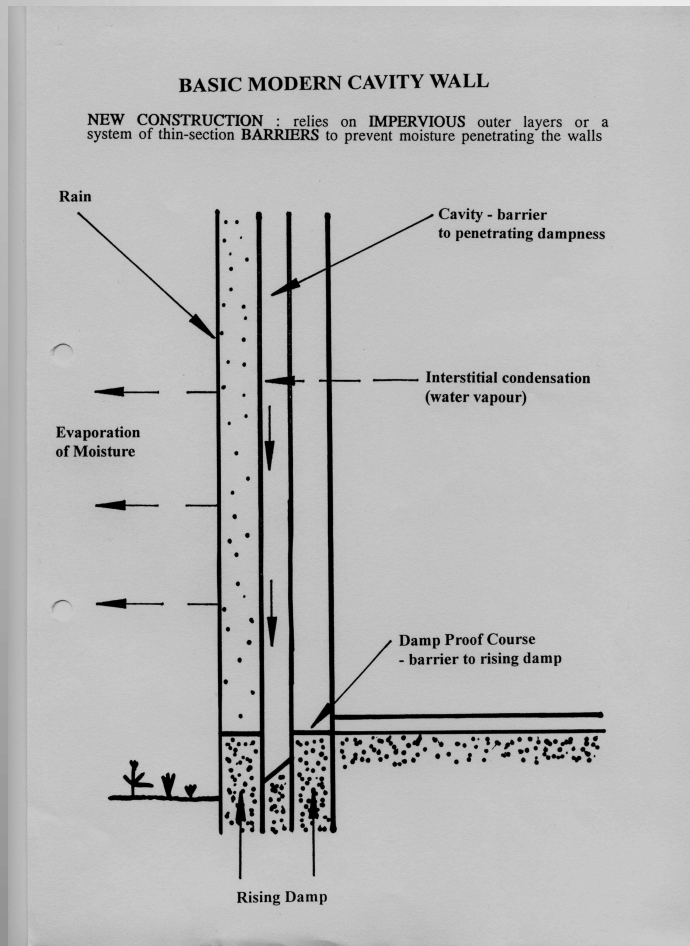
Vernacular level landscape  
response undermining mass  
produced homogeneity



# Preston Wynne Court Farm



# Concept of the Breathing Building as an External Envelope

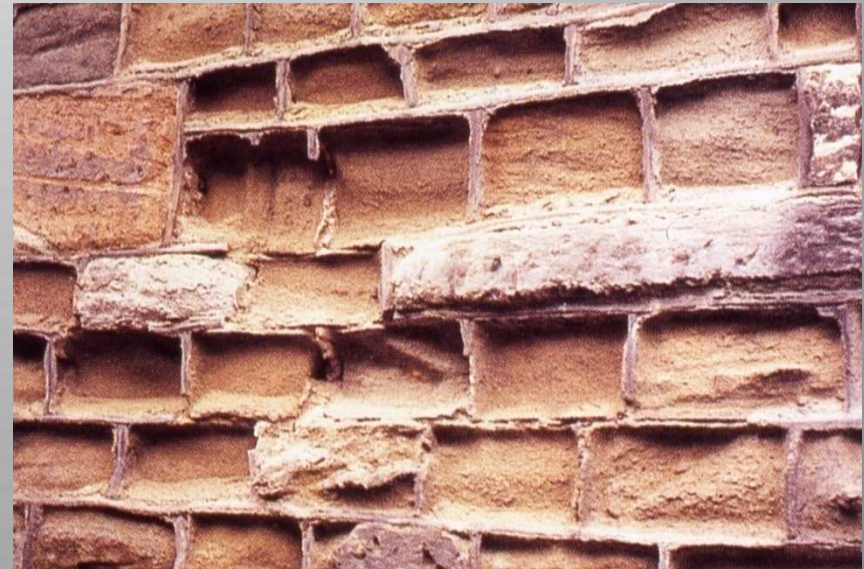


# The Breathing Performance: mortars



- 80% evaporation through the joint zone
- Moisture concentration = accelerated decay through freeze thaw and salt activity.
- Rate of decay?
- Ability to accommodate movement (autogenous properties)

## Getting it Wrong: the unthinking use of incompatible construction technology materials



# Salt Damage/Naming of Parts



- Wetting and drying cycles and the presence of soluble salts creates a build up of pressure
- Particularly damaging to masonry of uniformly distributed fine pores (microporous stone)
- Excessive use of water mobilises embedded salts
- Hygroscopic salts increases 'air dry' or natural content (relate to free or capillary moisture)

# Entrapped Moisture



# Industrialisation of Construction: when do we see the change in the forms of construction?



- Slate DPC from 1850
- Victorian buildings as hybrids
- DETR House Survey = 20 million dwellings of which ~ 5 million constructed pre 1918

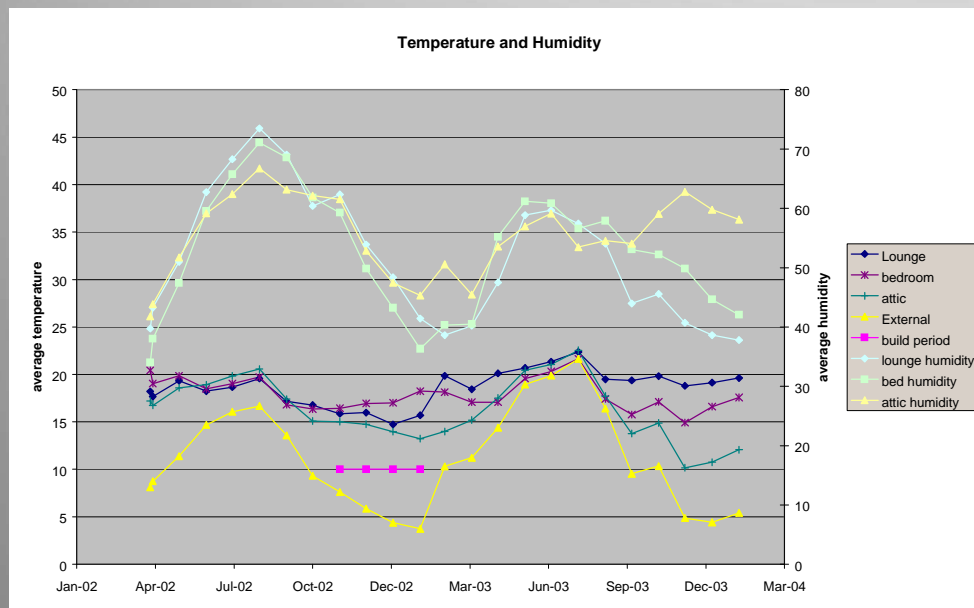
# Thermal performance/Performance in use

- Traditional buildings are highly individual



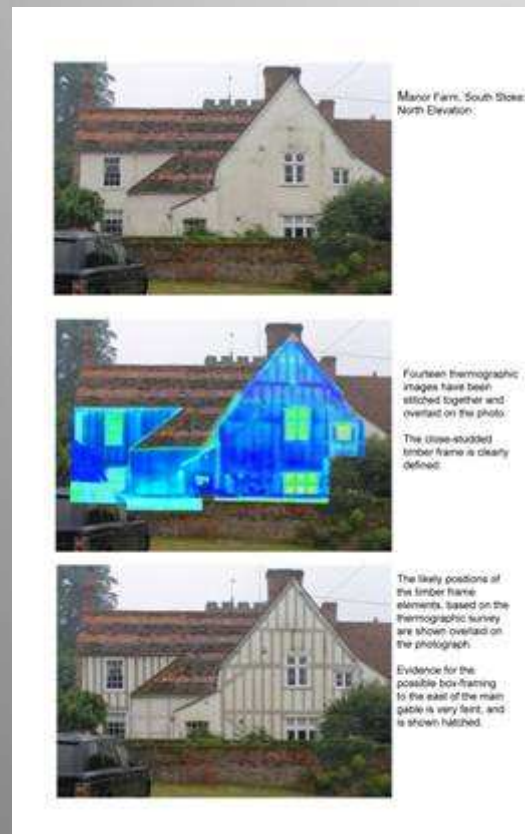
# Thermal performance/performance in use

Data Logging  
Fuel bills  
Fan pressurisation  
tests



# Thermal performance/performance in use

## Thermal imaging Dampness testing



# Thermal performance/performance in use

## Occupant feedback

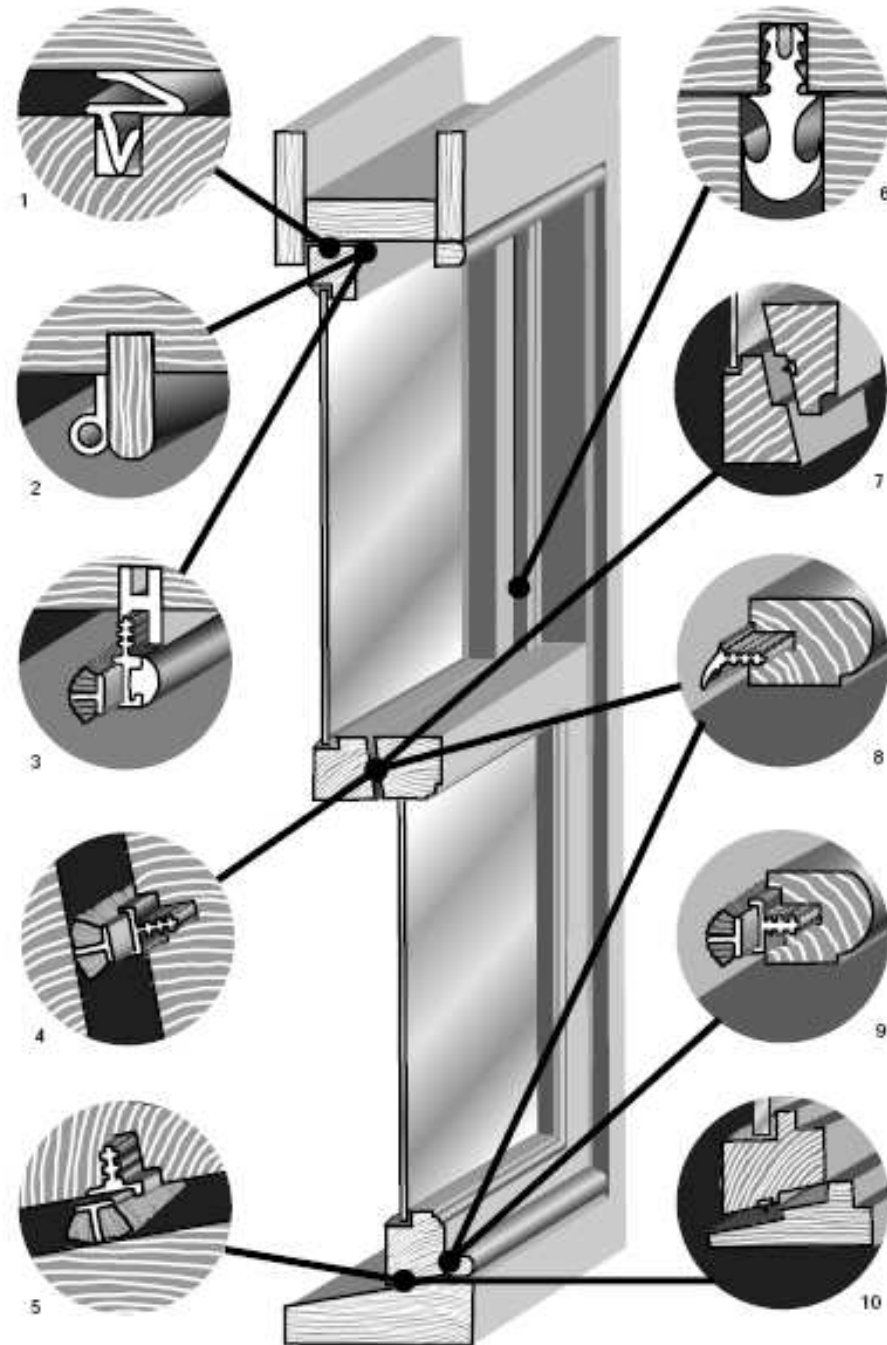
- Analyse usage patterns
- Survey user experiences
  - Staff / residents / visitors
- Compare to other buildings
- SBEM / SAP models





# Draught-proof

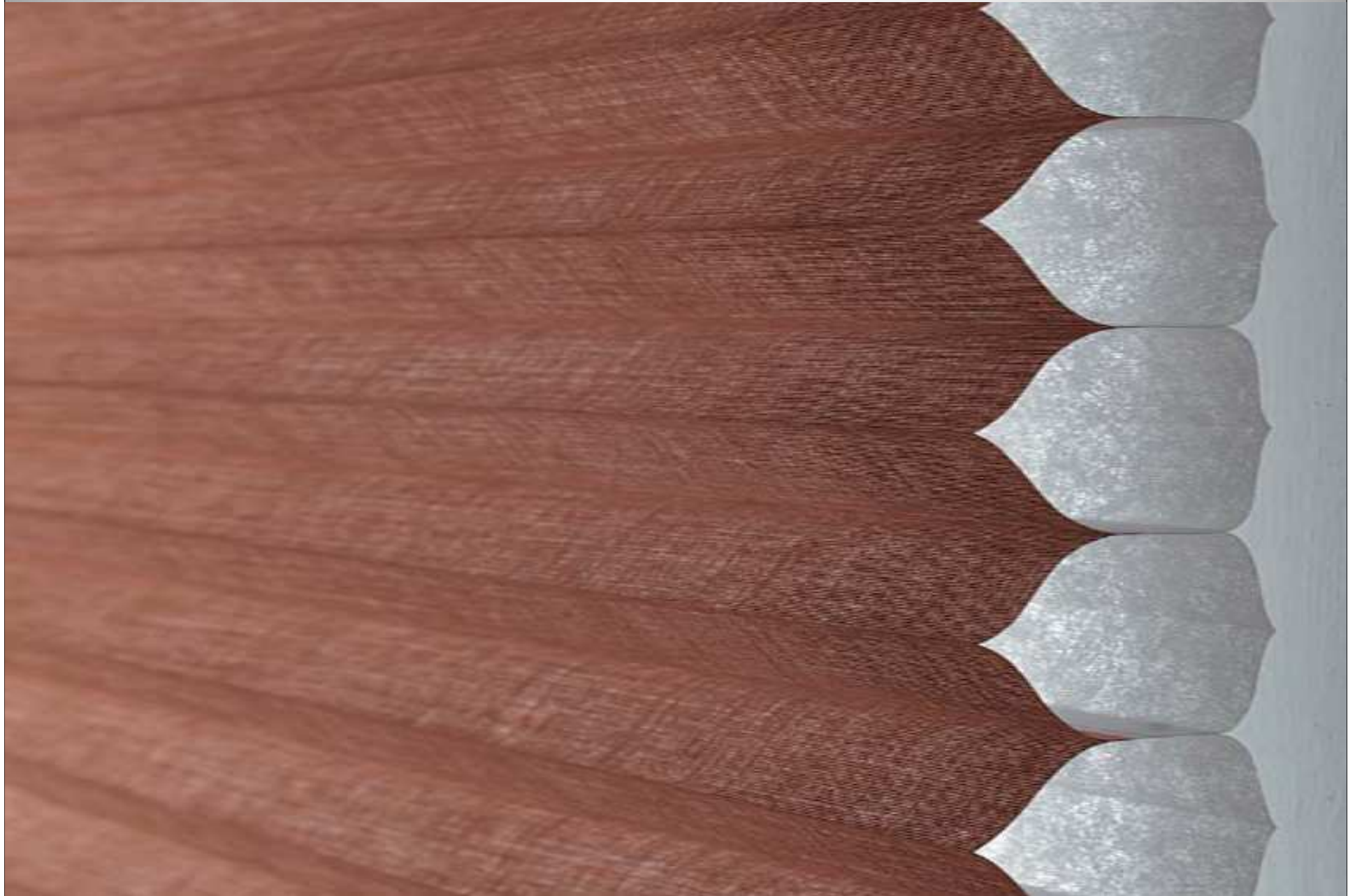
- Repair first
- Can bring 60-75% of savings of double glazing



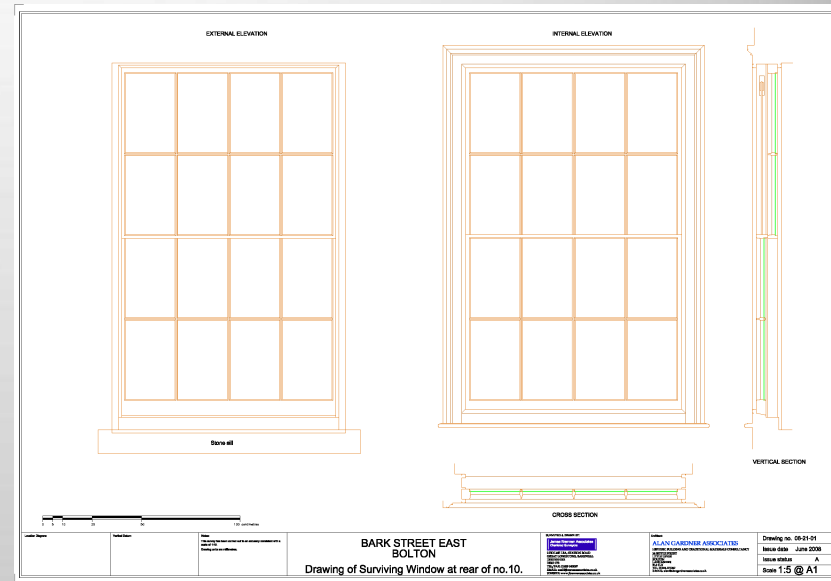




# Thermal Shades



# Bark Street East, Bolton



# THI's: Bark Street, Bolton: philosophical contortions & restoration



# Bolton, Bark Street THI: Exemplar



# Bolton Bark Street TH1 Exemplar



Repairs provide  
opportunity to  
make  
improvements



Make improvement  
more cost  
effective



# North Lees Hall, Hathersage Derbyshire

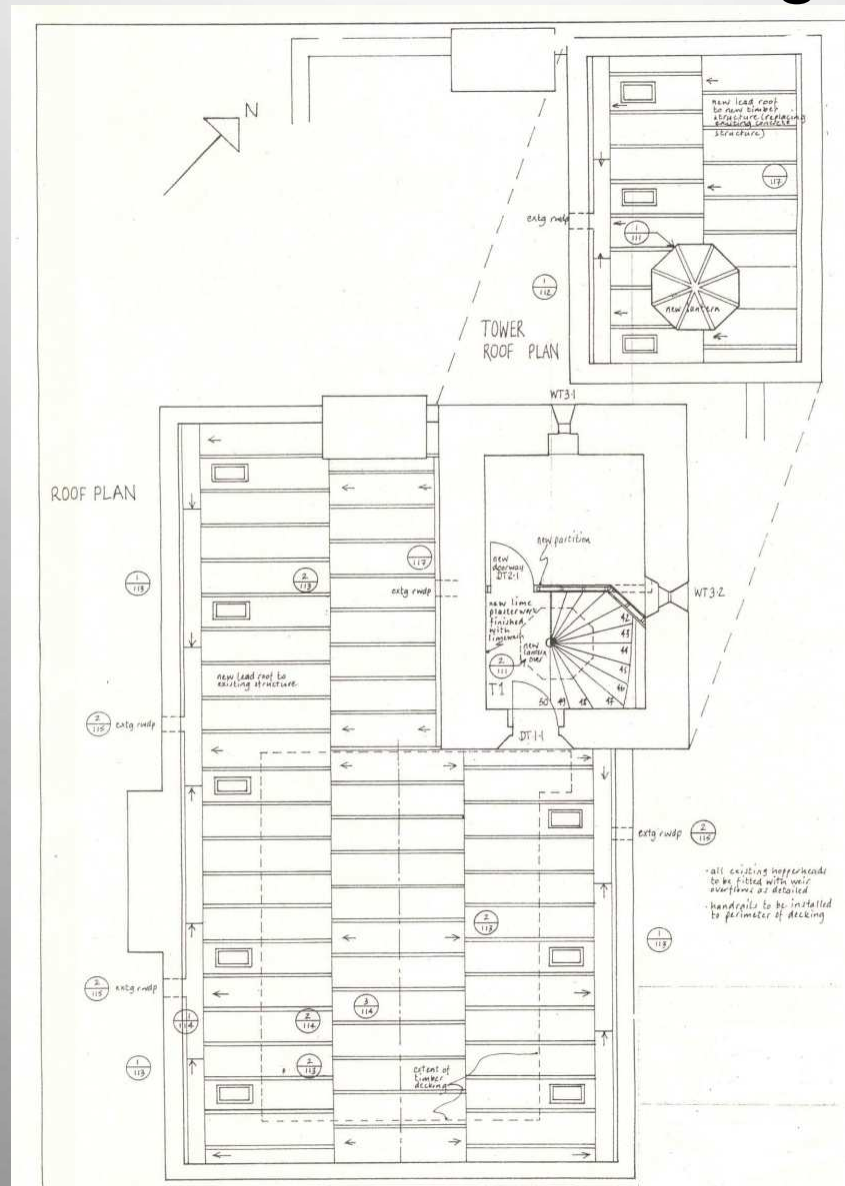


# North Lees Hall, Hathersage



# North Lees Hall, Hathersage: Roof Plan

## the role of drawing

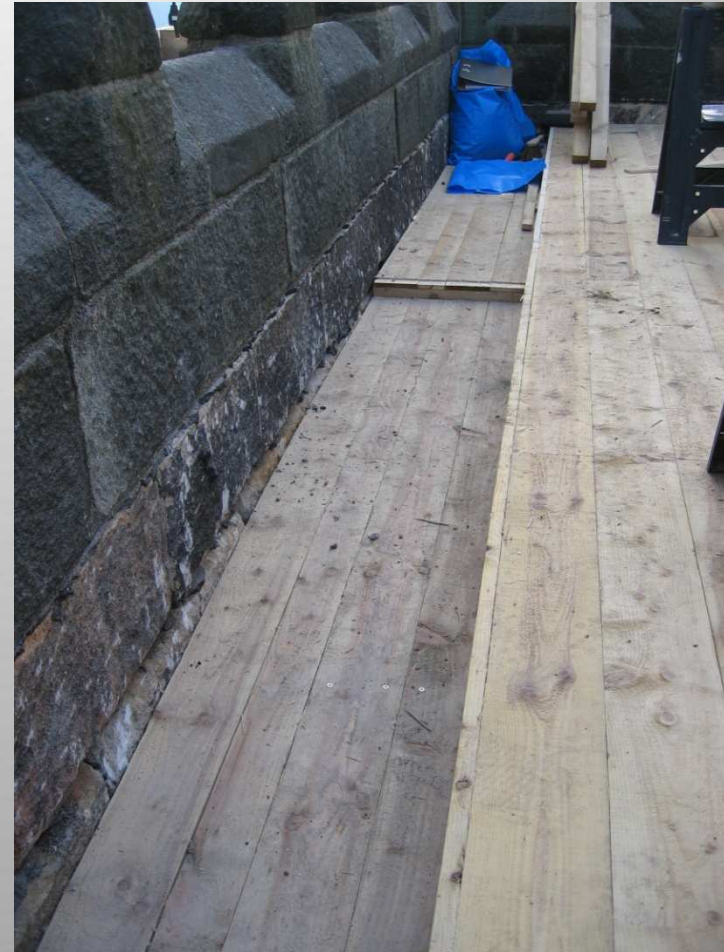




# North Lees Hall, Hathersage

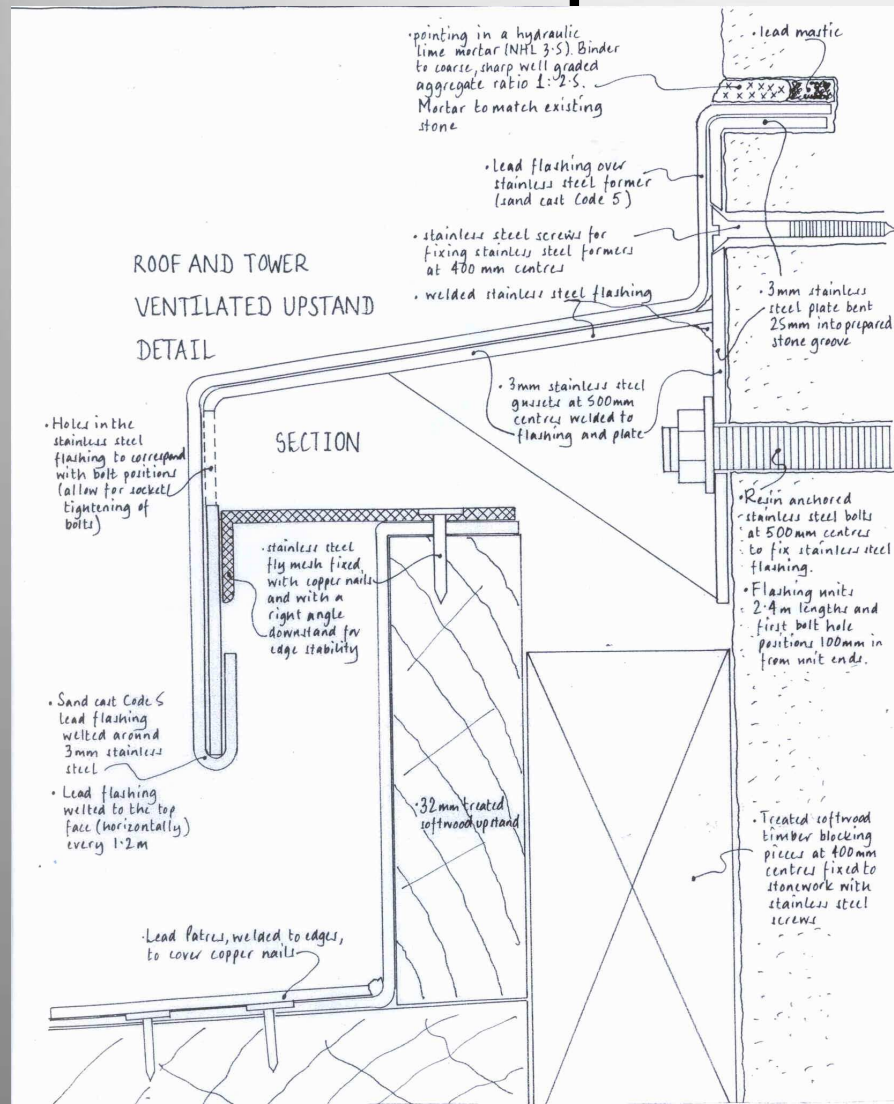


# North Lees Hall, Hathersage



# North Lees Hall, Hathersage

## Upstand Detail

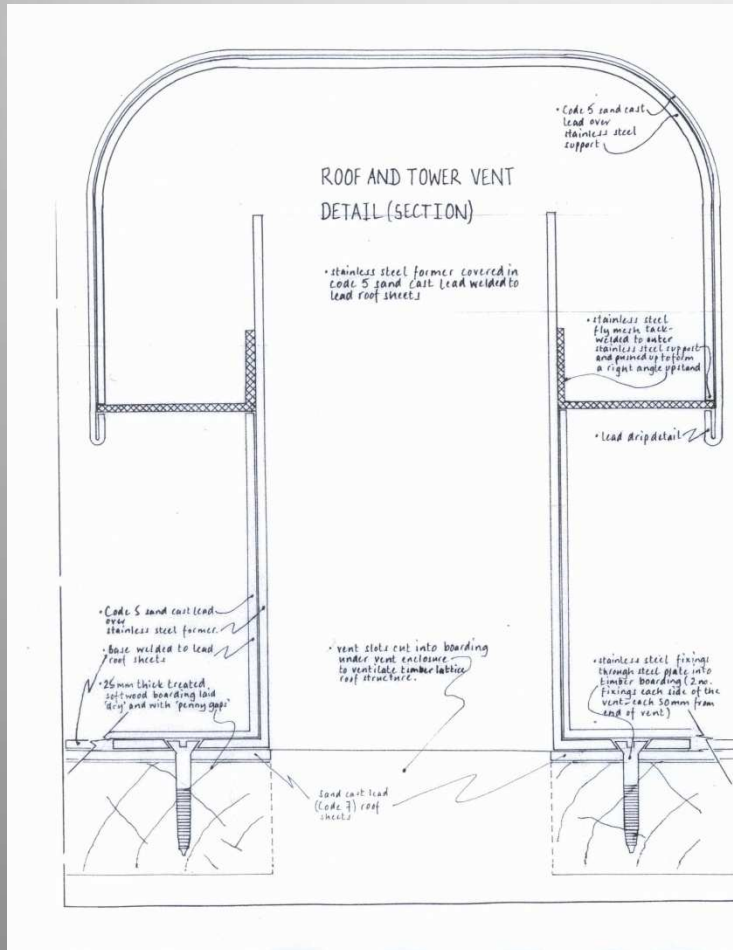


# North Lees Hall, Hathersage: completed upstand detail



# North Lees Hall, Hathersage

## Vent Detail



# North Lees Hall, Hathersage



# North Lees Hall, Hathersage





# Hermion Chapel, Oswestry



# Hermon Chapel, Oswestry



# What is an appropriate improvement?

- Beware of trying to achieve the unachievable
- Base targets on an understanding of the building
- Do not rely on common misconceptions
- Bespoke solutions - avoid standard solutions



- Start with:
  - Lighting
  - Heating boilers & controls
  - Loft insulation
- Simple and relatively effective
- Are not in conflict with old buildings
  - Appearance
  - Performance







# Crichton Castle



# Crighton Castle





# Disused Chimneys





# The implications of making improvements:

- Change in performance
- Balancing reduced ventilation and the need for old buildings to “breathe”



Where does patina become  
soiling?



Don't panic ... but maintain the  
equilibrium!

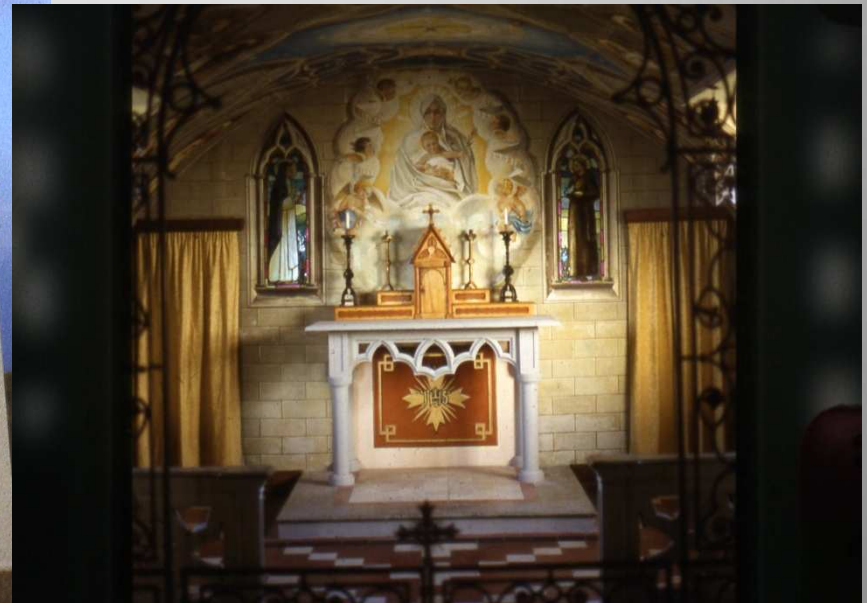


But if there is an **excess** of water



# Stop It!





Buildings as a physical manifestation of  
positive human endeavours/palpable  
expression of the human spirit



# 'Tingle Factor' and Trusteeship

