Conducting Building Surveys



Start at the top



Roofs

- Roof structure is a term that refers to the construction at the top of a building which typically provides protection from the elements.
- It generally comprises a system of structural members designed to support the roof build-up – i.e. the materials that provide watertightness and insulation to the building below.

Roofs

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Roofs

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What makes roofs difficult to inspect?

Roofs

Accessibility

Safety Risks

Structural Complexity

Visibility

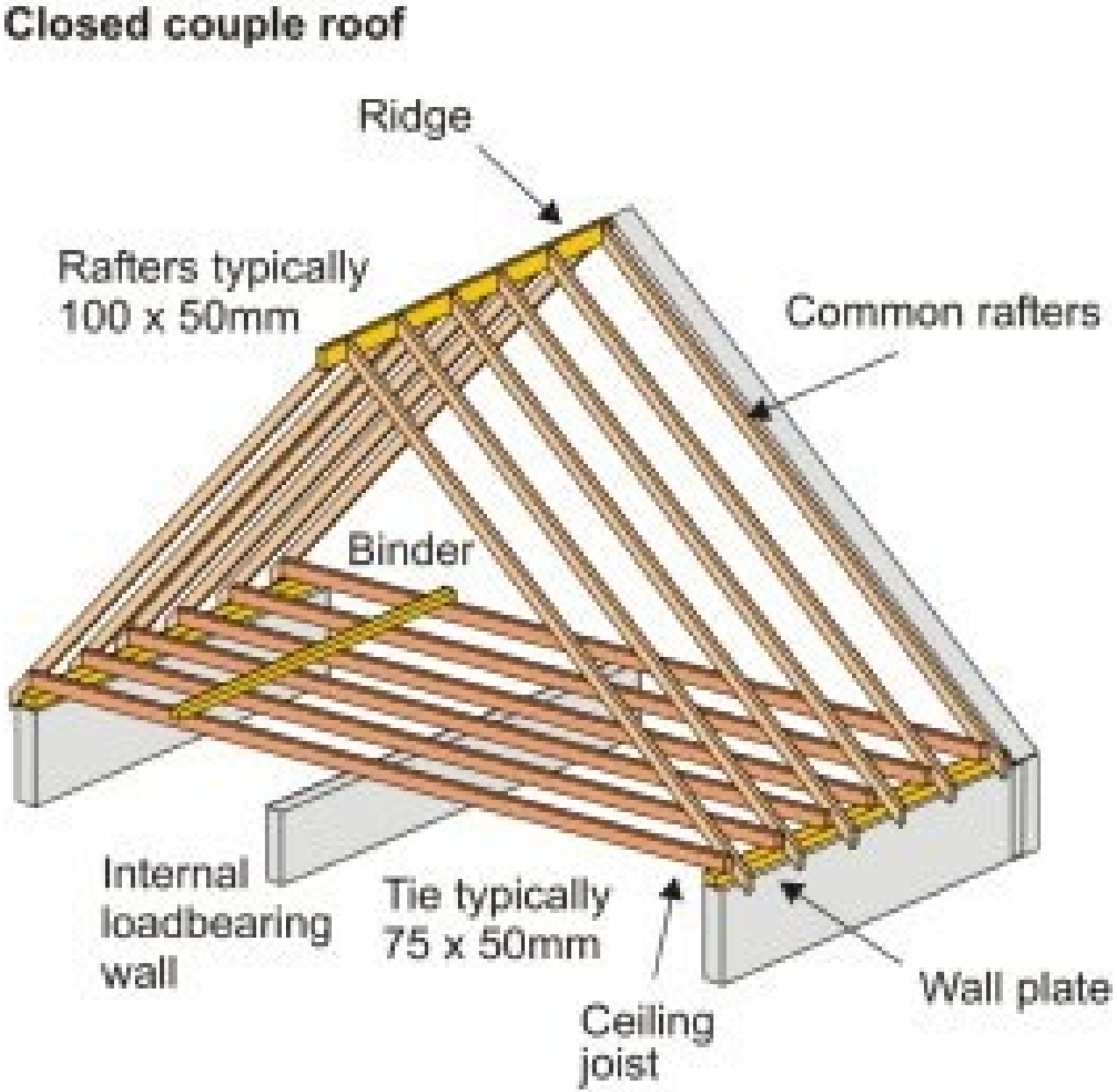
Weather

Roofs

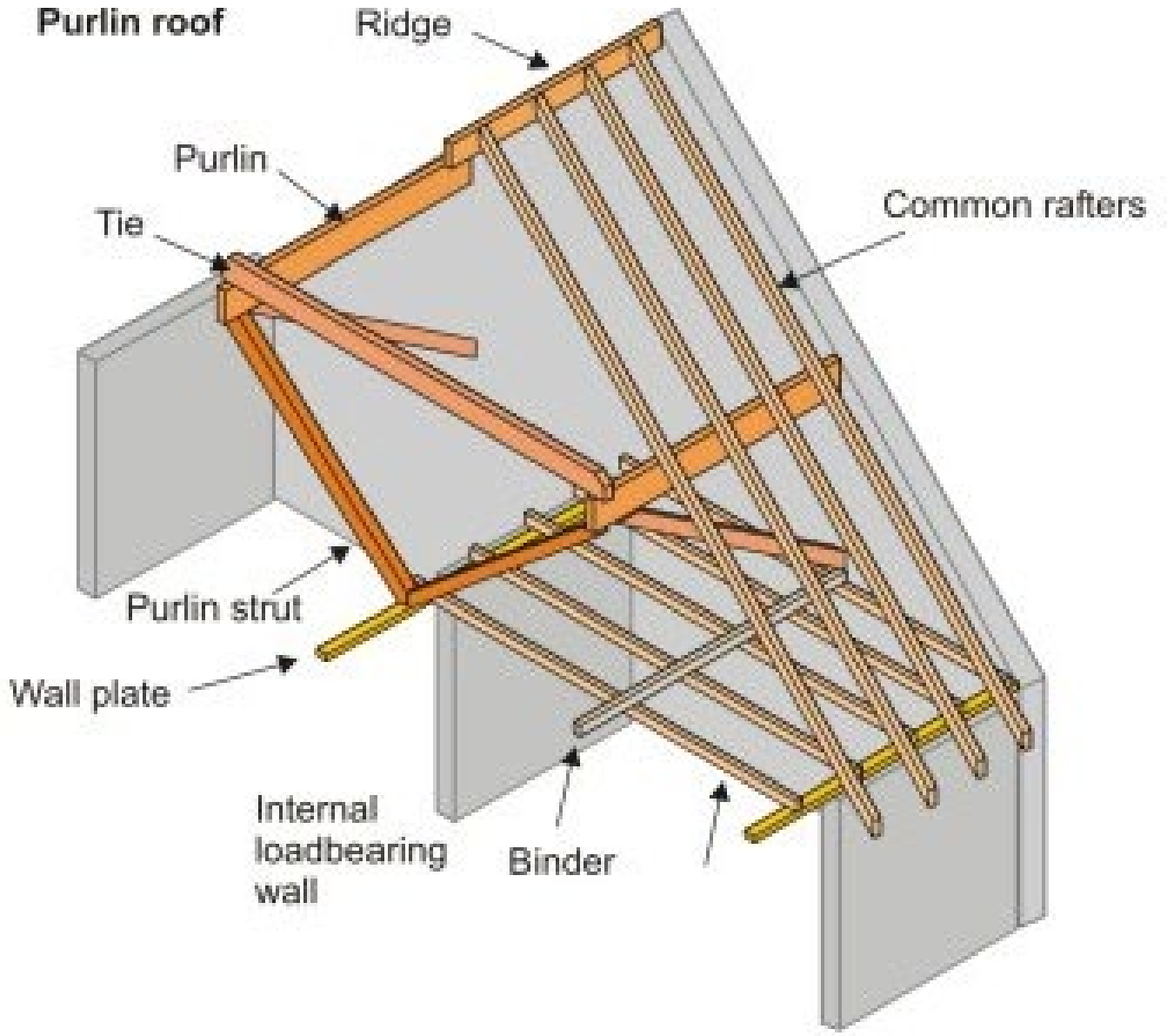
- In a house of masonry construction, the roof structure is often a ‘bolt-on’ framework
- Comprising timber purlins and rafters fixed to wall plates which are in turn tied down to the masonry walls



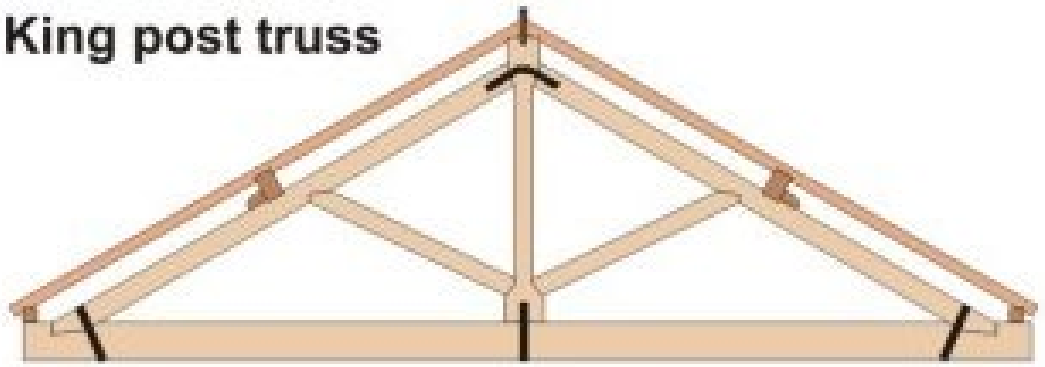
Closed Couple Roof

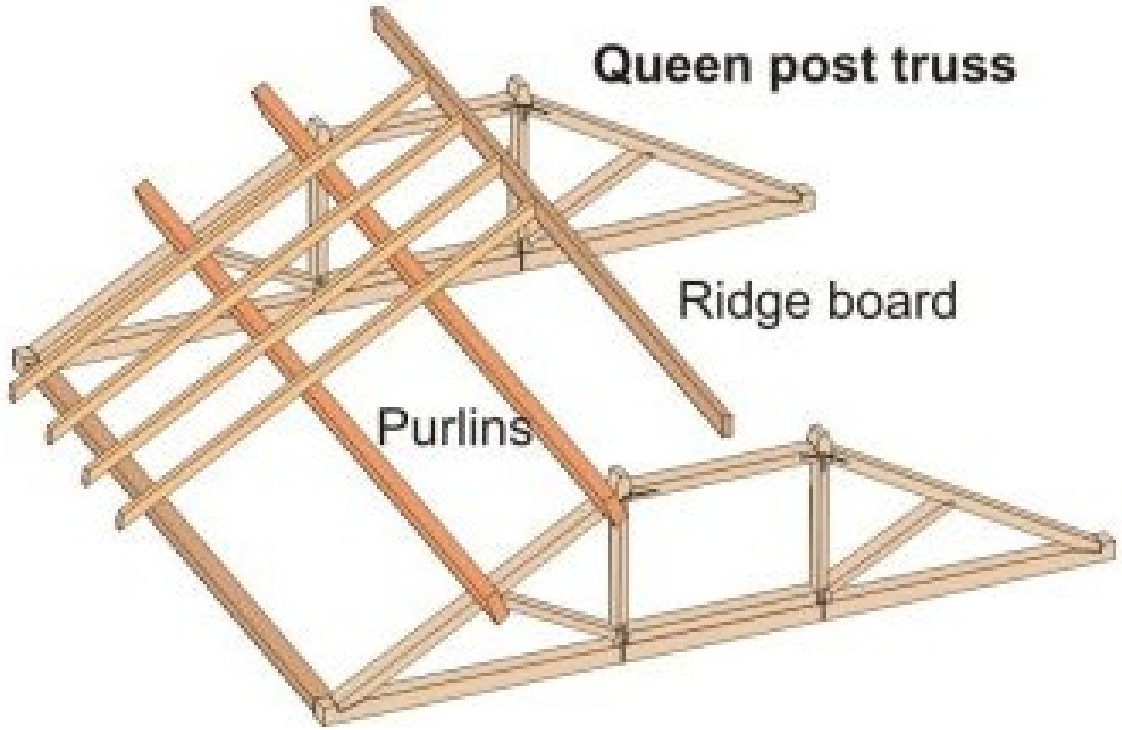


Purlin Roof

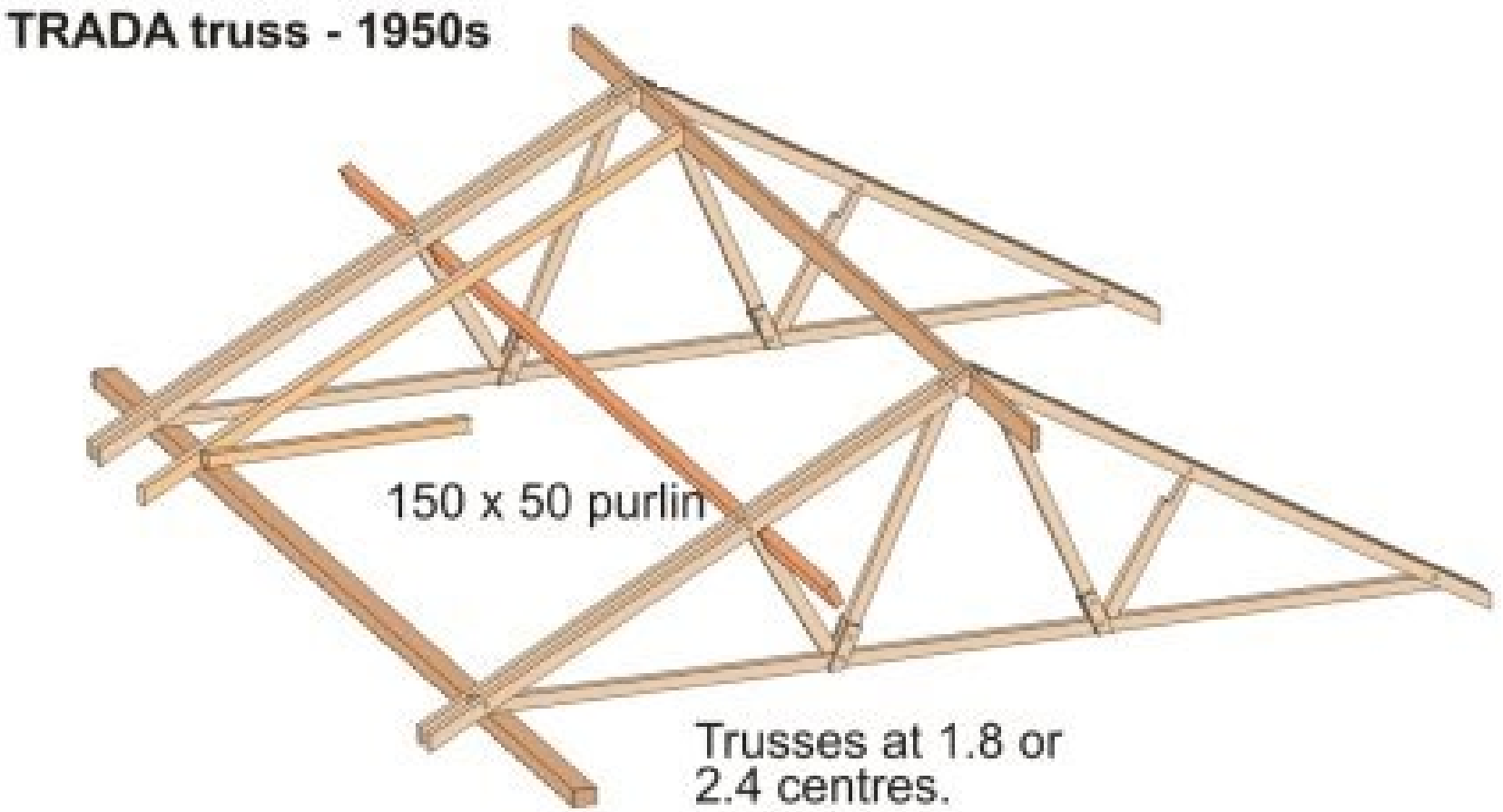

Purlin roof
Ridge
Purlin
Tie
Common rafters
Purlin strut
Wall plate
Internal loadbearing wall
Binder

King and Queen Post Truss

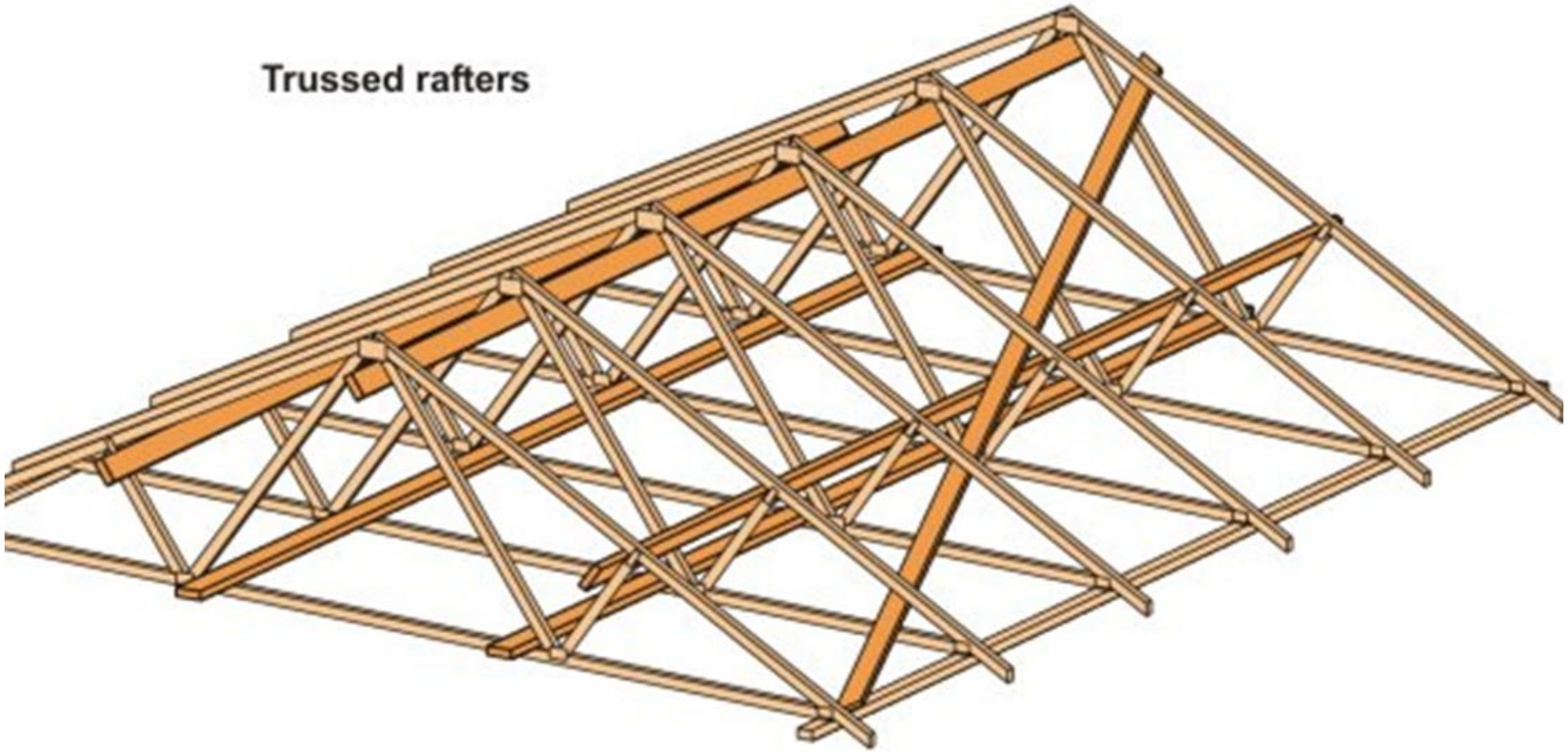




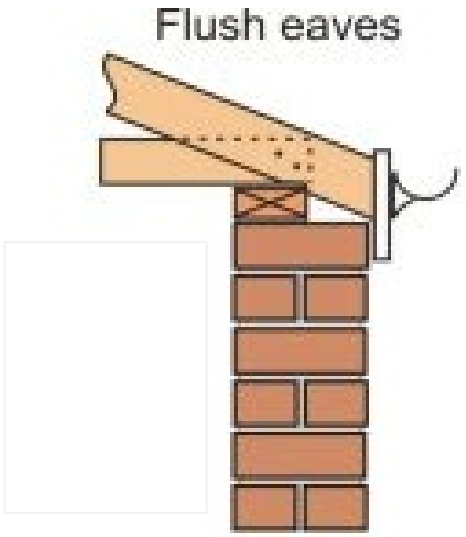
Trada Truss

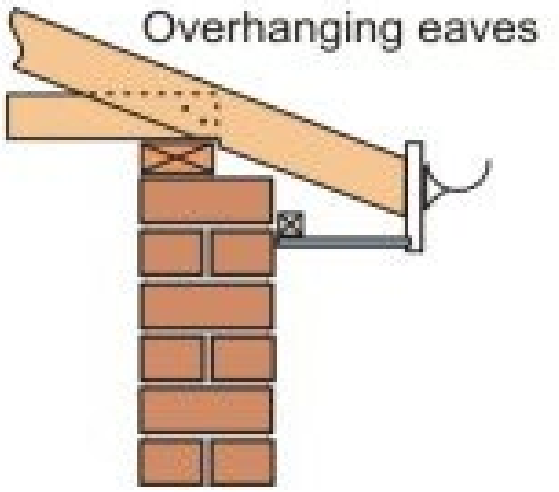


Trussed Rafters



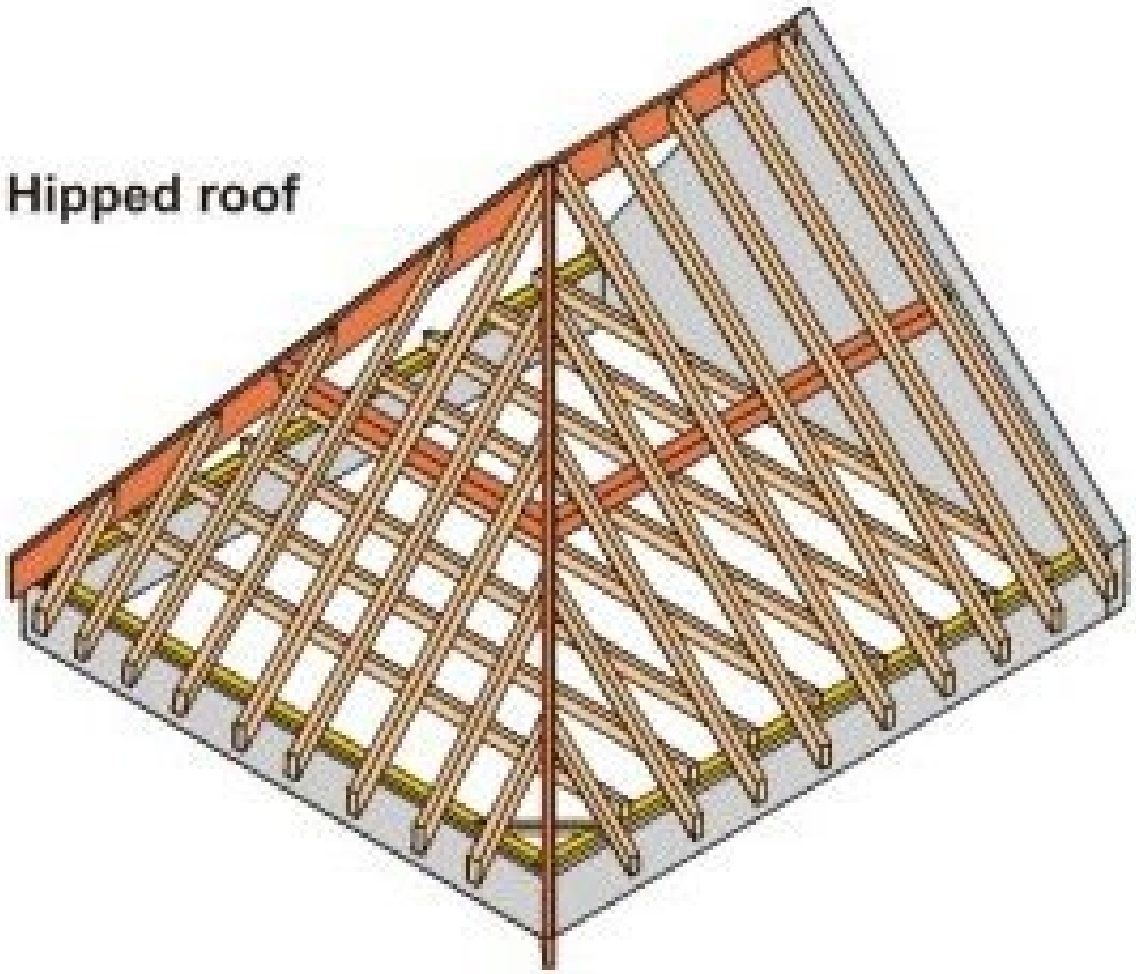
Eaves







Hipped Roof



Internal Roof Inspection





Roof Defects

- The first indication of a roofing defect is usually a damp patch on the ceiling or at the internal angle of wall and ceiling.



Roof Defects

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These problems often occur due to:





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Pitched Roof Coverings

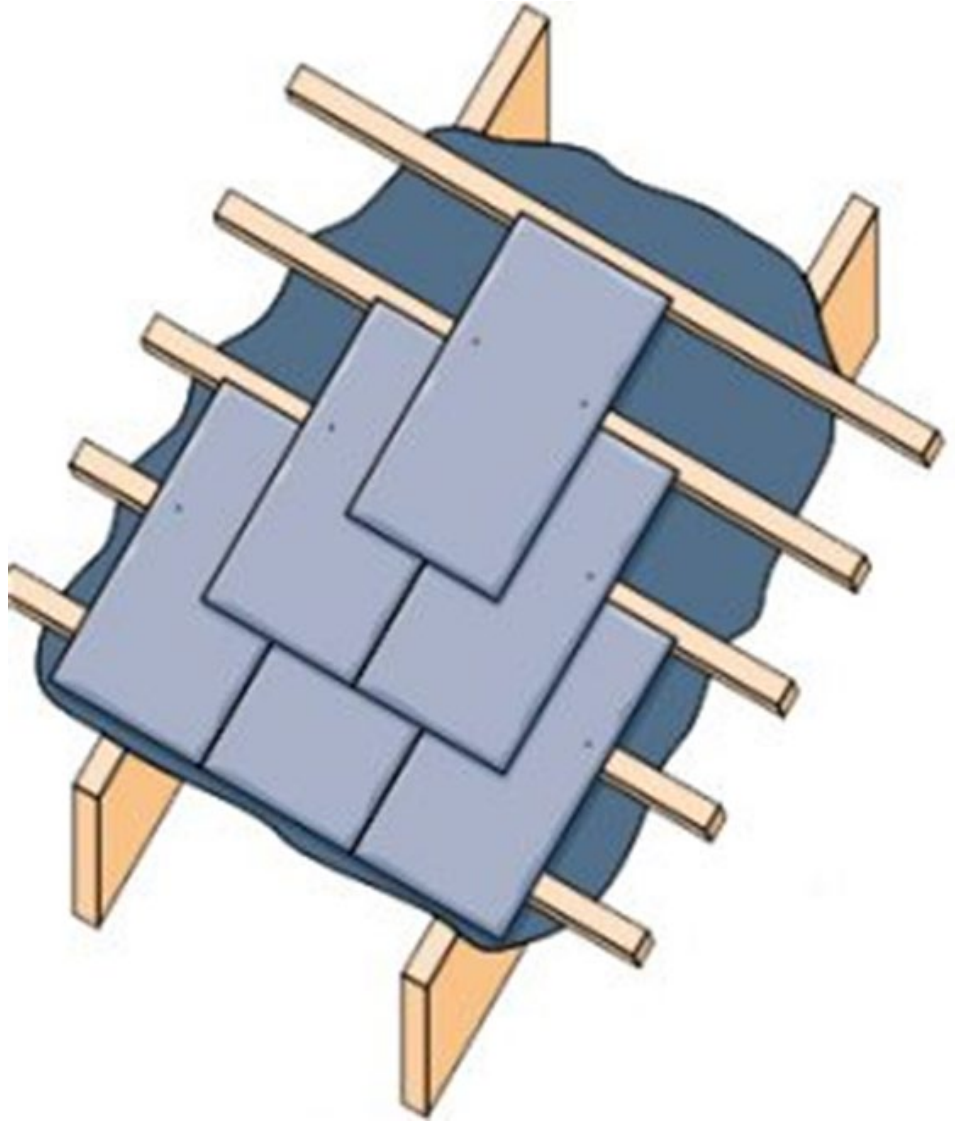






Pitched Roof Coverings

Slate





Slate



Slate



Slate



Slate



Slate



Slate

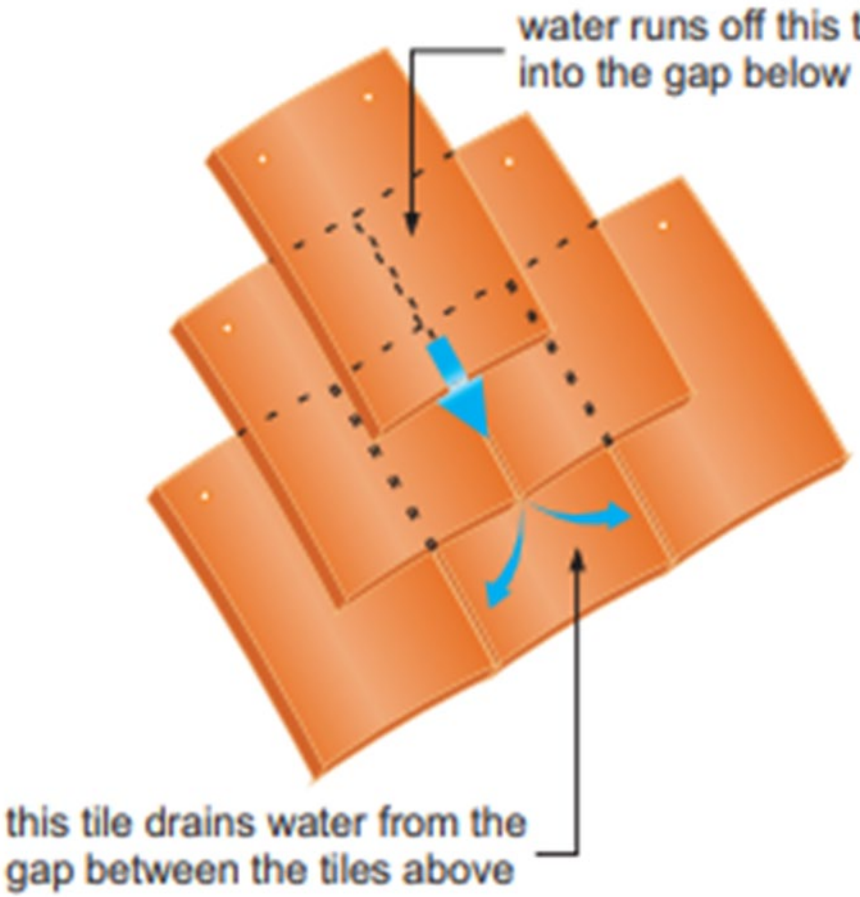


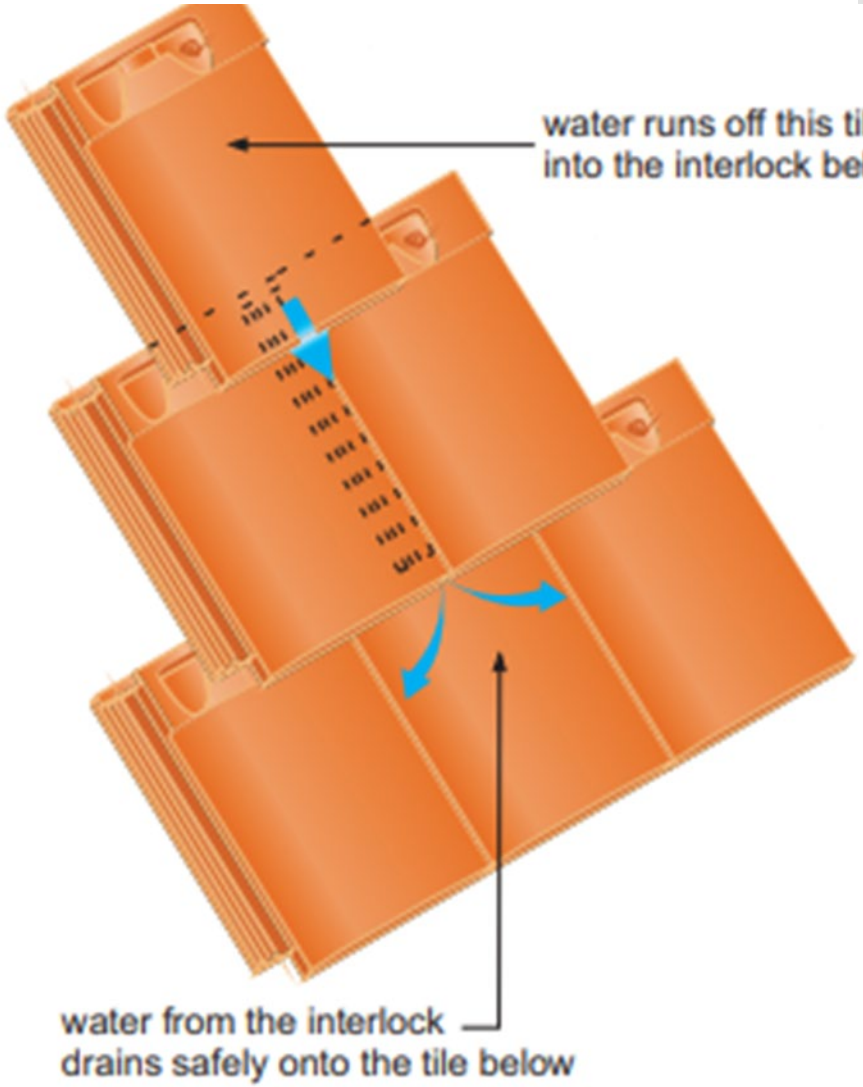
Slate



Slate

Tiles


water runs off this tile
into the gap below
this tile drains water from the
gap between the tiles above

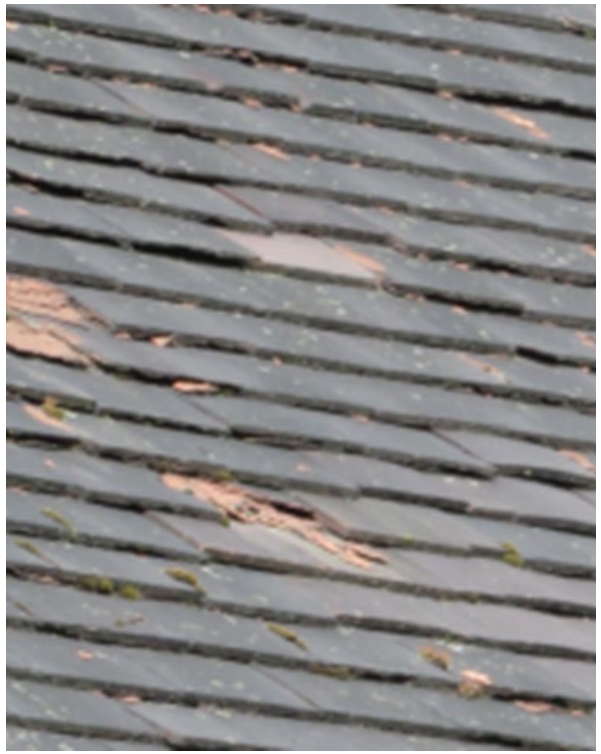

water runs off this tile
into the interlock below
water from the interlock
drains safely onto the tile below

Tiles





Tiles



Tiles

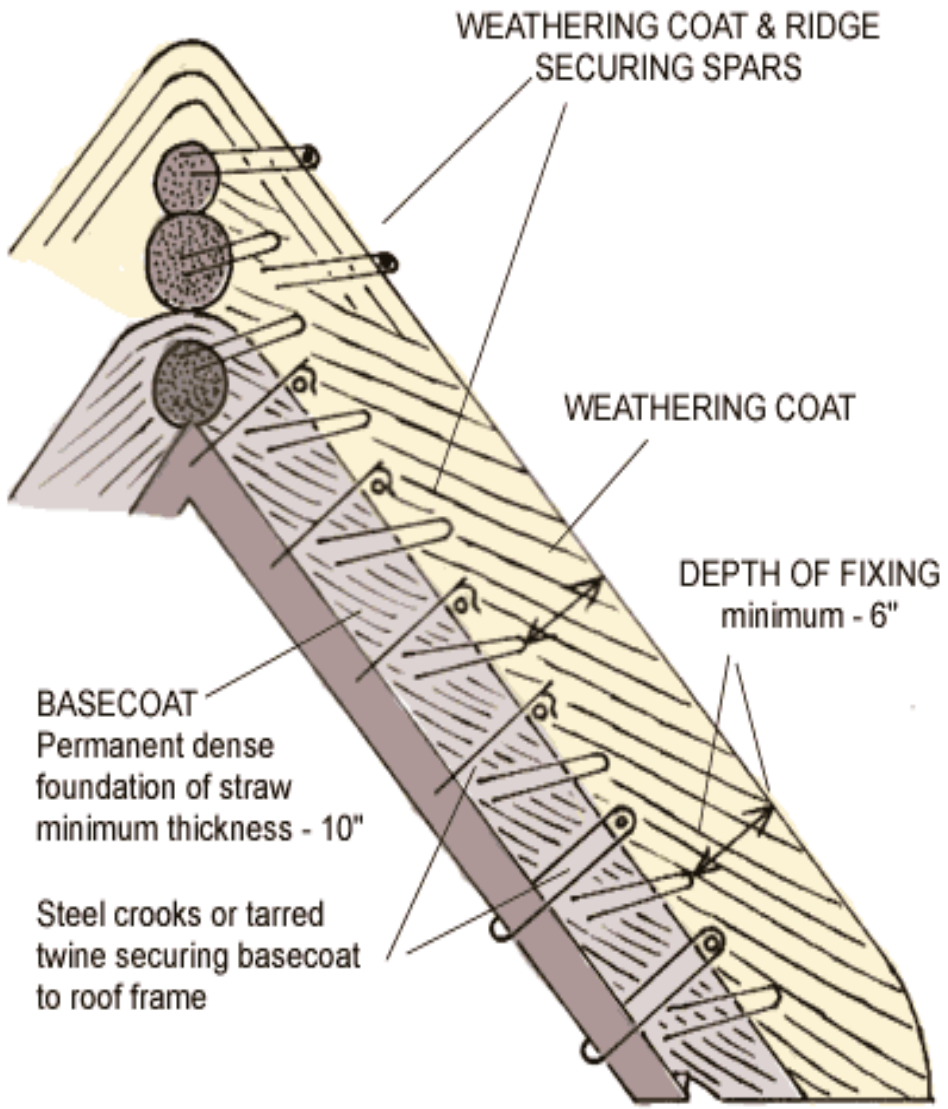


Tiles



Tiles

Thatch


WEATHERING COAT & RIDGE
SECURING SPARS
WEATHERING COAT
DEPTH OF FIXING
minimum - 6"
BASECOAT
Permanent dense
foundation of straw
minimum thickness - 10"
Steel crooks or tarred
twine securing basecoat
to roof frame



Thatch



Thatch



Thatch



Thatch

Flat Roofs





Bituminous Felt



Bituminous Felt



Bituminous Felt



Mastic Asphalt



Mastic Asphalt



Mastic Asphalt

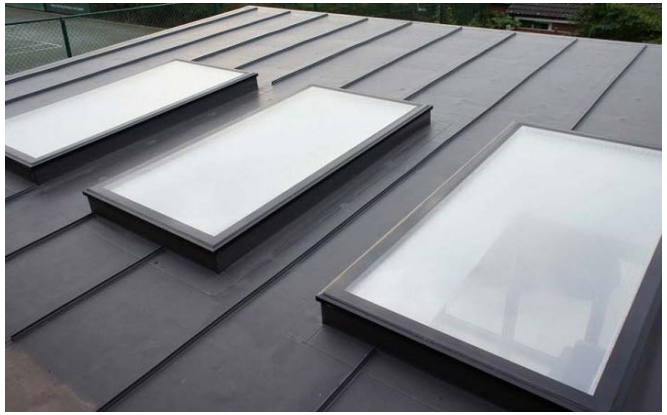


Mastic Asphalt



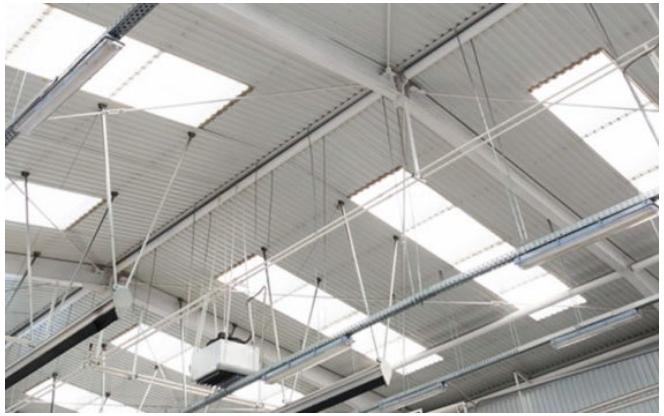


















Roof Lights

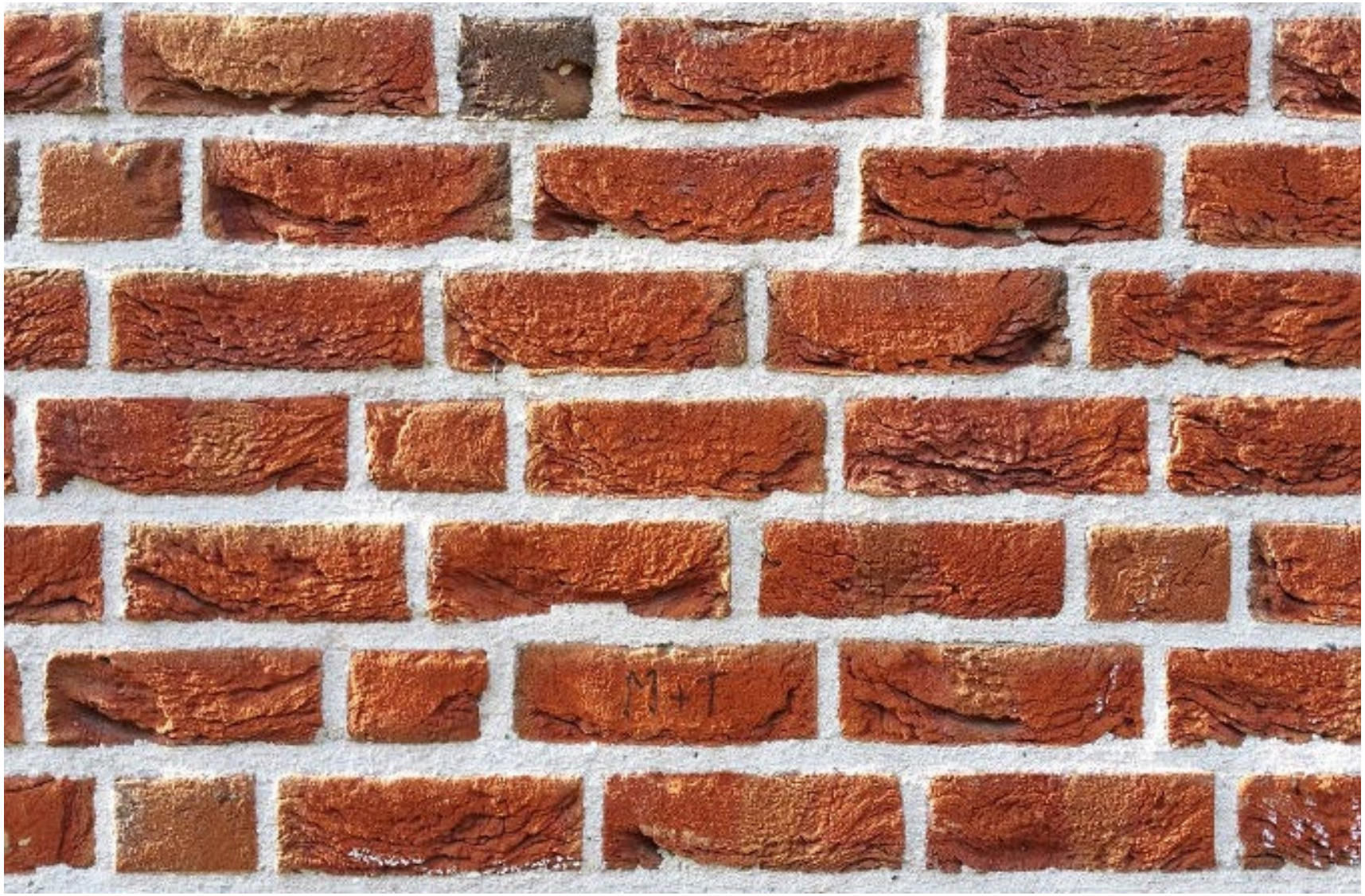


Roof Lights



Roof Lights

Walls



Walls

- The main purpose of walls in building construction is not only to protect buildings from damage but also to divide them for different rooms or spaces.

What are the functional requirements of walls?

Walls

Strength

Stability

Weather & Moisture Resistance

Durability

Fire Safety

Heat Resistance

Sound Resistance

Bulging and Leaning



Bulging and Leaning



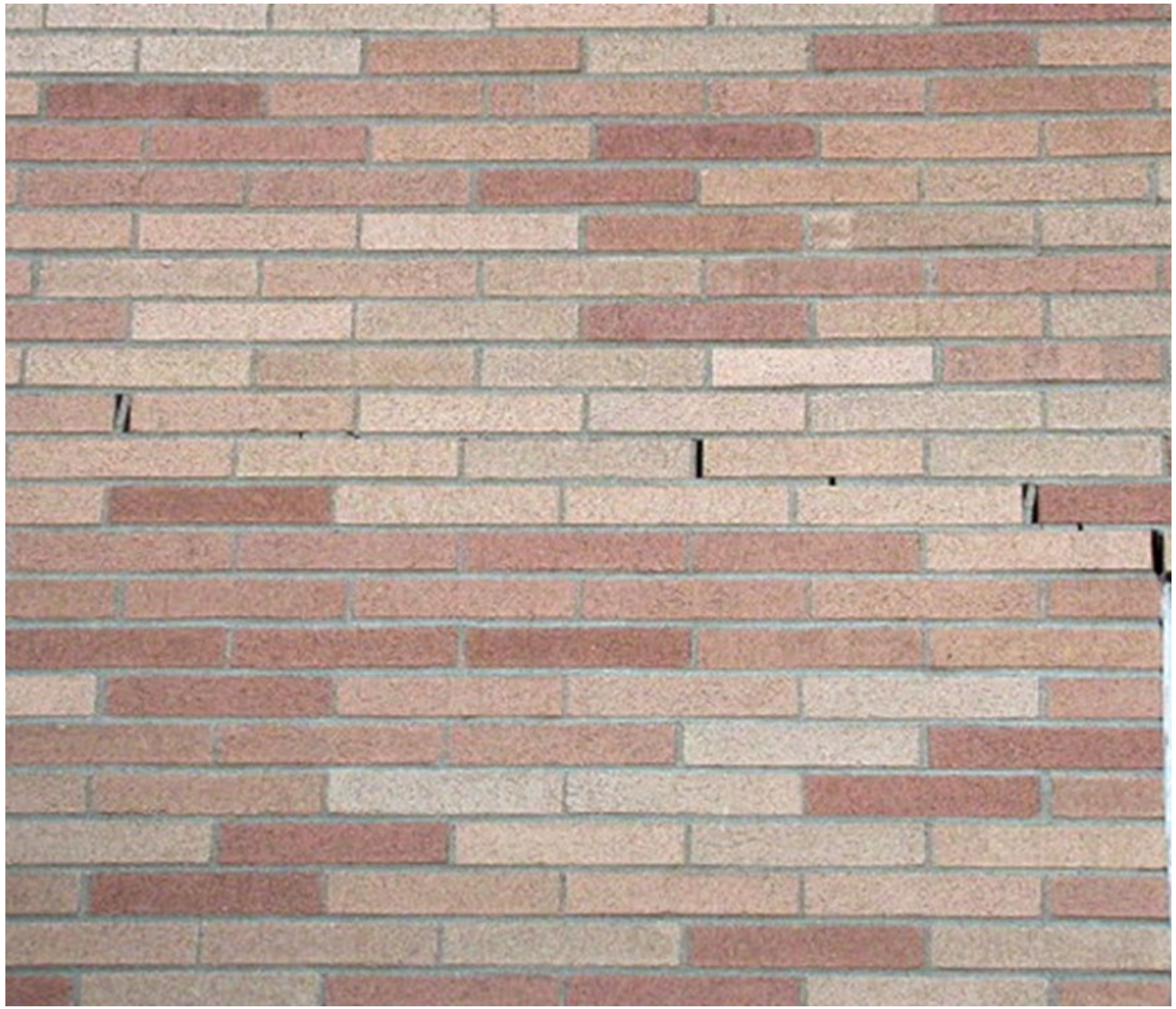
Overloading



Overloading



Thermal and Moisture Movement



Arch & Lintel Failures



Defective Materials & Chemical Action



Bonding and Junction Defects



Frost Failure



Foundations

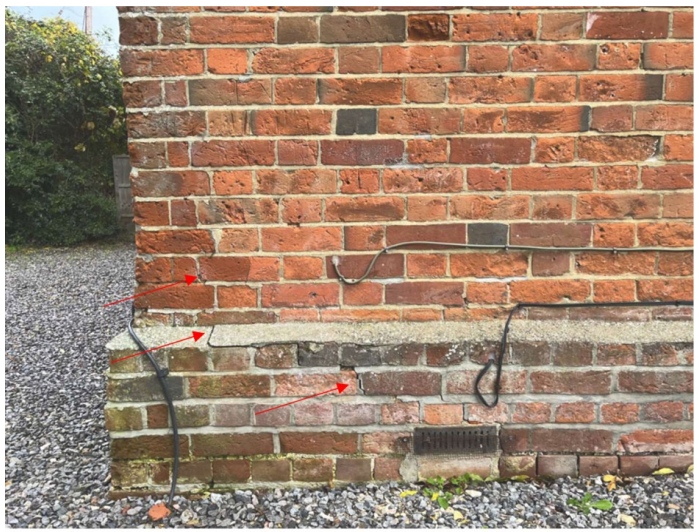




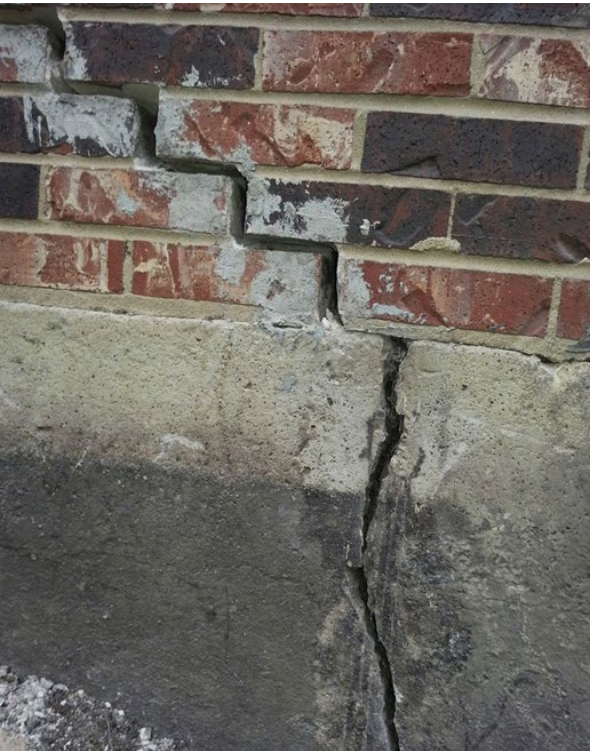




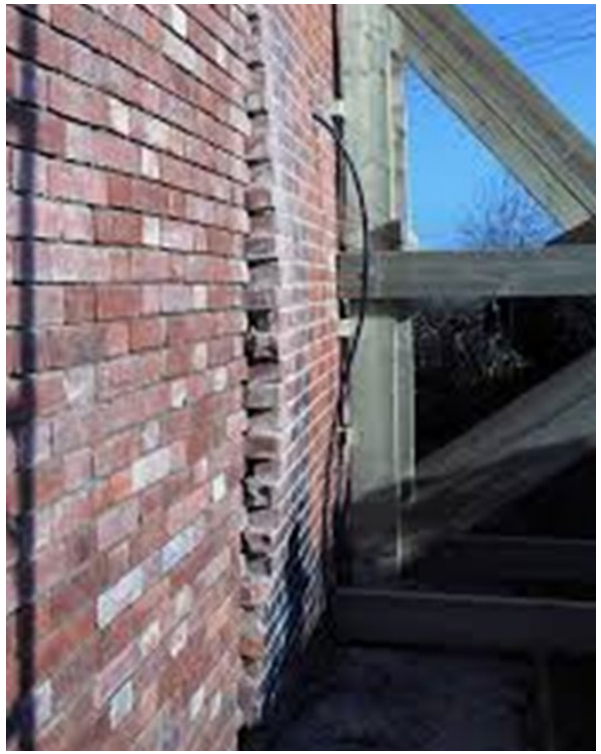




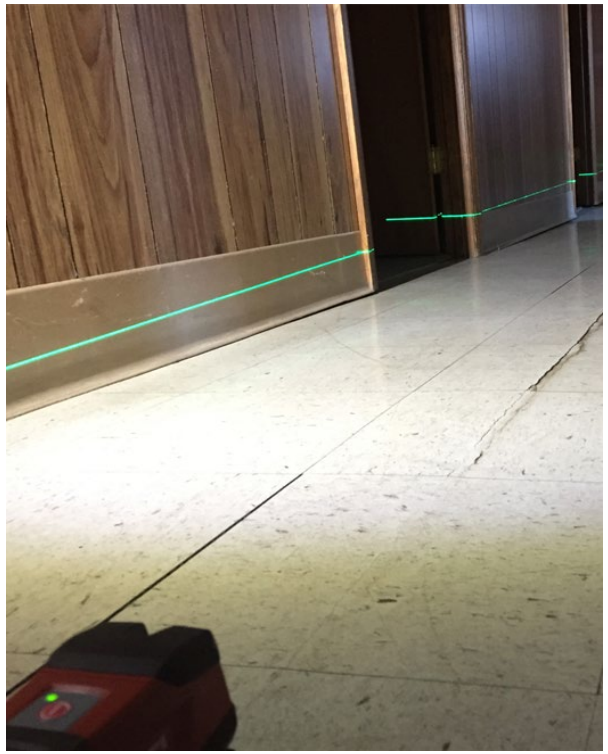




Symptoms



Symptoms



Symptoms

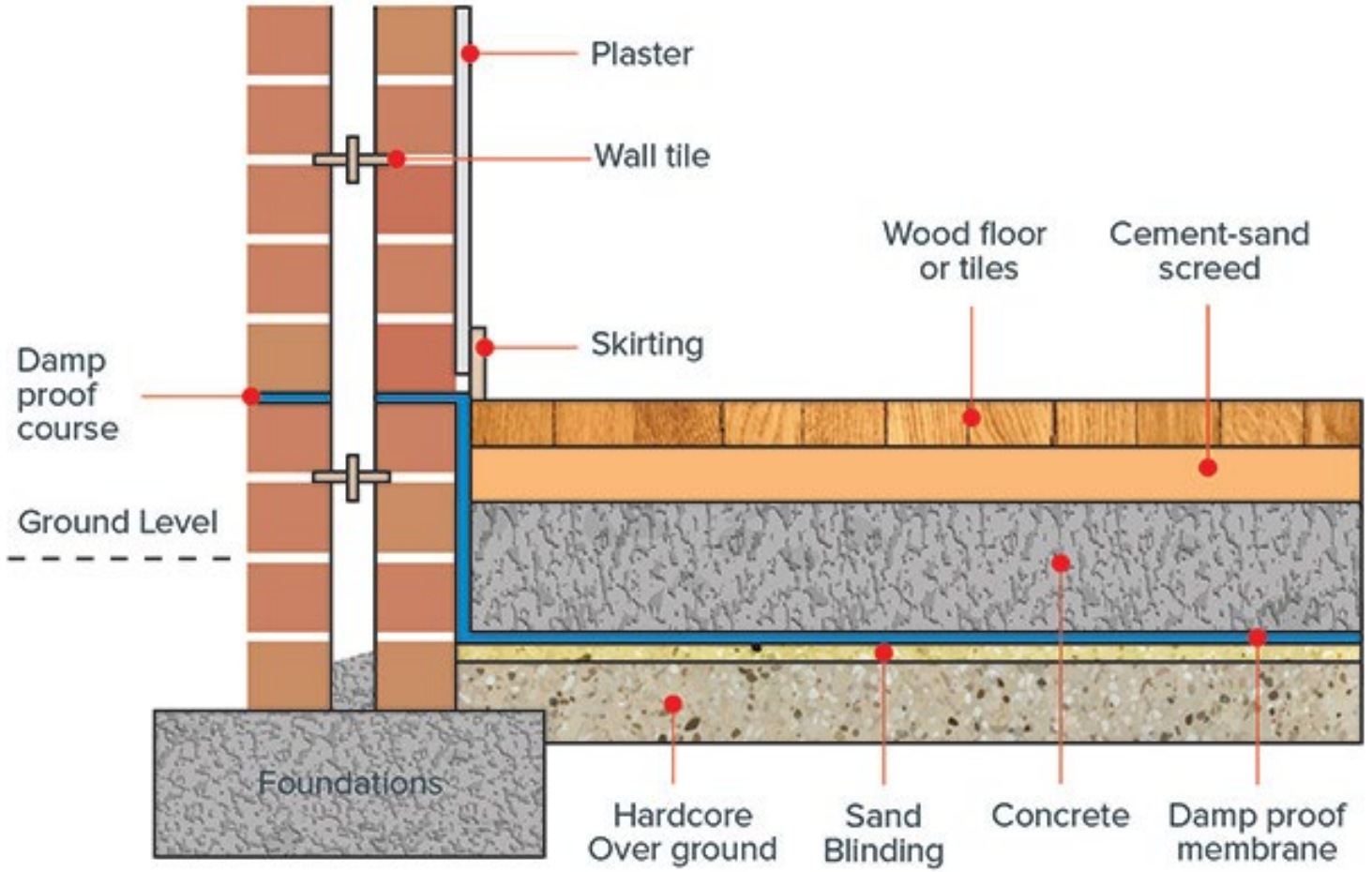


Symptoms

Damp



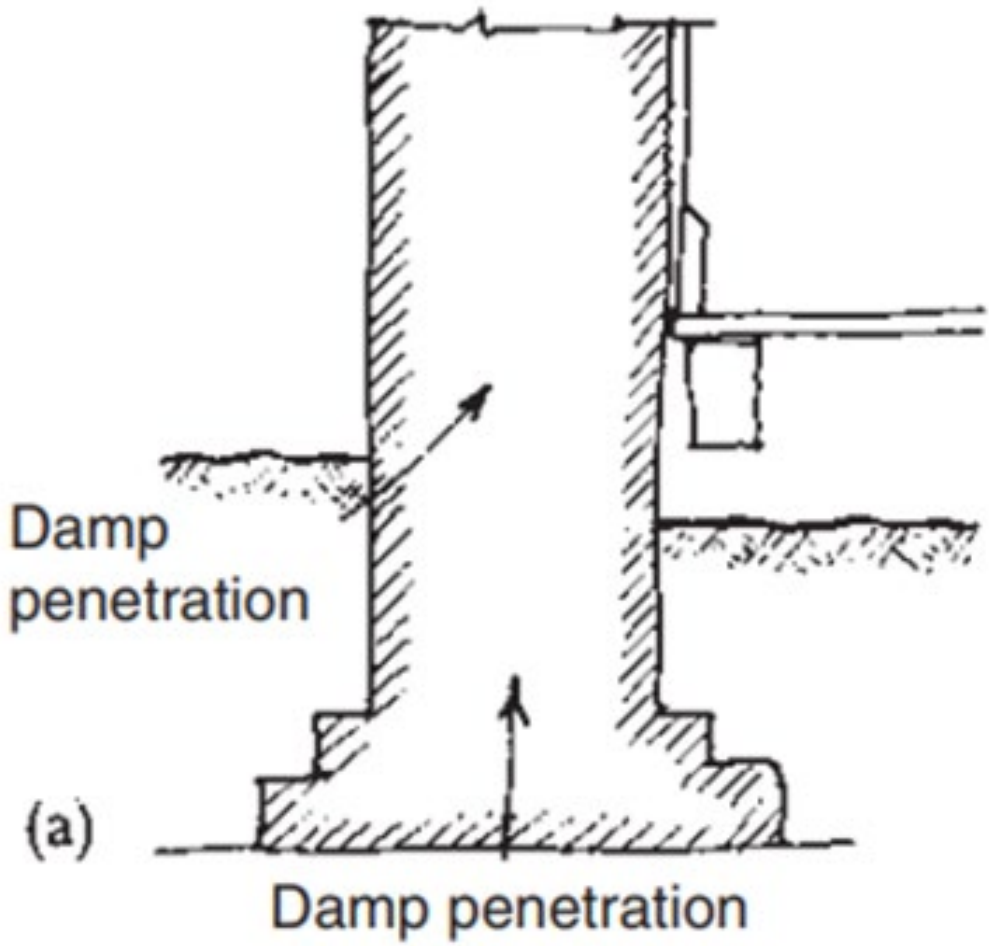
Damp Proof Course



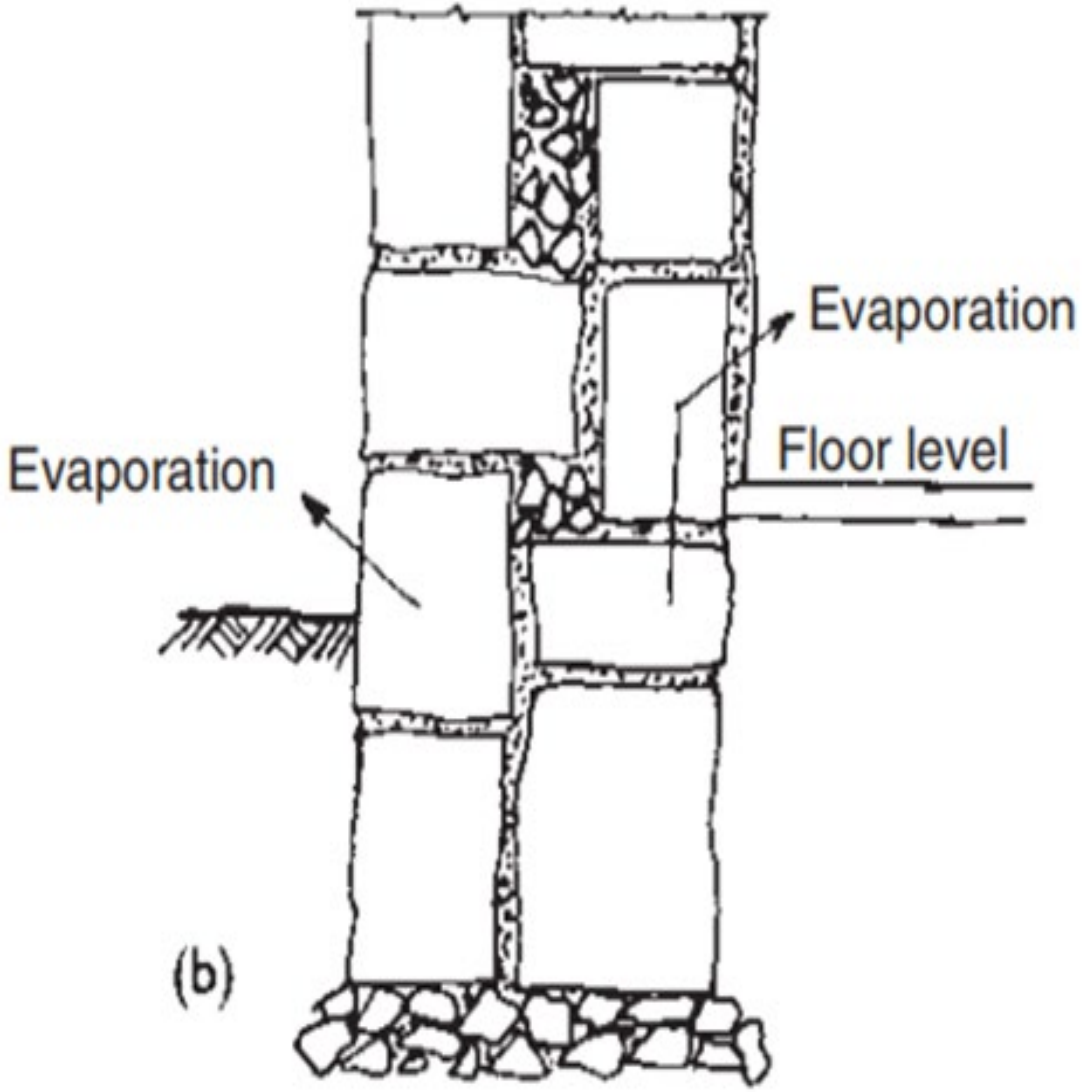
Damp Proof Course



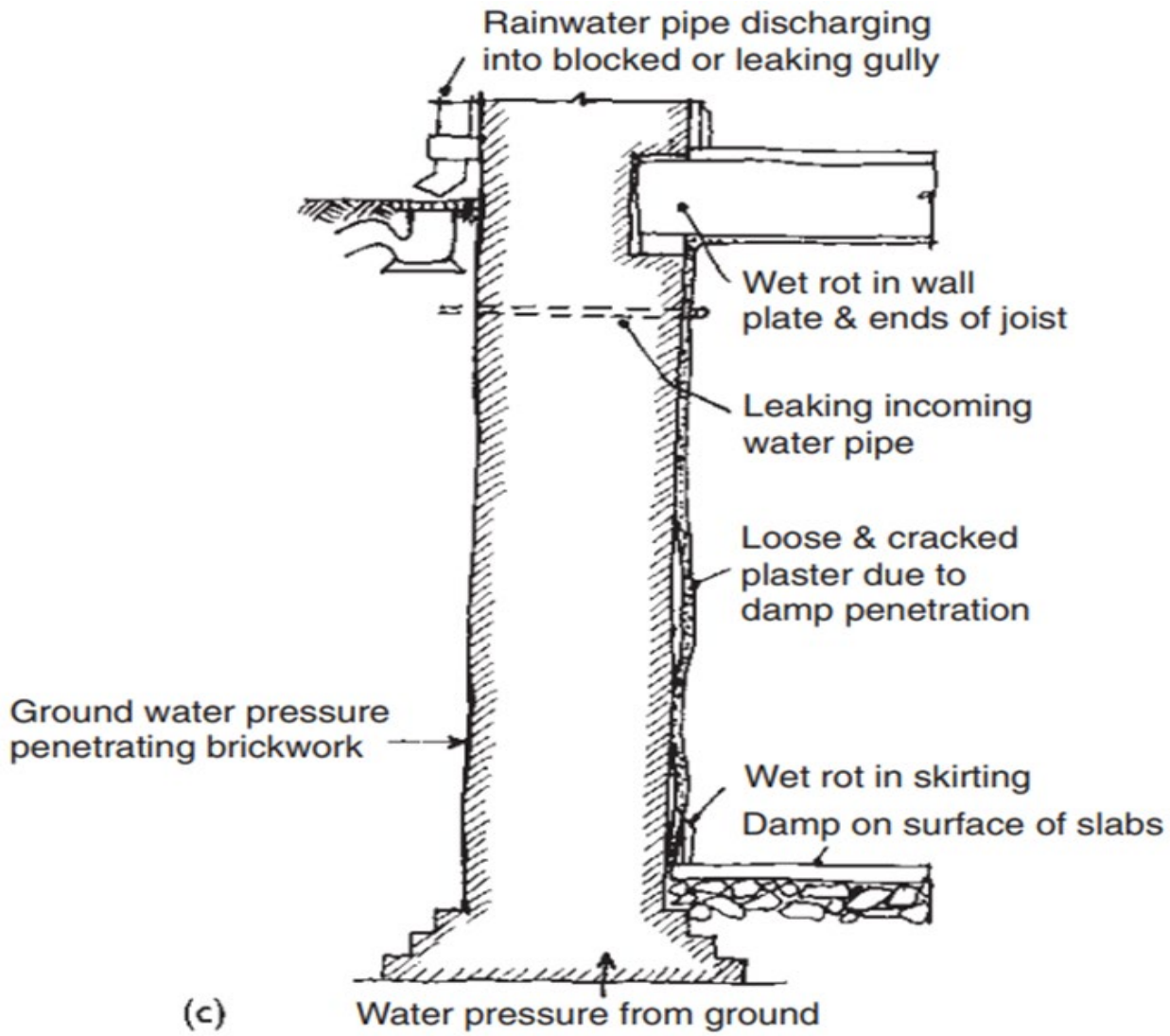
Rising Damp



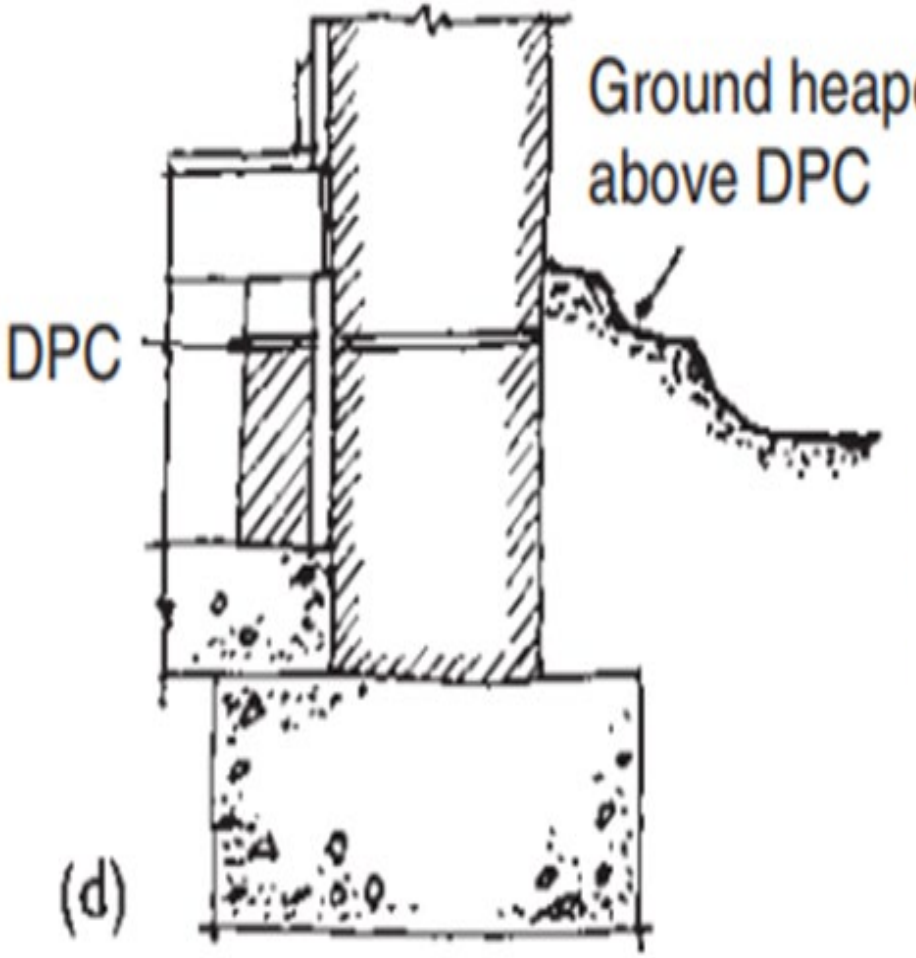
Rising Damp



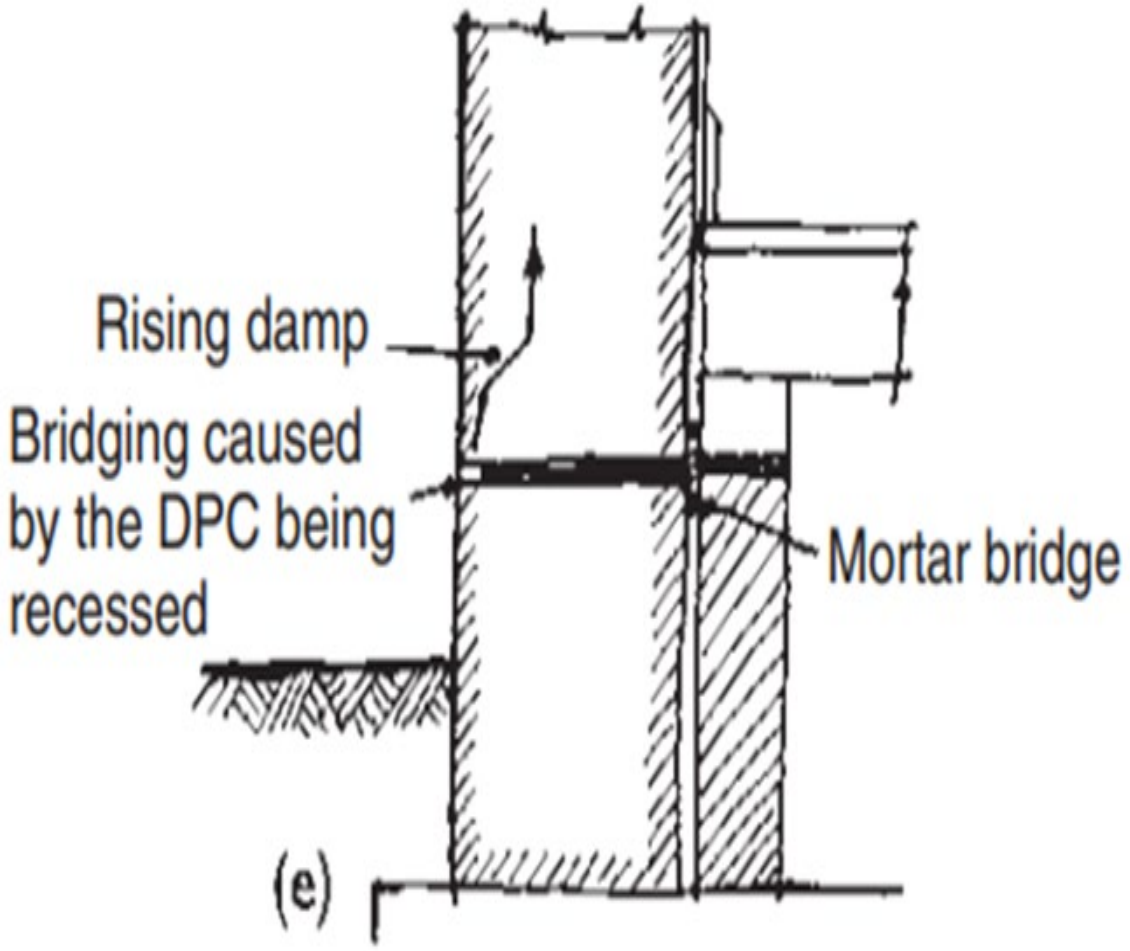
Rising Damp


Rainwater pipe discharging into blocked or leaking gully
Wet rot in wall plate & ends of joist
Leaking incoming water pipe
Loose & cracked plaster due to damp penetration
Ground water pressure penetrating brickwork
Wet rot in skirting
Damp on surface of slabs
(c)
Water pressure from ground

Rising Damp



Rising Damp


Rising damp
Bridging caused by the DPC being recessed
Mortar bridge
(e)

Condensation



Dry Rot



Dry Rot









Wet Rot

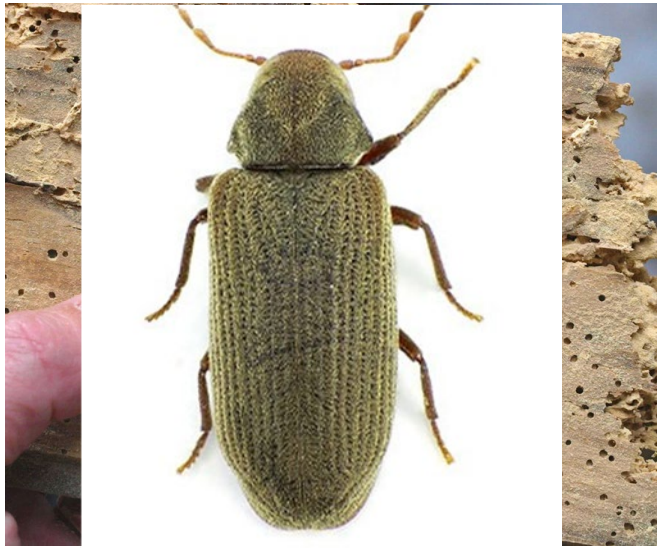


Wet Rot



Pests









Pests


1. Breeding
The female woodworm beetle starts the process by laying her eggs directly into the timber through cracks, crevices and existing holes.
2. Hatching
After a few weeks the eggs hatch downwards into the timber and produce larvae.
The larvae form a pupal chamber and evolves into an adult woodworm beetle. They eat their way through the wood and produce the round holes you can see.
4. Transforming
The woodworm eats for up to 5 years. It eats its way up and down the timber causing structural damage. Dust can often be seen at this point.
3. Feeding