BUILDING CONSTRUCTION

LECTURE: 9 DAMP PROOFING

Mr. Manjally Ndow

OBJECTIVES

- To state the different damp proofing materials
- To illustrate the different positions of damp proof courses.
- To explain the importance of hard core
- To state the significance of blinding

DAMP PROOF COURSES

- Having considered the different types of dampness and how they can occur in buildings, it is important to know how to prevent them from occurring in buildings.
- One of the best methods of avoiding dampness in buildings is by installing damp proof courses (DPCs) in different parts of the building during the construction phase.

DAMP PROOF COURSES (Cont'd)

- Damp proof course (DPC) is a barrier of impervious material incorporated into a wall or pier (platform) to prevent moisture form moving to any part of the building.
- Locate DPC at least 150 mm above external ground or paving level.

TYPES OF DAMP PROOF COURSES

- All materials used as damp proof courses should be resistant to moisture content. A damp proof course is cost effective and easily available.
- The type of DPC to be used depends on the site conditions on which the building is constructed as well as the building construction rules.
- However, most buildings in low-income countries are not lined with damp proof courses. This could be as a result of poor enforcement of building regulations and also the cost of damp proof materials.

TYPES OF DAMP PROOF COURSES

- **The different physical DPCs include:**

- **Flexible materials** such as hot bitumen, plastic sheets, bituminous felts, sheets of lead, copper,
- **Semi-rigid materials** such as asphalt
- **Rigid materials** such as impervious bricks, stones, slates, concrete painted with bitumen.

TYPES OF DAMP PROOF COURSES

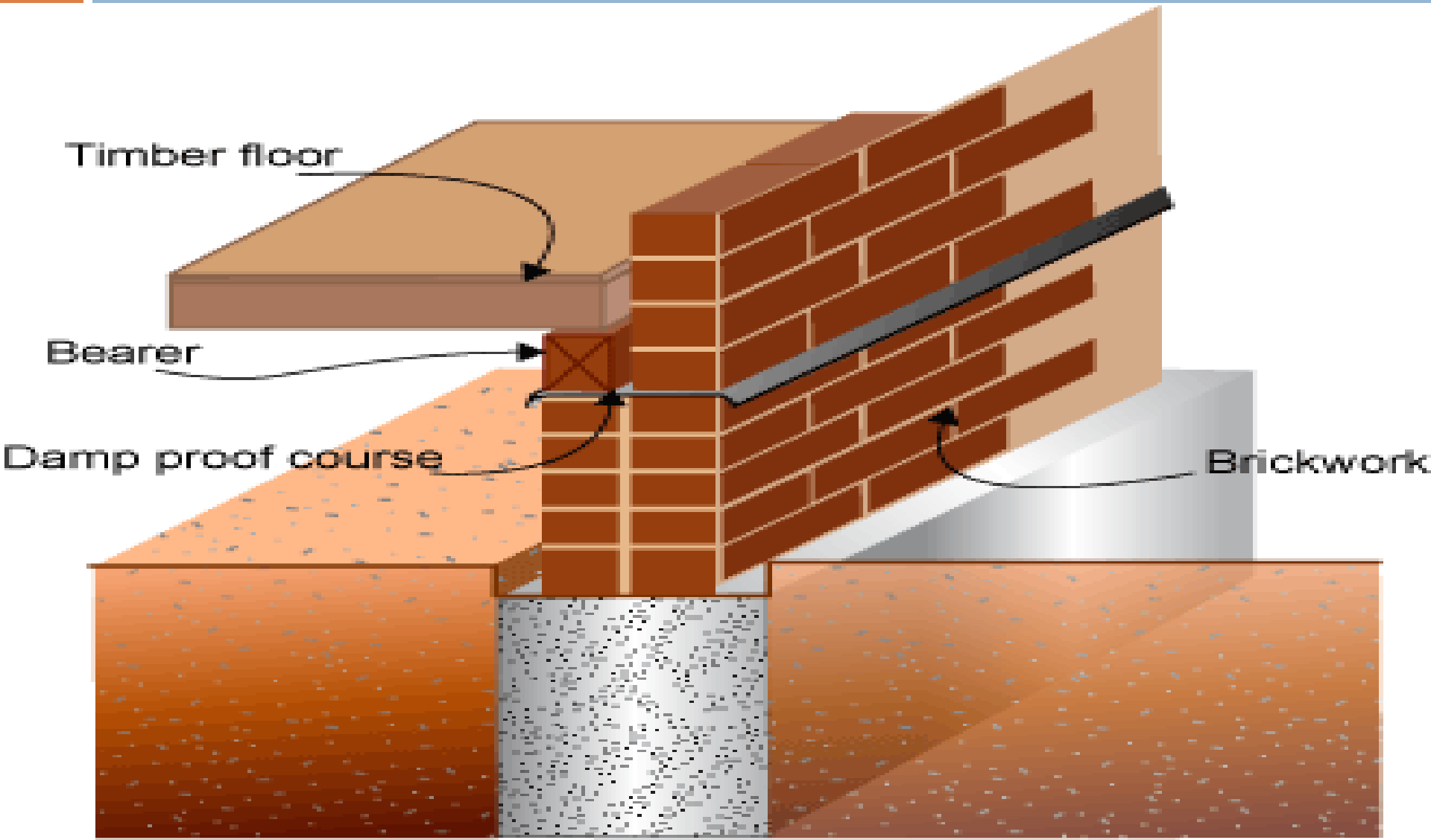
CHEMICAL DPCS

- This technique uses liquid like silicone compound which is either introduced into the wall by simple gravity or under pressure.
- The liquid will either fill the pores of a material with water resistant material **(pore fillers)** or line them with a non-absorbent surface to reduce capillary attraction **(pore liners)**.

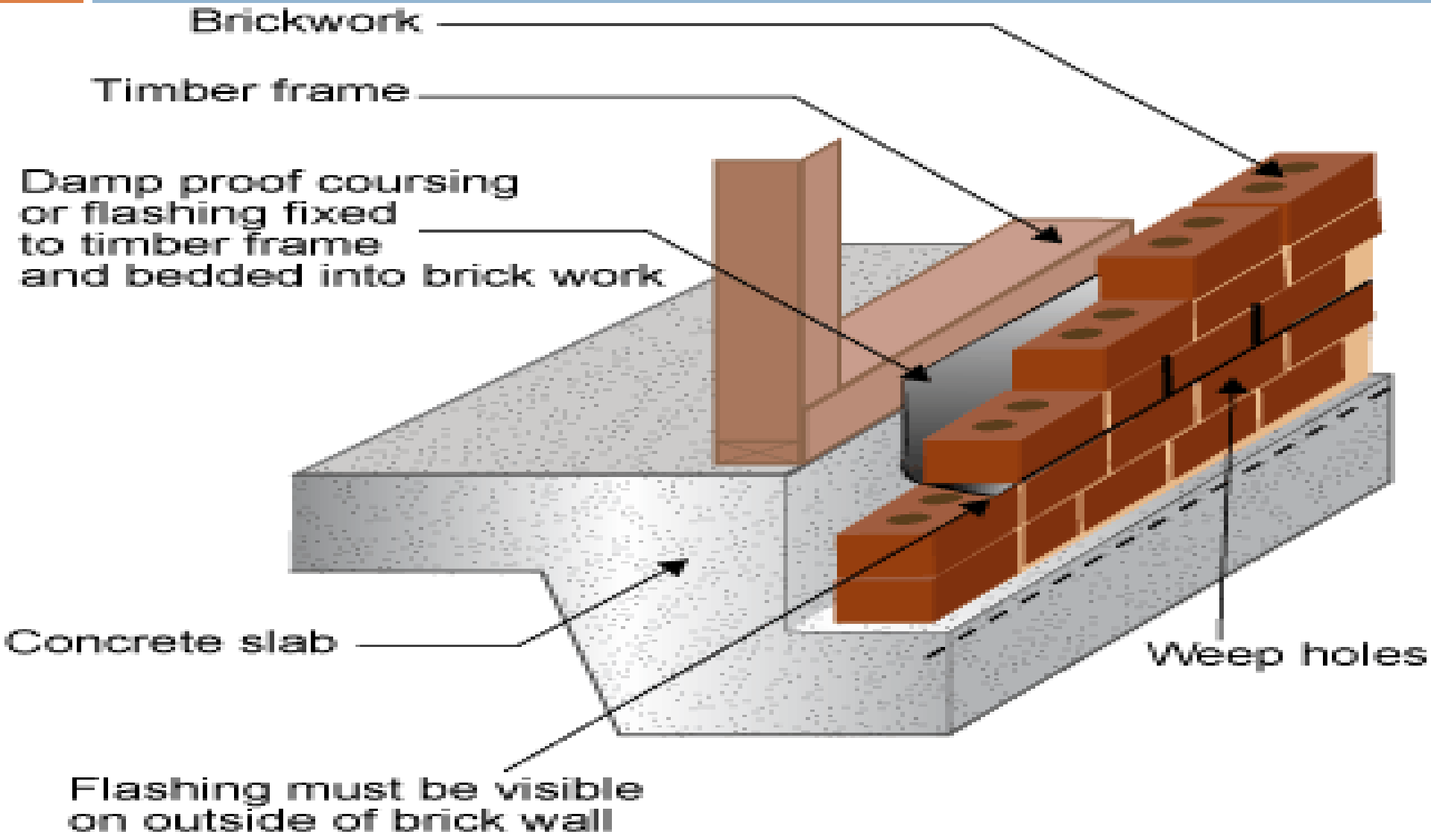
POSITIONING DAMP PROOF COURSES

- The first DPC can be placed before the floor is laid or on the floor itself before the screed or tiles are laid but the former is better.
- The next layers of DPCs can be put under the windowsill and lintel. And if there is a floor above, another DPC can be placed under it.
- Parapet walls and on top of wall plates would also need DPC to be installed.

DAMP PROOF COURSE IN BRICKWORK



DAMP PROOF COURSE IN SLAB WORK



Damp proof courses (DPCs)

PRINCIPLES OF HARD CORE

- Hardcore application in the building process is also as important as any of the key stages .
- **Hard core** is a measure involving the use of some large aggregates of stones (granite) during the process of building construction especially when constructing foundation or floor area.

PRINCIPLES OF HARD CORE (Cont'd)

- In the majority of cases, broken blocks or bricks are used in this process, but are not recommended due to their strength.
- Hard core is applied after the internal part of the foundation or floor area have been filled with some fine sands prior to the application of iron rods or wire mesh and concrete.

IMPORTANCE OF HARD CORE

- Strengthens or solidifies the base of the building to resist the pressure of dead and live loads acting on the building.
- Save cost of construction, i.e. the volume occupied by the hard core if it were to be concrete would have cost more.
- Reduces movement of water up to the floor surface.

SIGNIFICANCE OF BLINDING

- Before the concrete is laid it is important to blind the top surface of the hard core.
- The purpose of this is to prevent the wet concrete running down between the lumps of broken brick or stone, as this would make it easier for water to seep up through the hard core.
- To blind the top surface of the hard core a thin layer of very dry coarse concrete can be spread over it, or a thin layer of coarse clinker (powder) or ash can be used. This blinding layer, or coat, will be about 50 mm thick, and on it the site concrete is spread and finished with a true level top surface.

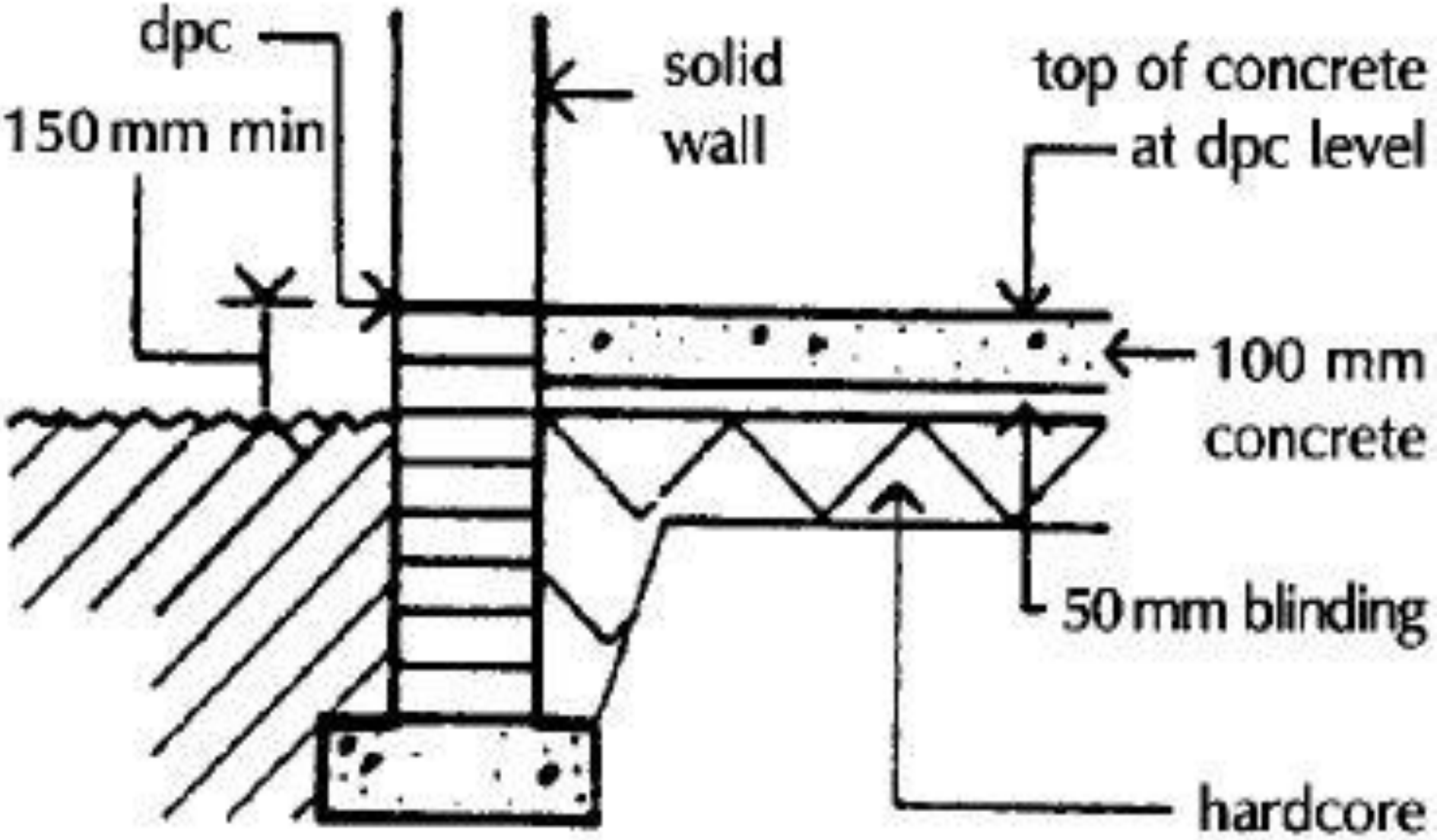


Fig. 25 Hardcore and blinding.

REFERENCE

- Rising damp and its control: A guide to identifying the various forms of dampness encountered in buildings and control of rising damp through remedial action.
- The University of Nottingham Ningbo, China: Division of Sustainable Development.

THANK YOU

ANY QUESTION OR COMMENT