

DEFECTS IN BUILDINGS DUE TO

DAMPNESS

Subject: Building Construction & Technology – III

Topic: Dampness in Basement

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What is Dampness?

Dampness is presence of moisture in the building components. As we all know it leads to unhygienic conditions and it also deteriorates the stability of the building.

Why is Dampness a Concern?

Dampness in buildings is a concern because it often leads :

- to growth of molds and bacteria**
- to increased emissions of chemicals from building materials**
- In addition, dampness causes structural degradation of buildings**



1. External Examination:

- a. External rainwater goods, valleys, flat roofs.
- b. Condition of brickwork, stone, mortar, plinths, render, weatherproof finish, etc.
- c. Wall construction, cracks in masonry, copings, etc.
- d. External timbers including windows and doors.
- e. Air vents; their position and condition.
- f. Chimneys and flashings.
- g. Position of any remedial DPC installation including spacing and depth of holes where chemical systems have been used.
- h. High ground levels, abutting gardens walls, steps and position and integrity of any DPC system.

2. Primary Internal Examination: Visible Signs

- a. Fungal decay in skirting and/or other timbers.
- b. Peeling/blistering wallpaper, peeling/blistering paintwork.
- c. Efflorescence.
- d. Mould growth, staining.
- e. Damp/wet patches, water droplets, water runs.

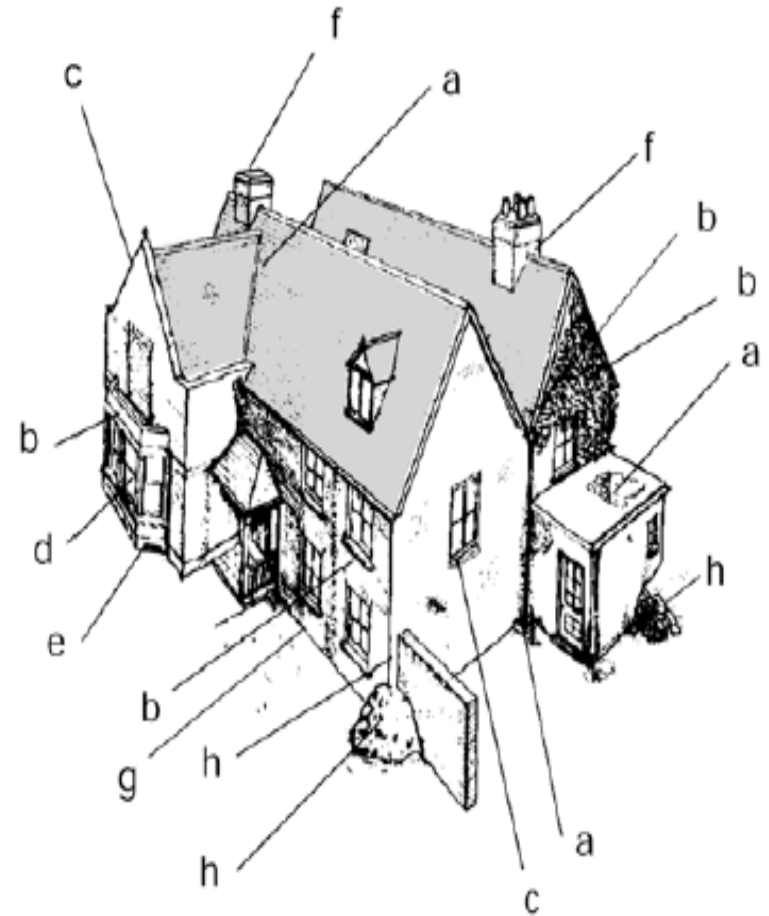


Figure 3: External examination

EXAMINING A BUILDING FOR DAMPNES

SOURCES OF DAMPNESS

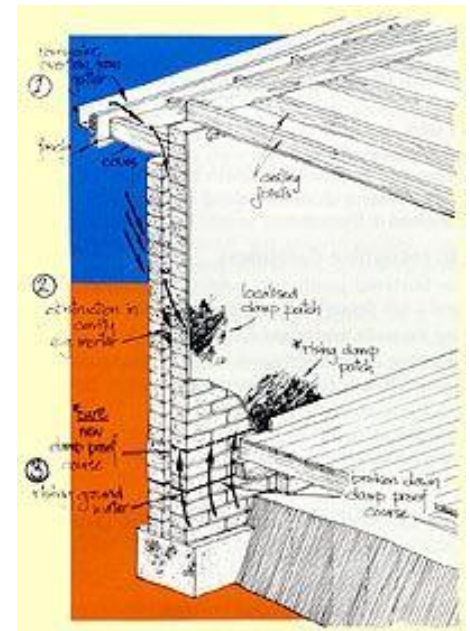
The sources which create dampness in a building are:

Geological and climatic causes

- (A) Rain penetration**
- (B) Ground moisture rise**
- (C) Condensation in building
due to moisture in the atmosphere**
- (D) Drainage of the site**
- (E) Orientation of the building**

Structural causes

- (A) Water introduced in the structure during construction**
- (B) Defective construction**
- (C) Inadequate sub-floor ventilation**
- (D) Sub-floor obstructions**



DEFECTS CAUSED

There are numerous defects which are caused by dampness.

Few important of them are

- **Corrosion of metals used in the construction.**
 - **Plaster gets crumbled and softened.**
 - **The floor coverings loose adhesion with the floor base.**
 - **Timber when in contact with dampness gets rotten.**
 - **The paint gets blistered and bleached.**
 - **Further they get disfigured.**
 - **There is a coating of salt on stones, bricks etc. which leads to the corrosion of the material.**
 - **All electrical installations get deteriorated.**
 - **It causes fungi and lichens to grow.**
 - **It causes unhygienic conditions.**
 - **Dampness disturbs aesthetic beauty of the place.**
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PREVENTION

There are various methods of preventing dampness. Different types of materials are used for reducing the occurrence of dampness. The methods of damp prevention may be classified as under:

(1) Water proofing mixtures or integral treatment

Synthetic compounds are available which can be added during the process of mixing of the constructional materials.

(2) Water proof surface treatment

Surface treatments can be either external or internal. External are considered to be more effective in preventing dampness

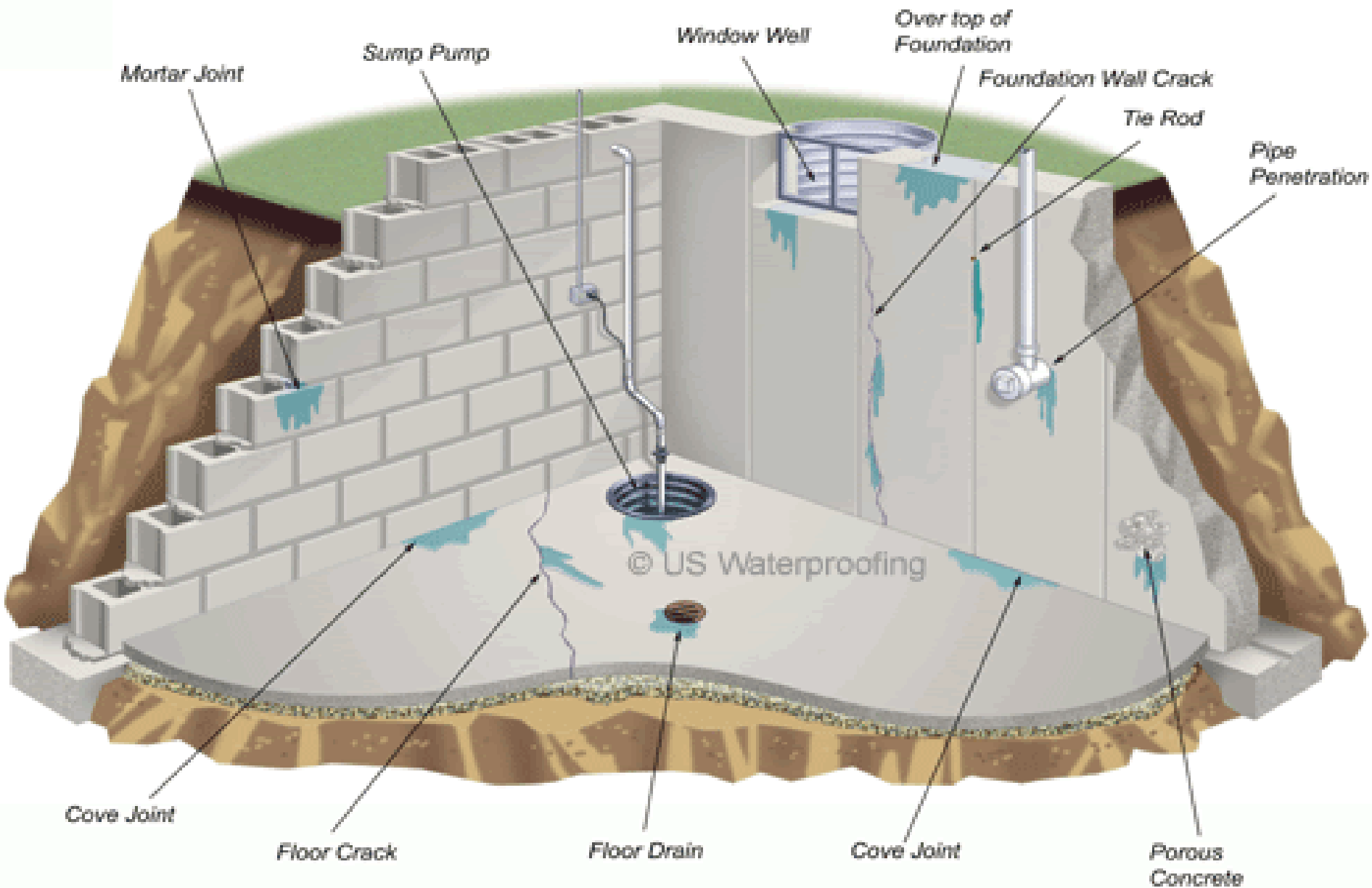
(3) Interposing a waterproof membrane The method consists of introducing a layer of water repellent material against the travel of damp. These are called damp proof courses (D.P.C.).

The materials used in D.P.C. are as follows:

(A) Flexible materials like bituminous sheet, plastic sheet, metal sheet etc.

(B) Semi rigid materials: Like mastic asphalt.

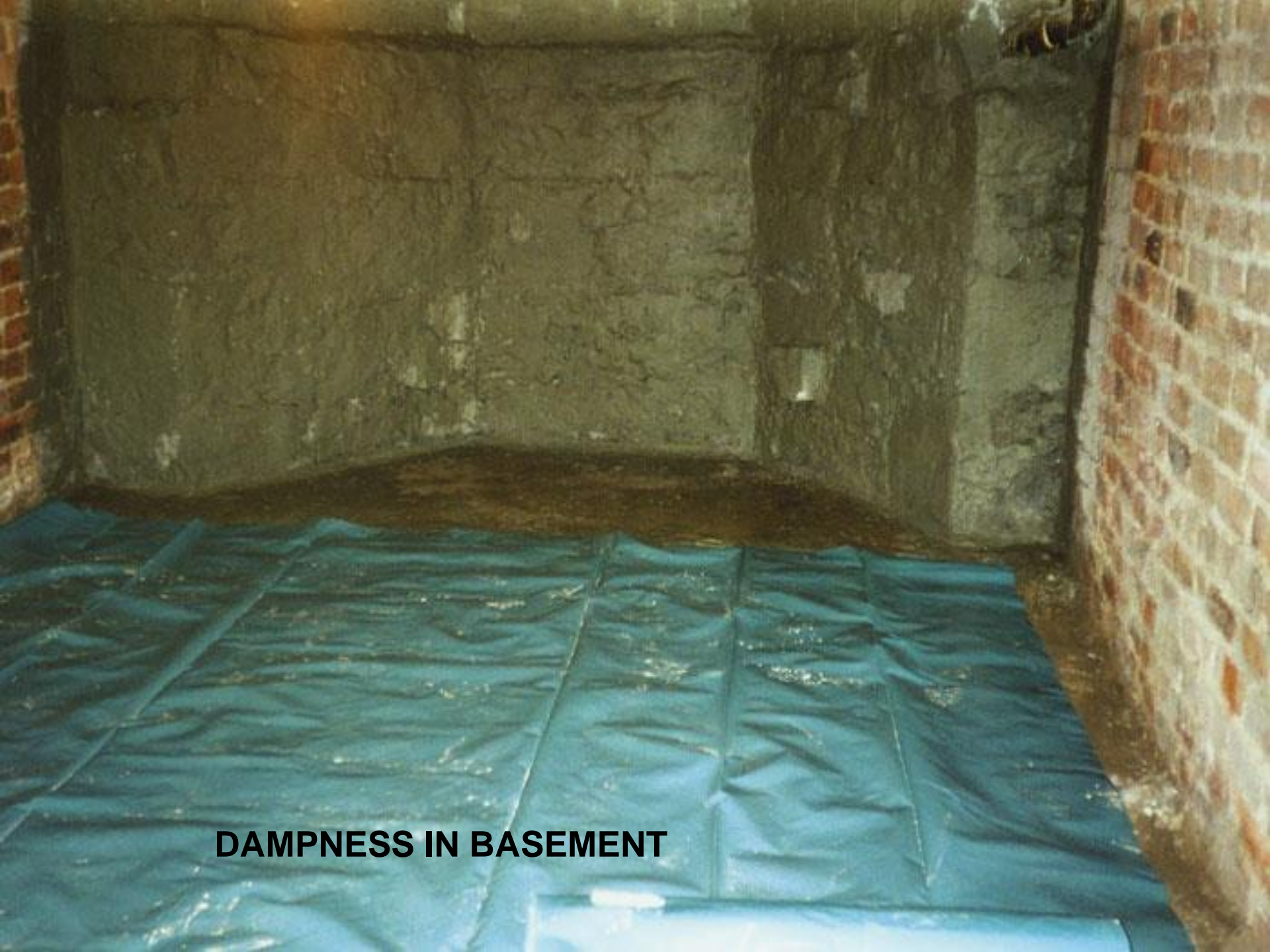
(C) Rigid materials: Like slates, bricks, stones, dense cement concrete etc.



DAMPNESS IN BASEMENTS



We Turn Wet Basements...



DAMPNESS IN BASEMENT

Dampness may be observed on a wall or walls and/or floor of the basement or water may be seen to be leaking through. The point of entry may be visible as seepage or it may appear as a spout or jet.

CAUSES

- Water can come from a variety of sources: rainfall, melting snow and naturally occurring groundwater due to a high water table. Groundwater is by far the most difficult water source to deal with, but all can become persistent problems if not dealt with effectively.
- The problems usually begin in a couple of ways. One common cause of dampness occurs when water begins to seep into the basement through the roof, walls or foundation. The other is a build-up of condensation that occurs when moisture in the air condenses and forms on the basement walls and other surfaces.
- The good news is that most basement moisture problems can be solved, or at the very least the problem can be significantly alleviated.

(1) Ground water under pressure

(2) Damp penetration

(3) Condensation.
