DAMP PROOF COURSE

Materials for Damp Proof Course (DPC):

An effective damp proofing material should have the following properties;

1. It should be impervious.
2. It should be strong and durable, and should be capable of withstanding both dead as well as live loads without damage.
3. It should be dimensionally stable.
4. It should be free from deliquescent salts like sulphates, chlorides and nitrates.

The materials commonly used to check dampness can be divided into the following three categories:

1. Flexible Materials: Materials like bitumen felts (which may be hessian based or fibre/glass fibre based), plastic sheeting (polythene sheets) etc.
2. Semi-rigid Materials: Materials like mastic, asphalt, or combination of materials or layers.
3. Rigid Materials: Materials like first class bricks, stones, slate, cement concrete etc.

SELECTION OF MATERIALS FOR DAMP PROOF COURSE:

The choice of material to function as an effective damp proof course requires a judicious selection. It depends upon the climate and atmospheric conditions, nature of structure and the situation where DPC is to be provided. The points to be kept in view while making selection of DPC materials are briefly discussed below:

1. **DPC above ground level**: For DPC above ground level with wall thickness generally not exceeding 40cm, any one of the type of materials mentioned above may be used. Cement concrete is however commonly adopted material for DPC at plinth level, 38 to 50mm thick layer of cement concrete M15 (1:2:4 mix) serves the purpose under normal conditions.

In case of damp and humid atmosphere, richer mix of concrete should be used. The concrete is further made dense by adding water proofing materials like Pudlo, Impermo, Waterlock etc in its ingredients during the process of mixing. It is used to apply two coats of hot bitumen over the third surface of the concrete DPC.

1. **DPC Material for floors, roofs etc**: For greater wall thickness or where DPC is to be laid over large areas such as floors, roofs, etc, the choice is limited to flexible materials which provide lesser number of joints like mastic, asphalt, bitumen felts, plastic sheets etc.

The felts when used should be properly bonded to the surface with bitumen and laid with joints properly lapped and sealed.

1. **DPC Material for situations where differential thermal movements occur**: In parapet walls and other such situations, materials like mastic, asphalt, bitumen felts and metal (copper or lead) are recommended. It is important to ensure that the DPC material is flexible so as to avoid any damage or puncture of the material due to differential thermal movement between the material of the roof and the parapet.
2. **DPC material for Cavity Walls**: In cavity wall construction, like cavity over the door or window should be bridged by flexible material like bitumen felt, strips or lead etc.

General principles to be observed while laying DPC are:

1. The DPC should cover full thickness of walls excluding rendering.
2. The mortar bed upon which the DPC is to be laid should be made level, even and free from projections. Uneven base is likely to cause damage to DPC.
3. When a horizontal DPC is to be continued up a vertical face a cement concrete fillet 75mm in radius should be provided at the junction prior to the treatment.
4. Each DPC should be placed in correct relation to other DPC so as to ensure complete and continuous barrier to the passage of water from floors, walls or roof.

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