

Dear Friends,

Season's Greetings! We would like to wish all of you a very happy and prosperous New Year. We extend our sincere thanks and gratitude to the readers who have already enriched and encouraged us with their valuable suggestions, advises and requests.

In this issue, we shall continue with inputs for good home building and related aspects. Apart from that, we shall be presenting a beautiful write-up on shrinkage in concrete. We shall discuss on damp/water proofing of foundations, basements, etc.

Hope you enjoy reading and keep giving your valuable feedbacks and suggestions for further improvement. Keep well, keep safe.

Damp-proofing The Outside Foundation Walls

Most of the constructions, these days, are treated with some sort of **damp-proofing** or other.

However, wet, damp or leaking basement walls are a burning issue in most of the structures. The two reasons being; improper method and faulty selection of materials. Many a times, people tend to fall in the trap of cost and expenditure vs. service life, effectiveness and performance. The materials commonly used to check dampness can be divided into the following three categories:

1. Flexible Materials: Bitumen felts (which may be hessian/fiber/glass fiber based), plastic sheeting (polythene sheets), etc.
2. Semi-rigid Materials: Mastic, asphalt, or combination of materials or layers.
3. Rigid Materials: Stones, slate, latex/IWPC fortified cement concrete, etc.

In the yesteryears, damp-proofing of a basement wall was a process that involved using a tar/asphalt based mixture on the exterior side of basement concrete walls. The goal of damp-proofing is to prevent moisture ingress.

However, these coatings used to fail within years of the

construction. Though these were easy to apply at the time of construction, but difficult to repair later. Applying them is a tricky business... if they're not applied correctly, the black coating will be visible along the soil line. As early as within two years after a home has been built, when damp-proofing products get cured and set, they become rigid and brittle. Hence, cracks form as the concrete expands naturally with changing temperatures and moisture levels. As the concrete expands and cracks, the damp-proof coating is unable to stretch to bridge the openings. This will cause the products to crack and flake off the walls, allowing moisture to penetrate. Hence, nowadays the modern trend, everywhere in the world, is to adopt integral water-proofing, added with durable surface coating with Acrylic based coatings. Latex compound fortified concrete serves the purpose most effectively.



Damp-proof Course (DPC) is generally applied at the plinth level which restricts the capillary movement of moisture through walls and floors. Selection of materials for damp-proof course and its various methods of applications in buildings is discussed. An effective DPC must have the following attributes:

1. It should be impervious.
2. It should be strong and durable, and should be capable of withstanding the dead and imposed loads on the walls.
3. It should be dimensionally stable.
4. It should be free from all detrimental agents like sulphates, chlorides and nitrates.

Understanding and Preventing Concrete Plastic Shrinkage Cracks

When it forms?

This happens when concrete is in plastic state i.e. before concrete sets.

How it looks?

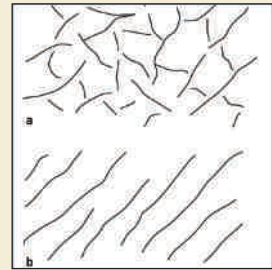
They may be parallel or appear randomly on concrete surface as in the diagram provided.

What causes Plastic shrinkage cracks?

When water evaporates from concrete surface, concrete tends to shrink and generates tensile stress. But being in plastic state, concrete does not gain enough strength to resist this and hence concrete cracks. This generally occurs when evaporation rate is more than 1 kg/m²/hr.

How to minimise the plastic shrinkage cracking?

- The best way is to minimise the evaporation rate just after finishing by spraying curing compound or water mist on concrete surface.
- Remember, water ponding on surface after concrete is set will not help to prevent plastic shrinkage crack.
- Using fiber or fiber cement like Duraguard Microfiber help to minimise the crack.
- Slower screeding rate and delayed trowelling can reduce the extent of plastic crack.



Health, Safety and Environment

At Nuvoco, we consider it our inherent responsibility to provide a safe and healthy working environment for all our stakeholders. We consider ourselves custodians of the safety practices that we have built over the years and will maintain, and even improve over them. Taking care of our environment and maintaining a balance is also an important part of our values and vision. Our goal is ZERO HARM – for our people, our associates. From labourers to employees to our customers and the environment, the safety of all these elements is taken under consideration, under all circumstances and situations.



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Write-up contributed by panel of experts from our Construction Development & Innovation Centre, Mumbai.

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