

# Study of Waterproofing System in Construction Industry

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**Abstract**—Building Construction involves drawings estimations, workmanship, proper maintenance and the natural factors of a project /building is so called as a successful project. It should match the entire above mentioned characteristic. A building is a human made structure used for supporting various benefits of human society. Construction quality is the major factor and important task to deal with and avoid before time degradation of a structure. Water related problems are the silent killers and playing a virtual role of a maintenance and durability of the building. Every building can be preferred as it also addresses the problems of maintenance involved apart from the natural factors occupancy load water is the prime source of degrading or harming a structure. Right from basement to the plaster level the structure should protect water related problems.

**Keywords** — construction damage, prevention water proofing

## I. INTRODUCTION

This is about the construction, damage, prevention and water proofing. Water proofing is a process designed and prevents water from penetrating in to the structure. It is done in various methods and stages to stop water penetration in to the structure. The structure is water proofed by various methods from the footings to top levels of a structure as well, membrane and protective coatings are one of the main and compatible methods to protecting In structure integrity. This stage is called building envelope. Therefore the compatibility of materials, their interaction, connect of the building enclosures altogether also judge the performance of the building. The performance may separate by the weathering factors and water, rain water; drainage outlet plays the major role. Water proofing gives protection from the weathering chapters, seepages. Leakages and vertical travel of water in a structure and the well protected by the application of water proofing system. Modern water proofing system is deal with gushing waters seepages porosities joint leakages protective coatings membrane coating, structural penetration natural stone protection membrane coating. Various and specific coats of certain

properties of chemicals allows the process of multiple tasks with ease of the par ell effect of energy conservation occurs because of the use of the material involved in the process. This largely includes the codes and external wall and floors of weathering characters. Water proofing system can also be stated structural protection and rehabilitation or renewable engineering, because of it multi action ability and important. its not a process system to implement into structures it holds the dignity in grading the site. Grading refers the identification control, and significant. Water proofing system is a technique applicable not only to the building envelop as a whole, it is a specific part of structure.

## II. OBJECTIVE

- To study the problems of the water related problems this is damaging buildings and causes.
- To study the protective coatings and coal tar epoxy coatings for water proofing.
- Implementation of membrane coating of polymer water proofing system and analysis.
- Complete water proofing solutions.

## III. LITERATURE REVIEW

### A. Sealant joint rehabilitation Paul C lanteri (2003)

- Discussing about important of the sealant material used in high rise structures & long structures.
- Describes about the methodology, uses, durability.
- Action to correct any of the original design and/or installation flaws.

### B. Armenian and European methods of tunnel waterproofing Margaryan Aram (2016)

- The article discusses traditional Armenia and European water proofing concepts in context of finding solutions for future American tunnels.
- The main purpose is to prevent lowering of the ground water table and to enable a

safe construction process & reduction of seepages in finished tunnels.

- Discussed about sheet membrane, Grouting, water tight concrete and grout injection. And traditional way of preventing ground water.

**C. Waterproofing systems in building construction Dr.R.K Pandit (2014)**

- Waterproofing systems in building construction.

**D. Concrete waterproofing with crystalline technology Stanley Stark(2012)**

- To study the crystalline chemicals improve concrete durability, lower maintenance costs, and extend building life cycle.
- Understand how crystalline technology works with concrete to provide high performance water proofing qualities.
- The porous and permeable nature of concrete.
- Methods and procedures of crystalline water proof coating applications, admixture.

**E. Influence of polymer fibre on strength concrete TomasU.Ganiron (2013)**

- Studied about polymer fiber as a admixture for concert.
- Various behaviors of admixtures like, corrosion inhibitor, air entertaining agent & damp proofing.
- Experimental investigation of with fiber & without fiber in concert.

**F. Site-testing of water proofing chemicals for concrete structures Punit kumar Jha (2015)**

- Studied about the water proofing chemical & the strength and durability of concert.
- Used water proofing compound, specimens prepared and tested for permeable, flexural, compressive strength.
- Observations on the porosities after 28 days curing.

#### IV.METHODOLGY

##### *Steps involved in methodology*

*Step1:* Visit the Site And Locate The Problems And Causes.

*Step2:* Identify the root cause of the problems and selection of methods.

*Step3:* Selection of products according to the site condition and methods.

*Step4:* Application technology with method and products.

*Step5:* After finish the application, recheck the problems.

*Step6:* Finished with plastering.

#### V. STUDY ON WATER PROOFING

##### **A. Water proofing**

Protection to prevent water entering into internal and external building structures like toilets swimming pools , water tanks , retaining walls, roof , underground structures.

##### **B. Damp proofing**

Treatment to a surface to resist the passage of waters in areas like foundations exterior walls metal surfaces metal stairs.

##### **C. Causes of leakages and dampness**

- Natural factors
- Rain waters
- Drainage systems
- Plumbing
- Electrical workmanship
- Poor workmanship
- Structural designs
- Construction joints
- Roof joints
- Porous
- Underground waters
- Doors and ventilation points
- Carbonations areas(seashores)
- Corrosions
- Site inspection

##### **D. Conventional**

1. Box type water proofing
2. Brick batcoba

##### **E. Modern Technology**

- Admixtures
- Membrane coatings
- PU coating
- Bitumen coating
- Polymer coating
- Elastomeric water proofing
- Protective coatings
- Grouting system (positive and negative)
- Insulted coating with water proofing
- Cementations water proofing
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### F. Types of water proofing

- Basement of structure
- Walls
- Bathrooms and kitchen
- Balconies, decks
- Terrace or roofs
- Green roofs
- Water tanks
- Swimming pools

### G. Benefits of water proofing

- Increased durability of concrete structures
- Reduce chemical attack
- Cost reduction in maintenance
- Prevents growth of dangerous mould

## VI. PROCESS OF WATER PROOFING

Water is done in layers on the structure or roof, with breathing property which avoid seepage or leakage water into the structure. Generally water proofing membrane repels water from the structure and it form a protective layer as laminated film water proofing system is done by creating barriers to stop the root of penetrating the water in to structure. This development of layers done by water proofing materials and technology can create and envelop around the straight building.

A water proofing material mixed with polymer fillers and UV rays which give environmental changes in temperatures in internal structures this can be done various application paints and insultec coatings.



Figure 6.1 shows the application of water proofing.

## VII. IMPORTANT OF WATER PROOFING

The important of water proofing in projects or buildings mainly to prevent the water dampness and leakages which spoils the structures. It reduce the maintains of the building moisture control and give a envelope of the building.

## VIII. CONCLUSION

The problems are detected from literature review and along identified attributes based on employing problems. From the field survey and the experimental search few conclusions make about water proofing system and materials currently used in the roof tops. As we understand that selection of type of water proofing to a particular application depend on the location, cost and exposure condition there should be special care taken on the selection of material for a new construction of forecasting problems.

From over all study and field survey we can understand preventing water leakages can be measured in two types of application. 1.during the construction 2.After the construction.

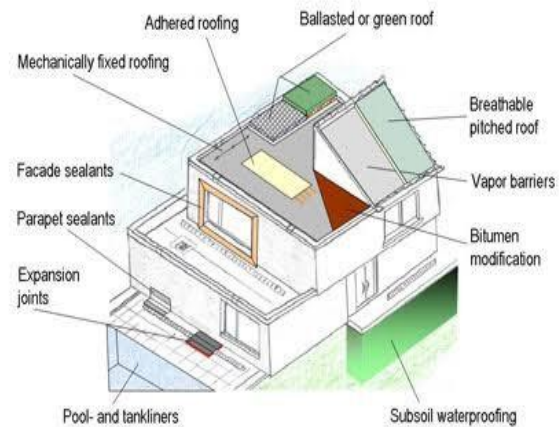


Figure 8.1 shows the water proofing of the building elements.

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