



# **SNS COLLEGE OF TECHNOLOGY**



**AN AUTONOMOUS INSTITUTION**

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**COIMBATORE**

## **DEPARTMENT OF CIVIL ENGINEERING**

**19CEB201 – CONSTRUCTION MATERIALS**

**II YEAR / III SEMESTER**

**Unit 1 : Stones – Bricks – Building Blocks**

**Topic 6 : Preservation of Stone Work**



# Preservation of Building Stone

## (1) Compact Silicious Stones:

It is desirable to use only compact silicious stones for the external surfaces of important buildings. These stones must have a dense crystalline texture. The use of sandstones cemented with silicious binding material should be made and use of lime stones or calcareous sandstones with open texture should be avoided for the external surfaces in industrial towns.

## (2) External Renderings:

For ordinary buildings, the external renderings such as pointing or plastering should be given to the stone surface at the time of construction.

## (3) Joints:

All the joints in the stone masonry should be completely filled in so as to have a sound and solid structure without hollows or cavities.



# Preservation of Building Stone

## **(4) Natural Beds:**

The stones should be placed in position on their natural beds.

## **(5) Qualities of Stones:**

The use of finished, polished and well-dressed stones should be preferred to the rough stones.

## **(6) Seasoned Stones:**

The freshly quarried stones contain quarry sap which accelerates the decaying action and hence such stones should be seasoned for a sufficient time by exposing them before they are placed in position.



# Preservation of Building Stone

## **(7) Size of Stones:**

It is advisable to employ large size stones as far as possible to minimize the number of joints which are signs of weakness and through which water or moisture gets easy entry.

## **(8) Washing with Water:**

The exposed stone surface should be kept as clean as possible and for this purpose, it should be washed with water at regular intervals.



# Preservation of Building Stone

**An ideal preservative has the following properties:**

- (i) It does not allow moisture to penetrate the stone surface.
- (ii) It does not develop objectionable colour.
- (iii) It hardens sufficiently so as to resist effects due to various atmospheric agents.
- (iv) It is easily penetrated in stone surface.
- (v) It is economical.
- (vi) It is non-corrosive and harmless.
- (vii) It remains effective for a long time after drying.
- (viii) Its application on stone surface is easy.



# Preservation of Building Stone

**Following are the preservatives which are commonly adopted to preserve the stones:**

## **(1) Coal Tar:**

If coal tar is applied on stone surface, it preserves stone. But the colour of coal tar produces objectionable appearance and surface coated with coal tar absorbs heat of the sun. Hence this preservative is not generally adopted because it spoils the beauty of stones.

## **(2) Linseed Oil:**

This preservative may be used either as raw linseed oil or boiled linseed oil. The raw linseed oil does not disturb the original shade of stone. But it requires frequent renewal, usually once in a year. The boiled linseed oil lasts for a long period, but it makes the stone surface dark.



# Preservation of Building Stone

## **(3) Paint:**

An application of paint on stone surface serves as a preservative. The paint changes the original colour of stone. It is applied under pressure, if deep penetration is required.

## **(4) Paraffin:**

This preservative may be used alone or it may be dissolved in neptha and then applied on stone surface. It changes the original colour of stone.

## **(5) Solution of Alum and Soap:**

The alum and soft soap are taken in proportion of about 0.75 N and 0.50 N respectively and they are dissolved in a litre of water. This solution, when applied on stone surface, acts as preservative.



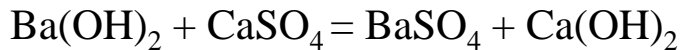
# Preservation of Building Stone

## (6) Solution of Baryta:

A solution of barium hydroxide  $\text{Ba}(\text{OH})_2$ , when applied on stone surface, acts as a preservative.

This preservative is used when the decay of stone is mainly due to calcium sulphate,  $\text{CaSO}_4$ .

Following chemical reaction takes place –



The barium sulphate is insoluble and it is least affected by atmospheric agencies. The calcium hydroxide absorbs carbon dioxide from atmosphere and forms calcium carbonate  $\text{CaCO}_3$  which adds to the strength of stone.





***Thank You!!***