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Sand lime bricks using level raw materials

Cement mortar and concrete are used extensively to construct foundations of buildings, load bearing walls, columns and beams, partition walls, concrete roofs prefabricated columns and beams, partition walls, concrete roofs, prefabricated columns and beams and a host of other activities such as plastering of walls, paving of floors of floors and the like. In many instances steel is used as the reinforcing material. Cement mortar and concrete have surface porsity as well as internal porosity. Most of the components made out of cement are exposed to natural elements. Acidic, alkaline as well as saline solutions of water, resulting from rain, dew, sea breeze and ground water can seep into these pores and chemically attack the cement as well as the steel reinforcement. This process, if not controlled, could adversely affect the strength and the life span of the building.

Surface waterproofing of cement mortar and concrete could minimize the surface porosity, thereby minimizing the absorption of water and hence, the chemical attack on the cement as well as the reinforcement steel. This paper presents results of research conducted on surface water proofing of cement mortar and concrete by applying inorganic and organic chemicals on the surface. The inorganic chemicals that have been tested are aqueous solutions of calcium chloride (cc), sodium silicate (SC). The organic chemicals that have been tested are solutions of alkyd resin (AR), microcrystalline wax (MW) and paraffin wax (PW).

Test results indicate that surface water proofing can be achieved by application of these chemicals. However, the durability of the water proofed surface can be ranked as follows, where rank 1 gives the highest durability.
Rank 1: Non-aqueous solution of MIcricrystalline Wax (MW), Rank 2: Non-aqueous solution of paraffin wax (PW), Rank 3: Aqueous solution of calcium chloride (CC), Rank 4: Aqueous solution of sodium silicate (SS), Rank 5: Non –aqueous solution of alkyd resin (AR).