

Curbing accelerated deterioration of structures built in corrosive environments

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Deterioration of a structure basically entails a significant loss in its structural strength. Corrosive environments not only arise due to local conditions-climate/environment but also from the presence of corrosive pollutants. Corrosive environment may be categorized as industrial, marine, rural and indoor.

For a tropical country like Kenya with a vast coastline and many agricultural-related industries, there are a variety of corrosive environments which can be studied. About two dozen structures spread across these different corrosive environments were sampled. Data collection tools employed were case studies, checklists, surveys and questionnaires.

A major finding was that for a corrosive environment to cause deterioration of a worrying magnitude there is usually a lengthy build-up. Improper use of a built structure and accumulation of pollutants may occur during occupancy. Early detection of deterioration if any is vital; hence assessment of soundness of a structure should be done during or immediately after construction. Mitigation is effective in the long term if it halts continuity of the defect without exerting extraneous strains/ stresses.

Combative methods to curb accelerated deterioration should be employed even before construction materials are delivered to site. Effective project planning tools are recommended. Design of structure should be professionally executed and certified with elaborate details. Advanced building technologies should be explored and adopted in place of conventional technologies.

An informed, non-biased analysis of the hydrological and geological records of a particular site should be conducted prior to commencing construction. Construction personnel should be well trained to ensure that all construction materials brought in are properly tested for compliance and certified where necessary. Whilst adopting advanced technologies, building construction fundamentals such as lighting, ventilation and drainage shouldn't be abandoned. In ensuring the longevity of structures better utilization of natural resources is instilled, whence construction materials are derived.