

Durability of high performance concrete.

Hamoud Abdulrab Mohamed Beshr

Civil Engineering

June 2000

Abstract

Concrete structures in the Arabian Gulf region exhibit severe deterioration within a short period of time. The reduction in the useful-service life of these structures is mainly attributed to chloride-induced reinforcement corrosion. In such environments, concrete should be designed for durability rather than for strength alone. Among several alternatives to solve the corrosion problem, one solution is to improve the quality of concrete. While some studies have been conducted on concrete durability in the Arabian Gulf environment, data are lacking on the mechanical properties and durability of high performance concrete produced using local aggregates. Furthermore, the effect of thermal variations, normally noted in the Arabian Gulf, on the brittle nature of high quality concrete is not known.