

Causes of Structural Degradation:

Concrete cooling tower are designed to work for very long time periods. Some of these have been working for last 50 years. However with continuous use, corrosion, damages timely upgradation is required. Structural degradation of cooling tower is attributed to many reasons, which are:

- **Ageing:**

Cooling tower is directly exposed to sun, wind and rains. These natural force directly impact the strength of concrete. With time there are cracks, corrosion of rebars, broken structural members etc.

- **Corrosion of Reinforcement:**

Reinforcement bars are attacked by electrolytes dissolved in water especially sea water.

- **Poor workmanship during construction:**

Poor construction management and use of poor grade of concrete impacts overall life of cooling tower. Incorrect mixing of concrete, admixture, aggregate often leads to poor strength quality. Apart from this uneven coating of Reinforced structure by concrete ultimately exposes reinforcement rebars from one side.

- **Damages due to accident:**

Often heavy equipments due to some accident while construction or maintenance fall on the structure and damage it. This damage becomes the starting point of structural degradation. Once there is any such damage to column or foundation, that error always persists and coupled with vibrations it aggravates with time.

- **Excessive load on members:**

Due to clogging of fills, its weight increases to double or treble. This increase in the weight is to be managed by original load bearing members which often is inadequate for increased load. Result is sagging of fills and broken beams.