GLOSSARY OF TERMS

**Aggregate:** Sand and gravel mixed with cement and water to make concrete.

**Bogue calculation:** Calculation to give the approximate proportions of four main clinker minerals in Portland cement.

**Bleeding:** A form of segregation in which some of the water in a mix tends to rise to the surface of freshly placed concrete.

**C₂S:** Dicalcium silicate

**C₃A:** Tricalcium silicate

**C₃S:** Tricalcium silicate

**C₆AF:** Tetracalcium aluminiferrite

**Cement clinker:** Portland cement clinker is unground (unmilled) nodular product from the Kiln.

**Cement hydration:** Process of reaction of cement with water.

**Cement:** Hydraulic powder which reacts with water to form a solid mass

**Cis arrangement:** The cis configuration arises when substituent groups are on the same side of a carbon-carbon double bond.

**Concrete:** A synthetic rock containing sand and gravel aggregate bonded in a cementious matrix.

**Creep:** Time-dependent deformation of polymers or concrete due to a sustained load.

**C-S-H:** Calcium silicate hydrate

**Drying shrinkage:** When excess of water is added to cement than needed to hydrate the cement, much of the remaining water evaporates, causing the concrete to shrink.

**Efflorescence:** Efflorescence is a deposit of white salts left on a surface when a solution containing the salts leaches from concrete or masonry and then evaporates.

**Ettringite:** Needle like crystalline compound produced by the reaction of C₃A, gypsum, and water within a portland cement concrete. Formula is C₃A.₃CaSO₄.₃₂H₂O
**Flash set:**
This occurs when excess of soluble sulphate is available in the mix water during the mixing process.

**Freeze thaw:**
When water freezes, it expands about 9%. As the water in moist concrete freezes, it produces pressure in the pores of the concrete. If the pressure exceeds the tensile strength of the paste or aggregate, the cavity will dilate and rupture. The accumulative effect of successive freeze-thaw cycles and disruption of paste and aggregate eventually causes significant expansion and deterioration of the concrete.

**Fresh concrete:**
This is concrete that has been recently mixed and is still workable and plastic.

**Grout:**
Mixture of cementitious material with or without aggregate or admixtures to which sufficient water is added to produce a pouring or pumping consistency without segregation of the constituent materials.

**Leachability:**
The percolation of matter on exposure to various environments.

**Mortar:**
This is a mixture of sand, cement and water.

**Portlandite:**
Ca(OH)$_2$ this is formed in regions in concrete initially occupied by water on mixing. It is denoted by CH.

**Pozzolana:**
These are predominantly siliceous and do not react with water alone but react with lime and water to produce calcium silicate hydrate.

**Spalling:**
This is the breaking of layers or pieces of concrete from the surface of a structural element when it is exposed to the high and rapidly rising temperatures experienced in fires.

**Water/cement ratio:**
This is defined as the weight of water in a mix divided by the weight of cement. It is denoted by W/C.

**Workability:**
This is the property of freshly mixed concrete, mortar or paste which determines the ease and homogeneity with which it can be mixed, placed consolidated and finished.