8. BULKAGE & SILT CONTENT OF FINE AGGREGATE.
(IS : 2386 – PART – 3)

INTRODUCTION:

Sand brought on to a building site or other works may contain an amount of moisture, which will cause it, when loosely filled into a container, to occupy a large volume than it would occupy if dry. If the sand is measured by loose volume, it is necessary in such a case to increase the measured volume of the sand, in order that the amount of sand put into the concrete may be the amount intended for the nominal mix used (based on dry sand). It will be necessary to increase the volume of sand by the 'percentage' bulking. The correction to be made is only a rough approximation because the system of measurement by loose volume is a rough method at the best, but a correction of the right order can easily be determined and should be applied in order to keep the concrete uniform.

Object:
This method of test covers the field method for determining the necessary adjustment for the bulking & silt content of fine aggregate.

Apparatus:
250ml measuring cylinder, tray and water cane etc.

Procedure:
In a 250ml-measuring cylinder, pour the damp sand (consolidated by shaking) until it reached the 200ml mark. Then fill the cylinder with water and stir the sand well (the water shall be sufficient to submerge the sand completely). It will be seen that the sand surface is now below its original level. Suppose the surface is at the mark 'Y'ml the percentage of bulking of the sand due to moisture shall be calculated from the formula.

$$\text{Percentage bulking} = \left(\frac{200}{Y} - 1 \right) \times 100$$

$$\text{Silt content} = \frac{(X - Y)}{Y} \times 100$$

Where, X = the level of top surface of material i.e., sand + sedimentation of silt.
       Y = the level of top surface of sand layer.

Results: Report the percentage bulking of the sand to the nearest whole number.

Limits: Bulkage and silt content is allow maximum 10%