

### Software for concrete mix proportioning

A computer program has been developed by the Research & Consultancy Directorate of The Associated Cement Cos Ltd, Thane, for concrete mix design. This is as per the requirements and guidelines of IS 456 : 2000 and IS 10262 : 1982.

The program is based on the recommended guidelines for concrete mix design which are provided in the set of tables and graphs given in the IS standard. Parametric regression equations using the linear/non-linear relationship between different variables have been formulated. Based on these equations an attempt has been made to evolve a simple computer program in *MS-Excel*, to aid rapid concrete mix design calculations, even at site by a less experienced person.

The mix design parameters and proportions as obtained from this program have been observed to be similar to those obtained from conventional manual method of mix design.

The program could also be useful to interpolate/extrapolate, the variables involved in mix proportioning to some extent .

Some of the major highlights involved in the methodology of the program are :

- linear and non-linear regression analysis of data

- formulating equations of best fit regression line
- computation of target mean strength of concrete
- water-cement ratio

The validity of the program is for the following :

- concrete mixes without admixture ( for grades M 15 to M 35 )
- four sizes of aggregates namely (10,12.5,20 and 40 mm)
- workability measured in terms of compacting factor (such as very low, low, medium and high)
- three degrees of quality control such as very good, good and fair
- exposure conditions such as mild, moderate, severe, very severe and extreme
- six types of cements from curves A – F

For further details, please contact :

*Mr V K Gore*  
*Manager Research*  
*The Associated Cement Cos Ltd*  
*Research & Consultancy Directorate*  
*CRS Complex, LBS Marg*  
*Thane 400 604.*  
*Tel : (020) 2582 3631/32/5 extn 217*  
*Fax : (020) 2582 0962*  
*E-mail : gore@accement.com*