Circular Water Tank Design by STAAD PRO

ABSTRACT

The present study reports the analysis and design (Response Spectrum Analysis, Frequency Analysis and Time History Analysis) of an elevated circular water tank using STAAD.Pro V8i. The design involves load calculations manually and analyzing the whole structure by STAAD.Pro V8i. The design method used in STAAD.Pro analysis is Limit State Design and the water tank is subjected to live load, dead load, self – weight and seismic loads. Seismic load calculations are done as per IS 1893-2000. Response Spectrum Analysis gives displacement, bending moment, shear force, axial force, and torsion values. Eigen solution so obtained helps in determining the base shear and various peak story shear values of the structure. Frequency analysis gives the natural frequency of the structure and time history, which defines the behaviour of the structure in certain interval of time against various functions like velocity, displacement and acceleration and hence the graphical solutions has been drawn for each analysis.

Index terms: Elevated Water Tank, Frequency Analysis, Response Spectrum Analysis, STAAD.Pro, Time History Analysis