

A New Approach for Monitoring Deformation of Buildings

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Abstract

The two main forms of buildings' deformations are tilt and settlement. The main sources of these deformations are wind, vibration, moving traffic, and foundations' movement caused by either total or differential settlement. The shape and deformation of an object vertical plane which represent the building facade can be determined knowing the space coordinates of a group of points which are well distributed on the required building facade. The space coordinates of these points can be determined using surveying, photogrammetric, or combined technique. The required measurements are the horizontal and the vertical directions to each of these object points from a two theodolite stations setting at a suitable location relative to the object vertical plane. This article gives the best location of the two theodolite stations to obtain the required coordinates with minimum errors.