International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

IJIEMR Transactions, online available on 29th April 2022.
Link: https://ijiemr.org/downloads/Volume-11/Issue-04
DOI: 10.48047/IJIEMR/V11/I04/73

Title: **APPLICATION OF ENGINEERING-GEODEZICHESKOGO METHOD VYSOKOTOCHISTOY GEOMETRICHESKOY NIVELIROVKI**

Volume 11, Issue 04, Pages 457- 460

Paper Authors: *Khusanova Mashkhura Islamovna[1], Omonov Ismail Kholboevich[2], Obidova Dilnoza Davronova[3], Isakov Muyassar Kamilovich[4]*

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

APPLICATION OF ENGINEERING-GEODEZICHESKOGO METHOD VYSOKOTOCHISTOY GEOMETRICHESKOY NIVELIROVKI

Khusanova Mashkhura Islamovna[1], Omonov Ismail Kholboevich[2], Obidova Dilnoza Davronova[3], Isakov Muyassar Kamilovich[4]
Teachers of "Geodesy and cartography" chair of Samarkand state architectural and civil engineering institute[1,2,3,4]

Abstract: There are geodetic and non-geodetic measurement methods to control the change in the deformation of the load-bearing structures of industrial buildings over time, and only with the combined use of these methods can one reliably estimate the movement of buildings and structures as a result of external influences.

Keywords: Determination of the degree of reliable movement of industrial buildings and their supporting structures vertical, horizontal classes of engineering and geodetic measurements

INTRODUCTION

Geodetic substantiation of the displacement of buildings and structures as a result of influences and factors that are not taken into account in the design process has been dealt with by many researchers.

There are geodetic and non-geodetic measurement methods to control the change in the deformation of the load-bearing structures of industrial buildings over time, and only with the joint use of these methods is it possible to reliably estimate the movement of buildings and structures as a result of external influences (both vertical and horizontal).

Non-geodetic methods include a set of factors that allow you to control the change in the position of marks installed on adjacent elements of a building and structure, according to planned dimensions and heights. With this method, the measuring instruments to be taken into account are fixed, leaving them directly on the structures of buildings and structures or near them. These include grooved gauges, clinometers, strain gauges, displacement gauges, crack gauges, deflection gauges, deflection gauges, hydrostatic systems, forks, beacons, and semi-automatic and automatic continuous gauges.

The main method for controlling the development of deformations is the geodetic method. This method allows you to fully control the status of all brands installed at the facility. The geodesic method allows you to capture information about the displacement, displacement, bending of an individual element or elements adjacent to it, while the geodesic method allows you to process results based on given probabilities using methods of mathematical statistics.

There are the following engineering and geodetic methods of deformation control:

- Geometric level to determine the vertical displacement of convenient and open points of structures;
- trigonometric leveling to determine the vertical displacement of open, but inconvenient points of structures;

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

- located on the same horizon, hydrostatic closed closed points;
- hydrodynamic alignment;
- mikronivelirovanie dlya opredeleniya vertikalnogo smeshcheniya udobnyx tochek agregatov i tehnologicheskogo oborudovaniya, raspolojennyx na odnom horizonte (primerno ± 2 mm);
- alignment measurements to determine the horizontal displacement of open and convenient points of the foundation and structure located in a place close to the alignment, in a direction perpendicular to the alignment direction (two objects and a straight line passing through the observation point);
- method of angular or linear-angular microtriangulation (non-diagonal geodesic rectangles, angular and linear-angular offsets) to determine the horizontal displacements of open and inconvenient points;
- polygonometric method for determining horizontal displacements of open and convenient points of foundations and structures.

To determine the movements of load-bearing structures and technological equipment of industrial buildings, it is advisable to use a high-precision geodetic method of geometric leveling.

The method of engineering geodetic measurements is based on a set of actions aimed at measuring specific gravity. The concept of "method" includes a set of requirements for measuring instruments, measurement conditions, structures, observation and reference points, methods for processing measurement results.

Before starting measuring work, it is necessary to select the level (class) of leveling and the method of performing work. Determination of the displacement detection limit requires justification of the complexity of the geodetic surveys being performed. The performance of measuring work without determining the level of accuracy or its quantity in relation to the object (structure) under consideration (monitored) leads to large (irreversible) defects from a geodetic point of view. In this case, it is necessary to take into account the utilization factor of the building or structure in which the measurement is carried out.

Description of the quality of the elements that equalize the equalization schemes for solving this problem π_{CE} the amount must be clearly defined.

The unit of weight is the determining factor in the basic description of the measurement work at the level in question, and this value is determined by the following formula:

$$m_c = \frac{\overline{m_c}}{\sqrt{2\pi_{CE}}} \qquad (1)$$

here: $\overline{m_c}$ – this rapper «c» offset accuracy at the farthest point of the considered network relative to;

π_{CE} – number of measurement results whose weight is inversely proportional to PCE.

The application of the method described in the literature when choosing a class of geodetic leveling to determine the displacements of works [1] gives the expected high-level measurement results.

According to the results of the evaluation of the design and leveling scheme π_{CE} is determined and this determined value is determined by the formula (1) $\overline{m_c}$ unit of

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

weight placed exactly m_c definite. Discovered m_c the quantity is compared with the tabular values in the normative document and the class of engineering and geodetic measurements is determined in relation to the smaller and closest to the calculated value.

π_{CE} to determine the amount, the method of equivalent replacements is used, according to which for a point located at the farthest point of the design scheme $\pi_{CE} = 0{,}59$.

Discovered π_{CE} ва $\overline{m_c}$ we substitute the values into formula (1) and calculate.

By comparing the calculated quantity with the quantities shown in the table, the quantity closest to that quantity $m_c = \pm 0{,}42 мм$ and determine if the geometric leveling class is class II. A certain class II of geometric leveling provides a reliable level of accuracy in measuring buildings and structures and their structures at specified time intervals.

Moving accuracy of the farthest indentation mark or mark in the designed second-class leveling scheme $\pi_{CE} = 5{,}9$ is equal to the following sum

$$0{,}42 = \frac{\overline{m_c}}{\sqrt{2\pi_{CE}}},$$ henceforth

$$m_c = 0{,}42\sqrt{2 \cdot 5{,}9} = 1{,}44 < 2 мм$$

Findings 1. The movement of industrial buildings and their supporting structures (vertical and horizontal) allows you to determine the degree of reliability of the level of migration - the definition of classes of engineering and geodetic measurements.

2. The displacement value determined by this method will be a key factor in determining the performance of buildings and structures and their structures.

Literature:

1. Piskunov M.E Methodology of geodetic observations of deformations

structures. 3rd edition with additions and changes M "Nedra", 2001.178-c

2. Instructions for leveling I, II, III and IV classes. M. "Nedra" 2000. 67-c

3. Mirziyoev Sh.M. Together we will build a free and prosperous democratic state of Uzbekistan. - T .: Uzbekistan, 2016. - 56 p.

4. Mirziyoev Sh.M. Critical analysis should be a strict rule of discipline and personal responsibility - the daily rule of every leader. - T .:

Uzbekistan, 2017. - 104 p.

5. Decree of the Cabinet of Ministers of the Republic of Uzbekistan dated June 30, 2005 No. 152 on the approval of the "Regulations on the procedure for maintaining the state cadastre of communication objects".

6.Decree of the First President of the Republic of Uzbekistan No. PP 1730 “On measures for the further introduction and development of modern information and communication technologies” (March 2012).