ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ
МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН
MINISTRY OF EDUCATION AND SCIENCE
OF THE REPUBLIC OF KAZAKHSTAN

Л.Н. ГУМИЛЕВ АТЫНДАҒЫ
ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ
ЕВРАЗИЙСКИЙ НАЦИОНАЛЬНЫЙ
УНИВЕРСИТЕТ ИМ. Л.Н. ГУМИЛЕВА
GUMILYOV EURASIAN
NATIONAL UNIVERSITY

ЖАС ҒАЛЫМДАР КЕҢЕСІ

Студенттер мен жас ғалымдардың «Ғылым және білім - 2015» атты X Халықаралық ғылыми конференциясының БАЯНДАМАЛАР ЖИНАҒЫ

СБОРНИК МАТЕРИАЛОВ X Международной научной конференции студентов и молодых ученых «Наука и образование - 2015»

PROCEEDINGS of the X International Scientific Conference for students and young scholars «Science and education - 2015»

УДК 001:37.0
ББК72+74.04
Ғ 96

Ғ96
«Ғылым және білім – 2015» атты студенттер мен жас ғалымдардың X Халық. ғыл. конф. = X Межд. науч. конф. студентов и молодых ученых «Наука и образование - 2015» = The X International Scientific Conference for students and young scholars «Science and education - 2015». – Астана: http://www.enu.kz/ru/nauka/nauka-i-obrazovanie-2015/, 2015. – 7419 стр. қазақша, орысша, ағылшынша.

ISBN 978-9965-31-695-1

Жинаққа студенттердің, магистранттардың, докоранттардың және жас ғалымдардың жаратылыстану-техникалық және гуманитарлық ғылымдардың өзекті мәселелері бойынша баяндамалары енгізілген.

The proceedings are the papers of students, undergraduates, doctoral students and young researchers on topical issues of natural and technical sciences and humanities.

В сборник вошли доклады студентов, магистрантов, докторантов и молодых ученых по актуальным вопросам естественно-технических и гуманитарных наук.

УДК 001:37.0
ББК 72+74.04

ISBN 978-9965-31-695-1

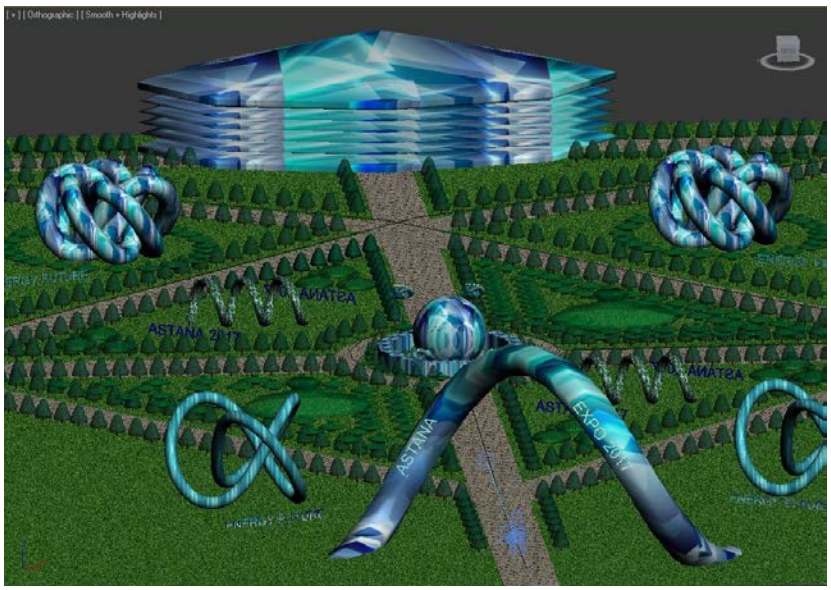


Рисунок 5. 3D - модель объектов «EXPO 2017»

3D - модель не является аналоговой, она представляет лишь схематическую модель, которую в дальнейшем специалист каждой области может подстроить и усовершенствовать в нужных целях производства. По данной модели была создана 3D - анимация, которая может отобразить подробное и наглядное движение по нужной траектории. Данные анимации могут создаваться не только по траекториям имитируя движение человека, они могут представлять как внешнюю так и внутреннюю описательную конструкцию здания, т.е. описывать здание по огибающей его траектории. Данная операция очень уместна при предоставлении проекта заказчику, так как многие объекты и работы по ним могут быть не понятны, не каждый специалист может разобраться в большом количестве отделочных элементов, к примеру, не говоря уже о заказчике, который вовсе может и не быть специалистом в данной сфере. Но отобразив их на модели, заказчик будет полностью осведомлен, и после совершения всех строительных и монтажных работ, реальный объект строительства будет полностью соответствовать 3D - модели, строительство которой, заказчик подтвердил ранее.

В целях развития отраслей геодезии и строительства, я бы хотела предложить создание таких 3D - моделей для всех объектов строительства, независимо от масштабности объектов, объекты ли это «EXPO 2017» или же простой обычный жилой дом.

Список использованных источников

1. https://ru.wikipedia.org/wiki/ - электронный ресурс
2. Основные направления развития современной картографии // Атоян Р. В., Атоян Л. В. Геодезия и картография. 2002. № 3. С. 156с.
3. Технологии 3D моделирования для создания образовательных ресурсов: Учебное пособие. Меженин А.В. Москва 2008г. 210с

UDC 528.48:69:001

FEATURES OF THE DEVELOPMENT PROJECT OF SURVEYING

Adilkhan Aiman Duissenkyzy
aimashik_ast@mail.ru
Master of the department of geodesy and cartography, Faculty of architecture and construction,
L.N.Gumilyov Eurasian National University, Astana, Kazakhstan

Scientific adviser – Igilmanov A.A.

Modern construction is characterized by a significant increase in accuracy of construction and installation works, and therefore the accuracy of geodetic works in the construction business.

Quality geodetic software helps to expedite the implementation of building and construction operations, and improve the quality of work, which ultimately reduces construction time.

The tall buildings and the construction of the building in a certain technology sequence, which establish the design production installation work depending on space-planning and design of constructed objects.

Organization of surveying in the construction of high-rise buildings is inextricably linked with the technology of the construction. The same site surveying can simultaneously be carried out different units depending on the volume of construction and the main stages of the works.

Consider the basic tasks of Geodesy at all stages of construction:

I. The tasks associated with the planning and preparation of the construction:

1) engineering and geodetic survey of building sites; make other kinds of geodetic engineering activities necessary for the design of buildings;

2) geodetic calculations in the design documentation of the object:

a) geodetic preparing the project for bringing it to the terrain;

b) horizontal and vertical planning; calculations of areas and volumes of excavation.

II. Tasks involved in construction:

1) marking works: and the establishment of a geodetic.

b) axis bearing-out in nature of basic facilities in a detailed breakdown;

2) installation verification geodetic constructions and technological equipment.

III. Tasks related to supervision of construction and reliable operation of construction projects:

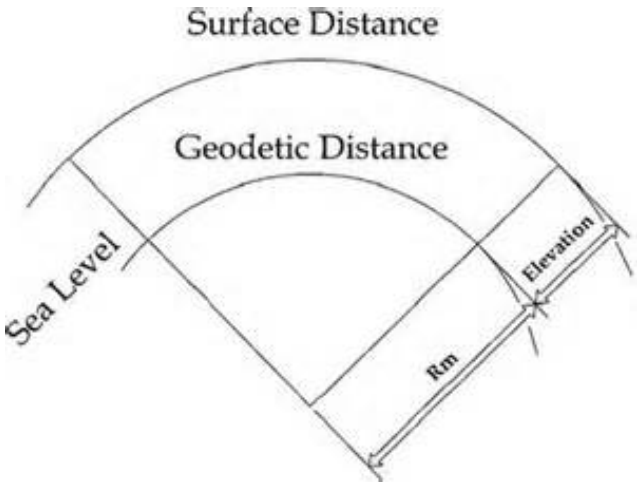
1) Executive surveys of parts of constructions and buildings in General;

2) observation of deformation of buildings and their grounds (1).

Geodetic works are designed to solve the most complicated engineering tasks. To facilitate this activity creates a draft, which stipulates the content of this type of work, methods of conducting the necessary technical means, as well as deadlines. The project of surveying is a prerequisite for building any fortifications.

And so consider the stage of survey software for the design and preparation of the construction of a unique or technically complex object.

First, is to be prepared the project of surveying, containing both the justification of decisions taken and a description of process chains and components of their manufacturing operations. If any process is conducted on a standard methodology, the project of geodetic works must contain a reference to the regulatory or advisory and summary recommendations for the use of a standard methodology. If there is a need for a non-standard solution, the rationale for the decision should be available for engineering and operations staff, and the description of the technological procedures — directly to performers. If all decisions are within the standard techniques specified in normative and project documents, the project of surveying can be replaced with a program that contains a list of known technological procedures and processes, and described their relationship during the construction of this facility. If all steps are standard, and there is no need for further elaboration, the document can be reduced to a simple rule for execution of works. Naturally, the last option is the most preferred, both economically and from an organizational point of view (gradually as experience is gained in the project of surveying really will shrink and they will become easier to work program, which, in turn, will come to rule). Unit description should be prepared by the sponsors in the development project of surveying and stored in the Organization, the Executive Director of geodetic works. When issuing a technical project for the development of a new project of surveying to put descriptions of tried at work solutions.



Secondly, the acquisition by the executing organization of new measurement technology (or technologies) makes it necessary to its development. Therefore there is a need for guidance on the use of a device, equipment or technologies that do not have duplicate user guide, and should describe the technological procedures, focused on this particular production. But creating guides is usually impossible for specialists working directly for the construction of geodetic, so it seems appropriate to order the work of specialized organizations (at the same time, the most current version and fine-tuning to those workers that are addressed to this guide).
Thirdly, there is a need to create standard forms of documents (paper and electronic)to commit the results of geodetic measurements and builds running in the process of construction. In addition, it is necessary to standardize the procedure for the preparation of reports and documents of related construction units. The lack of order in this matter may lead to serious shortcomings in the assessment of the real situation on the ground (2).

In developing this project, it becomes a brief general contractor, used all the technical documentation of the object. The content of the project of surveying is with all the parties listed in the document. It should be noted that the project of geodetic works directly connected with the project of construction and installation works. So if you make changes to one of them, appropriate amendments made in the other.

The finished project production of geodetic works contains a full volume of information on Geodetic works that were carried out during the preparatory phase. The project revealed the essence of processes concerning the center network facilities on the site, is provided for each cycle providing geodetic construction work.

Geodetic security area where construction provides for the study and analysis of the terrain. When this is done, the field verify the existence or absence of geodetic framework, it turns out the possibility of its use. In the course of surveying a catalogue of heights, where their coordinates. The result of this stage, become generalized data conducted by research. They are presented in the explanatory memorandum attached to the project of geodetic works.

One of the sections of the project of geodetic works organization devoted to surveying and reveals their technological schemes. The land survey, which indicated the champion on this site, as well as the number of workers who will be involved in geodetic works. In the project of surveying must have a schedule and cost estimate, necessary means, a list of materials and background. Must be considered and the question of safety.

High rise buildings or high-rise complex geodetic works includes the following species:

-the establishment and control of the center of planned high-rise building basics;

-breakdown and axes on the Foundation slab and the underground part of the building;

-the center of each floor;

-geodetic control planning and verticality of high-rise buildings, walls and colon of elevator shafts;

-the transfer of marks on the horizon;

-removal of design marks under the mortgage details;

-Executive surveys floors;

-geodetic monitoring in the construction process (3).

Geodetic works in construction are running in a particular scope and with the specified precision, ensures conformity of geometric parameters of constructed facilities requirements of the building regulations.

When designing the project of geodetic works need to be guided by rules and regulations. Regulation of geodetic works in construction to ensure unity of geodetic measurements, calculations and builds as the drawings, and on the ground. Basic means of regulating work is the establishment of building codes and governmental standards.

Determining the accuracy and methodology of surveying for construction of buildings with geometrical parameters, is one of the major challenges that must be addressed in practice of geodetic works in construction. The project of surveying by the above standards will ensure high-quality construction.

References:

1. T.I. Hametov, Geodetic providing design, construction and operation of buildings, structures, Moscow, publishing house of the ACB, 2002.

2. J.A. Sundakov, geodetic works in the construction of large industrial buildings and high-rise buildings, Moscow, Nedra 1980

3. SNIP RK 1.03-26-2004 GEODESIC works in construction.

УДК 528.624.131

НАБЛЮДЕНИЯ ЗА ОСАДКАМИ ВЫСОТНЫХ ЗДАНИЙ В Г. АСТАНА

Балахметова Токжан, Мурат Анар

ms.togzhan-92@mail.ru

Магистранты кафедры «Геодезии и картографии», Евразийского национального университета им Л.Н. Гумилева

Научный руководитель – к.т.н., профессор Игильманов А.А.

Слово «деформация» произошло от латинского слово «*deformatio*» и означает искажение, изменение формы. Под термином *деформация* понимают изменение формы объекта наблюдений. Деформация зданий и сооружений это изменение пространственного положения точек сооружения, его частей или всего сооружения в целом. В геодезии принято рассматривать деформацию как изменение положения объекта относительно какого-либо первоначального. Различные виды деформаций зданий и сооружений возникают вследствие их конструктивных особенностей, природных условий и деятельности человека.

Здания и сооружения на грунтовых основаниях могут смещаться в горизонтальной плоскости, что называется *сдвигом,* или смещаться по вертикали. Такие смещения, направленные вертикально вверх называются подъёмами, а вниз – *осадками*. Кроме того, в результате неравномерно протекающих по периметру сооружения осадков его основные плоскости могут наклоняться. Такие наклоны называются *кренами*.[1]

Для изучения деформаций в характерных местах сооружения фиксируют точки и определяют изменение их пространственного положения за выбранный промежуток времени. При этом определенное положение и время принимают за начальные. Опорные знаки являются основой для определение положения деформационных знаков. Их закрепляют с условием стабильности и длительной сохранности. Осадочные