INTERNATIONAL SCIENTIFIC-PRACTICAL SEMINAR-MEETING "MODERN METHODS OF ENGINEERING PROTECTION OF BUILDINGS AND STRUCTURES AGAINST EARTHQUAKES AND OTHER DYNAMIC EFFECTS"

February 12 - 13, 2024

Kazakhstan, Almaty

The seminar-meeting was held within the framework of the joint plan of the organizers on personnel training and a set of events dedicated to the 90th anniversary of the establishment of Satbayev University – the first technical university of the Republic of Kazakhstan.

The organizers of the seminar-meeting were: K.I. Satbayev Kazakh National Research Technical University (Satbayev University, Kazakhstan), Federal State Budgetary Institution "Central Research and Design Institute of the Ministry of Construction and Housing and Communal Services of the Russian Federation" (FGBU "TsNIIP of the Ministry of Construction of Russia", Russia), Eurasian Association for Seismology, Seismology, Earthquake Resistant Construction and Protection against Natural Disasters (Eurasian SEISMO Association, Russia - CIS), Association Self-Regulatory Organization "National Association of Specialists and Experts in the Field of Urban Planning, Investment and Construction Activities and Housing and Communal Services" (AS "SROSEKSPERT", Russia).

Aims and objectives of the seminar-discussion of issues related to the development of special methods of engineering protection of objects from earthquakes, wind and other dynamic impacts.

The conference was held in person, with the possibility of remote participation in the online conference using remote technologies, with live broadcasting on YouTube channel(EURASIAN INNOVATION FORUM 'ACTUAL PROBLEMS OF BUILDING AND SECURITY OF CITYS' (youtube.com)) and the Internet portal - http://grad-info.tv.

The program of the seminar-meeting was formed with the support and participation of leading scientists and specialists-representatives of scientific and educational departments of the Ministry of Science and Higher Education of the Republic of Kazakhstan, the Ministry of Industry and Construction of the Republic of Kazakhstan, the Eurasian

SEISMO Association and the International Union of Structural Engineers (Representative Office in the Republic of Kazakhstan).

The seminar-meeting for two days was attended by well-known scientists, managers and specialists of enterprises-manufacturers of vibration and seismic isolation systems, teachers, doctoral students and master students of universities, bodies of expertise and construction supervision, scientific, implementation, design, construction organizations, other interested persons from the CIS countries. Total 126 participants, including 73 of them by remote participation.

The scientific and practical part of the seminar was held on February 12, 2024.

Bakhyt Zhautikov, Satbayev University's Vice-Rector for Academic Affairs, who opened the workshop, emphasized that the topic of the seminar related to the construction and reconstruction of buildings that can withstand seismic events is very relevant to ensure seismic safety of cities and towns in Kazakhstan. The relevance of the discussed problem on the protection of cities and buildings in seismic zones is proved by the recent series of strong earthquakes in Eurasia.

Rustam Akbiev, Head of the Department of Integrated Urban Safety of FGBU "Central Research Institute of the Ministry of Construction of Russia" and Vice-President of the Eurasian SEISMO Association in his message noted that only joint work of all CIS countries and organizations and scientists interested in it can ensure such safety.

The moderator of the first day was *Mirken Abakanov*, a well-known scientist, Doctor of Technical Sciences, S.Sc., international expert, Vice-President of Eurasian SEISMO Association, Corresponding Member of IIA and NIA RK, Honorary Builder of Kazakhstan.

International experts from Russia, Kazakhstan, CIS countries shared the results of experimental-theoretical research and new structural solutions, experience in the application of seismic isolating structural solutions in practice and discussed further steps to develop the theory and practice of earthquake-resistant construction.

Victor Kostarev, Ph.D., President of LLC "CVS" (Russia, St. Petersburg) presented real estimates of the effectiveness of horizontal seismic protection systems based on world experience, also presenting modern systems of spatial (3D) seismic isolation and vibration damping.

Mikael Melkumyan, PhD, professor, academician, president of the Armenian Association of Earthquake Engineering shared his experience, achievements and results of application of seismic insulation in the foundation part and in the cover for seismic modernization and protection of existing buildings in Armenia.

Olga Nazartseva (Pavlodar, Kazakhstan) presented the products of GERB company from Germany, as an official representative of this company shared her own experience of its application in Ekibastuz to solve the issues of vibration isolation within a specific production.

Boris Kim (Kazakhstan, Almaty) presented developments related to the technology of "SBC-SKF" (Prefabricated Rigel-Free Frame with seismic-isolating kinematic foundations) with magnetic dampers.

The report of Dr. *Alexander Kultsep* from LLC "CVS" (Russia, St. Petersburg) aroused great interest and resonance, where he presented data on comparative analysis of seismic isolating supports (spring, rubber-metal, pendulum, kinematic), on evaluation of efficiency and influence of damping on the example of refined calculation analysis.

Alexander Gornostaev, Chief Specialist of the Department of Structural Reliability and Safety of Facilities (FAU "Glavgosexpertiza Rossii", Russia) shared his experience in the expertise of projects of new construction and reconstruction of facilities using seismic response control systems.

Dmitry Glazkov, PhD, Chief Designer (JSC "Giprozdrav" Russia) in a joint report with *Alexey Kolesnikov*, Technical Director of LLC "Lira Soft" on the example of specific objects presented solutions of different types of special seismic protection systems implemented in the Russian Federation, shared experience in modeling and calculation of buildings with seismic isolation and dynamic response control systems.

Stanislav Shulman, General Director of LLC "SK-5", (Russia, St. Petersburg) presented author's developments of seismic protection systems for buildings and structures, which have been implemented in Russia, Kazakhstan and other countries.

The scientists speaking at the seminar evaluated all the known directions and methods of realization of vibration and seismic isolation, tried to arouse professional interest in the audience to master and apply in practice the methods of earthquake-resistant construction.

In the framework of subsequent discussions and business program were touched upon and discussed the following issues: normative and legal support, technical regulation, standards of application of special systems for engineering protection of buildings and structures in the CIS member states, European Union, other foreign countries; international and national experience of reconstruction of existing facilities, historical and architectural monuments with the use of seismic isolation; analysis of the behavior of objects with the use of special seismic protection systems in real earthquakes and so on.

February 13, 2024 at the meeting chaired by *Bolat Kuspangaliev*, Director of the T.K.Bassenov Institute of Architecture and Civil Engineering, Doctor of Architecture, Academician of MAAM summarized the results of the seminar.

The following decisions were taken at the end of the two days' work:

1. To recognize the work of the seminar as fruitful, contributing to the development of scientific and technical, professional and business cooperation of architects, urban planners, builders, specialists and experts in this field at the international, national and regional levels. To note the high scientific and technical level of reports and speeches.

2. To approve the establishment of the Kazakhstan SESIMO Association and its further development as a national branch of the Republic of Kazakhstan within the Eurasian SESIMO Association on the basis of the T.K. Bassenov Institute of Architecture and Civil Engineering of the K.I. Satpayev Kazakh National Research Technical University (Satbayev University).

3. To charge Kazakhstan SEISMO Association to carry out systematization of data on Kazakhstan scientific school of earthquake-resistant construction with the purpose of its promotion and further development within the united International scientific school "Seismic safety of constructions and cities".

To establish a medal named after T.Zh. Zhunusov "For contribution to the development of earthquake-resistant construction", in order to award representatives of this school and persons contributing to its development.

4. To recommend the Eurasian SEISMO Association to coordinate further development of national Centers of Competence for earthquake-resistant construction and seismic isolation in the EAEU and CIS countries on the basis of the following organizations:

- Russian Federation – FGBU "TsNIIP of the Ministry of Construction of Russia";
- Republic of Kazakhstan – IAS KazNITU named after K.I. Satbaev, which carry out their developments with the participation of partner organizations interested in the development of this area of science and technology.

Initiate a program of cooperation in this direction, which will include joint research, seminars and implementation of innovations.

5. To recommend Kazakhstan SEISMO Association to be actively involved in realization of the following projects:

- development of the Model Law "On Seismic Safety", common for the CIS countries;
- formation of a unified System of standards for urban planning in seismic zones;
- improvement of the structure of normative documents (standards) for design, construction and implementation of special seismic protection systems for buildings, participation in the development of such standards.

6. To recommend the management of Satbayev University to implement the Argentine experience of popularization of seismic isolation as an effective method of increasing the earthquake resistance of buildings, namely, during the construction of three

new buildings to introduce different types of devices, monitoring the use of which in real time will allow not only to study experimentally the experience of their behavior in earthquakes, but also to involve students in real work.

7. In continuation of the initiated work to hold a special thematic session on engineering protection of buildings and structures from earthquakes and other dynamic effects in the framework of the Second Eurasian Innovation Forum "Actual problems of development and safety of large cities" (Kazakhstan, Almaty, June 12–15, 2024).

8. Noting the high usefulness and efficiency of the seminar-meeting, its participants express their gratitude for the high level of organization of the event to the speakers, participants and moderators of the conference.

9. To entrust the organizers to inform the interested executive authorities, municipalities and organizations of the Russian Federation and the Republic of Kazakhstan about the results of the seminar-meeting and the decisions taken.


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