



## DIAGNOSTICS AND TESTING OF TRANSPORT FACILITIES

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**Annotation:** Modern methods of determining dynamic characteristics of structures are described, as well as foreign experience in the field of traumatic, non-traumatic and optical methods of testing material and construction structures are fully illuminated. The main requirements for the diagnosis and testing of Transport facilities are described, the focus on foreign methods of monitoring, diagnostics and testing of transport facilities on the issues of long-term monitoring and Technical Safety.

**Keywords:** construction, construction, bridge, construction, transport, tunnel, engineering.

“In what man builds and builds, I submit to my vital instinct that there is nothing better and more valuable than Bridges” (Ivo Andrich to Man and humanity).

The proud development of construction during the transition period of the whole of mankind from the XX century to the XXI century is associated with a radical increase in the efficiency of construction work, a radical improvement in the quality of the output product, an increase in the level of operational reliability, the rational use of raw materials, the creation of new technologies

Bridge structures are an important and valuable element of the road, the duration of which reaches a hundred years and more. The safe movement and continuous operation of the auto and railway will largely depend on their condition and reliability. In the process of exploitation of bridge structures, various types of injuries occur in them; with the increase in the load on use, some elements of the structures lose the property of receiving heavy loads, and sometimes the change in the conditions of exploitation of Railways and highways leads to the need for their reconstruction. Therefore, the transport facilities that are being exploited davriy need diagnostics and, where necessary, actual testing.

The construction and reconstruction of bridges and other transport facilities is currently considered the most important task, without their solution it is impossible for the development of the state economy. Bridge facilities are one of the most responsible and expensive objects of the transport network. Increased traffic flow requires safe and non-stop operation of the bridge, pier, roadway and other transport facilities at any time of the year, regardless of weather conditions.

Bridges must have high operational reliability. In the complex of works on the maintenance of bridge structures, it is important to evaluate their reliability and load-bearing. To this end, the most modern methods of calculation, the results of experimental research should be used, which are reflected in the relevant sections of the textbook.

However, despite the fact that significant progress has been made in the construction of bridges and tunnels, modern techniques do not yet have absolutely safe methods in the construction of bridges and tunnels, methods and tools for predicting accidents that can occur due to a large number of and various factors, including unexpectedly occurring stichias. Such accidents develop so intensively that it is impossible to take prompt and adequate measures to save people and eliminate their consequences.

In order to reduce the level of risk of occurrence of accident situations and not to repeat the mistakes associated with the construction and operation of transport facilities, in order not to repeat the mistakes

associated with the construction and operation of transport facilities, in order to take place in the practice of construction and operation of transport facilities, leading to destruction, saving people's.

In order to determine the degree of compliance of the state and indicators of the bridge structures with the requirements of normative documents, their diagnostics (inspection), passport and testing are carried out. By the results of diagnostics, bridges (elements) that do not meet the normative documents of the bridge are determined. For these bridges (elements), the type of repair work is determined in order to improve the transport operational characteristics. Work on the diagnosis of Bridges is carried out according to the requirements. Work on the diagnosis of Bridges is carried out in a full or reduced (Express) volume. Express Diagnostics is carried out after the main examination, with the aim of determining the current state and comparing it with the data obtained before.

Many structures are characterized by extremely complex computational schemes, which are extremely difficult, sometimes in the modern state of construction science it is not even possible to provide them with sufficient accuracy in a theoretical way, since even in simple constructions, as a rule, the computational schemes partially illuminate the actual work of the structure under study.

Thus, the solution of many engineering issues is directly related to the wide application of experimental knowledge in practice, since the construction of new computational models and the confirmation of old theoretical models can be carried out in practice after an excellent experimental study of its actual performance during the entire normative service life of real construction objects.

The theoretical part describes the methods of engineering experiments and the means of their conduct, the ways of verification and testing of construction structures, methods of non-traumatic control and defectoscope, the basics of modeling and testing of construction structures, as well as the procedure for static processing and analysis of experimental data. Methods of examination (diagnostics) of structures or structures are divided into visual (visual), instrumental, laboratory, as well as real tests.

One of the tasks of engineers – builders is to create cost-effective and reliable structures in operation on the basis of the achievements of modern science and technology. In order to successfully cope with this task, highly qualified engineers with modern methods of design, preparation, diagnostics and experimental research of reinforced concrete structures are required.

Therefore, in the preparation of specialists, along with studying theoretical issues, special attention should be paid to the skill of mastering practical skills, literate training and conducting experimental research by them in solving complex engineering issues. Reinforced concrete as a building material is much younger than metal, wood, even plastic. The history of the development of this material is sometime 150 years. Despite such a short period of time, reinforced concrete structures "conquered" the whole world and remained the most common material. The scale of the production of concrete and reinforced concrete is so large that it took second place after water in human activities.

But the creation of inexpensive, far-resistant and co-reinforced concrete turned out to be an overly complicated task for designers. The joint work of these two materials (concrete and steel), different in their properties, turned out to be difficult to understand, to create an effective theory of calculation. Here's why so much importance is given to experimental research for so long now and then.

The mechanism of fracture of the structure without experiments, it is impossible to determine the occurrence of cracks in it, to understand the distribution of forces in the cuts and many other things. Especially it is difficult for such a complex material to be accepted by students who are in conflict with their work. They can be helped by research of real reinforced concrete structures.

We would like to draw attention to the experimental research conducted using modern techniques of measurement and measurement with real fractures of the samples. In connection with the issues posed in the conduct of experimental research, they require a variety of PRS, equipment and adaptations. At present, information on the technical condition of structures can be obtained in different ways, supporting various experimental methods.

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