



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Standard for test method of concrete structures
(English Translation)**

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1 General

1.0.1

This standard is formulated in order to ensure the quality of concrete structure tests, study and correctly evaluate the performance of concrete structures and components, and unify the test methods of concrete structures.

1.0.2

This standard is applicable to the tests of reinforced concrete structures and prestressed concrete structures of houses and general structures, including. laboratory tests, prefabricated component tests, structural in-situ loading tests, structural monitoring and dynamic characteristic tests. Tests with special requirements, structural tests under high temperature, negative temperature, corrosive media and other environmental conditions, as well as other types of tests on concrete structural members, shall comply with the current relevant national standards or special test requirements.

1.0.3

In addition to the requirements of this standard, the concrete structure test shall also comply with the relevant current national standards.

2.1.1 Specimen

The object of the structural test, the concrete structure or member used for loading and measurement during the test.

2.1.2 Exploratory test exploratory test

Experiments to explore structural performance and laws for the purpose of scientific research and development of new technologies (materials, processes, structural forms).

2.1.3 Verifying test

Tests conducted for the purpose of confirming scientific research assumptions and calculation models, and verifying the reliability of new technologies (materials, processes, and structural forms).

2.1.4 Laboratory test laboratory test

An exploratory or confirmatory test that simulates the stress state of a structure or component under laboratory conditions.

2.1.5 Test of prefabricated members

Tests conducted to verify the structural performance of prefabricated component products.

2.1.6 Field loading test in situ loading test

On-site loading and measurement tests of existing engineering structures.

2.1.7 Structural monitoring

A test of ongoing measurements on a structure during construction or in use.

2.1.8 Dynamic performance test test for structural dynamic parameters

Tests to test the dynamic characteristic parameters of the structure and the effects of dynamic loads.

2.1.9 Equivalent loading equivalent loading

Simulate the actual stress state of the structure or component, so that the main internal forces on the control section of the specimen are equal or similar to the loading method.

2.1.10 Loading mode loading mode

The form of test load arrangement on the specimen, including load type, action position and loading method, etc.

2.1.11 Critical load value of tests

In the test, control the load value of each specific force state of the specimen, including the self-weight of the specimen and the weight of the loading equipment.

2.1.12 Test load value for serviceability limit states

The load value corresponding to the limit state of the structure during the test is determined by conversion based on the calculated value of the internal force of the design control section of the component and the test loading mode.

2.1.13 Design load value for ultimate limited states

Under the limit state of bearing capacity, the load value determined by conversion is based on the internal force design value on the design control section of the component and the test loading mode.

2.1.14 Load coefficient of loading

During the bearing capacity test, the multiples of the critical test load values corresponding to different bearing capacity signs relative to the load design value of the bearing capacity state.

2.1.15 Test load value for load-bearing capacity

The load value corresponding to the limit state of the structural bearing capacity during the test is the product of the load design value of the bearing capacity state, the loading factor, and the structural importance factor for the confirmatory test.

2.1.16 Additional test load value

The actual load value applied to the specimen after deducting the self-weight of the specimen and the weight of the loading equipment during the test.

2.1.17 Test mark mark of inspection

A test phenomenon or measurement limit observed when the test piece reaches a defined critical state.

2.1.18 Test calculated value predicted value of tests

According to the analysis model, the estimated value of the test piece is calculated and determined according to the actual index of the material.

2.1.19 Coefficient of crack-resisting inspection

The ratio of the measured value of the cracking test load of the specimen to the test load value of the service state.

2.1.20 Coefficient of load-bearing inspection

The ratio of the actual test load value of the test piece bearing capacity to the design value of the bearing capacity state load.

2.2.2 Actions and action effects

G - self-weight of the test piece;

W--loading equipment weight;

3 Basic Regulations

3.0.1

Before the concrete structure test, the test plan should be formulated according to the purpose of the test. The test protocol should include the following.

- 1 Test purpose. the background of the test and the purpose to be achieved;
- 2 Specimen plan. design of test specimens, selection of specimens in prefabricated component tests, selection of specimens or test areas in structural in-situ loading tests and structural monitoring, etc.;
- 3 Loading scheme. support and loading mode of specimen, load control method, load classification, loading limit, load holding time, unloading procedure, etc. For structural monitoring, the mode of load action should be determined according to the actual engineering situation;
- 4 Measurement plan. determine the measurement items required for the test, the arrangement of measurement points, the selection of instruments, the installation method, the measurement accuracy, and the range review;
- 5 Judgment criteria. According to the purpose of the test, determine the test marks when the test reaches different critical states, as the standard for judging the structural performance;
- 6 Safety measures. to ensure the personal safety of test personnel and the safety of equipment and instruments. When performing in-situ loading tests and structural monitoring on structures, it is advisable to avoid irreversible permanent damage to the structure.