



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

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Technical code for monitoring of building and bridge structures

建筑与桥梁结构监测技术规范

(English Translation)

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Explanation of wording in this code

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1 General provisions

1.0.1 In order to standardize the building and bridge structure monitoring

1 General provisions

1.0.1

In order to standardize the building and bridge structure monitoring technology and the corresponding analysis and early warning, to achieve advanced technology, reliable data and reasonable economy, this code is hereby formulated.

1.0.2 This code is applicable to the monitoring of engineering structures such

as high-rise buildings and structures, long-span spaces, bridges and seismic isolation structures, as well as the monitoring of existing structures affected by the crossing construction.

1.0.3 Construction and bridge structure monitoring shall, in addition to complying with the provisions of this code, also comply with the relevant requirements of the current notational standards.

2.1.1 Structural monitoring

Frequent, continuous observation or measurement of the state of the structure.

2.1.2 Construction monitoring

Structural construction monitoring.

2.1.3 Post construction monitoring

Structural post construction monitoring.

2.1.4 Monitoring system

It is integrated by the software and hardware for the purposes of achieving a certain monitoring function, composed of the monitoring equipment.

2.2 Symbols

f_n - n order natural frequency;

l - Length or span;

n - Number of orders of vibration mode;

P - Thrust;

r - Conductor resistance;

T - Cable force;

δ - Relative deformation;

ϵ - Strain;

ρ - Unit length of mass.

3.1.1 Building and bridge structure monitoring shall be divided into construction monitoring and post construction monitoring.

3.1.3 During the monitoring, it shall make patrol inspection and system maintenance.

3.3.3 Construction monitoring item may include strain monitoring, deformation and fracture monitoring, environment and effect monitoring. Deformation monitoring may include foundation settlement monitoring, vertical deformation monitoring and horizontal deformation monitoring; AND environment and effects monitoring may include wind and wind-induced response monitoring, temperature and humidity monitoring, and vibration monitoring.

4.1 General requirements

4.1.1

It is preferable for the monitoring items to include the strain monitoring, deformation and fracture monitoring, temperature and humidity monitoring, vibration monitoring, seismic and seismic response monitoring, wind and wind-induced response monitoring, cable force monitoring, and corrosion monitoring.

4.2.1 Strain monitoring may be achieved by resistance strain gauges, vibrating wire strain gauges, fiber strain gauges and other strain monitoring components.

4.2.2 It is preferable to select the strain gauges based on monitoring purposes and engineering requirements, as well as sensor technology and environmental characteristics.

4.3.1 Deformation monitoring can be divided into horizontal displacement monitoring, vertical displacement monitoring, three-dimensional displacement monitoring, and other displacement monitoring.

4.4 Temperature and humidity

4.4.1

Temperature and humidity monitoring may include the environment and component temperature monitoring AND environmental humidity monitoring.

4.4.2

Mass concrete temperature monitoring shall be in accordance with the relevant provisions of the current national standard "Code for construction of mass concrete" GB 50496.

4.5 Vibration

4.5.1

Vibration monitoring shall include vibration response monitoring and vibration excitation monitoring. The monitoring parameters may be acceleration, velocity, displacement and strain.

4.5.2 Vibration monitoring methods can be divided into relative measurement and absolute measurement.

4.5.3 The structure vibration displacement monitoring by the relative measurement method shall comply with the following requirements.

4.8 Other items

I. Cable force monitoring