



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

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**Load code for the design of building structures
(English Translation)**

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1 General Provisions	
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1 General Provisions

1.0.1

This code is formulated with a view to adapting the need of the building structure design and meeting the requirements of safety and usability, economy and rationality.

1.0.2

This code is applicable to the structural design of building engineering.

1.0.3 This code is formulated in accordance with the basic principles specified in the national

standard "Unified Standard for Reliability Design of Engineering Structures" GB 50153-2008.

1.0.4 The actions concerned in the building structure design shall cover direct action (load) and indirect action. This code only specifies load and thermal action, and the provisions for the relevant variable load are also applicable to the thermal action.

1.0.5 The loads concerned in the building structure design shall not only comply with this code, but also those in the current relevant ones of the nation.

2.1.1 Permanent load

Load of which the value does not vary with time during the structure use period, or of which the variation may be neglected compared with the average value, or of which the variation is monotonous and trends to the limit.

2.1.2 Variable load

Load of which the value varies with time during the structure use period, and of which the variation cannot be neglected compared with the average value.

2.1.3 Accidental load

Load which does not always occur within the design working life of the structure, but its quantity value is very large once occurred and its duration is very short.

2.1.4 Representative values of a load

They are used to check the quantity value of loads adopted in the limit state in the design, such as characteristic value, combination value, frequent value and quasi-permanent value.

2.1.5 Design reference period

Time parameter which is selected to determine the representative value of variable load.

2.1.6 Characteristic value/nominal value

Basic representative value of load and characteristic value of maximum load statistical distribution within the design reference period (such as mean, mode, median or quantile value).

2.1.7 Combination value

For variable load, load value which can make the exceedance probability of the combined load effect within the design reference period consistent with the corresponding probability when this load occurs separately; or load value which can make the combined structure have a unified reliability index.

3.1 Classification of Loads and Representative Values of Loads

3.1.1

The loads of the building structures may be classified into.

- 1 Permanent load, including structure self-weight, soil pressure, prestress, etc..
- 2 Variable load, including live load on floor, live load on roof and ash load, crane load, wind

load, snow load, thermal action, etc..

3 Accidental load, including explosive force, impact force, etc..

3.1.2

In the design of building structures, the different loads shall adopt different representative values according to the following requirements.

1 For permanent load, the characteristic value shall be its representative value;

2 For variable load, the characteristic value, combination value, frequent value or quasi-permanent value shall be its representative value according to the design requirements;

3 For accidental load, its representative value shall be determined according to the use characteristics of the building structures.

3.1.3

The determination of the representative value of variable load shall adopt 50-year design reference period.

3.1.4

The characteristic values of loads shall be adopted according to the requirements of each chapter of this code.

3.1.5

In the design of limit state of bearing capacity or the design of limit state of normal use according to the characteristic combination, for variable load, the combination value or characteristic value shall be its representative value according to the specified load combination. The combination value of variable load shall be the characteristic value of variable load multiplied by the load combination value coefficient.

3.1.6

In the design of limit state of normal use according to frequent combination, for variable load, the frequent value or quasi-permanent value shall be its representative value; in the design according to quasi-permanent combination, the quasi-permanent value of variable load shall be its representative value. The frequent value of variable load shall be the characteristic value of variable load multiplied by the frequent value coefficient. The quasi-permanent value of variable load shall be the characteristic value of variable load multiplied by the quasi-permanent value coefficient.

4 Permanent Load

4.0.1

The permanent load shall cover the self-weight of structural member, enclosure member, surface course and decoration, fixed equipment and long-term storage, the soil pressure and water pressure, as well as other loads required to be considered according to permanent load.

4.0.2

The characteristic value of the structure self-weight may be determined through calculation according to the design dimension of the structural member and the material self-weight in unit volume.

4.0.3

The unit self-weight of the general material and member may take its average value; for the material and member with larger self-weight variation, the characteristic value of the self-weight shall take the upper limit or lower limit according to the state unfavorable or favorable to the structure. The self-weight of commonly used materials and members in unit volume may be adopted according to Appendix A of this code.

4.0.4

The self-weight of the fixed partition may be considered according to permanent load, and that of the partition whose position may be flexibly arranged shall be considered according to variable load.

5.1 Uniformly Distributed Live Loads on Floors in Civil Buildings

5.1.1

The characteristic value of uniformly distributed live load on floors in civil buildings, and the combination value coefficient, frequent value coefficient and quasi-permanent value coefficient shall not be less than those specified in Table 5.1.1.

5.1.2

In the design of floor beam, wall, column and foundation, the reduction factor of characteristic value of live load on floors in Table 5.1.1 of this code shall not be less than the following requirements.

5.1.3

In the design of wall and column, the live load of fire engine in Item 8 of Table 5.1.1 of this code may be considered according to the actual conditions; in the design of foundation, the load of fire engine may not be considered. The live load of fire engine commonly using slab span may be adopted in accordance with Appendix B according to the reduction factor of covered soil thickness.