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NATIONAL STANDARD OF
THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准 **GB**

Unified standard for reliability design
of building structures

建筑结构可靠度设计统一标准
GB50068—2001

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Jointly Issued by: The Ministry of Construction, P. R. C

The State Quality Supervision, Inspection and Quarantine Bureau

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THE PEOPLE'S REPUBLIC OF CHINA

**UNIFIED STANDARD FOR RELIABILITY DESIGN
OF BUILDING STRUCTURES**

GB50068—2001

Chief Editorial Department: The Ministry of Construction, P. R. C
Approved Department: The Ministry of Construction, P. R. C
Date of Implementation: March 01, 2002

NOTE

This book is the English translation of *Unified standard for reliability design of building structures GB50068-2001*. In the event of any inconsistency between the Chinese-language text of the Code and the present English-language text of the Code, the Chinese-language text shall be taken as ruling.

Document of the State Petroleum and Chemical Industry Bureau

Jian-biao[2001] NO.230***Notice concerning Approving national standard 'unified standard for reliability design of building structures'***

According to the requirements of 'notice for engineering building standard formulation and plan modification of 1997' ([1997] NO.108 of building standard) by Ministry; the 'unified standard for reliability design of building structures' modified by Construction Ministry with related departments, is ratified to be the national standard after joint checkup by relevant branches. The number is GB 50068-2001, with the implementation date of March first of 2002. Items of 1.0.5 and 1.0.8 are compulsory, and must be implemented. The original 'unified standard for design of building structures' GBJ 68-84 will be abolished on December 31, 2002.

Under the administration of the Ministry of construction, China academy of building research is in charge of explanations, and China architecture & building press led by the standard formulation institute of the Ministry of construction publishes and releases this standard.

The Ministry of Construction, P. R. C
Nov 13, 2001

Forewords

This set of standards was modified from the original 'the unified standard for structure design '(GBJ 68-84) by the institute of building science of China together with the related units, based on the 108th documents [1997] of structure standard of the Construction Ministry.

The modified items this time include:

1. The applicable range of the standard: due to the special features of the design procedures for structure reliability of 'the basic design standard for structure base' and 'the anti-seismic design standard for structure', the standard 'must be observed' in the original was changed to 'should be observed'.
2. On the basis of the items in 'the unified standard for reliability design of engineering structure' (GB 50153-92), some related items for design working conditions are added, and the relations between design conditions and the limit states are also specified.
3. By reference to the latest international IOS 2394: 'the general principles for structure reliabilities' of 1998, the design service life of various structures is given.
4. For the basic combination of load effects in the designing expressions for loading limit states, the formula which play the key role are added when the long-term load effect dominates.
5. The value selection for live load, wind load, snow load of building wall was modified, as well as the reliability index of structure components and the coefficients of structure importance.
6. It is for the first time to rule the reliabilities for normal service for structure components, which will enable the service performance of houses being improved and make the reliability design procedures developed.
7. The appendix of the original standard was deleted.

The items in bold of this standard are compulsory, and must be implemented strictly.

The future local modifications to this standard are possible, the information and the items will be published in the magazine of 'standardization of engineering construction'.

For the purpose of improving the quality of the standards, experiences and related data from practices of all the units are welcomed, and the building science institute of China is ready anytime to receive the suggestions so as to be the reference for the future modifications.

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1 General

- 1.0.1** The purpose of the standard is to unify the basic principle and procedures for reliability design of building structure of various materials, and make the design meet the requirements of advanced in techniques, reasonable economy, safety and application, and quality assurance.
- 1.0.2** This standard is applicable to the design of building structure, components, and the base.
- 1.0.3** The standard for building structure load and design standards of steel structure, thin-wall frame steel structure, concrete structure, , and wooden structures, must observe this standard; the standard for structure base and Seismic should observe the principles of this standard.
- 1.0.4** The base duration of design in this standard is 50 years.
- 1.0.5** **The design service life of structures should refer to Table 1.0.5.**

Table 1.0.5 Classification of design service life

Type	Design service life (year)	Example
1	5	Temporary structures
2	25	Structure components easy to be substituted
3	50	Average house and structures
4	100	Buildings for memory and especially important structures

- 1.0.6** The adequate reliability should be retained for structures in the design service life. The structure reliability can be determined by the limit state design procedures based on the probability theory.
- 1.0.7** The following functionality should be reached for the structures in the design service life:
- 1 All possible actions can be withstood during normal construction and normal service;
 - 2 The good working performance should be maintained during normal service;
 - 3 The adequate duration of performance should be kept for the structures in normal maintenance.
 - 4 The necessary whole stability can be held during and after occasional cases specified by the standards.
- 1.0.8** **The different safety classes should be adopted based on the degree of possible results (life-threatening, economic lost, social influences) stem from structure failure when designing structures. The classification of structure safety should follow the requirements listed in Table 1.0.8.**

Table 1.0.8 Safety classification of structures

Safety class	Failure results	Structure type
Class I	Very serious	Important house
Class II	Serious	Average house
Class III	Not serious	Less important house

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