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

GB 50012-2012

Code for design of class III, IV railway

III、IV级铁路设计规范

Issued on: October 11, 2012

Implemented on: December 1, 2012

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Structure of the code Structure of the code

The foreword states that the code is divided into 15 chapters and that its main contents are: general provisions, terms and symbols, alignment, track, subgrade, bridges and culverts, tunnels, stations and passenger and freight transport facilities, electric traction power supply, electric power, locomotive depot and rolling stock facilities, water supply and drainage, communication and information, signalling, and buildings together with heating, ventilation, air conditioning and sanitary equipment.

The code was revised by China Railway Fourth Survey and Design Institute Group Co., Ltd. on the basis of the former national standard Code for design of standard gauge railway of industrial enterprises GBJ 12-87, under the plan for the drafting and revision of engineering construction standards issued by the Ministry of Housing and Urban-Rural Development in 2008. During the revision the working group drew on the experience of railway design, construction and operation of recent years in China.

Classification of the lines Classification of the lines

The first of the main changes of the revision brings the classes into line with the division of

the national railway network into classes I, II, III and IV: the former class III lines of the network, the local railways and the industrial enterprise railways are grouped together into class III and class IV railways.

The second change states the traffic volume criterion: a class III railway carries a volume smaller than 10 Mt and greater than or equal to 5 Mt, a class IV railway a volume smaller than 5 Mt.

Design years and design speeds Design years and design speeds

The third change revises the design year standard of the railway: the near-term and the long-term design years are respectively the tenth and the twentieth year after the line is handed over for operation.

The fourth change divides the speed target values by class of railway and by kind of train. For passenger trains the design running speed of a class III railway is 120, 100, 80 or 60 km/h, and that of a class IV railway 100, 80, 60 or 40 km/h. For freight trains the design running speed of class III and class IV railways is equal to or lower than 80 km/h.

Main changes of the revision Main changes of the revision

The foreword lists fourteen main changes. Besides the classification, the design years and the speeds already given, the fifth removes the contents concerning steam locomotive traction, and the sixth removes from the design of the main line track and of the station track the contents concerning 43 kg/m, 38 kg/m and 33 kg/m rails.

The seventh change adds technical standards for subgrade filling and compaction and raises the parameter standards for the overall stability coefficient of retaining walls and for the stability coefficient of soft soil embankments. The eighth change, in bridge design, revises the classification and combination of loads, the vertical deflection limits of girder bridge spans and the transverse stiffness of bridge spans, and adds provisions on the calculation of centrifugal force, on the transverse rocking force of trains, on the post-construction settlement limits of piers and abutments and on the provision of refuge platforms. The ninth adds provisions on the classification of tunnels by length and on the building materials of portals and lining, and raises the grade of some building materials.

The tenth change puts specific requirements on the track connection, the interchange mode, the number of station tracks, the subgrade and drainage design of station tracks, the safety tracks and catch sidings, and the passenger and freight facilities of stations. The eleventh adds to the electric traction power supply the telecontrol system, the integrated automation or microcomputer protection of substations, the safety monitoring system and the entry of the telecontrol optical fibre channel into substations. The twelfth revises the grades of electric load and the modes of power supply and adds technical requirements on power cables, relay protection, electric telecontrol, microcomputer protection and box-type

substations.

The thirteenth change adds information systems, data communication network design and emergency communication systems. The fourteenth adds requirements on cut-off signals, track circuit design, automatic block between stations, switch machines and locking, centralized traffic control, in-station coded design, computer monitoring design and the protection measures of electric and optical cables.

The foreword states that the clauses printed in bold type in the code are mandatory and shall be strictly enforced, that the Ministry of Housing and Urban-Rural Development is responsible for the administration of the code and for the interpretation of its mandatory clauses, that the Ministry of Railways is responsible for its day-to-day administration and that China Railway Fourth Survey and Design Institute Group Co., Ltd. is responsible for the interpretation of its technical contents.

Mandatory provisions Mandatory provisions

Announcement No. 1487 of the Ministry of Housing and Urban-Rural Development approves the code as a national standard numbered GB 50012-2012, in force from 1 December 2012, and lists the clauses and paragraphs that are mandatory and shall be strictly enforced: 1.0.15, 3.4.2, 3.4.3, 3.4.6, 7.8.1, 7.8.2, 9.3.9, 9.3.16, 9.4.6, 9.4.9, 10.2.1, 10.3.1 (3) and (4), 12.2.28, 14.1.1, 14.3.3, 14.3.9, 14.4.2 and 15.2.5 (1).

The announcement is dated 11 October 2012. The code was compiled under the Ministry of Railways, approved by the Ministry of Housing and Urban-Rural Development and published by China Planning Press.

Relationship to previous standards Relationship to previous standards

The front page of the code carries no line naming a standard that is replaced, so no superseded code is declared there.

Announcement No. 1487 states that the former national standard Code for design of standard gauge railway of industrial enterprises GBJ 12-87 is repealed at the same time, and the foreword states that the present code was revised on the basis of GBJ 12-87. The English rendering of the title of GBJ 12-87 is ours; the announcement gives it in Chinese only.

Note on the printed English title Note on the printed English title

On the front page and on the title page the English title is printed as Code for design of class III, IV railway, with the two Roman numerals separated by the Chinese enumeration comma and not by a Western comma. The mark has been replaced here by an ordinary

comma; no word of the printed title has been changed.

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