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

中华人民共和国国家标准

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GB/T 50082-2009

**Standard for Test Methods of Long-term Performance and
Durability of Ordinary Concrete**

普通混凝土长期性能和耐久性能试验方法标准

Issued on November 30, 2009

Implemented on July 1, 2010

**Issued by Ministry of Housing and Urban-Rural Development of the
People's Republic of China**

**General Administration of Quality Supervision, Inspection
and Quarantine of the People's Republic of China**

National Standard of the People's Republic Of China

**Standard for Test Methods of Long-term
Performance and Durability of Ordinary
Concrete**

GB/T 50082-2009

**Chief Development Department: Ministry of Housing and
Urban-Rural Development of the People's Republic of China**

**Approval Department: the Ministry of Housing and Urban-Rural
Development of the People's Republic of China**

Implementation date: July 1, 2010

China Architecture and Building Press

2009 Beijing

Ministry of Housing and Urban-Rural Development of the People's

Republic of China

Announcement

No. 454

Announcement of issuing national standard "Standard for Test Methods of Long-term Performance and Durability of Ordinary Concrete"

"Standard for Test Methods of Long-term Performance and Durability of Ordinary Concrete" has been approved as a national standard, the serial number is GB/T 50082-2009 and would be implemented on July 1, 2010. GBJ 82-85 "Testing Methods for Long-term and Long-lasting Performance of Ordinary Concrete" shall be abolished simultaneously.

Authorized by the Standard Rating Research Institute, this code is published and distributed by China Architecture and Building Press.

Ministry of Housing and Urban-Rural Development of the People's Republic of China

November 30, 2009

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Foreword

According to the requirements of Document Jian Biao [2004]NO.67 issued by Ministry of Construction (MOC) -“Notice on Printing the Development and Revision Plan of National Engineering Construction Standards in 2004”, the drafting set of standard revised this standard through extensive investigation and study by earnestly summing up and accumulating the experiences in actual practices and by referring to the relevant international standards and foreign advanced standards as well as the relevant opinions.

Major Technique Content of this standard contains: 1. General Provisions; 2. Terms; 3. Basic requirements; 4. Test Methods for Resistance of Concrete to Freezing and Thawing; 5. Test Method for Dynamic Modulus of Elasticity; 6. Test Methods for Resistance of Concrete to Water Penetration; 7. Test Methods for Resistance of Concrete to Chloride Penetration; 8. Test Methods for Shrinkage of Concrete; 9. Test Method for Early Cracking of Concrete; 10. Test Method for Creep of Concrete in Compression; 11. Test Method for Carbonization of Concrete; 12. Test Methods for Corrosion of Embedded Steel Reinforcement in Concrete; 13. Test Method for Fatigue Deformation of Concrete in Compression; 14. Test Method for Resistance of Concrete to Sulphate Attack; Test Method for Alkali-aggregate Reaction.

Major revised technique content of this standard is: 1. add a chapter of Terms; add a chapter of Basic Requirement; modify sampling, making and maintenance of test pieces to meet requirement of the current national standard; 4. revise and perfect test the method of slow freezing and thawing and the test method of rapid freezing and thawing; 5. add test method for single-side freezing and thawing; 6. tapping method is cancelled and resonance method is perfected in the tapping method; 7. modify the impermeability test into test methods for resistance of concrete to water and penetration and add test method for depth of water penetration; 8. add test methods for resistance of concrete to chloride penetration, including test method for coulomb electric flux and test method for rapid chloride Ions migration coefficient (RCM) 9. Add non-contact method and perfect the former test methods for shrinkage of concrete in the test methods for shrinkage of concrete; 10. Add test method for early cracking of concrete; 11. Perfect the test method of creep of concrete in compression; 12. Perfect test method for carbonization of concrete and test method for corrosion of embedded steel reinforcement in concrete; 13 changes the stromeyer test method in the original standard into test method for fatigue deformation of concrete in compression; 14. Add test method for resistance of concrete to sulphate attack; 15. Add test method for alkali-aggregate reaction.

Ministry of Housing and Urban-Rural Development take the charge of this standard and China Academy of Building Research is responsible for the explanation of specific technical contents. if there is any complaint or suggestion, please contact the administrative set of national standard "Standard for Test Methods of Long-term Performance and Durability of Ordinary Concrete" of Institute of Building Materials of China Academy of Building Research (Address: No. 30, North 3rd Ring East Road, Beijing, China; post code: 100013; E-mail: cabrconcrete @ vip.163.com).

Chief development organization: China Academy of Building Research

Participating development organization of this standard: China Academy of Railway

Sciences.

Liaoning Building Science Reach Institute

Tsinghua University

Central Institute of Building and Construction of China Metallurgical Set Corp

Gansu Civil Engineering Research Institute

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NOTE: The English version hereof has been translated directly from the openly-published Chinese standard GB/T 50082-2009. In the event of any discrepancy in the process of implementation, the Chinese version shall prevail.

1 General Provisions

1.0.1 This standard is established to regulate and unify test methods of long term performance and endurance quality of concrete and improve concrete test and inspection.

1.0.2 This standard is applicable to tests of long term performance and endurance quality of ordinary concretes in the engineering construction.

1.0.3 This standard specifies basic technical requirements of tests of long term performance and endurance quality of the ordinary concrete, and if this standard interferes with specifications in national law, administrative regulation, the national law and administrative regulation shall be conformed to.

1.0.4 Tests of long term performance and endurance quality of ordinary concrete shall conform to specifications of this standard and specifications in current national standards as well.

2 Terms

2.0.1 Ordinary concrete

Cement concrete with apparent density of (2000 ~ 2800) kg/m³

2.0.2 Resistance grade to freezing-thawing of concrete

Resistance class to freezing-thawing of concrete divided by the maximum cycle of freezing and thawing measured by slow freezing and thawing.

2.0.3 Resistance class to freezing-thawing of concrete

Resistance grade to freezing-thawing of concrete divided by the maximum cycle of freezing and thawing measured by rapid freezing and thawing.

2.0.4 Test method for coulomb electric flux

It is a test methods use coulomb electric flux to reflect chloride ion penetrating resistance of the concrete.

2.0.5 Test method for rapid chloride ions migration coefficient (RCM)

It is a test method to reflect chloride ion penetrating resistance of the concrete by testing length of penetration of chloride ions in the concrete and calculate the mobility ratio of chloride ions.

2.0.6 Resistance class to sulphate attack of concrete

Class of resistance of concrete to sulphate attack divided by the maximum wetting and drying cycle times measured by test method for resistance of concrete to sulphate attack

3 Basic Requirements

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