
BANGLADESH NATIONAL BUILDING CODE

2006



Housing and Building Research Institute



Bangladesh Standards and Testing Institution

PREFACE

Buildings, be it for housing, industry, education, health care or any other use, constitute the major part of construction for physical infrastructure development of the country. A substantial portion of national resource is invested in building construction in both public and private sectors. In order to ensure optimum return of this investment and to achieve satisfactory performance of the building in terms of safety, serviceability, health, sanitation and general welfare of the people, building construction needs to be controlled and regulated. Legislative measure for such control has been taken in the Building Construction Act of 1952 and other relevant acts, ordinances and regulations. In urban and municipal areas, local and development authority rules supplement the Building Construction Act and the regulations promulgated by the government under the provision of this Act. Some development and construction agencies of the government have their own rules and established practices. However, these regulations, ordinances, rules and practices are not comprehensive and need updating, rationalization and unification. It is imperative that a uniform standard of practice covering all aspects of planning, design and construction of buildings, including electrical, mechanical, sanitary and other services, be followed in the country. Such a standard can be provided by a comprehensive building code appropriate to the needs of the country. Prompted by this necessity, an inter-ministerial meeting was convened by the Member, Physical Infrastructure, Planning Commission on June 18, 1991, and a Steering Committee was formed. The Steering Committee was given the task of preparing the code in its entirety, starting from drawing up the project proposal to the final publication of the code.

The Steering Committee took the decision to use local expertise and internal resources rather than depending on foreign expertise or fund. Accordingly, a project proposal was placed before the Executive Committee of the National Economic Council (ECNEC) by the Steering Committee on December 14, 1991. Appreciating the importance of the

document ECNEC approved the project. The Steering Committee prepared detail terms of reference for consultancy services leading to preparation of the drafts of the code and selected a local consulting house, Development Design Consultants Limited, for the job. The consultants started their work on June 1, 1992, and organized a multi-disciplinary team of experts including in it architects, engineers, planners, scientists, research workers from university faculties and other professional practitioners.

The Steering Committee took on itself the responsibility of the editorial board. Although initially an eleven member Steering Committee was formed, it was later expanded to fourteen members to ensure representation of all major disciplines to be addressed in the code. To assist the Steering Committee in giving its comments, observations and suggestions to the consultant at various stages of preparation of the code, sixteen editorial subcommittees were formed for different topics of the code. The editorial subcommittees comprised sixty experts in relevant disciplines.

The preparation of the code was divided into five stages - inception report, interim report, preliminary draft code, draft code and final draft code. Codes of the neighbouring countries and those of some of the western countries were thoroughly reviewed, and considered together with the state-of-the-art technology. These were examined in relation to the needs and practices of the country, paying special attention to the uniqueness of the prevailing social and economic conditions, technological capabilities, and environmental, meteorological, geological and other related phenomena of Bangladesh. The structure and content of the Bangladesh National Building Code were chosen keeping in view all these aspects. Meteorological data of many years regarding wind speed, rainfall, temperature and humidity were collected and analysed to arrive at the specifications regarding these aspects affecting planning and design of buildings. Earthquake data of the region for hundreds of years were

collected and analysed in relation with the geological and geotectonic characteristics of the country. A seismic zoning map of Bangladesh together with the seismic design provision was thus drawn up.

In order to ensure wide participation by and interaction with the vast number of professionals involved in the building construction field across the country, a three day workshop was held at the Institution of Engineers premises at Dhaka in May 1993, following submission of the preliminary draft code by the consultant. The workshop was organized into sixteen sessions of related disciplines and covered some fifty-seven hours of presentation, analysis and discussion. Some 185 professionals representing 125 organizations were invited to participate in the workshop. These organizations included professional societies, technological and general universities, all the Institutes of Technology, various government agencies and sector corporations, city development authorities, selected municipal organizations, research organizations, consulting firms, construction firms, producers and suppliers of building materials, non-government organizations involved in development projects, federation of chambers of commerce and industry, the legal profession, and concerned government ministries.

Another joint workshop of the Steering Committee and the editorial subcommittees was held on June 12, 1993, to ensure that comments, observations and suggestions received during the May workshop were being properly incorporated in the subsequent drafts of the code. A review meeting was also held at the Planning Commission on August 24, 1993, after submission of the draft code by the consultant. The meeting was attended by officials of the concerned departments and chaired by the honourable Minister for Planning. Following submission of the final draft by the consultant, a meeting of the Steering Committee was held on December 28, 1993, where the building code was approved for publication.

This document, the Bangladesh National Building Code, has been prepared in ten distinct parts comprising different aspects

of building construction and services with cross references as necessary. Part 1 gives a general introduction to the code and lists the definitions and abbreviations of general terms used in the code. Part 2 outlines the administrative requirements necessary for enforcement of the code. It should be borne in mind that enforcement of the code is a continuous activity and requires a standing administrative structure for various jurisdictions in the country. Considering the difficulty of maintaining adequate technical personnel for enforcing and verifying compliance with diverse provision of the code, a professional practice-based certification, enforcement and administration structure has been prescribed.

General planning and architectural requirements of buildings, based on classifications in accordance with occupancy and fire resistance, are specified in Part 3. The specifications cover requirements within the premises of the building plot for all categories of buildings. As the area planning requirements involve parameters not within the control of individual building developer and are matters of interest to government planners, these are not included in the building code. The requirements have been set keeping in view the tropical climate of the country and the local architectural practices and tradition. In setting the minimum requirements for various types of buildings, the urgent need of providing accommodation to the lower income majority of the population was given due consideration. A separate occupancy class has been recommended for such housing, for which lower minimum standards for various parameters of planning and design have been specified. These lower requirements will, however, be applicable only for designated mass housing projects for the lower income people.

Arrangement for safety from fire in buildings is of paramount importance, particularly in built up or city areas. Part 4 specifies the requirements for fire prevention and protection measures in buildings. The measures are divided into three categories - precautionary measure to prevent or arrest propagation of fire in buildings, provision of life saving means of escape from the building in the event of fire, and provision

of in-built fire fighting arrangements within buildings. Requirements for each of these types of protective measures are specified in this part of the code. These are followed by specific requirements for fire protection of various occupancy classes of buildings. The fire protection requirements of the code are based on the principle of providing reasonable protection within achievable means.

Part 5 sets the standards of materials to be used in building construction. Materials covered include all types of common construction materials as well as some indigenous building materials of the country. The requirements for materials provided in the building code are based on specifications of established standards issued by standards agencies. The agency responsible for issuing standards and ensuring compliance with these standards in Bangladesh is the Bangladesh Standards and Testing Institution. In general, the building code specifies compliance with relevant Bangladesh standards. Where Bangladesh standards are not available or are inadequate, the most applicable and widely used standards of other countries for the relevant materials have been specified. These will be replaced as more and more Bangladesh standards are available.

Requirements governing structural design that ensure safety and serviceability of buildings are specified in Part 6. The specifications cover the design of buildings in various structural materials - masonry, reinforced and prestressed concrete, steel, timber and ferrocement. The requirements for design of building foundations on various kinds of soil are also specified. Structural design is influenced by the loads that are put on the building both by the occupancy and by the forces of nature. Natural forces are purely a local phenomenon and have been worked out after a thorough study of the pertinent conditions of meteorology, geology and other features of the country. Data of many years for the cyclonic wind of the coastal region as well as the extreme wind data of other regions were collected from the Meteorological Department and other sources. Earthquake data of hundreds of years for the north-eastern region of the

subcontinent were also collected from reliable sources. These data were statistically analysed for various return periods and duly considered together with the local natural features. The exercise resulted in the preparation of the first design wind speed map of Bangladesh and a revised seismic zoning map. These and the methods of and requirements for calculation of various loads acting on the building, including those due to wind and earthquake, are specified in this part of the code. The special requirements for earthquake resistant design and detailing of buildings made of masonry, concrete and steel are also specified. Ferrocement has emerged in the recent years as a promising alternative to common and traditional materials and is a strong and durable building material for low cost construction. The material has been given formal treatment in the code and specifications for design of buildings made of ferrocement have been incorporated.

Construction industry in Bangladesh is highly labour intensive and the success of a project lies to a great extent on proper site management and construction practices. Ensuring safety of life during construction and minimization of construction hazards are the concern of Part 7. Constructional responsibilities regarding planning and control of the construction as well as the protection of public, workers and property are specified in this part. The minimum requirements of on-site welfare measure for health and sanitation of the workers are also specified. The specifications additionally provide for the safe and scientific demolition of buildings, where necessary.

A building requires various services - electrical, mechanical, acoustic, sanitary, water supply, gas supply. The specifications of Part 8 set standards of minimum requirements for the various services required for proper functioning of the building. It should be noted that not all the services provided for in the code are essential requirements of a building, but the services when installed should satisfy the requirements of Part 8. The actual requirements of services for specific occupancy types are prescribed in Part 3.

It is common in this country to subject a building subsequent to its commissioning to a use different from the one for which it was designed and constructed. Alterations in the building plan and design by way of renovation and modification are also common. Part 9 specifies the requirements for alteration of, addition to and change of use of existing buildings and has been incorporated out of a concern for continued safety and serviceability of buildings subjected to such changes. Special requirements and waivers for alteration and renovation of buildings of historical and architectural value have been specified in this and other parts of the code. These special provisions have been incorporated with a view to preserving the cultural heritage of the country.

Signs and hoarding are often posted on buildings for advertisement, identification and communication purposes. Unregulated posting of signs may hinder the aesthetics of the locality, cause concern for safety of the public, hurt religious or moral feelings or be objectionable in many other ways. Part 10 provides minimum standards of design, location, construction and maintenance of signs and outdoor display structures. These standards aim at safeguarding life, health, property and public welfare as may be affected by the erection of signs.

It may be mentioned here that the Building Code is not an independent legislation or act, rather it is a national level approved document that shall form the basis for standard of design, construction and maintenance of buildings. It has been prepared in the light of internationally recognized standards of safety and serviceability achievable by application of state-of-the-art technology within the socio-economic context of Bangladesh. Through adherence to the various requirements of the code, private and public builders and individual owners will be able to ensure a minimum and uniform standard of buildings in the country. The government authorities responsible for

enforcing the Building Construction Act, and regulations framed under this Act, for development of buildings in various urban, municipal and rural areas may adopt the code or its portions for application to their respective jurisdictions. The administrative requirements of the code will guide these authorities in enforcing the provisions of the code. The government may subsequently establish a department responsible for application of the provisions of the code.

Technology is a dynamic field with continuous advancement and innovations, so is a building code. The code will require continuous update and periodic revisions to keep pace with developing technology and needs of the changing time. After the National Building Code has been used and tested in the field, many issues will have the opportunity to be judged in practice and the need for revision of specific requirements will be felt. Update and revisions of the code will have to become a routine affair eventually. However, it is envisaged that for the second edition of the code, which is expected to be issued within the next five years, continuous monitoring by a standing committee will be necessary. To this aim, a cell will function within the Housing and Building Research Institute, the organization responsible for publication of this edition of the code. The cell will receive observations by and suggestions from the professionals who will apply the code in practice. These observations and suggestions will be examined by panels of experts for incorporation in the subsequent edition of the code.

It is hoped that publication of the long awaited Bangladesh National Building Code will usher in a new era and will be treated as a milestone in the building construction industry of the country. The success of the code will, however, lie in its proper implementation and adherence to its provision by builders and professionals at large.

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CHAPTER **1**

Title, Scope and General

1.1 TITLE

The provisions and regulations contained in this document shall constitute and be collectively known and may be cited as the "Bangladesh National Building Code", abbreviated, where desired, as BNBC, and will hereinafter be referred to as the "Code".

1.2 PURPOSE

The purpose of this Code is to establish minimum standards for design, construction, quality of materials, use and occupancy, location and maintenance of all buildings within Bangladesh in order to safeguard, within achievable limits, life, limb, health, property and public welfare. The installation and use of certain equipment, services and appurtenances related, connected or attached to such buildings are also regulated herein to achieve the same purpose.

The provisions of this Code are applicable to all persons of Bangladesh irrespective of class, creed, culture, religion or sex. The Code does not in any way create or otherwise establish or designate any particular class or group of persons who will or should be specially protected or benefited by the provisions of this Code.

The expressed intent of this Code is to insure public safety, health and general welfare insofar as they are affected by the construction, alteration, repair, removal, demolition, use or occupancy of buildings, structures or premises, through structural strength, stability, means of egress, safety from fire and other hazards, sanitation, light and ventilation.

1.3 SCOPE

The provisions of this Code shall apply to the design, construction, use or occupancy, alteration, moving, demolition and repair of any building or structure and to any appurtenances installed therein or connected or attached thereto, except such matters as are otherwise provided for in other ordinances and statutes controlling and regulating buildings.

If for any case different sections of this Code provide different specifications for materials, methods of design or construction, or other requirements, the most restrictive specification shall govern.

In case of any conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

Unless otherwise explicitly stated in this Code, all references to part, chapter or section numbers or to provisions not specifically identified by number, shall be construed to refer to such part, chapter, section or provision of this Code.

References made to a section without mentioning a part shall be construed to refer to that section of the part in which the reference is made.

The provisions of any appendix in this Code shall not be mandatory unless they are referred to as such in any section of the Code or they are specifically adopted by any regulation.

Inspection conducted or permission granted for any building or plan of building, under the provisions of this Code, shall not be construed as a warranty of the physical condition of such building or the adequacy of such plan. Neither the Authority administering the Code, nor any employee thereof shall be liable in tort for damages for any defect or hazardous or illegal condition or inadequacy in such building or plan, nor for any failure of any component of such building which may occur subsequent to such inspection or granting of permission under the provisions of the Code.

1.4 EXISTING BUILDINGS

Buildings which are in existence on the date of promulgation of this Code may have their use or occupancy continued without undergoing any alteration, abandonment or removal unless in the opinion of the Authority such continued use is hazardous to life and property and provided such use or occupancy was legal on the date of promulgation of this Code.

1.4.1 Addition and Alteration

Additions, alterations, modifications or repair to an existing building may be made without requiring the existing building to comply with all the requirements of this Code, provided the additions, alterations, modifications or repairs conform to that required for a new building. Such additions or alterations shall not be permitted when the existing building is not in full compliance with the provisions of this Code except when the addition or alteration will result in the existing building or structure being no more hazardous based on life safety, fire safety and sanitation than it was before the addition or alteration was undertaken.

Any building together with the new additions shall not exceed the height, number of storeys and area specified in this Code for new buildings having the relevant occupancy and type of construction. Non-structural alterations or repairs to an existing building or structure which do not adversely affect any structural member, nor reduce the strength of any part of the building or structure to result in an unsafe condition shall be made with materials and components having the required fire resistance.

1.4.2 Change of Use

Change in use or occupancy in an existing building may be made when such change complies with the requirements of this Code for a new building and provided such change does not render any part or the whole of the affected building or structure any more hazardous based on life safety, fire safety and sanitation than it was before such change was effected.

1.5 HISTORIC OR ARCHITECTURALLY VALUABLE BUILDINGS

A building or structure which has been designated by official action as having special historical or archaeological interest, or a building or structure identified by a legally constituted authority as being architecturally valuable, may be undertaken for repairs, alterations and additions necessary for its preservation, restoration, rehabilitation or continued use provided:

- i) the proposed repair, alteration or addition to buildings of historical or archaeological significance is approved by the legally constituted authority, such as the Department of Archaeology;
- ii) the proposed repair, alteration or addition to buildings of architectural value does not impair the aesthetic quality and architectural character of such buildings; and
- iii) the restored building or structure will be no more hazardous, if any, based on life safety, fire safety and sanitation than the existing building.

See also Sec 3.8 of Part 2 and Sec 1.16 of Part 3.

CHAPTER 2

Definitions

2.1 GENERAL

Unless otherwise expressly stated, the abbreviations, terms, phrases, words and their derivations listed below shall, for the purpose of this Code, be construed as set forth in this chapter. Words not explicitly defined shall have their ordinarily accepted meanings as the context implies as provided in *The Concise Oxford Dictionary of Current English*, eighth edition, Allen R.E., Ed., Oxford University Press, New Delhi, 1990; and *Chambers Science and Technology Dictionary*, W&R Chambers Ltd and Cambridge University Press, 1988 (Allied Publishers Ltd, Bombay, Fifth Reprint 1992).

The terms defined in this part shall have a general applicability to the entire Code. Other than these, there are other terminology and definitions provided in different parts, chapters and sections which shall be applicable only to that particular part, chapter or section in which they are defined. In case of any conflict or contradiction between a definition given in this part and that in any other part, chapter or section, the meaning provided in that part, chapter or section shall govern for the interpretation of the provisions of that particular part, chapter or section. In general, definitions given in a lower level shall override the meanings of all upper levels for the interpretation of the provisions within the scope of that lower level.

2.2 DEFINITIONS OF TERMS

The terminology used in this Code are defined in this section. Irrelevance of gender, tense and number is implicit in these definitions and throughout the Code. Words in the masculine gender include the feminine and the feminine the masculine. Verbs used in the present include the future. Words used in the singular include the plural and the plural the singular.

ACCESSORY USE : Any use subordinate to the major use which is normally incidental to the major use.

ALTERATION : Any change, addition or modification in construction such as structural, dimensional, or any removal of any part of a building or any change to or closing of any required means of ingress or egress or a change to the fixtures or equipment or any change in land use or occupancy or use.

APPROVED : Approved by the Authority.

AUTHORIZED OFFICER : An officer appointed by the Government by notification in the Official Gazette to exercise in any area the functions of an Authorized Officer.

AUTHORITY : The Authority which has been created by a statute and which, for the purpose of administering this Code or part thereof, may authorize a committee or an official to act on its behalf. (This definition of Authority shall apply to all appearances of the term in this Code written with a capital A).

BUILDING : Any permanent or semi-permanent structure which is constructed or erected for human habitation or storage or for any other purpose and includes the foundation, plinth, walls, floors, roofs, chimneys, fixed platform, verandah, balcony, cornice, projections, extensions, annexes and any land or space enclosed by wall adjacent to it. The term building will also include the sanitary, plumbing, HVAC, outdoor display structure, signs and all other building service installations which are constructed or erected as an integral part of a building.

BUILDING LINE : The line up to which the plinth of a building may lawfully extend. Also known as SETBACK LINE.

COMMITTEE : A Building Construction Committee constituted for any area in the prescribed manner, if necessary.

CONSTRUCT, TO : See ERECT, TO.

CONVERSION : The change in occupancy or premises to any occupancy or use requiring new occupancy permit.

COVERED AREA : The ground area above the plinth level which is covered by a building structure. The covered area of a building shall exclude gardens, wells, uncovered water and swimming pool, fountains, drainage structures, boundary wall, gates, single-storey open porch, uncovered staircase, watchman's cabin, detached pump house, electrical substations, garbage chutes and other utility structures.

DEVELOPMENT : Carrying out construction of buildings, engineering, mining or other operations in, or over or under land or water. Includes redevelopment and layout and subdivision of any land. 'To develop' and other grammatical variations shall be interpreted accordingly.

DRAIN : A conduit or channel for conveying water, sewage, or other waste liquid for subsequent disposal.

DRAINAGE : The disposal of any liquid with a system meant for this purpose.

ERECT, TO : To erect a new building or re-erect an existing building or to convert a building from one occupancy to another. Also known as CONSTRUCT, TO.

GOVERNMENT : The government of the People's Republic of Bangladesh.

GRADE : The lowest point of elevation of the finished surface of the ground, pavement or footpath within the area between the building and a line which is the property line or a line 1.5 m from the building, whichever is nearer the building.

HEIGHT OF BUILDING : The vertical distance from a reference datum to the highest point of the coping or the parapet of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or whipped roof. The reference datum shall be the elevation of the nearest footpath, or the elevation of the nearest road or street or public way at its centre line, whichever is higher.

HIGH RISE BUILDING : Any building which is more than 6 storeys or 20 m high.

OCCUPANCY OR USE GROUP : The purpose for which a building or a part thereof is used or intended to be used.

OCCUPANCY, MAJOR : The major or principal occupancy of a building or a part thereof which has attached to it subsidiary occupancy or occupancies contingent upon it.

OCCUPIER : A person paying or liable to pay rent or any portion of rent of a building in respect of which the ward is used, or compensation or premium on account of occupation of such building and also a rent-free tenant. Does not include a lodger and the words 'occupancy' and 'occupation' do not refer to the lodger. In such cases the owner himself or herself is living in his or her own building, he or she shall be deemed to be the occupier thereof.

OWNER, OF A BUILDING : The person, organization or agency at whose expenses the building is constructed or who has the right to transfer the same and includes his or her heirs, assignees and legal representatives, and a mortgagee in possession.

PERMIT : A written document or certificate issued by the Authority for carrying out a specific activity under the provisions of this Code.

PLINTH AREA : Area of a building measured at the plinth level.

PLOT : See SITE.

PUBLIC WAY : See ROAD.

RELIABLE LITERATURE : See RELIABLE REFERENCE.

RELIABLE REFERENCE : Reference materials such as published article, codes, standards or other material judged to be reliable by the professional users and specialists in the subject concerned. This may also be referred to as RELIABLE LITERATURE.

ROAD : A thoroughfare or public way which has been dedicated or deeded to the public for public use. Also known as STREET.

ROAD LINE : A line defining the side limits of a road.

ROOM HEIGHT : The clear head room between the finished floor surface and the finished ceiling surface or the underside of the joists or beams, whichever is lower.

SANCTIONED PLAN : The set of plans, design and specifications of a building submitted to the Authority as per provision of this Code and duly approved and sanctioned by the Authority.

SERVICE ROAD : A road or lane provided at the rear or side of a plot for service purposes.

SETBACK LINE : See BUILDING LINE.

SITE : A piece or parcel of land on which a building is intended to be or has already been constructed. Also known as PLOT.

SPECIALIST : A professional who by education, research, practice and experience specializes in a particular branch of a broader discipline and is generally judged to be so by the professionals in the relevant discipline.

STOREY : That portion of a building included between the upper surface of any floor and the upper surface of the floor above, except that the topmost storey shall be that portion of a building included between the upper surface of the topmost floor and the ceiling or roof above. If the finished floor level directly above a usable or unused under-floor space is more than 1.8 m above the grade, as defined herein, for more than 50 per cent of the total perimeter or is more than 3.6 m above grade at any point, such usable or unused under-floor space shall be considered as a storey.

STOREY, FIRST : The lowest storey in a building which qualifies as a storey as defined herein, except that a floor level in a building having only one floor level shall be classified as a first storey, provided such floor level is not more than 1.25 m below grade, as defined herein, for more than 50 per cent of the total perimeter, nor more than 2.5 m below grade at any point.

STREET : See ROAD.

STREET LEVEL : The elevation of the centre line of any road or street which a plot fronts.

STREET LINE : See ROAD LINE.

UNSAFE BUILDING : A building which, in the opinion of the Building Official, is structurally unsafe, or insanitary, or lacks proper means of ingress or egress, or which constitutes a hazard to life or property.

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CHAPTER **3**

Abbreviations

3.1 ABBREVIATIONS OF NAMES

Names of institutions, organizations and professional societies referred to in this Code are listed below in an alphabetical order.

ACI : American Concrete Institute; Box 19150, Redford Station, Detroit, MI 48219, USA.

AISC : American Institute of Steel Construction, Inc.; 400 North Michigan Avenue, Chicago, IL 60611, USA.

AISE : Association of Iron and Steel Engineers; Suite 2350, Three Gateway Center, Pittsburgh, PA 15222, USA.

AISI : American Iron and Steel Institute; Suite 300, 1133 15th Street N.W., Washington, DC 20005, USA.

ANSI : American National Standards Institute; 1430 Broadway, New York, NY 10018, USA.

ASHRAE : American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.; 345 East 47th Street, New York, NY 10017, USA.

ASME : American Society of Mechanical Engineers; United Engineering Centre, 345 East 47th Street, New York, NY 10017, USA.

ASTM : American Society for Testing and Materials; 1916 Race Street, Philadelphia, PA 19103, USA.

AWS : American Welding Society; 550 N.W. LeJeune Rd., P.O. Box 351040, Miami, FL 33135, USA.

BOCA : Building Officials and Code Administrators International Inc.; 1313 East 60th Street, Chicago, IL 60637, USA.

BSI : British Standards Institution; 2 Park Street, London W1A 2BS, UK.

Part I
Scope and Definitions

BSTI : Bangladesh Standards and Testing Institution; 116A Tejgaon Industrial Area, Dhaka 1208, BANGLADESH.

BWDB : Bangladesh Water Development Board; WAPDA Building, Motijheel Commercial Area, Dhaka 1000, BANGLADESH.

CGSM : Canadian General Standards Board; Technical Information Unit, Ottawa, CANADA K1A 1G6.

FM : Factory Manual; Standards Laboratories Department, 1151 Boston Providence Turnpike, Norwood, MA 02062, USA.

ICBO : International Conference of Building Officials; 5360 South Workman Mill Road, Whittier, CA 90601, USA.

ISO : International Organization for Standardization; 1, Rue de Varembe, Case Postal 56, CH-1211, Genève 20, SWITZERLAND.

ISSMFE : International Society of Soil Mechanics and Foundation Engineering; University Engineering Department, Trumpington St, Cambridge CB21PZ, UK.

NFPA, NFIPA : National Fire Protection Association; Batterymarch Park, Quincy, MA 02269, USA.

PDB : Power Development Board; WAPDA Building, Motijheel Commercial Area, Dhaka 1000, BANGLADESH.

PWD : Public Works Department; Poorta Bhaban, Segun Bagicha, Dhaka 1000, BANGLADESH.

RCSC : Research Council on Structural Connections of the Engineering Foundation; American Institute of Steel Construction (AISC).

RMA : Rubber Manufacturing Association; 1400 K Street N.W., Washington, DC 20005, USA.

SBCCI : Southern Building Code Congress International; 3617 8th Ave, S. Birmingham, AL 35222, USA.

SMACNA : Sheet Metal and Air Conditioning Contractors' National Association, 8224 Old Courthouse Road, Tysons Corner, Vienna, VA 22180, USA.

SPRI : Single Ply Roofing Institute; 104 Wilmont Road, Suite 201, Deerfield, IL 60015-5195, USA.

UL : Underwriters Laboratories, Inc; 207 East Ohio Street, Chicago, IL 60611, USA.

3.2 ABBREVIATIONS OF WORDS

The abbreviations used in this Code are listed below in an alphabetical order. Abbreviations not explicitly defined herein below shall be construed to have their usual meaning as the context implies.

BDS : Bangladesh Standards; published by the BSTI

BS : British Standard; published by the BSI

CBF : Concentric Braced Frame

CFC : Chlorofluorocarbon

CGI : Corrugated Galvanized Iron

cps : Cycles per second

CWPC : Cold Drawn Low Carbon Wire Prestressed Concrete

DGP : Dry Chemical Powder (fire extinguisher)

DDT : Dichlorodiphenyltrichloroethane

DPC : Damp-proof Course

EBF : Eccentric Braced Frame

FAR : Floor Area Ratio

FM : Fineness Modulus

FPA : Flood Prone Area

GI : Galvanized Iron

IMRF : Intermediate Moment Resisting Frame

IS : Indian Standard; published by the Bureau of Indian Standards

LFD : Load Factor Design

LPG : Liquefied Petroleum Gas

MCSP : Multipurpose Cyclone Shelter Programme

OMRF : Ordinary Moment Resisting Frame

RC : Reinforced Concrete

RS : Rolled Steel

RSJ : Rolled Steel Joist

SMRF : Special Moment Resisting Frame

SPA : Surge Prone Area

SRSS : Square Root of the Sum of the Squares

UBC : Uniform Building Code; published by the ICBO

WSD : Working Stress Design

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