6.0 National Building Code, Building Byelaws, labor law and other Regulatory Requirements applicable in Construction Industry

- Mani Ram Gelal

1 National Building Code

Most of the buildings in Nepal, including engineered ones also, are highly vulnerable to earthquake of even moderate intensities due to lack of knowledge of earthquake safety measures. As of recent years, most of the uncontrolled building construction each year are rapidly producing structures of unacceptable standard and are prone to the risk of damage or collapse under earthquake. An earthquake in 1988 in eastern Nepal resulted in more than 600 deaths and more than 20,000 buildings collapse or damage, including many hospital and school buildings.

As a result, it drew attention and government became conscious and ultimately developed 'National Building Code'. National Building code provides both regulations and guidelines for the construction of buildings in all areas of Nepal. Nepal lies in high risk seismic zone. Implementation and use of NBC plays significant role in earthquake resistant design of buildings. NBC is for safeguard of life and property during earthquake. Although the National Building Code (NBC) came into existence in 1994, it was approved by the government Nepal only in 2003 through a decision of the Cabinet.

The four different levels of sophistication of design and construction that are being adreesed in National Building Code are as follows:

Part I: International State- of –the Art

The code NBC 000 lies within this. This code is applicable to the modern and sophisticated building such as BICC which are constructed considering the building codes of the developed countries. ***Total: (1 Code)***

Part II: Professionally Engineered Buildings

These are the standard code requirements that all professionally qualified engineers will recognize and follow when designing buildings in Nepal. It covers all usual structures such as hospitals, meeting halls, factories, warehouses, multistoried buildings and residential buildings , of which plinth area is greater than 1000 square feet, storey more than 3 numbers and structural span greater than 4.5 meters. Related Codes are: NBC 101 to 114 and NBC 206 to 208.

Total: (17 Codes)

Part III: Mandatory Rules of Thumb

This section recognizes that it is not practical at present to insist that all buildings with plinth are less than or equal to 1000 square feet, storey less than or equal to 3 numbers and structural span less than or equal to 4.5 meters be designed by a professional Engineer. Therefore buildings not exceeding the above criteria can be designed based on Mandatory Rule of Thumb as defined by this code. Such buildings can be designed and constructed under the supervision of middle level technicians. The explanatory documents are such that an experienced mason should be able to understand them and present sufficient details at the time of permit application to prove to a skilled appraiser at the authority that the requirements have been met.

The document consists of:

Mandatory Rules of Thumb: RC Buildings with Masonry Infill (NBC 201)

Mandatory Rules of Thumb: RC Buildings without Masonry Infill (NBC 205)

Mandatory Rules of Thumb: Load Bearing Masonry (NBC 202)

Total: (3 Codes)

Part IV: Guidelines for Remote Rural Buildings

These guidelines address about typical building styles that have been condensed from an inventory of approximately 40 intensive surveys. These guidelines will emphasize those changes that should be made to current practices to improve the seismic resistamce of these buildings which are not subject to modern quantitative analysis and rational design consideration. These structures are normally earthen construction (Unfired masonary, mud mortar, rubble, dry stone etc.). The document consists of :

Guidelines for Earthquake Resistance Construction: LSM (NBC 203)

Guidelines for Earthquake Resistance Construction: Earthen Buildings (NBC 204)

Total: ***(2 Codes)***

To check the code provision for the building before they give the construction permit DUDBC has developed following forms to be submitted with the application form and the required drawings.

- Form for Architectural Design Requirement NBC 206:2003
- Form for Structural Design Requirement NBC000:1994 to NBC 114:1994
- Form for Electrical Design Requirement NBC 207:2003
- Form for Sanitary and Plumbing Design Requirement NBC 208:2003

Roles of National Building code

- Maintaining uniformity for materials and technology
- Accounting for safety measures (Safety, comfort and Use value)
- Focusing on earthquake resistant buildings
- Emphasizing for use of spaces within the buildings
- Guiding to Engineers, sub-Engineers and masons
- Flowing information and standards regarding architectural, electrical and sanitary designs.
- Servicing as a basic document tio the local bodies for checking the designs submitted fro approval by the individuals/public.

It is a matter of pride for us that we have developed NBC and already have put in implementation. But still construction of buildings as per the spirit of the code is not happening due to several constraints such as resource lack, lack of effective coordination, poor monitoring and evaluation mechanisms. A number of local bodies are still not following NBC. The concerned authorities, especially DUDBC must be pro active for its strict implementation through the country.

2. Building Bye-laws

It is mandatory to have building permission from concerned Urban Development Office, Metro and sub Metro- politan Cities, Municipalities and VDCs. There are building bye-laws prepared by concerned Town Development Committees and are followed by the municipalities and VDCs of the country. Building by-laws are prepared to ensure public health and safety, planned urban development and planned built environment. Broadly by-laws have three components:

Building Bylaws

It deals with-

- Right of Way (ROW)
- Set back
- Floor Area Ratio (FAR)
- Ground Coverage Ratio (GCR)
- Height of the Building
- Guidelines for Cultural Heritage Zone
- Clearance required from important sites etc.

Planning Bylaws:

Planning bylaws deals with the elements like

- Land use,
- Size of the plot
- Area and its depth and width ratio
- Length of cul-de-sac
- Area of open space
- Public facility requirements etc.

Enforcement Bylaws

It deals with-

- Enforcement process at various stages like during designin of building, during construction, in issuance of completion certificate and in using the constructed facilities.

3. Labor Law

3.1 Acts

- Child Labor (Prohibition and Regulation) Act, 2056 (2000);
- Children's Act, 2048 (1992)
- The Labor Act, 2048 (1992)
- Bonus Act, 2030 (1973)
- Trade Union Act, 2049

3.2 Regulations

- Labor Regulations, 2050,
- Trade Union Regulations, 2049,
- Bonus Regulations, 2039,
- Immigration Rules, 2051 (1994),

4. Regulatory Requirements Applicable in Construction industry

- National Housing survey 1991
- Building Act 2055
- Town development Act 2045
- Local Self Governance Act 2055
- Apartment Act 2054
- National Building Code Implementation procedures 2060
- Building construction directives 2060
- Building regulations 2062Natinal Shelter policy 2053

- National Urban Strategy 2061 etc.

References:

1. *National building Code 1994*
2. *Dr. Rajendra P. Adhikari, Engineering Professional Practice*
3. *Er. Ganesh Raj Osti, Technical services: Collection of Question-Answers*