N E P A L N A T I O N A L B U I L D I N G C O D E

NBC 206 : 2003

ARCHITECTURAL DESIGN REQUIREMENTS

His Majesty's Government of Nepal
Ministry of Physical Planning and Works
Department of Urban Development and Building Construction
Babar Mahal, Kathmandu, NEPAL
2060

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This publication represents a standard of good practice and therefore takes the form of recommendations. Compliance with it does not confer immunity from relevant legal requirements, including bylaws

श्री ५ को सरकार (मन्त्रिपरिषद्) को मिति २०६०।४।१२ को निर्णयानुसार स्वीकृत

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Preface

This module of Nepal National Building Code covers general building design requirements in accordance with the principles stated in the Bhawan Ain–2055 (Building Act). The principal focus is on the safety of occupants in a building during Earthquakes, Fires and Natural Disasters. Due to the limited technical manpower in the country's construction industry, the code has been simplified for the ease of use and implementation. It is hoped that with the development of manpower and modernization of construction processes, it will be possible to release a more sophisticated set of building planning guidelines in future.

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1.0 Staircase

Every stair having two or more risers shall conform to the following conditions in addition to Fire Safety requirement set out in NBC 107

1.1 The minimum clear width (unobstructed by projections or handrails) of staircase shall be as follows:

a) *Apartments*	Shared	1000 mm
(Within each multilevel unit)	Internal	800 mm
b) *Auditoriums*	Below 500 capacity	1500 mm
	Above 500 capacity	2000 mm
c) *Hospitals*		2000 mm
d) *Cold Storages and Warehouses*		1250 mm
e) *Buildings more than 4 stories high (Industrial or Commercial)*		1250 mm

Recommended for other types of buildings:

f) *Educational*		2000 mm
g) *Residential*		800 mm
h) *Cinemas*	Below 500 capacity	1500 mm
	Above 500 capacity	2000 mm
i) *Public Assembly* for capacities greater than 2500 occupants		2500 mm

Note: For reduced use staircases such as accesses to lofts, attics and terraces, the minimum width shall be 600mm.

1.2 The minimum tread shall be 250 mm excluding nosing and the maximum riser will be 175 mm for all buildings except for internal staircases of Apartments, which can be permitted up to 190 mm.

1.3 Handrails shall be provided in all open staircases

1.4 Handrails shall not be lower than 900 mm above the centre of the tread.

1.5 The maximum number of risers shall be limited to 15 per flight.

1.6 The minimum headroom under a staircase shall not be less than 2000 mm measured vertically from the nosing of the tread to the soffit plane above.

2.0 Exits

Exits shall be defined as a continuous and unobstructed means of egress to a public way and shall include intervening doors, passages, lobbies, ramps, staircases, courts and balconies. An exit may also include a horizontal exit into another building at the approximately the same level.

2.1 General Exit Requirements

(a) All exits shall be free of obstructions and be properly illuminated

(b) Except in case of apartments, exits shall be arranged so that it shall not pass through another occupied area.

(c) All exit ways shall be properly illuminated. Illuminated exit signs shall be required in case of Auditoriums, Hospitals, and Warehouses.

(d) The maximum travel distance on the floor to exits shall not exceed 30 m for all types of buildings.

(e) Exit capacities shall be calculated as follows:

Number of Occupants per 500mm width		
Building Type	Stairways* (occupants)	Doorways / Passages (occupants)
Apartments	*25*	*75*
Auditoriums	*60*	*90*
Hospitals	*25*	*75*
Cold Storage and Warehouses	*50*	*75*
Buildings more than 4 stories high (industrial and commercial)	*50*	*75*
Recommended for other types of buildings:		
Educational / Institutional	*25*	*75*
Other Residential	*25*	*75*
Cinemas	*60*	*90*

* For stairways, minimum width will be governed by Section 1.0

Example: Calculation of total doorway width at main exit level for a Cinema hall with 900 occupants:

900 occupants / 90 occupants per 500 mm width = 10 x 500 mm = 500 mm total width. This can be broken up with two main exit doors – Each 2500 mm wide.

2.2 Exit Doors

(a) No exit door, inclusive of frame, shall be less than 1000 mm in width and 2000 mm in height except in the case of toilets, which may be permitted to the width of 750 mm.

(b) Exit doorway of Auditoriums, Cinemas and Public Assembly Buildings shall be openable without a key from the side which they serve

(c) All exit doors to staircases and public passages shall open outwards. However, the doors shall not obstruct the passages and staircase landings when open.

3.0 Lighting and Ventilation

All habitable rooms shall have admission of light through external wall openings not less than $1/10^{th}$ the floor area of the room. Habitable rooms are defined as those areas not less than 2000 mm x 2000 mm used for extended periods of time for living, study, sleeping, eating and working excluding bathrooms, stores, laundry, passages and attics. The admission of light is permitted through internal courtyards having minimum dimension of 3000 mm x 3000 mm.

No portion of the room shall be considered naturally lighted if it is more than 7500 mm from the opening assumed for lighting that portion.

For natural ventilation, openable exterior openings not less than $1/20^{th}$ of the floor area shall be provided. For ventilating spaces for water closets and bathrooms, the minimum size of the ventilation shaft shall be 1 sq. m.

Where natural lighting and ventilation requirements are not met, the same shall be assured through artificial lighting and mechanical ventilation.

4.0 Lifts

Appliances designed for vertical circulation of persons of goods.

4.1 Provision of Lifts shall be made for all buildings more than 15000 mm in height.

4.2 Not more than 4 lifts shall be provided per bank.

4.3 Shafts for lifts will have to be enclosed by walls having fire resistance of two hours

4.4 Lift wells that extend for more than two floors shall be ventilated to outside air through opening of not less than 3.5 % of the area of the shaft. Lift wells shall not be vented directly through the machine room and provision of enclosed ventilation ducts or pipes should be provided through the machine room in such cases.

4.5 The electric supply for the lift shall be on a separate supply line from the supply mains. In case of failure of normal electric supply, it shall automatically trip over to an alternate power source.

5.0 Requirement for the Physically Disabled

5.1 At least one primary entrance to a building shall be usable by the physically disabled and be on the level that would provide access to elevators where provided.

5.2 Access ramps for wheelchairs shall not have gradients in excess of 1:12. Level platforms shall be provided at max. 1800 mm flight. Level plateforms shall also be provided at tops and changes of direction. The minimum widths of wheelchair accessible ramps shall be 900 mm for apartments and residential uses, and 1000 mm for all other building types. Handrails are required when the total rise exceeds 600 mm.

5.3 The areas accessible by wheelchair shall have a flush threshold and openings with minimum clear width of 775mm. If double leaf entrance doors are provided, the single leaf opening shall meet the above clear width.

6.0 Glazing in Hazardous locations

The following areas are considered specific hazardous locations subject to human impact:

6.1 Glazing in unframed ingress and egress doors

6.2 Glazing in shower, bathtub doors and enclosures

6.3 Glazing in balustrade railings

The glass for such areas shall be one of the following types*:

a) Single fully tempered glass

b) Laminated fully tempered glass

c) Laminated heat strengthened glass

*For section 6.1, a minimum of 12 mm regular glass may be used instead of the above special glass.

7.0 Parapet Heights

All accessible roof terraces and balconies shall have parapet walls and handrails that are not less than 1000 mm in height.

References: National Building Code of India 1983
Uniform Building Code, United States 1988
Building Bye –Laws New Delhi
Neufert Architect's Data, Second International Edition, 1994