



NEPAL NATIONAL BUILDING CODE

NBC 101 : 1994



MATERIALS SPECIFICATIONS

Government of Nepal
Ministry of Physical Planning and Works
Department of Urban Development and Building Construction
Babar Mahal, Kathmandu, NEPAL
Reprinted : 2064



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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

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

Government of Nepal
Ministry of Physical Planning and Works
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Preface

This Nepal Standard was prepared during 1993 as part of a project to prepare a draft National Building Code for Nepal.

In 1988 the Ministry of Housing and Physical Planning (MHPP), conscious of the growing needs of Nepal's urban and shelter sectors, requested technical assistance from the United Nations Development Programme and their executing agency, United Nations Centre for Human Settlements (UNCHS).

A programme of Policy and Technical Support was set up within the Ministry (UNDP Project NEP/88/054) and a number of activities have been undertaken within this framework.

The 1988 earthquake in Nepal, and the resulting deaths and damage to both housing and schools, again drew attention to the need for changes and improvement in current building construction and design methods.

Until now, Nepal has not had any regulations or documents of its own setting out either requirements or good practice for achieving satisfactory strength in buildings.

In late 1991 the MHPP and UNCHS requested proposals for the development of such regulations and documents from international organisations in response to terms of reference prepared by a panel of experts.

This document has been prepared by the subcontractor's team working within the Department of Building, the team including members of the Department and the MHPP. As part of the proposed management and implementation strategy, it has been prepared so as to conform with the general presentation requirements of the Nepal Bureau of Standards and Metrology.

The subproject has been undertaken under the aegis of an Advisory Panel to the MHPP.

The Advisory Panel consisted of :

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Mr. AR Pant, Under Secretary, MHPP Director General, Department of Mines & Geology (Mr. PL Shrestha)	Member Member
Director General, Nepal Bureau of Standards & Metrology (Mr. PB Manandhar)	Member
Dean, Institute of Engineering, Tribhuvan University (Dr. SB Mathe)	Member
Project Chief, Earthquake Areas Rehabilitation & Reconstruction Project	Member
President, Nepal Engineers Association	Member
Law Officer, MHPP (Mr. RB Dange)	Member
Representative, Society of Consulting Architectural & Engineering Firms (SCAEF)	Member

Representative, Society of Nepalese Architects (SONA)
Deputy Director General, Department of Building,
(Mr. JP Pradhan)

Member
Member-Secretary

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0. Foreword

This Standard deals with the requisite quality and effectiveness of construction materials used mainly in the building construction. It also deals with the storage of materials where storage has relevance to strength.

- 0.1 Since the quality requirements and test methods used to determine the quality are enumerated in the relevant materials standards, this standards provide a list of Nepal Standards (NS) for key materials used in the building construction. A list of related Indian Standards (IS) has been included for those materials for which Nepal Standards (NS) do not exist as yet. When NS or IS prepare Standards for other materials having a bearing on the strength characteristics of the buildings, or revised version of the existing Standard, these shall be deemed to be the requirement of this Standard. If it exists, the requirements of NS will govern and be mandatory unless the designer has based his design on a standard other than NS. The use of appropriate, adopted or new materials is encouraged, provided these materials have been proven to meet their intended purposes.

1 Scope

The minimum requirements of building materials for buildings complying with the National Building Code are set forth in this part of Standard. Criteria for accepting the use of appropriate and adopted new materials are also outlined.

2 Interpretation

2.1 General

In this Standard the word "shall" indicates a requirement that is to be adopted in order to comply with the Standard, while the word "should" indicates recommended practice.

Commentary clauses are prefaced by the letter C and the number of the appropriate clause subject to comment.

3 Materials

The use of materials conforming to NS or IS or any other approved standards agency shall deem to have satisfied the requirements of this Standard. A list of such Nepal Standards and Indian Standards appear in section 9 below.

4 Appropriate, Adopted or New Materials

Any appropriate, adopted or new materials that are not covered by the provision of this Standard may also be used in buildings requiring National Building code compliance, provided that these materials are equivalent, or better in quality, strength, effectiveness, fire resistance, durability, safety, maintenance and compatibility. Prior to the use of such materials, it shall be the responsibility of the building owner, or the authorised representative of the building owner, to obtain proof of equivalency.

5 Recycled / Used Materials

If recycled / used materials meet the requirements of the Standard, they may also be used.

6 Storage of the Materials

All building materials shall be stored in such a manner that no deterioration or loss or impairment of their structural and other inherent properties takes place.

7 Transportation of Materials

All building materials shall be transported so as not to impair their inherent properties.

8 Methods of Test

The testing of materials necessary to fulfill the requirements of this Standard shall be carried out in accordance with the procedures laid down by NS. Where a NS procedure is not available, the testing shall conform to the procedures stipulated by IS or any other authority of similar stature. The test are to be carried out by appropriately-competent persons in a suitable laboratory. The list of Nepal Standards and Indian Standards for materials, which appear in the following section, also stipulate the procedures for testing.

9 List of Standards

Table 9.1 lists those Standards which are mandatory as minimum requirements for buildings designed to comply with other Nepal Standards for Engineered design.

The latest version of a Standard shall be used.

Table 9.1 : LIST OF RELATED MATERIALS STANDARDS

INDIAN STANDARDS	NEPAL STANDARDS
<p>A. GENERAL</p> <p>IS : 1911-1967 Schedule of unit weights of buildings materials (first revision)</p> <p>B. CEMENT AND CONCRETE</p> <p>1. Aggregates</p> <p>IS : 383-1970 : Specification for coarse and fine aggregates from natural sources for concrete (second revision) Specification for standard sand for testing of cement</p> <p>IS:2386 Methods of test for aggregates for concrete:</p> <p>IS: 2386 (Part I) - 1963, Part I: Particle size and shape.</p> <p>IS: 2386 (Part II) - 1963, Part II: Estimation of deleterious materials and organic impurities.</p> <p>IS: 2386 (Part III) - 1963, Part III : Specific gravity, density, voids, absorption and bulking.</p> <p>IS: 2386 (Part IV) - 1963, Part IV : Mechanical properties.</p> <p>IS: 2386 (Part V) - 1963, Part V: Soundness.</p> <p>IS: 2386 (Part VI) - 1963, Part VI : Measuring mortar making properties of fine aggregate.</p>	<p>NBC 102-94 : Unit weight of Materials</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS: 2386 (Part VII) - 1963, Part VII: Alkali aggregate reactivity.</p> <p>IS: 2386 (Part VIII) - 1963, Part VIII: Petrographic examination.</p> <p>IS: 2430 - 1969: Methods of sampling of aggregates for concrete.</p> <p>IS: 9103-1979 : Specification for admixtures for concrete.</p> <p>IS: 9142-1979 : Specification for artificial light weight aggregates for concrete masonry units.</p> <p>2. Cement</p> <p>IS : 269-1976 : Specification for ordinary and low heat Portland cement.</p> <p>IS : 2645-1975 : Specification for integral cement waterproofing compounds (First revision).</p> <p>IS : 8042-1978 : Specification for white Portland cement (first revision).</p> <p>IS : 8042-1978 : Specification for high strength ordinary Portland cement.</p> <p>3. MORTAR</p> <p>IS : 2250-1980 Code of practice for preparation and use of masonry mortar (first revision)</p> <p>Cement and concrete sampling and methods of test.</p> <p>IS : 516-1959 : Methods of test for strength of concrete.</p>	<p>NS 49/2041 : Ordinary Portland Cement</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 1199-1959 Methods of sampling and analysis of concrete.</p> <p>IS : 2770 (Part I) -1967 : Methods of testing bond in reinforced concrete. Part I : Pullout test.</p> <p>IS : 3085-1965 : Methods of test for permeability of cement mortar and concrete.</p> <p>IS : 5816-1970 : Methods of test for splitting tensile strength of concrete cylinders.</p> <p>IS : 6925-1973 : Methods of test for determination of water soluble chlorides in concrete admixtures.</p> <p>IS : 8142-1976 : Methods of test for determining setting times of concrete by penetration resistance.</p>	
<p>4. Precast concrete products</p> <p>IS : 2185 Specification for concrete masonry units :</p> <p style="padding-left: 40px;">IS : 2185 (Part I) -1979 Part I : Hollow and solid concrete blocks (Second revision).</p> <p style="padding-left: 40px;">IS : 2185 (Part II) -1983, Part II : Hollow and solid lightweight concrete blocks.</p> <p style="padding-left: 40px;">IS : 2185 (Part III) -1984, Part III : Autoclaved cellular (aerated) concrete blocks (Under print).</p> <p>IS : 5751-1984: Specification for precast concrete coping blocks (First revision) (under print).</p>	<p>NS 119/2042 Hollow Cement Block</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 5758-1984: Specification for precast concrete kerbs (First revision) (under print).</p> <p>IS : 5820-1970: Specification for precast concrete cable covers.</p> <p>IS : 6523-1983: Specification for precast reinforced concrete door and window frames (First revision).</p> <p>IS : 9872-1981: Specification for precast concrete septic tanks.</p> <p>IS : 9893-1981: Specification for precast concrete blocks for lintels and sills.</p>	
<p>C. ASBESTOS CEMENT PRODUCTS</p>	
<p>IS: 459-1970: Specification for unreinforced corrugated and semi-corrugated asbestos cement sheets (second revision).</p> <p>IS : 1626: Specification for asbestos cement building pipes and pipe fittings, gutters and gutter fittings and roofing fittings:</p>	
<p>IS : 1626 (Part I) -1980, Part I: Pipes and pipe fittings (first revision).</p>	
<p>IS : 1626 (Part I) -1980, Part I: Pipes and pipe fittings (first revision).</p>	
<p>IS : 1626 (Part II) -1980, Part II: Gutters and gutter fittings (first revision).</p>	
<p>IS : 1626 (Part III) -1981, Part III: Roofing accessories (first revision).</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 2096-1966 : Specification for asbestos cement flat sheets.</p> <p>IS : 2098-1964 : Specification for asbestos cement building boards.</p> <p>IS : 5913-1970 : Methods of test for asbestos cement products.</p> <p>IS : 6908-1975 : Specification for asbestos cement pipes and fittings for sewerage and drainage.</p> <p>IS : 7639-1975 : Method of sampling asbestos cement products.</p> <p>IS : 9627-1980 : Specification for asbestos cement pressure pipes (light duty).</p>	
<p>D. CONCRETE PIPES</p>	
<p>IS : 458-1971 : Specification for concrete pipes (with and without reinforcement) (second revision).</p>	<p>NS 080/2042 :Hume Pipe</p>
<p>IS : 1916-1963 : Specification for steel cylinder reinforced concrete pipes.</p>	
<p>IS : 3597-1966 : Methods of test for concrete pipes.</p>	
<p>IS : 4350-1967 : Specification for concrete porous pipes for under drainage.</p>	
<p>IS : 7319-1974 : Specification for perforated concrete pipes.</p>	
<p>IS : 7322-1974 : Specification for specials for steel cylinder reinforced concrete pipes.</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>E. BUILDING LIMES</p> <p>IS : 712-1973 : Specification for building limes (second revision).</p> <p>IS : 1624-1974 : Method of field testing of building lime (first revision).</p> <p>IS :3068-1975 : Specification for broken brick (burnt-clay) coarse aggregates for use in lime concrete (first revision):</p> <p>IS :6932 (Part I)-1973 Part I Determination of insoluble residue, loss on ignition, insoluble matter, silicon dioxide, ferric and aluminum oxide, calcium oxide and magnesium oxide.</p> <p>IS : 6932 (Part II)-1973 Part II Determination of carbon dioxide content.</p> <p>IS : 6932 (Part III)-1973 Part III Determination of residue on slaking of quicklime.</p> <p>IS : 6932 (Part IV)-1973 Part IV Determination of fineness of hydrated lime.</p> <p>IS : 6932 (Part V)-1973 Part V Determination of unhydrated oxide</p> <p>IS : 6932 (Part VI)-1973 Part VI Determination of volume yield of quicklime</p> <p>IS : 6932 (Part VII)-1973 Part VII Determination of compressive and transverse strength</p>	<p>NS 002/2036 Lime for construction</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 6932 (Part VIII)-1973 Part VIII Determination of workability.</p> <p>IS : 6932 (Part IX)-1973 Part IX Determination of soundness.</p> <p>IS : 6932 (Part X)-1973 Part X Determination of popping and putting of hydrated lime.</p> <p>IS : 6932 (Part XI)-1983 Method of test for building limes : Part XI Determination of setting time of hydrated lime Stones</p>	<p>NS 184/2045 Methods of sampling for Dolomite, Magnesite, and allied minerals</p>
F. NATURAL BUILDING STONES	
<p>IS : 1121 Method of test for determination of strength properties of natural building stones:</p> <p>IS : 1121 (Part I)-1974 Part I Compressive strength (first revision)</p> <p>IS :1121 (Part II)-1974 Part II Transverse strength (first revision)</p> <p>IS :1121 (Part III)-1974 Part III Tensile strength (first revision)</p> <p>IS :1122 (Part IV)-1974 Part IV Shear strength (first revision)</p> <p>IS :1122-1974 Methods for determination of true specific gravity of natural building stones (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 1123-1975 Method of identification of natural building stones (first revision)</p> <p>IS:1125-1974 Method of test for determination of weathering of natural building stones (first revision)</p> <p>IS.1126-1974 Method of test determination of durability of natural building stones (first revision)</p> <p>IS:1127-1970 Recommendations for dimensions and workmanship for natural building stones for masonry work (first revision)</p> <p>IS : 1128-1974 Specification for limestone (slab and tiles) (first revision)</p> <p>IS : 1130-1969 Specification for marble (blocks, slabs & tiles)</p> <p>IS.1706-1972 Method of determination of resistance to wear by abrasion of natural building stones (first revision)</p> <p>IS : 3316-1974 Specification for laterite stone block for masonry (first revision)</p> <p>IS : 3620-1979 Specification for sand stone (slabs and tiles) (first revision)</p> <p>IS: 4121-1967 Method of test for determination of water transmission rate by capillary action through natural building stones.</p> <p>IS: 4348-1973 Methods of test for determination of permeability of natural</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>building stones (first revision)</p> <p>IS:5218-1969 Method of test for toughness of natural building stones</p> <p>IS: 5640-1970 Method of test for determining the aggregates impact value of soft coarse aggregates.</p> <p>IS : 6250-1981 Specification for roofing slate tiles (first revision).</p> <p>IS : 7779 Schedule for properties and availability of stones for construction purposes:</p> <p>G. CLAY PRODUCTS FOR BUILDING</p> <p>1. Bricks</p> <p>IS : 1077-1976 Specification for common burnt clay building bricks (third revision):</p> <p>IS :3495 (Part I)-1976 Part I Determination of compressive strength (second revision)</p> <p>IS :3495 (Part II)-1976 Part II Determination of water absorption (second revision)</p> <p>IS :3495 (Part III)-1976 Part III Determination of efflorescence (second revision)</p> <p>IS :3495 (Part IV)-1976 Part IV Determination of warpage (second revision)</p> <p>IS : 5454-1978 Methods for sampling of clay building bricks (first revision)</p> <p>IS : 5779-1970 Specification for burnt clay soling bricks.</p>	<p>NS 1/2035 Brick</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS: 6165-1971 Dimensions for special shapes of clay bricks.</p> <p>2. Tiles</p> <p>IS: 654-1972 Specification for clay roofing tiles, Mangalore pattern (second revision)</p> <p>IS: 1464-1973 Specification for clay ridge and ceiling tiles (first revision)</p> <p>IS : 1478-1969 Specification for clay flooring tiles (first revision)</p> <p>IS: 2690 Specification for burnt clay flat terracing tiles:</p> <p>IS: 8920-1978 Methods for sampling of burnt clay tiles</p> <p>H. TIMBER TESTING</p> <p>IS: 4907-1968 Method of testing timber connectors .</p> <p>IS: 8242-1976 Methods of test for split bamboos.</p> <p>IS: 8292-1976 Methods for evaluation of working qualities of timber under different operations.</p> <p>I. FLOOR COVERINGS AND OTHER FINISHES</p> <p>IS: 777-1970 Specification for glazed earthenware tiles (first revision)</p> <p>IS: 1237-1980 Specification for cement concrete flooring tiles (first revision)</p> <p>IS : 1542-1977 Specification for sand for plaster (first revision).</p>	<p>NS 047/2041 Mosaic tiles</p> <p>NS 0776/2041 Flooring tiles</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS :2333-1981 Specification for plaster of Paris (first revision)</p> <p>IS : 3461-1980 Specification for PVC asbestos floor tiles (first revision)</p> <p>IS : 3462-1979 Specification for flexible PVC flooring (first revision)</p> <p>J. WATER PROOFING AND DAMP-PROOFING MATERIALS</p> <p>IS .1322-1982 Specification for bitumen felts for waterproofing and damp proofing (third revision)</p> <p>IS: 1580-1969 Specification for bituminous compound for waterproofing and caulking purposes (first revision)</p> <p>IS .3037-1965 Specification for bitumen mastic for use in waterproofing of roofs.</p> <p>IS :3384-1965 Specification for bitumen primer for use in waterproofing and damp-proofing.</p> <p>IS :5871-1970 Specification for bitumen mastic for tacking and damp- proofing</p> <p>K. WOOD PRODUCTS</p> <p>1. Plywood</p> <p>IS :303-1975 Specification for plywood for general purposes (second revision)</p> <p>IS : 1328-1982 Specification for veneered decorative plywood (second</p>	<p>NS 38/2040 Plywood</p> <p>NS 114/2042 Test methods of Plywood.</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>revision)</p> <p>IS : 4990-1981 Specification for plywood for concrete shuttering work (first revision)</p> <p>IS : 5509-1980 Specification for fire retardant plywood (first revision)</p> <p>2. Particle boards and fibre boards</p> <p>IS: 1658-1977 Specification for fibre hardboards (second revision)</p> <p>IS : 1659-1979 Specification for block boards (second revision)</p> <p>IS: 2380 (Parts I to XXI)-1977 Methods of test for wood particle boards and boards from other lignocellulosic materials (first revision)</p> <p>3. Doors and windows</p> <p>IS : 1003 Specification for timber panelled and glazed shutters:</p> <p style="padding-left: 40px;">IS :1003 (Part I)-1977 Part I Door shutters (second revision)</p> <p>IS : 1826-1961 Specification for Venetian blinds for windows</p> <p>IS : 2191 Specification for wooden flush door shutters (cellular and hollow core type):</p> <p style="padding-left: 40px;">IS : 2191 (Part I)-1983 Part I Plywood face panels (fourth revision)</p> <p style="padding-left: 40px;">IS :2191 (Part II)-1983 Part II Particle board face panels and hardboard face panels (third revision)</p> <p>IS : 2202 Specification for wooden flush</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>doors shutters (solid core type):</p> <p>IS : 2202 (Part I)-1983 Part I Plywood face panels (fourth revision)</p> <p>IS : 2202 (Part II)-1983 Part II Particle board face panels and hardboard face panels (third revision)</p> <p>IS : 4020-1967 Methods of tests for wooden flush doors: Type tests .</p> <p>IS : 4121-1983 Specification for timber door, window and ventilator frames (second revision)</p> <p>IS : 4962-1968 Specification for wooden side sliding doors.</p> <p>IS : 6198-1983 Specification for legged, braced and battened timber door shutters (1st rev.)</p>	
<p>L. METAL DOOR AND WINDOW FRAMES, AND SHUTTERS</p> <p>IS : 1038-1983 Specification for steel doors, windows and ventilators (third revision)</p> <p>IS : 1361-1978 Specification for steel windows for industrial buildings (first revision)</p> <p>IS : 1948-1961 Specification for aluminum doors, windows and ventilators</p> <p>IS : 1949-1961 Specification for aluminum windows for industrial buildings.</p> <p>IS . 4351-1976 Specification for steel door frames (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 6248-1979 Specification for metal rolling shutters and rolling grills (first revision)</p> <p>IS : 7452-1982 Specification for hot rolled steel sections for doors, windows and ventilators (first revision)</p> <p>IS : 10451-1983 Specification for steel sliding shutters (top hung type)</p> <p>IS : 10521-1983 Specification for collapsible gates</p> <p>M. CONCRETE REINFORCEMENT</p> <p>IS :432 Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement:</p> <p style="padding-left: 40px;">IS :432 (Part I)-1982 Part I Mild steel and medium tensile steel bars (third revision)</p> <p style="padding-left: 40px;">IS :432 (Part II)-1982 Part II Hard drawn steel wire (third revision)</p> <p>IS :1139-1966 Specification for hot rolled mild steel, medium tensile steel and high yield strength steel deformed bars for concrete reinforcement (revised)</p> <p>IS :1566-1982 Specification for hard drawn steel wire fabric for concrete reinforcement (second revision)</p> <p>IS : 1785 Specification for plain hard drawn steel wire for prestressed concrete:</p>	<p style="text-align: center;">NS 84/2042 Mild Steel Rod</p>

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS :1785 (Part I)-1983 Part I Cold drawn stress-relieved wire (second revision)</p> <p>IS : 1785 (Part II)-1983 Part II As drawn wire (first revision)</p> <p>IS :1786-1979 Specification for cold worked steel high strength deformed bars for concrete reinforcement (second revision)</p> <p>IS : 2090-1983 Specification for high tensile steel bars used in prestressed concrete (first revision)</p> <p>IS : 6003-1983 Specification for indented wire for prestressed concrete (first revision)</p> <p>IS : 6006-1983 Specification for uncoated stress-relieved strand for prestressed concrete (first revision)</p>	<p>NS 191/2046 Deformed steel bar and wire for concrete reinforcement</p>
<p>N. STRUCTURAL STEEL</p> <p>IS : 226-1975 Specification for structural steel (standard quality) (fifth revision)</p> <p>IS : 961-1975 Specification for structural steel (high tensile) (second revision)</p> <p>IS :1977-1975 Specification for structural steel (ordinary quality) (second revision)</p> <p>IS : 2062-1984 Specification for weldable structural steel (third revision) (under print)</p> <p>IS :2830-1975 Specification for carbon steel billets, blooms and slabs for re-rolling into structural steel (standard</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>quality) (first revision)</p> <p>IS :2831-1975 Specification for carbon steel billets, blooms and slabs for re-rolling into structural steel (ordinary quality) (second revision)</p> <p>IS : 8500-1977 Specification for weldable structural steel (medium and high strength qualities)</p> <p>0. BARS, RODS, WIRE AND WIRE RODS</p> <p>IS : 280-1978 Specification for general engineering purposes (third revision)</p> <p>IS : 1148-1982 Specification for hot rolled steel rivet bars (up to 40 mm diameter) for structural purposes (third revision)</p> <p>IS : 1149-1982 Specification for high tensile steel rivet bars for structural purposes (third revision)</p> <p>IS : 2591-1982 Dimensions for hot rolled bars for threaded components (second revision)</p> <p>IS :7887-1975 Specification for mild steel wire rods for general engineering purposes</p> <p>P. PLATES</p> <p>IS .3502-1979 Specification for steel chequered plates</p> <p>Q. TUBES AND TUBULARS</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 1161-1979 Specification for steel tubes for structural purposes (third revision)</p> <p>IS :1239 Specification for mild steel tubes, tubulars and other wrought steel fittings:</p> <p style="padding-left: 40px;">IS :1239 (Part I)-1979 Part I Mild steel tubes (fourth revision)</p> <p style="padding-left: 40px;">IS :1239 (Part II)-1982 Part II Mild steel tubulars and other wrought steel pipe fittings (third revision)</p> <p>IS : 4270-1983 Specification for steel tubes used for water wells (first revision)</p> <p>IS :4516-1968 Specification for elliptical mild steel tubes.</p> <p>IS :4923-1968 Specification for hollow mild steel sections for structural use</p> <p>IS : 733-1983 Specification for wrought aluminum and aluminum alloys, bars, rods and sections for general engineering purposes (third revision)</p> <p>IS : 737-1974 Specification for wrought aluminum and aluminum alloys, sheet and strip (for general engineering purposes) (second revision)</p> <p>IS : 738-1977 Specification for wrought aluminum and aluminum alloy drawn tube for general engineering purposes (second revision)</p> <p>IS : 1254-1975 Specification for corrugated aluminum sheet (second</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>revision)</p> <p>IS :1285-1975 Specification for wrought aluminum and aluminum alloys, extruded round tube and hollow sections (for general engineering purposes) (second revision)</p> <p>IS : 7094-1973 Specification for aluminum alloys welded tubes for general engineering purposes</p>	
R. WELDING ELECTRODES AND WIRES	
<p>IS : 814 Specification for covered electrodes for arc welding of structural steels:</p>	
<p style="padding-left: 40px;">IS :814 (Part I)-1974 Part I for welding products other than sheets (fourth revision)</p>	
<p style="padding-left: 40px;">IS :814 (Part II)-1974 Part II for welding sheets (fourth revision)</p>	
<p>IS : 815-1974 Classification and coding of covered electrodes for metal arc welding of structural steels (2nd Rev.)</p>	
<p>IS : 1278-1972 Specification for filler rods and wires for gas welding (second revision)</p>	
<p>IS : 1395-1982 Specification for low and medium alloy steel covered electrodes for manual metal arc welding (third revision)</p>	
<p>IS :3613-1974 Acceptance tests for wire-flux combinations for submerged-arc welding of structural steel (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 4972-1968 Specification for resistance spot-welding electrodes</p> <p>IS :6419-1971 Specification for welding rods and base electrodes for gas shielded arc welding of structural steel</p> <p>IS : 6560-1972 Specification for molybdenum and chromium-molybdenum low alloy steel welding rods and base electrodes for gas shielded arc welding.</p> <p>IS :7280-1974 Specification for base wire electrodes for submerged-arc welding of structural steels</p> <p>IS :.8363-1976 Specification for bare wire electrodes for electroslag welding of steels.</p>	
<p>S. BOLTS, NUTS AND FASTENERS ACCESSORIES</p>	
<p>IS :207-1964 Specification for gate and shutter hooks and eyes (revised)</p>	
<p>IS : 451-1972 Specification for steel countersunk head wire nails (second revision)</p>	<p>NS 167 : Part 3/2045 wood screw part 3-slotted counter sunk screw.</p>
<p>IS :724-1964 Specification for mild steel and brass cup, ruler and square hooks and screw eyes (revised)</p>	
<p>IS : 730-1978 Specification for hook bolts for corrugated sheet roofing (second revision)</p>	
<p>IS .1120-1975 Specification for coach screws (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 1363-1967 Specification for black hexagonal bolts, nuts and lock nuts (dia. 6 to 39 mm) and black hexagonal screws (dia. 6 to 24 mm) (first revision)</p> <p>IS : 1365-1978 Specification for slotted countersunk head screws (third revision)</p> <p>IS : 1366-1982 Specification for slotted cheese head screws (dia. range 1.6 to 20 mm) (second revision)</p> <p>IS : 2016-1967 Specification for plain washers (second revision)</p> <p>IS : 2389-1968 Specification for precision hexagon bolts, screws, nuts and lock nuts (dia. range 1.6 to 5 mm) (first revision)</p> <p>IS :2585-1968 Specification for black square bolts and nuts (dia. range 6 to 39 mm) and black square screws (dia. range 6 to 24 mm) (first revision)</p> <p>IS :2687-1975 Specification for cap nuts (first revision)</p> <p>IS:3063-1972 Specification for single coil rectangular section spring washers for bolts, nuts and screws (first revision)</p> <p>IS : 3468-1975 Specification for pipe nuts (first revision)</p> <p>IS :3753-1972 Specification for high tensile friction grip bolts (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS:4206-1967 Dimensions for nominal lengths, and thread lengths for bolts, screws and studs</p> <p>IS : 4762-1968 Specification for worm drive hose clips for general purposes</p> <p>IS : 5369-1975 General requirements for plain washers and lock washers (first revision)</p> <p>IS:5372-1975 Specification for taper washer for channels (ISMC) (first revision)</p> <p>IS :5373-1969 Specification for square washers for wood fastenings</p> <p>IS :5624-1970 Specification for foundation bolts</p> <p>IS :6113-1970 Specification for aluminum fasteners for building purposes</p> <p>IS :6610-1972 Specification for heavy washers for steel structures</p> <p>IS : 6623-1972 Specification for heavy washers for steel structures</p> <p>IS : 6639-1972 Specification for hexagon bolts for steel structures</p> <p>IS : 6649-1972 Specification for high tensile friction grip washers</p> <p>IS : 6733-1972 Specification for wall and roofing nails</p> <p>IS : 6736-1972 Specification for slotted raised countersunk head wood screws.</p> <p>IS : 6739-1972 Specification for slotted round head wood screws</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS: 6760-1972 Specification for slotted countersunk head wood screws.</p> <p>IS: 8033-1976 Specification for round washers with square hole for wood fastenings</p> <p>IS :8412-1977 Specification for slotted countersunk head bolts for steel structures</p> <p>IS:8822-1978 Specification for slotted mushroom head roofing bolts</p> <p>IS :8869-1978 Specification for washers for corrugated sheet roofing</p> <p>IS :8911-1978 Specification for slotted raised countersunk head screws</p> <p>IS :10238-1982 Specification for step bolts for steel structures</p>	
<p>T. SCREW THREADS AND RIVETS</p>	
<p>IS :554-1975 Dimensions for pipe threads where pressure tight joints are required on the threads (second revision)</p> <p>IS :1929-1982 Specification for hot forged steel rivets for hot closing (12 to 36 mm diameter) (first revision)</p> <p>IS:2155-1982 Specification for cold forged solid steel rivets for hot closing (6 to 16 mm diameter) (first revision)</p> <p>IS :2643 Dimensions for pipe threads for fastening purposes:</p> <p style="padding-left: 40px;">IS :2643 (Part I)-1975 Part I Basic profile and dimensions (first revision)</p> <p style="padding-left: 40px;">IS :2643 (Part II)-1975 Part II Tolerances (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS:2643 (Part III)-1975 Part III Limits of sizes (first revision) IS : 10102-1982 Technical supply conditions for rivets</p> <p>IS :2907-1964 Specification for cold forged steel rivets for cold closing (1 to 16 mm diameter (first revision)</p> <p>U. WIRE ROPES AND WIRE PRODUCTS</p> <p>IS :278-1978 Specification for galvanized steel barbed wire for fencing (third revision)</p> <p>IS : 1835-1976 Specification for steel wire for ropes (third revision)</p> <p>IS :2140-1978 Specification for stranded galvanized steel wire for fencing (first revision)</p> <p>IS :2266-1977 Specification for steel wire suspension ropes for general engineering purposes (second revision)</p> <p>IS : 2365-1977 Specification for steel wire suspension ropes for lifts, elevators and hoists (first revision)</p> <p>IS :2721-1979 Specification for galvanized steel wire chain link fences (first revision)</p> <p>IS :3121-1981 Specification for rigging screws and stretching screws (first revision)</p> <p>IS : 6594-1977 Technical supply</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>conditions for wire ropes and strands (first revision)</p> <p>v. GLASS</p> <p>IS : 2553-1971 Specification for safety glass (second revision)</p> <p>IS : 2835-1977 Specification for flat transparent sheet glass (second revision)</p> <p>IS : 5437-1969 Specification for wired and figured glass.</p> <p>W. FILLERS, STOPPERS AND PUTTIES</p> <p>IS : 110-1968 Specification for ready mixed paint, brushing, grey filler, for enamels, for use over primers (1st rev.)</p> <p>IS : 345-1952 Specification for wood filler, transparent, liquid</p> <p>IS : 419-1967 Specification for putty for use on window frames (first revision)</p> <p>IS : 3709-1966 Specification for mastic cement for bedding of metal windows</p> <p>IS : 7164-1973 Specification for stopper</p> <p>X. WATER BASED PAINTS</p> <p>IS: 427-1965 Specification for distemper, dry, colour as required (revised)</p> <p>IS : 428-1969 Specification for distemper, oil emulsion, colour as required (first revision)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 5410-1969 Specification for cement paint, colour as required</p> <p>IS : 5411 Specification for plastic emulsion paint:</p> <p style="padding-left: 40px;">IS : 5411 (Part I)-1974 Part I For interior use.</p> <p style="padding-left: 40px;">IS : 5411 (Part II)-1972 Part II For exterior use.</p>	
<p>Y. READY MIXED PAINTS AND ENAMELS</p> <p>IS :101-1964 Methods of test for ready mixed paints and enamels (second revision)</p> <p>IS :102-1962 Specification for ready mixed paint, brushing, red lead, non-setting, priming (revised)</p> <p>IS :104-1979 Specification for ready mixed paint, brushing, zinc chrome, priming (second revision)</p> <p>IS : 109-1968 Specification for ready mixed paint, brushing, priming, plaster, to Indian Standard colours No. 361 and 631 (first revision)</p> <p>IS : 111-1950 Specification for ready mixed paint, brushing, undercoating, exterior, to Indian Standard colours No. 101,216,352,358,443 and 632</p> <p>IS :112-1950 Specification for ready mixed paint, spraying, undercoating, exterior, to Indian Standard colours No. 101,216,352,358,443 and 632</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>IS : 113-1950 Specification for ready mixed paint, brushing, undercoating, interior, to Indian Standard colours No. 101,216,352,358,443 and 632</p> <p>IS :114-1950 Specification for ready mixed paint, spraying, undercoating, interior, to Indian Standard colours No. 101,216,352,358,443 and 632</p> <p>IS :115-1950 Specification for ready mixed paint, brushing, undercoating, exterior, matt finish to Indian Standard colours No. 352 and 632</p> <p>IS:116-1950 Specification for ready mixed paint, spraying, undercoating, exterior, matt finish, to Indian Standard colours No. 352 and 632</p> <p>IS : 117-1964 Specification for ready mixed paint, brushing, finishing exterior, semi-gloss, for general purposes, to Indian Standard colours Light Colours No. 101, 102, 174, 216, 217, 275, 281, 352, 353, 354, 358, 361, 364, 365, 384, 385, 386, 387, 388, 397, 442, 443, 628, 629, 630, 631, 693, 694 and 697; Dark Colours No. 103, 104, 169, 219, 278, 280, 283, 359, 360, 362, 363, 410, 444, 632, 635 and 692 (revised)</p> <p>IS :120-1962 Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes, to Indian Standard colours No.537,538, 540, 541, 570 and 574 (revised)</p> <p>IS :121-1962 Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes, to Indian Standard colour No.414 (revised)</p> <p>IS :122-1962 Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes, to Indian</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>Standard colours No.411,412 and 413 (revised)</p> <p>IS : 123-1962 Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes, to Indian Standard colours No.445,446, 448,449, 451 and 473; and red oxide (colour unspecified) (revised)</p> <p>IS :124 Specification for ready mixed paint, brushing, finishing, semi-gloss, for general purposes:</p> <p style="padding-left: 40px;">IS :124 (Part I)-1976 Part I (second revision)</p> <p style="padding-left: 40px;">IS :124 (Part II)-1979 Part II (second revision)</p> <p style="padding-left: 40px;">IS :124 (Part III)-1979 Part III</p> <p>IS :126-1962 Specification for ready mixed paint, brushing, finishing, exterior, semi-gloss, for general purposes, to Indian Standard colour No. 671 (revised)</p> <p>IS :127-1962 Specification for ready mixed paint, brushing, finishing, exterior, semi-gloss, for general purposes, white (revised)</p> <p>IS : 128-1962 Specification for ready mixed paint, brushing, finishing, semi-gloss for general purposes, black (revised)</p> <p>IS : 129-1950 Specification for ready mixed paint, brushing, finishing interior, oil gloss, for general purposes, to Indian Standard colours No. 101, 102, 103, 104, 169, 216, 217, 219, 352, 353, 354, 358,</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>359, 360, 361, 362, 363, 364, 410, 443, 444, 628, 629, 630, 631, 632, 633, 634 and 635</p> <p>IS :133-1975 Specification for enamel, interior (a) undercoating, (b) finishing (second revision)</p> <p>IS :137-1965 Specification for ready mixed paint, brushing, matt or egg- shell flat, finishing, interior, to Indian Standard colour, as required (revised)</p> <p>IS :155-1950 Specification for ready mixed paint, brushing, matt, black for use on wood</p> <p>IS :156-1950 Specification for ready mixed paint, brushing, for use on floors, colour as required</p> <p>IS : 158-1981 Specification for ready mixed paint, brushing, bituminous, black, lead-free, acid, alkali, and heat resisting (third revision)</p> <p>IS :1 62-1950 Specification for ready mixed paint, brushing, fire resisting silicate type, for use on wood, colour as required</p> <p>IS : 168-1973 Specification for ready mixed paint, air-drying semi-glossy/matt, for general purposes (second revision).</p> <p>IS :290-1961 Specification for coal tar black paint (revised)</p> <p>IS :341-1973 Specification for black Japan, Types A, B and C (first revision)</p> <p>IS : 641-1964 Specification for ready mixed paint, brushing, finishing, interior,</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>semi-gloss, for general purposes, white (revised)</p> <p>IS : 871-1956 Specification for ready mixed paint, brushing, finishing, egg shell gloss, for interior use, to Indian Standard colours-Class A No. 218 and Class B No.221</p> <p>IS : 872-1956 Specification for ready mixed paint, brushing, finishing, egg shell gloss, for interior use, to Indian Standard colours No. 412 and 413</p> <p>IS : 1188-1957 Specification for ready mixed paint, brushing, oil gloss, genuine zinc oxide, for general purposes</p> <p>IS : 1232-1964 Specification for ready mixed paint, brushing, yellow ochre, semi-gloss, for general purposes (revised)</p> <p>IS : 2074-1979 Specification for ready mixed paint, red oxide-zinc chrome, priming (first revision)</p> <p>IS : 2075-1979 Specification for ready mixed paint, shoving, red oxide-zinc chrome, priming (first revision)</p> <p>IS :2339-1963 Specification for aluminum paint for general purposes, in dual container</p> <p>IS : 2932-1974 Specification for enamel, synthetic, exterior, (a) undercoating, (b) finishing (first revision)</p> <p>IS : 2933-1975 Specification for enamel, exterior (a) undercoating, (b) finishing</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>(first revision)</p> <p>IS : 3536-1966 Specification for ready mixed paint, brushing, wood primer, pink</p> <p>IS :3537-1966 Specification for ready mixed paint, finishing, interior for general purposes, to Indian Standard colours</p> <p>IS : 3539-1966 Specification for ready mixed paint, undercoating, for use under oil finishes, to Indian Standard colours, as required</p> <p>IS : 3585-1966 Specification for ready mixed paint, aluminum brushing, priming, water resistant, for wood work</p> <p>IS :3678-1966 Specification for ready mixed paint, thick white, for lettering</p> <p>IS :3678-1966 Specification for ready mixed paint, thick white, for lettering</p> <p>IS : 8662-1966 Specification for enamel, synthetic, exterior, (a) undercoating, (b) finishing, for railway coaches</p> <p>IS :9862-1981 Specification for ready mixed paint, brushing, bituminous black, lead free, acid, alkali, water and chlorine resisting</p> <p>Z. THINNERS AND SOLVENTS</p> <p>IS : 82-1973 Methods of sampling and test for thinners and solvents for paints (first revision)</p> <p>IS :324-1959 Specification for ordinary denatured spirit (revised)</p> <p>IS :533-1973 Specification for gum spirit</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>of turpentine (oil of turpentine) (first revision)</p> <p>AA. VARNISHES AND LACQUERS</p> <p>IS :197-1969 Methods of sampling and test for varnishes and lacquers (first revision)</p> <p>IS : 337-1975 Specification for varnish, finishing, interior (first revision)</p> <p>IS : 340-1978 Specification for varnish, mixing (first revision)</p> <p>IS : 346-1952 Specification for varnish, spirit, clear, hard</p> <p>IS : 347-1975 Specification for varnish, shellac, for general purposes (first revision)</p> <p>IS : 348-1968 Specification for French polish (first revision)</p> <p>IS : 349-1955 Specification for lacquer, cellulose, nitrate, clear, finishing, glossy for metal (first revision)</p> <p>IS :524-1968 Specification for varnish, finishing, exterior, synthetic (first revision)</p> <p>IS : 525-1968 Specification for varnish, finishing, exterior and general purposes (first revision)</p> <p>IS : 642-1963 Specification for varnish medium for aluminum paint (revised)</p>	

INDIAN STANDARDS	NEPAL STANDARDS
<p>AB. OTHERS</p>	<p>NS 046/2041 Nails</p> <p>NS 061/2041 Inch screw thread</p> <p>NS 067/2041 Basic dimensions of metric screw thread</p> <p>NS 085/2042 Powder cement pain</p> <p>NS 112/2042 Enamel paint Part I For external use Part II For internal use</p> <p>NS 133/2043 Linseed oil (not edible)</p> <p>NS 141/2043 Galvanized corrugated sheet</p> <p>NS 143/2043 Wood adhesive based on polyvinyl acetate dispersion</p> <p>NS 157/2044 Hexagonal nuts and bolts Part I Basic dimensions Part II Screw threads</p> <p>NS 161/2044 Plastic emulsion paint Part I For internal use Part II for external use</p> <p>NS 163/2045 Galvanized coating on wire</p> <p>NS 167/2045 Wood screw</p> <p>Part I General requirements</p> <p>Part II Slotted rounded counter sunk head</p> <p>Part III Slotted counter</p>

INDIAN STANDARDS	NEPAL STANDARDS
	<p>sunk head</p> <p>Part IV Slotted round head</p> <p>NS 168/2045 Galvanized steel barbed wire</p> <p>NS 169/2045 Mild steel wire metal</p> <p>NS 172/2045 Hinges</p> <p>NS 177/2045 Methods of tests for ready mixed paints and enamels</p> <p>NS 180/2045 Dimensions for hot rolled steel channel sections</p> <p>NS 181/2045 Hardness conversion tables for</p> <p>NS 189/2046 Ready mixed paint, aluminum, wood primer</p> <p>NS 190/2046 Ready mixed paint cement primer</p> <p>NS 192/2046 Methods for Brinell hardness tests for steel</p> <p>NS 193/2046 Methods for Vickers hardness tests for steel</p> <p>NS 194/2046 Methods for Rockwell hardness tests for steel</p> <p>NS 199/2046 Galvanized steel pipes for water supply</p> <p>NS 202/2046 Bolts, screws studs- nominal length and thread length for general purpose bolts</p> <p>NS 203/2046 Tensile testing of metals</p> <p>NS 205/2046 Ready mixed wood</p>

INDIAN STANDARDS	NEPAL STANDARDS
	<p data-bbox="1008 212 1279 243">primer, pink, brushing</p> <p data-bbox="1008 317 1336 384">NS 206/2046 PVC pipe for drinking water supply</p> <p data-bbox="1008 422 1312 489">NS 234/2047 Cold rolled light structural steel</p> <p data-bbox="1008 527 1406 594">NS 246/2048 Vertically cast-cast iron pipes</p> <p data-bbox="1008 632 1354 699">NS 254/2048 Cast iron pipes centrifugally cast</p>



