

(PREVIEW)

*Indian Standard***GENERAL CONSTRUCTION IN
STEEL — CODE OF PRACTICE****SECTION 1 GENERAL****1.1 Scope**

1.1.1 This standard applies to general construction using hot rolled steel sections joined using riveting, bolting and welding. Specific provisions for bridges, chimneys, cranes, tanks, transmission line towers, bulk storage structures, tubular structures, cold formed light gauge steel sections, etc, are covered in separate standards.

1.1.2 This standard gives only general guidance as regards the various loads to be considered in design. For the actual loads and load combinations to be used, reference may be made to IS 875 for dead, live, snow and wind loads and to IS 1893 (Part 1) for earthquake loads.

1.1.3 Fabrication and erection requirements covered in this standard are general and the minimum necessary quality of material and workmanship consistent with assumptions in the design rules. The actual requirements may be further developed as per other standards or the project specification, the type of structure and the method of construction.

1.1.4 For seismic design, recommendations pertaining to steel frames only are covered in this standard. For more detailed information on seismic design of other structural and non-structural components, reference should be made to IS 1893 (Part 1) and other special publications on the subject.

1.2 References

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

ANNEX A

(Clause 1.1)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>
456 : 2000	Plain and reinforced concrete — Code of practice (<i>fourth revision</i>)
513 : 1994	Cold-rolled low carbon steel sheets and strips (<i>fourth revision</i>)
801 : 1975	Code of practice for use of cold-formed light gauge steel structural members in general building construction (<i>first revision</i>)
808 : 1989	Dimensions for hot-rolled steel beam, column, channel and angle sections (<i>third revision</i>)
813 : 1986	Scheme of symbols for welding
814 : 2004	Covered electrodes for manual metal arc welding of carbon and carbon manganese steel — Specification (<i>sixth revision</i>)
816 : 1969	Code of practice for use of metal arc welding for general construction in mild steel (<i>first revision</i>)
817	Training of welders — Code of practice:
(Part 1) : 1992	Manual metal arc welding (<i>second revision</i>)
(Part 2) : 1996	Oxyfuel welding (<i>second revision</i>)
819 : 1957	Code of practice for resistance spot welding for light assemblies in mild steel
875	Code of practice for design loads (other than earthquake) for buildings and structures:
(Part 1) : 1987	Dead loads – unit weights of building materials and stored materials (<i>second revision</i>)
(Part 2) : 1987	Imposed loads (<i>second revision</i>)
(Part 3) : 1987	Wind loads (<i>second revision</i>)
(Part 4) : 1987	Snow loads (<i>second revision</i>)
(Part 5) : 1987	Special loads and load combinations (<i>second revision</i>)
919 (Part 1) : 1993/ ISO	ISO systems of limits and fits: Bases of tolerance, deviations and fits (<i>second revision</i>)
286-1:1988	
(Part 2) : 1993/ISO	Tables of standard tolerance grades and limit deviations for holes and shafts (<i>first revision</i>)
286-2 : 1988	
962 : 1989	Code of practice for architectural and building drawings (<i>second revision</i>)
1024 : 1999	Code of practice for use of welding in bridges and structures subject to dynamic loading (<i>second revision</i>)
1030 : 1998	Carbon steel castings for general engineering purposes (<i>fifth revision</i>)
1079 : 1994	Hot rolled carbon steel sheets and strips — Specification (<i>fifth revision</i>)
1148 : 1982	Specification for hot-rolled rivet bars (up to 40 mm diameter) for structural purposes (<i>third revision</i>)
1149 : 1982	High tensile steel rivet bars for structural purposes (<i>third revision</i>)
1261 : 1959	Code of practice for seam welding in mild steel
1278 : 1972	Specification for filler rods and wires for gas welding (<i>second revision</i>)
1323 : 1982	Code of practice for oxy-acetylene welding for structural work in mild steels (<i>second revision</i>)
1363	Hexagon head bolts, screws and nuts of product grade C:
(Part 1) : 2002/ ISO	Hexagon head bolts (size range M5 to M64) (<i>fourth revision</i>)
4016 : 1999	
(Part 2) : 2002/ ISO	Hexagon head screws (size range M5 to M64) (<i>fourth revision</i>)
4018 : 1999	
(Part 3) : 1992/ ISO	Hexagon nuts (size range M5 to M64) (<i>third revision</i>)
4034 : 1986	
1364	Hexagon head bolts, screws and nuts of product grades A and B:

<i>IS No.</i>	<i>Title</i>
(Part 1) : 2002/ISO 4014 : 1999	Hexagon head bolts (size range M1.6 to M64) (<i>fourth revision</i>)
(Part 2) : 2002/ ISO 4017 : 1999	Hexagon head screws (size range M1.6 to M64) (<i>fourth revision</i>)
(Part 3) : 2002/ ISO 4032 : 1999	Hexagon nuts, style 1 (size range M 1.6 to M64) (<i>fourth revision</i>)
(Part 4) : 2003/ ISO 4035 : 1999	Hexagon thin nuts (chamfered) (size range M 1.6 to M64) (<i>forth revision</i>)
(Part 5) : 2002/ ISO 4036 : 1999	Hexagon thin nuts — Product grade B (unchamfered) (size range M 1.6 to M10) (<i>fourth revision</i>)
1367	Technical supply conditions for threaded steel fasteners:
(Part 1): 2002/ ISO 8992 : 1986	General requirements for bolts, screws and studs (<i>third revision</i>)
(Part 2) : 2002/ ISO 4759-1 : 2000	Tolerances for fasteners — Product grades A, B and C (<i>third revision</i>)
(Part 2) : 2002/ISO 898- 1:1999	Mechanical properties of fasteners made of carbon steel and alloy steel — bolts, screws and studs (<i>fourth revision</i>)
(Part 5) : 2002/ISO 898- 5:1998	Mechanical properties of fasteners made of carbon steel and alloy steel — set screws and similar threaded fasteners not under tensile stresses (<i>third revision</i>)
(Part 6) : 1994/ISO 898- 2 : 1992	Mechanical properties and test methods for nuts with specified proof loads (<i>third revision</i>)
(Part 7) : 1980	Mechanical properties and test methods for nuts without specified proof loads (<i>second revision</i>)
(Part 8) : 2002/ISO 2320 : 1997	Prevailing torque type steel hexagon nuts — Mechanical and performance properties (<i>third revision</i>)
(Part 9) Sec 1 : 1993/ ISO 6157-1: 1988	Surface discontinuities Bolts, screws and studs for general application (<i>third revision</i>)
Sec 2 : 1993/ ISO 6157-3 : 1988	Bolts, screws and studs for special applications (<i>third revision</i>)
(Part 10) : 2002/ ISO 6157-2 : 1995	Surface discontinuities — Nuts (<i>third revision</i>)
(Part 11) : 2002/ ISO 4042:1999	Electroplated coatings (<i>third revision</i>)
ISO 4042 : 1999	Phosphate coatings on threaded fasteners (<i>second revision</i>)
(Part 12) : 1981	
(Part 13) : 1983	Hot dip galvanized coatings on threaded fasteners (<i>second revision</i>)
(Part 14)	Mechanical properties of corrosion-resistant stainless-steel fasteners,
Sec 1 : 2002/ISO 3506- 1:1997	Bolts, screws and studs (<i>third revision</i>)
Sec 2 : 2002/ ISO 3506-2:1997	Nuts (<i>third revision</i>)
Sec 3 : 2002/ISO 3506- 3 : 1997	Set screws and similar fasteners not under tensile stress (<i>third revision</i>)
(Part 16) : 2002/ ISO 8991 : 1986	Designation system for fasteners (<i>third revision</i>)
(Part 17) : 1996 / ISO 3269 : 1988	Inspection, sampling and acceptance procedure (<i>third revision</i>)
(Part 18) : 1996	Packaging (<i>third revision</i>)
(Part 19) : 1997 /ISO 3800 : 1993	Axial load fatigue testing of bolts, screws and studs
(Part 20) : 1996/ISO 898-7 : 1992	Torsional test and minimum torques for bolts and screws with nominal diameters 1 mm to 10 mm
1387 : 1993	General requirements for the supply of metallurgical materials (<i>second revision</i>)

<i>IS No.</i>	<i>Title</i>
1393 : 1961	Code of practice for training and testing of oxy-acetylene welders
1395 : 1982	Low and medium alloy steel covered electrodes for manual metal arc welding (<i>third revision</i>)
1477	Code of practice for painting of ferrous metals in buildings
(Part 1) : 1971	Pre-treatment (<i>first revision</i>)
(Part 2) : 1971	Painting (<i>first revision</i>)
1608: 2005/ ISO 6892 : 1998	Metallic materials —Tensile testing at ambient temperatures (<i>third revision</i>)
1641: 1988	Code of. practice for fire safety of buildings (general): General principles of fire grading and classification (<i>first revision</i>)
1642 : 1989	Code of practice for fire safety of buildings (general): Details of construction (<i>first revision</i>)
1643 : 1988	Code of practice for fire safety of buildings (general): Exposure hazard (<i>first revision</i>)
1852 : 1985	Rolling and cutting tolerance for hot rolled steel products (<i>fourth revision</i>)
1875 : 1992	Specification for carbon steel billets, blooms, slabs and bars for forgings (<i>fifth revision</i>)
1893 (Part 1) : 2002	Criteria for earthquake resistant design of structures: Part 1 General provisions and buildings
1929 : 1982	Specification for hot forged steel rivets for hot closing (12 to 36 mm diameter) (<i>first revision</i>)
1990 : 1973	Steel rivet and stay bars for boilers (<i>first revision</i>)
2002 : 1992	Steel plates for pressure vessels for intermediate and high temperature service including boilers (<i>second revision</i>)
2062 : 2006	Hot rolled low, medium and high tensile structural steel (<i>sixth revision</i>)
2155 : 1982	Specification for cold forged solid steel rivets for hot closing (6 to 16 mm diameter) (<i>first revision</i>)
2708 : 1993	1.5 percent manganese steel castings for general engineering purpose (<i>third revision</i>)
3039 : 1988	Structural steel for construction of hulls of ships (<i>second revision</i>)
3613 : 1974	Acceptance tests for wire flux combination for submerged arc welding (<i>first revision</i>)
3640 : 1982	Specification for hexagon fit bolts (<i>first revision</i>)
3757 : 1985	Specification for high strength structural bolts (<i>second revision</i>)
4000 : 1992	Code of practice for high strength bolts in steel structures (<i>first revision</i>)
4326 : 1993	Code of practice for earthquake resistance design and construction of buildings (<i>second revision</i>)
5369 : 1975	General requirements for plain washers and lock washers (<i>first revision</i>)
5370 : 1969	Specification for plain washers with outside diameter $\approx 3 \times$ inside diameter
5372 : 1975	Taper washers for channels (ISMC) (<i>first revision</i>)
5374 : 1975	Taper washers for I-beams (ISMB) (<i>first revision</i>)
5624 : 1993	Foundation bolts — Specification (<i>first revision</i>)
6240 : 1999	Hot rolled steel plate (upto 6 mm) sheet and strip for the manufacture of low pressure liquefiable gas cylinders — Specification (<i>third revision</i>)
6419 : 1996	Welding rods and bare electrodes for gas shielded arc welding of structural steel (<i>first revision</i>)
6560 : 1996	Molybdenum and chromium-molybdenum low alloy steel welding rods and bare electrodes for gas shielded arc welding (<i>first revision</i>)
6610 : 1972	Specification for heavy washers for steel structures
6623 : 2004	High strength structural nuts Specification (<i>first revision</i>)
6639 : 1972	Specification for hexagonal bolts for steel structures
6649 : 1985	Specification for hardened and tempered washers for high strength structural bolts and nuts (<i>first revision</i>)
7205 : 1974	Safety code for erection of structural steelwork

<i>IS No.</i>	<i>Title</i>
7215 : 1974	Specification for tolerances for fabrication of steel structures
7280 : 1974	Specification for bare wire electrodes for submerged arc welding of structural steels
7307 (Part 1) : 1974	Approval tests for welding procedures: Part 1 Fusion welding of steel
7310	Approval tests for welders working to approved welding procedures
(Part 1) : 1974	Part 1 Fusion welding of steel
7318 (Part 1) : 1974	Approval test for welders when welding procedure approval is not required: Part 1 Fusion welding of steel
7557 : 1982	Specification for steel wire (upto 20 mm) for the manufacture of cold forged rivets (<i>first revision</i>)
8000	Geometrical tolerancing on technical drawings:
(Part 1) : 1985/ISO	Tolerances of form, orientation, location and run-out, and appropriate geometrical definitions (<i>first revision</i>)
1101 : 1983	
(Part 2) : 1992/ ISO	Maximum material principles (<i>first revision</i>)
2692 : 1988	
(Part 3) : 1992/	
ISO 1660 : 1987	Dimensioning and tolerancing of profiles (<i>second revision</i>)
(Part 4) : 1976	
8976 : 1978	Practical examples of indications on drawings
9077 : 1979	Guide for preparation and arrangement of sets of drawings and parts lists
	Code of practice for corrosion protection of steel reinforcement in RB and RCC construction
9172 : 9295	Recommended design practice for corrosion prevention of steel structures
9295 : 1983	Steel tubes for idlers for belt conveyors (<i>first revision</i>)
9595 : 1996	Metal arc welding of carbon and carbon manganese steels — Recommendations (<i>first revision</i>)
10748 : 2004	Hot-rolled steel strip for welded tubes and pipes — Specification (<i>second revision</i>)
12843 : 1989	Tolerances for erection of steel structures
SP6 (1) : 1964	Handbook for Structural Engineers — Structural Steel Sections