

MYANMAR NATIONAL BUILDING CODE (2020) PART 6 : Building Materials

Presented by

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Myanmar National Building Code

The specific requirements of the National Building Code may vary depending on the country, but typically cover aspects such as structural design, fire safety, electrical and plumbing systems, accessibility, and energy efficiency. The code is typically enforced through building permits and inspections, with penalties for non-compliance.

Myanmar National Building Code (MNBC) (Altogether 7 Parts) is a set of regulations and guidelines for the design, construction, and maintenance of buildings in Myanmar. The purpose of the code is to ensure that buildings are safe, functional, and accessible for all people, and to establish minimum standards for building performance.

In summary, the National Building Code is an important regulatory framework that helps to ensure that buildings are safe, functional, and accessible. By setting minimum standards for building performance and enforcing compliance through permits and inspections, the NBC helps to protect the health and safety of building occupants and the broader community.

Objective of Part-6 (Building Materials)

Building Materials Chapter of the Myanmar National Building Code provides guidance and requirements for the Selection, Use and Testing of building materials and its components in construction projects.

List of Participators and Coordinators in TWG 6

- | | |
|---------------------------------|--------------|
| 1. Engr. San Kyu | Group Leader |
| 2. U Kyaw Thu Oung | Member |
| 3. U Win Maung | Member |
| 4. U Myo Zarni Win | Member |
| 5. Dr. Myat Shwe Sin Tun | Member |
| 6. Dr. Nge Lay Khin | Member |
| 7. Dr. Yu Yu Win Maung | Member |
| 8. Dr. Mya Moe Win | Member |
| 9. Dr. Zin Zin Htike | Member |
| 10. Dr. Pwint Thindar Kyaw Kyaw | Member |
| 11. Daw San San Aye | Member |
| 12. Daw Pa Pa Htwe | Member |

Scope of Part-6

- ❖ This Part of the Code comprised of the following two portions:
 1. Specifications
 2. Testing Methods
- ❖ A total of 21 categories are grouped under Building Materials Chapter.

- ❖ Standards and Specifications of the Building Materials are based with reference to;
 1. American Standard of Testing Materials (ASTM)
 2. India Standard (IS)

Building Materials Considered in MNBC

1. Aluminium and Other Light Metals and Their Alloys
2. Bitumen and Tar Products
3. Builder's Hardware
4. Building Chemicals
5. Blocks, Bricks and Tiles
6. Cement and Concrete
7. Doors Windows and Ventilators
8. Electrical Wiring, Fittings and Accessories
9. Floor Covering, Roofing and Other Finishes
10. Glass and Glazing
11. Gypsum Based Materials
12. Masonry
13. Paints and Allied Products
14. Polymers, Plastic and Geosynthetics/ Geotextiles
15. Stones
16. Structural Steel, Reinforcing Steel, Prestressing Steel and Others
17. Thermal Insulation Materials
18. Wood Based Materials
19. Welding Electrodes and Wires
20. Wire Ropes and Wire Products
21. Sanitary Applicants and Water Fittings

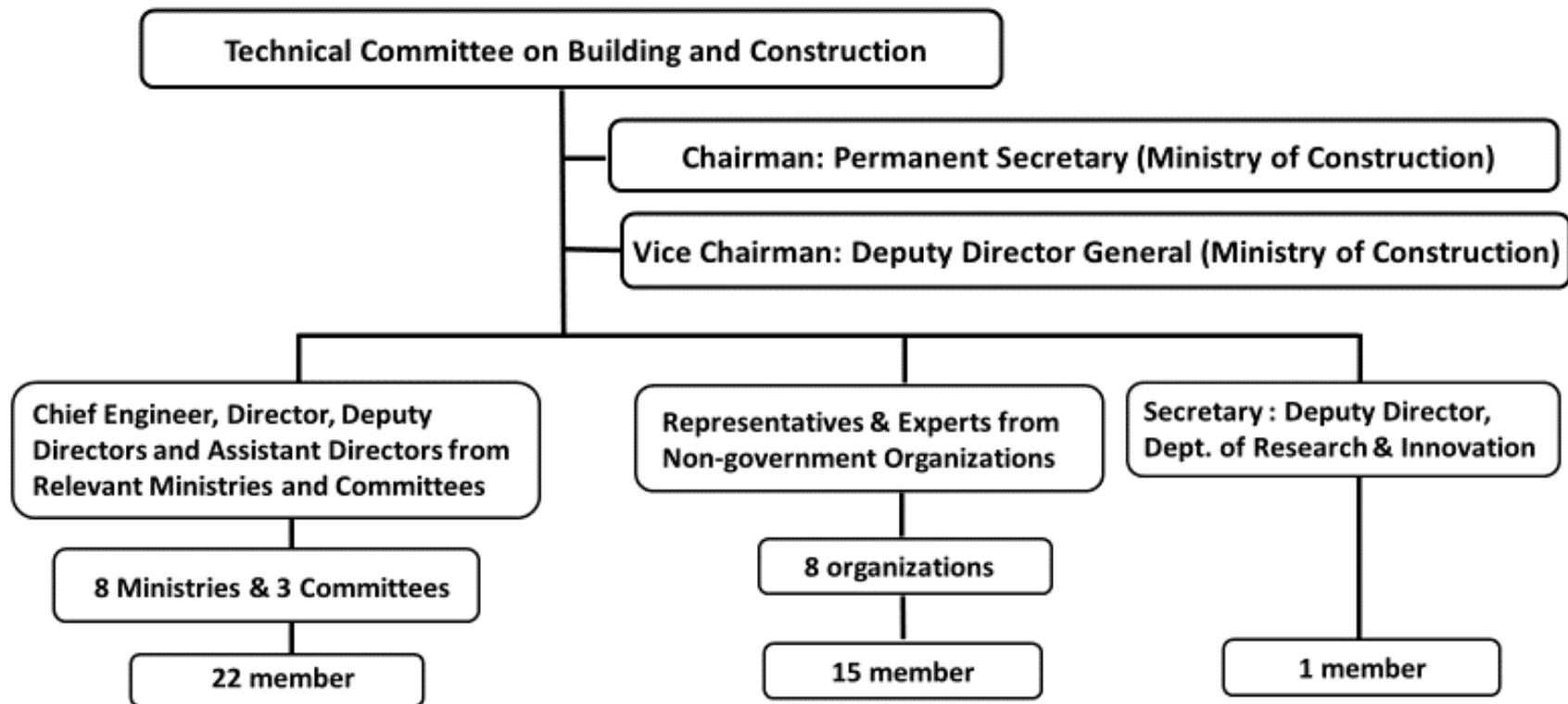
- Building Materials included in Myanmar National Building Code are temporarily referring to the **ASTM** and **IS**.
- Ministry of Science & Technology and Ministry of Construction are collaborating in the preparation of the Provisional National Standards and Specifications for Building Materials.
- Before the Provisional National Level Standards and Specifications is officially established, all designs will be undertaken with relevant reference to the **ASTM** and **IS**.

အဆကော့အအံ့ဆိုငှာ စံခိန်၊စံညိန်၊ လမုးညိန်၊ ကြမ္မာတြိး(MNBC)

- ❑ အဆကော့အအံ့မတြိး စီမံကိန်၊ရးဆဲခွငှာ၊ ပံ့စံထုတုငှာ၊ တညဆကော့ငှာ န်ငှာ ပွပွငှာထိန်၊သိမုးခွငှာလုပုငှာမတြိး ဆဆငှာကော့တုငှာ ရရဲညာညာတံ့ခိုငှာစဲခိငှာရရ တရားဝငှာထုတုပွနုထားသညာ၊စံခိန်၊စံညိန်၊မတြိးရီရရလိုအပုပါသညာ။
- ❑ လိုအပုကြမ္မာတြိးကွငှာ ဆကော့လုပုရးဝနုကိးငှာနမ် ဦးဆငှာပွိး ကုလသမဂ်ဂ မိန္ဒာ န်ငှာခိးအိမုးကုဖံ့ဖိးမံ အစီအစညိ အခိက ကူညိပံ့ပိုးမံဖွငှာ၀၁၅ ခုန်စုတုငှာရးဆဲပွိးစီး ခဲပါသညာ။
- ❑ 2016 ခုန်စုတုငှာ MNBC 2016 အားထုတုခဲပါသညာ။
- ❑ ပွငှာဆငှာညာကုန်မတြိးဖွငှာ MNBC 2020 အားထုတုထေးပါသညာ။

နညးပညာဆပုကကျေတီဖဲစညးခွငး

- ❑ MNBC 2020 အား အမဲပွနုလညာလောပီး လိုအပုသပေပုငးမငးပုလုပုနီငးရနု ဆကေလုပုရး ဝနုကီးငးန မ နညးပညာဆပုကကျေတီကို ဖဲစညးခဲပါသညး။
- ❑ နညးပညာဆပုကကျေတီတုငး ဆကေလုပုရးဝနုကီးငးန၊ အမဲတမုးအတုငးဝနု ဥကံကငှ် အဖွစု ဆကေလုပုက ဝနုကီးငးန (၈) ခု၊ စညးပညာယာရးကကျေတီ (၃)ခု န်ငး အစိုးရမဟုတုသကေအဖဲအစညးမငးမ် ကိုယုစားလ်ယု အဖဲဝငး စုစုပငး (၄၀) ဦးပါဝငး ပါသညး။
- ❑ နညးပညာဆပုကကျေတီအား အမိုးငးးစံခဲနုညးနု ကကေစီ၏ အမိနုကေငှာ စာအမ်တု ၀၆၈/၂၀၂၂ ဖွငးဖဲစညးခွငးပွဲပါသညး။



Total member of technical committee= 40 member

Relevant Ministries, Committees and Non-government Organizations in Technical Committee on Building and Construction

Relevant Ministries and Committee

1. Ministry of Construction
2. Ministry of Industry
3. Ministry of Education
4. Ministry of Transport and Communication
5. Ministry of Agriculture, Livestock and Irrigation
6. Ministry of Electricity and Energy
7. Ministry of Science and Technology
8. Ministry of Natural Resources and Environmental Conservation
9. Yangon City Development Committee
10. Mandalay City Development Committee
11. NayPyi Taw Development Committee

Non-government Organization

1. Myanmar Engineering Council (MEC)
2. Federation of Myanmar Engineering Societies (Fed. MES)
3. Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI)
4. Myanmar Construction Entrepreneurs Federation (MCEF)
5. Myanmar Steel Association
6. Myanmar Iron and Steel Association
7. Ready Mix Concrete Group
8. High Rise and Public Building Committee (HPBC)

မွန်ဟ့တံခါၤ နံညံးမုၢ်အဖွၢ် ဆၢၤဂၢၤကုၤပွဲးစီးမုၢ်၊ ဘာသာပွဲးနီၤဆဲး၊ ဘာသာပွဲးနီၤ ပွဲးစီးမုၢ်
 နံညံး Public Comment ဆၢၤဂၢၤကုၤတားမုၢ်အခွဲအနုၤ

စဉ်	ပစ္စည်းအမည်	မြန်မာစံချိန်စံညွှန်း	ဘာသာပြန်ဆိုဆဲး	ဘာသာပြန်ဆိုပြီး	Public Comment Process	စုစုပေါင်း
၁။	ဘိလပ်မြေ	၄	၂	-	၁	၇
၂။	သံချောင်း	၁	၁	-	-	၂
၃။	ကတ္တရာ	၆	-	၂	-	၈
	စုစုပေါင်း	၁၁	၃	၂	၁	၁၇

Sr No.	Material	Name of Standard	
1	Cement	MMS ASTM C 150/C 150M-18	Standard Specification for Portland Cement
		MMS ASTM C204-18	Standard Test Method for Fineness of Hydraulic Cement by Air Permeability Apparatus
		MMS ASTM C 191-18	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
		MMS ASTM C 109/C 109M-16a	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch or 50 mm Cube Specimens)
2	Deformed bar	MMS ASTM A 615/A 615M-18	Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
3	Bitumen	MMS ASTM D 5/D 5M-19	Standard Test Method for Penetration of Bituminous Materials
		MMS ASTM D36/36M-14	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
		MMS ASTM D 70-18	Standard Test Method for Specific Gravity of Semi- Solid Bituminous Materials
		MMS ASTM D 92-18	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
		MMS ASTM D 946/ASTM D 946M-16	Standard Specification for Penetration- Graded Asphalt Binder for Use in Pavement Construction
		MMS ASTM D 6/D 6M-95	Standard Test Method for Loss on Heating of oil and Asphaltic Compounds (Reapproved 2018)

အဆောက်အအုံ၊ လမ်းတံတား၊ လယောဥျာဏ်တို့အတွက်အသုံးပြုရန်နှင့် ဆောက်လုပ်ရေးပစ်စည်း စံနှုန်းများရေးဆွဲရေး ဆက်တမ်းတို့ မှ ရေးဆွဲထားသော စံနှုန်းများမပြုဖွဲ့ပါ။

သံနှင့်သံမဏိ ပစ်စညးဆိုဏှာ စံခိန္နုဏ်ညးနုးမဏ်း (Iron and Steel Standards)

Sr No.	Material	Name of Standard	
1	Iron and Steel	MMS JIS G 3101:2015	Rolled Steels for general structure
		MS JIS G 3106:2015	Rolled Steels for welded structure
		MMS JIS G 3131:2018	Hot-rolled mild steel plates, sheet and strip
		MMS JIS G 3141:2017	Cold-reduced carbon steel sheet and strip

သံနှင့်သံမဏိ ပစ်စညးဆိုဏှာ စံခိန္နုဏ်ညးနုးမဏ်း ရေးဆွဲထားသော စံခိန္နုဏ်ညးနုးမဏ်း ဖွဲ့စည်းပါသည်။

Sr No.	Material	Name of Standard		Remark
1	Cement	MMS ASTM C 150/C 150M-18	Standard Specification for Portland Cement	Announced Myanmar Standard
		MMS ASTM C 204-18	Standard Test Method for Fineness of Hydraulic Cement by Air Permeability Apparatus	Announced Myanmar Standard
		MMS ASTM C 191-18	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle	Announced Myanmar Standard
		MMS ASTM C 109/C 109M-16a	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch or 50 mm Cube Specimens)	Announced Myanmar Standard
		ASTM C 151/C 151M-18	Standard Test Method for Autoclave Expansion of Hydraulic Cement	Public Comment Process
		ASTM C 185-15a	Standard Test Method for Air Content of Hydraulic Cement Mortar	Translation Process
		ASTM C 266-15	Standard Test Method for Time of Setting of Hydraulic Cement Paste by Gillmore Needles	Translation Process
2	Deformed bar	MMS ASTM A 615/A 615M-18	Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement	Announced Myanmar Standard
		ASTM A 370-17a	Standard Test Methods and Definitions for Mechanical Testing of Steel Products	Translation Process

Sr No.	Material	Name of Standard		Remark
3	Bitumen	MS ASTM D 5/D 5M-19	Standard Test Method for Penetration of Bituminous Materials	Announced Myanmar Standard
		MMS ASTM D 36/36 M-14	Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)	Announced Myanmar Standard
		MMS ASTM D 70-18	Standard Test Method for Specific Gravity of Semi- Solid Bituminous Materials	Announced Myanmar Standard
		MMS ASTM D 92-18	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester	Announced Myanmar Standard
		MMS ASTM D 946/D 946M-16	Standard Specification for Penetration-Graded Asphalt Binder for use in Pavement Construction	Announced Myanmar Standard
		MMS ASTM D 6/D 6M-95	Standard Test Method for Loss on Heating of oil and Asphaltic Compounds (Reapproved 2018)	Announced Myanmar Standard
		ASTM D 2042 -15	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene	Finished Translation
		ASTM D 113-17	Standard Test Method for Ductility of Bituminous Materials	Finished Translation

Storage of Materials

The National Building Code may have specific regulations regarding the storage of building materials on construction sites or within buildings. Here are some general guidelines:

- 1. Location:** Building materials should be stored in a designated area that is easily and safely accessible to workers and equipment. Adequate lighting should be provided. It also should be located away from pedestrian and vehicle traffic. The storage area should be clearly marked and fenced off to prevent unauthorized access.
- 2. Separation:** Different types of building materials should be stored separately to prevent contamination, damage, or fire hazards. Flammable or hazardous materials should be stored in a separate area with proper ventilation and fire suppression systems.
- 3. Stacking:** Building materials should be stacked in a stable manner to prevent collapse or shifting. The height of the stack should be limited to prevent the materials from toppling over.
- 4. Protection:** Building materials should be protected from rain, wind, or snow. Materials that are prone to water damage should be stored on pallets or covered with tarps.
- 5. Maximum storage capacity:** Code may specify the maximum amount of building materials that can be stored in a specific area. This is usually based on the fire rating of the building and the potential hazards associated with the materials being stored.

In general, building codes aim to ensure that building materials are stored safely to prevent injury to workers and damage to the building. It is important for builders and contractors to follow these regulations to maintain a safe and healthy work environment.

Testing of Materials

The National Building Code includes regulations on the testing of building materials to ensure that they meet certain safety and performance standards. Here are some general guidelines that may be included:

1. Standards: Building materials should be tested in accordance with recognized industry standards or testing procedures. These standards may be developed by national or international organizations.

In MNBC, testing of materials shall be duly carried out in accordance with the ASTM or IS.

Where either ASTM or IS is not available, the equivalent testing methods, duly approved by concerned authority, shall be used.

Testing of materials shall be conducted only by officially recognized laboratories.

2. Certification: Building materials may require certification from a recognized testing agency to ensure that they meet certain safety and performance standards.

3. Testing methods: Testing methods that should be used to evaluate building materials may include laboratory testing, field testing, or computer simulations.

In summary, building materials must undergo testing to ensure that they meet the required safety and performance standards. Builders and manufacturers must follow the National Building Code's regulations on testing to ensure that their materials are safe and effective for use in construction.

- ❑ All materials supplied by the manufacturer shall meet the required specifications and standards which must be duly certified.
- ❑ In case where a supplier or manufacturer can not produce the required relevant certificate for a material, a specimen of the materials shall be duly tested in the recognized laboratory.
- ❑ All components of the building materials shall conform to the requirements as stipulated by Myanmar Standard for the materials given below.

Chapter – 1

Aluminium and Other Light Metals and Their Alloys

Std: No.	Title
ASTM B 209	Standard Specification for aluminium and aluminium-alloy sheet and plate
ASTMC 211	Standard Specification for aluminium and aluminium-alloy bar, rod, and wire
ASTM B 221	Specification for wrought aluminium and aluminium alloys drawn tube for general engineering purposes
ASTM B 308	Specification for wrought aluminium and aluminium alloys, bars, rods and sections for general engineering purposes
ASTM B 313	Specification for aluminium and aluminium-alloy round welded tubes
ASTM B 361	Specification for factory-made wrought aluminium and aluminium-alloy welding fittings
ASTM B 429	Specification for aluminium-alloy extruded structural pipe and tube
ASTM B 491	Specification for aluminium and aluminium-alloy extruded round tubes for general-purpose applications
ASTM B 557	Standard test method for tension testing of wrought and cast aluminium and magnesium-alloy products
ASTM E 34	Test method for chemical analysis of aluminium and aluminium-base alloys
IS 1254	Specification for corrugated aluminium sheet
IS 1284	Specification for wrought aluminium and aluminium alloys bolt and screw stock for general engineering purposes

Chapter -2

Bitumen and Tar Products

(a) Specifications

Std: No.	Title
ASTM D 450	Specification for crude coal tar for general use
ASTM D 490	Specification for road tar
ASTM D 977	Specification for bitumen emulsion for roads (anionic type and cationic type)
ASTM D 2026	Specification for cutback bitumen
IS 73	Specification for paving bitumen
IS 218	Specification for creosote oil for use as wood preservatives
IS 454	Specification for cutback bitumen from waxy crude
IS 702	Specification for industrial bitumen
IS 15462	Specification for polymer and rubber modified bitumen

(b)Methods for testing and bituminous materials

Std: No.	Title
ASTM D 6	Standard test method for loss on heating of oil and asphaltic compounds
ASTM D 20	Standard test method for distillation of road tars
ASTM D 36	Standard test method for softening point of bitumen
ASTM D 73	Determination of penetration
ASTM D 92	Standard test method for flash and fire points by Cleveland Open Cup Tester
ASTM D 95	Standard test method for water in petroleum products and bituminous materials by distillation
ASTM D 113	Standard test method for ductility of bituminous materials
ASTM D 139	Standard test method for float test for bituminous materials
ASTM D 140	Standard practice for sampling of bituminous materials
ASTM D 243	Standard test method for residue of specified penetration
ASTM D 1188	Standard test method for bulk specific gravity and density of compacted bituminous mixtures using coated samples
ASTM D 1754	Standard test method for effect of heat and air on Asphaltic Materials
ASTM D 3205	Standard test method for viscosity of asphalt with cone and plate viscometer
IS 1207	Determination of equiviscous temperature
IS 9381	Determination of FRAASS breaking point of bitumen
IS 10512	Determination of wax content in bitumen
IS 15172	Determination of curing index for cutback bitumen
IS 15173	Determination of breaking point for cationic bitumen emulsion

Chapter – 3

Builder's Hardware

Std: No.	Title
ASTM A 90	Standard test method for weight of coating on iron and steel articles with zinc or zinc-alloy coatings
ASTM A 153	Standard specification for zinc coating (hot-dip) iron and steel hardware
ASTM A 394	Specification for steel transmission, tower bolts, zinc-coat and bare
IS 205	Specification for non-ferrous metal butt hinges
IS 206	Specification for tee and strap hinges
IS 208	Specification for door handles
IS 281	Specification for mild steel sliding door bolts for use with padlock
IS 362	Specification for parliament hinges
IS 363	Specification for hasps and staples
IS 364	Specification for fanlight catch
IS 452	Specification for door springs, rattail type
IS 453	Specification for double acting spring hinges
IS 729	Specification for drawer locks, cupboard locks and box locks
IS 1341	Specification for steel butt hinges
IS 1823	Specification for floor door stoppers
IS 2209	Specification for mortice locks (vertical type)

IS 2681	Specification for non-ferrous metal sliding door bolts for use with padlock
IS 3564	Specification for door closers (hydraulically regulated)
IS 3818	Specification for continuous (piano) hinges
IS 3828	Specification for ventilator chains
IS 4621	Specification for indicating bolts for use in public baths and lavatories
IS 4992	Specification for door handles for mortice locks (vertical type)
IS 5187	Specification for flush bolts
IS 5899	Specification for bathroom latches
IS 6318	Specification for plastic window stays and fasteners
IS 7534	Specification for sliding locking bolts for use with padlock
IS 9106	Specification for rising butt hinges
IS 9131	Specification for rim locks
IS 9460	Specification for flush drop handles for drawers
IS 9899	Specification for hat, coat and wardrobe hooks
IS 10019	Specification for mild steel stays and fasteners
IS 10342	Specification for curtain rail system
IS 12817	Specification for stainless steel butt hinges
IS 12867	Specification for PVC handrail covers

Chapter - 4

Building Chemicals

(a) Chemical and Mineral Admixtures

Std: No.	Title
ASTM C 183	Practice for sampling and the amount of testing of hydraulic cement
ASTM C 185	Test method for air content of hydraulic cement mortar
ASTM C 233	Test method for air-entraining admixtures for concrete
ASTM C 260	Specification for air-entraining admixtures for concrete
ASTM C 494	Specification for chemical admixtures for concrete
ASTM C 618	Specification for coal fly ash and raw or calcined natural pozzolan for use as a mineral admixture in concrete
ASTM C 989	Specification for ground granulated blast-furnace slag for use in concrete and mortar
ASTM C 1017	Standard specification for chemical admixtures for used in producing flowing concrete
ASTM C 1240	Specification for silica fume as a mineral admixture in hydraulic cement concrete, mortar and grout

(b) Special Concrete Production Materials

Std: No.	Title
ASTM C 330	Specification for Lightweight Aggregates for Structural Concrete
ASTM C 331	Specification for Lightweight Aggregates for Concrete Masonry Units
ASTM C 332	Specification for Lightweight Aggregates for Insulating Concrete
ASTM C494/C494M	Specification of chemical admixture for concrete
ASTM C 869	Specification for Foaming Agents Used in Making Preformed for Cellular Concrete
ASTM C 979	Specification for pigments for Integrally coloured concrete
ASTM C 1017	Specification for chemical admixtures for use in producing flowing concrete
ASTM C 1107	Specification for packaged dry, hydraulic-cement grout (Non-Shrink)

(c) Concrete Curing Materials

Std: No.	Title
ASTM C 171	Specifications for sheet materials for curing concrete
ASTM C 309	Specification for liquid membrane Forming compounds for curing concrete
ASTM C 1315	Specification for liquid membrane-forming compounds having special properties for curing and sealing concrete

(d) Waterproofing and Damp-proofing Materials

Std: No.	Title
ASTM D 41	Specification for asphalt primer used in roofing, damp proofing and waterproofing
ASTM D 43	Specification for coal tar primer used in roofing, damp proofing and waterproofing
ASTM D 173	Specification for bitumen saturated cotton fabrics used in roofing and waterproofing
ASTM D 449	Specification for asphalt used in damp proofing and water proofing
ASTM D 450	Specification for coal tar pitch used in roofing, damp proofing and waterproofing
ASTM D1327	Specification for bitumen saturated woven burlap fabrics used in roofing and waterproofing
ASTM D 1668	Specification for glass fabrics (woven and treated) for roofing and waterproofing

(e) Epoxy Compound Materials

Std: No.	Title
ASTM C 881	Specification for epoxy-resin base bonding system for concrete
ASTM C 884	Test method for thermal compatibility between concrete and epoxy-resin overlay

Chapter-5

Blocks, Bricks and Tiles

Std: No.	Title
ASTM C 55	Specification of concrete bricks
ASTM C 62	Standard specification for building brick
ASTM C 67	Standard test methods for sampling and testing brick and structural clay tile
ASTM C 652	Standard Specification for hollow bricks
ASTM C 902	Standard Specification for Pedestrian and light traffic paving brick
ASTM C 1272	Standard specification for heavy vehicular paving brick
ASTM C 216	Standard Specification for facing bricks
ASTM C 1634	Specification of concrete facing bricks
IS 2117	Guide for manufacture of handmade common burnt clay building bricks
IS 3583	Specification for common burnt clay paving bricks
IS 4885	Specification for sewer bricks
IS 11650	Guide for manufacture of common burnt clay building bricks by semi-mechanized process

Chapter - 6

Cement and Concrete

(a) Aggregates

Std: No.	Title
ASTM C 29/C 29M	Standard test method for bulk density and voids in aggregate
ASTM C 33	Specification for concrete aggregates
ASTM C 35	Specification for inorganic aggregates for use in gypsum plaster
ASTM C 40	Standard test method for organic impurities in fine aggregates for concrete
ASTM C 66	Specification for sand for use in lime plaster
ASTM C 88	Standard test method for soundness of aggregates by use of sodium sulphate or magnesium sulphate
ASTM C 127	Test method for density, relative density (specific gravity), and absorption of coarse aggregate
ASTM C 128	Test method for density, relative density (specific gravity), and absorption of fine aggregate
ASTM C 136	Standard test methods for sieve analysis of fine and coarse aggregates
ASTM C 144	Standard Specification for aggregate for masonry mortar
ASTM C 294	Standard descriptive nomenclature for constituents of concrete aggregates
ASTM C 331	Standard test methods for sampling and testing fly-ash of natural pozzolans for use in Portland cement concrete
	Specification for artificial lightweight aggregates for concrete masonry units

ASTM C 856

ASTM C 1260

ASTM C 1567

ASTM D 75

Petrographic examinations

Test method for potential alkali reactivity of aggregates (mortar-bar method)

Standard test method for determining the potential Alkali aggregate reactivity

Practice for sampling aggregates

(b) Cement

Std: No.

ASTM C 91

ASTM C150

ASTM C 618

ASTM C 989

IS 1489

IS 6452

IS 8041

IS 8042

IS 8043

IS 12330

IS 12600

Title

Specification for masonry cement

Specification for Portland cement

Specification for Portland pozzolana cement (flyash based)

Specification for Portland slag cement

Specification for Portland pozzolan cement (calcined clay based)

Specification for high alumina cement for structural use

Specification for rapid hardening Portland cement

Specification for white Portland cement

Specification for Hydrophobic Portland cement

Specification for sulphate resisting Portland cement

Specification for low heat Portland cement

(c) Water

Std: No.	Title
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ASTM D 1293	Standard test method for pH of water
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ASTM C 1602	Standard specification for mixing water used in the production of hydraulic cement concrete
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(d) Pozzolans

Std: No.	Title
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ASTM C 311	Standard test method for sampling and testing fly ash or natural pozzolans for use in Portland cement concrete
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ASTM C 618	Specification for calcined clay pozzolana
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ASTM C 989	Standard specification for ground granulated blast-furnace slag for use in concrete and mortars
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ASTM C 1240	Specification for silica fume used in cementitious mixtures
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ASTM C 1709	Standard guide for evaluation of alternative supplementary cementitious materials (ASCM) for use in concrete
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IS 12870	Methods of sampling calcined clay pozzolana
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(e) Concrete

Std: No.	Title
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IS 456	Code of practice for plain and reinforced concrete
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ASTM C 94/C94M	Standard specification for ready mixed concrete
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IS 1343	Code of practice for prestressed concrete
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(f) Sampling and methods of test

Std: No.	Title
ASTM C 31/C 31M	Standard practice for making and curing concrete test specimens in the field
ASTM C 39/C 39M	Test Method for Compressive Strength of Cylindrical Concrete specimens
ASTM C 78	Standard Test Method for Flexural Strength of Concrete
ASTM C 109/C 109M	Standard test method for compressive strength of hydraulic cement mortars
ASTM C 114	Test methods for chemical analysis of hydraulic cement
ASTM C 115	Test method for fineness of Portland cement by the turbidimeter
ASTM C 136	Determination of fineness by dry sieving
ASTM C 143/C 143M	Test Method for slump of Hydraulic Cement Concrete
ASTM C151	Standard test method for autoclave expansion of Portland cement
ASTM C 172	Standard practice for sampling freshly mixed concrete
ASTM C 183	Standard practice for sampling and the amount of testing of hydraulic cement
ASTM C 185	Standard test method for air content of hydraulic cement mortar
ASTM C 186	Standard test method for heat of hydration of hydraulic cement
ASTM C187	Standard test method for normal consistency of hydraulic cement
ASTM C 188	Standard test method for density of hydraulic cement
ASTM C191	Standard test method for time of setting of hydraulic cement by Vicat needle

ASTM C 192/C192M	Standard test method for making, and curing concrete test specimens in the laboratory
ASTM C 232	Standard test methods for bleeding of Concrete
ASTM C 403	Standard test method for time of setting of concrete mixtures by penetration resistance
ASTM C 496 specimens	Standard test method for splitting tensile strength of cylindrical concrete specimens
ASTM C 512	Standard test method for creep of concrete in compression
ASTM C 900	Test Method for Pullout Strength of Hardened Concrete
ASTM C 944 rotating-	Method of test for abrasion resistance of concrete or mortar surfaces by the cutter method
ASTM C 1314	Standard test method for compressive strength of masonry prisms
ASTM C 1583 strength (pull-off)	Standard test method for tensile strength of concrete surfaces and the bond or tensile strength of concrete repair and overlay materials by direct tension method)
ASTM C1709	Standard guide for evaluation of alternative supplementary cementitious materials for use in concrete
IS 516	Methods of test for strength of concrete
IS 8425	Determination of fineness by specific surface by Blaine air permeability method
IS 1331(Part 1)	Ultrasonic pulse velocity
IS 1331(Part 2)	Rebound hammer

(g) Cement matrix products

Std: No.	Title
ASTM C 62	Specification for soil-based blocks used in general building construction
ASTM C 90	Standard specification for load bearing concrete masonry units
ASTM C 129	Standard Specification for non-load bearing concrete masonry units
ASTM C 145	Specification of solid load bearing masonry units
ASTM C 157 mortar	Standard test method for length change of hardened hydraulic-cement and concrete
ASTM C 270	Specifications for mortar for unit masonry
ASTM C 426	Standard test method for linear drying shrinkage of concrete masonry units
ASTM C 476	Specification for grout for masonry
ASTM E 447	Test method for compressive strength of masonry prisms

(h) Lime

Std: No	Title
ASTM C 5	Specification for quicklime for structural purposes
ASTM C 25	Test methods for chemical analysis of limestone, quicklime, and hydrated lime
ASTM C 50	Standard practice for sampling, sample preparation, packaging, and marking of lime and limestone products
ASTM C 110	Standard test methods for physical testing of quicklime, hydrated lime, and limestone
ASTM C 141	Standard specification for hydrated hydraulic lime for structural purposes
ASTM C 206	Specification for finishing hydrated lime
ASTM C 207	Specification for hydrated lime for masonry purposes

Chapter – 7

Doors, Windows and Ventilators

(a) Wooden doors, windows and ventilators

Std: No.	Title
ASTM E 152	Methods for fire test of door assemblies
ASTM E 283	Standard test method for determining the rate of air leakage through exterior windows, curtain walls, and doors under specified pressure and temperature differences across the specimen
ASTM E 330	Standard test method for structural performance of exterior windows, doors, skylights and curtain walls by uniform static air pressure difference
ASTM E 331	Test method for water penetration of exterior windows, curtain walls, and door by uniform static air pressure difference
ASTM E 547	Standard test method for water penetration of exterior windows, skylight, doors and curtain walls by cyclic static pressure
ASTM E 783	Standard test method for field measurement of air leakage through installed exterior windows and doors
ASTM E 1886	Standard test method for performance of exterior windows, curtain walls, doors, and storm shutters impacted by missile(s) and exposed to cyclic pressure differentials
ASTM E 1996	Standard specification for performance of exterior windows, glazed curtain walls, doors, and storm shutters impacted by windborne debris in hurricanes

Std: No.	Title
ASTM E 2068	Test method for determination of operating force of sliding windows and doors
ASTM F 842	Standard test methods for measuring the forced entry resistance of sliding door assemblies, excluding glazing impact
IS 1003	Specification for timber panelled and glazed shutters
Part 1	Door shutters
Part 2	Window and ventilator shutters
IS 1141	Code of practice for seasoning of timber
IS 1826	Specification for venetian blinds for windows
IS 2191	Specification for wooden flush door shutters (cellular and hollow core type)
Part 1	Plywood face panels
Part 2	Particleboard face panels and hard board face panels
IS 2202	Specification for wooden flush door shutters (solid core type)
Part 1	Plywood face panels
Part 2	Particle board face panels and hard board face panels
IS 4020	Method of test for door shutters
Part-1	General
Part-2	Measurement of dimensions and squareness
Part-3	Measurement of general flatness

Part-4	Local planeness test
Part-5	Impact indentation test
Part-6	Flexure test
Part-7	Edge loading test
Part-8	Shock resistance test
Part-9	Buckling resistance test
Part-10	Slamming test
Part-11	Misuse test
Part-12	Varying humidity test
Part-13	End immersion test
Part-14	Knife test
Part-15	Glue adhesion test
Part-16	Screw withdrawal resistance test
IS 4021	Specification for timber door, window and ventilator frames
IS 4913	Code of practice for selection, installation and maintenance of timber doors and windows
IS 4962	Specification for wooden side sliding doors
IS 6198	Specification for ledged, braced and battened timber shutters
IS 6523	Specification for precast reinforced concrete door, window frames

(b) Metal doors, windows, frames and ventilators

Std: No.	Title
IS 1038	Specification for steel doors, windows and ventilators
IS 1361	Specification for steel windows for industrial buildings
IS1948	Specification for aluminium doors, windows and ventilators
IS1949	Specification for aluminium windows for industrial buildings
IS 4351	Specification for steel door frames
IS 6248	Specification for metal rolling shutters and rolling grills
IS 7452	Specification for hot rolled steel sections for doors, windows and ventilators
IS 10451	Specification for steel sliding shutters
IS 10521	Specification for collapsible gates

(c) Plastic doors, windows

Std: No.	Title
ASTM D 638	Standard Test Method for Tensile Properties of Plastics
IS 14856	Specification for glass fibre reinforced (GRP) panel type door shutters for internal use
IS 15380	Specification for moulded raised high density fibre (HDF) panel doors

Chapter – 8

Electrical Wiring, Fittings and Accessories

(a) Specifications

Std: No.	Title
IS 371	Specification for ceiling roses
IS 374	Specification for electric ceiling type fans and regulators
IS 418	Specification for tungsten filament general service electric lamps
IS 1258	Specification for bayonet lamp holders
IS 1293	Specification for plugs and socket outlets rated voltage up to and including 250 V and rated current up to and including 16 amperes
IS 1534	Specification for ballasts for fluorescent lamps: Part 1 for switch start circuits
IS 1554	PVC insulated (heavy duty) electric cables:
Part 1	For working voltages up to and including 1100 V
Part 2	For working voltages from 3.3 kV up to and including 11 kV
IS 1777	Specification for industrial luminaire with metal reflectors
IS 1985	General purpose luminaires
Part 5	Particular requirements, Section 2
IS 1985	Recessed luminaires

Part 5	Particular requirements, Section 3
IS 1987	Luminaires for road and street lighting
Part 5	Particular requirements, Section 4
IS 1987	Portable general purpose luminaires
Part 5	Particular requirements, Section 5
IS 1987	Flood light
IS 2086	Specification for carriers and bases used in re-wirable type electric fuses up to 650 V
IS 2148	Spec: for flameproof enclosures “d” for electrical apparatus for explosive gas atmospheres
IS 2206	Specification for flameproof electric lighting fittings
Part 1	Well glass and bulkhead types
Part 2	Fittings using glass tubes
Part 3	Fittings using fluorescent lamps and plastic covers
Part 4	Portable flame-proof handlamps and approved flexible cables
IS 2215	Specification for starters for fluorescent lamps
IS 2412	Specification for link clips for electrical wiring
IS 2418	Specification for tubular fluorescent lamps for general lighting services:
Part 1	Requirements and tests
Part 2	Standard lamp data sheets
Part 3	Dimensions of G-5 and G-13 bi-pin caps
Part 4	Go and no-go gauges for G-5 and G-13 bi-pin caps

IS 2667	Specification for fittings for rigid steel conduits for electrical wiring
IS 2675	Specification for enclosed distribution fuse boards and cut outs for voltages not exceeding 1000 V
IS 3287	Specification for industrial lighting fittings with plastic reflectors
IS 3323	Specification for bi-pin lamp holders for tubular fluorescent lamps
IS 3324	Specification for holders for starters for tubular fluorescent lamps
IS 3419	Specification for fittings for rigid non-metallic conduits
IS 3480	Specification for flexible steel conduits for electrical wiring
IS 3528	Specification for waterproof electric lighting fittings
IS 3553	Specification for watertight electric lighting fittings
IS 3837	Specification for accessories for rigid steel conduits for electrical wiring
IS 3854	Specification for switches for domestic and similar purposes
IS 4012	Specification for dust-proof electric lighting fittings
IS 4013	Specification for dust-tight electric lighting fittings
IS 4160	Specification for interlocking switch socket outlet
IS 4615	Specification for switch socket outlets (non-interlocking type)
IS 4649	Specification for adaptors for flexible steel conduits
IS 5077	Specification for decorative lighting outfits
IS 6538	Specification for three-pin plugs made of resilient material
IS 8030	Specification for luminaires for hospitals

IS 8828	Specification for circuit-breakers for over current protection for household and similar installation
IS 9537	Specification for conduits for electrical installations:
Part 1	General requirements
Part 2	Rigid steel conduits
Part 3	Rigid plain conduits for insulating materials
Part 4	Pliable self-recovering conduits for insulating materials
Part 5	Pliable conduits of insulating materials
Part 6	Pliable conduits of metal or composite materials
Part 8	Rigid non-threadable conduits of aluminium alloy
IS 9926	Specification for fuse wires used in rewirable type electric fuses up to 650 V
IS 10322	Specification for luminaires:
Part 1	General requirements
Part 2	Constructional requirements
Part 3	Screw and screwless terminations
Part 4	Methods of tests
Part 5	Particular requirements, Section 1
IS 11037	Electronic type fan regulators

IS 13010	AC watt-hour meters, Class 0.5, 1 and 2
IS 13779	AC static watt hour meters (Class 1 and 2)
IS 13947	Specification for low-voltage
Part 3	Switch gear and control gear: Part 3 switches, disconnectors, switch disconnectors and fuse combination units
IS14763	Conduit for electrical purposes, outside diameters of conduits for electrical installations and threads for conduits and fittings
IS14768	Conduit fittings for electrical installations
Part 1	General requirements
Part 2	Metal conduit fittings
IS 14772	Enclosures for accessories for household and similar fixed electrical installations
IS 14927	Cable trunking and ducting systems for electrical installations
Part 1	General requirements
Part 2	Cable trunking and ducting systems intended for mounting on walls or ceilings
IS 14930	Conduit systems for electrical installations:
Part 1	General requirements
Part 2	Particular requirements for conduit system buried underground
IS 15368	Cable reels for household and similar purposes

IS 6538	Specification for three-pin plugs made of resilient material
IS 8030	Specification for luminaires for hospitals
IS 8828	Specification for circuit-breakers for over current protection for household and similar installation (<i>second revision</i>)
IS 9537	Specification for conduits for electrical installations:
(Part 1)	General requirements
(Part 2)	Rigid steel conduits
(Part 3)	Rigid plain conduits for insulating materials
(Part 4)	Pliable self-recovering conduits for insulating materials
(Part 5)	Pliable conduits of insulating materials
(Part 6)	Pliable conduits of metal or composite materials
(Part 8)	Rigid non-threadable conduits of aluminium alloy
IS 9926	Specification for fuse wires used in rewirable type electric fuses up to 650 V
IS 10322	Specification for luminaires:
(Part 1)	General requirements
(Part 2)	Constructional requirements
(Part 3)	Screw and screwless terminations
(Part 4)	Methods of tests

(Part 5)	Particular requirements, Section 3
IS1987	Portable general purpose luminaries
(Part 5)	Particular requirements, Section 4
IS1987	Portable general purpose luminaries
(Part 5)	Particular requirements, Section 5
IS1987	Flood light
IS11037	Electronic type fan regulators
IS13010	AC watt-hour meters, Class 0.5, 1 and 2 (<i>first revision</i>)
IS13779	AC static watthour meters (Class 1and 2) (<i>first revision</i>)
IS13947	Specification for low-voltage
(Part 3)	switchgear and controlgear: Part 3 Switches, disconnectors, switch disconnectors and fuse combination units
IS14763	Conduit for electrical purposes, outside diameters of conduits for electrical installations and threads for conduits and fittings
IS14768	Conduit fittings for electrical installations:
(Part 1)	General requirements
(Part 2)	Metal conduit fittings

IS14772	Enclosures for accessories for household and similar fixed electrical installations
IS14927	Cable trunking and ducting systems for electrical installations
(Part 1)	General requirements
(Part 2)	Cable trunking and ducting systems intended for mounting on walls or ceilings
IS14930	Conduit systems for electrical installations:
(Part 1)	General requirements
(Part 2)	Particular requirements for conduit system buried underground
IS15368	Cable reels for household and similar purposes

Chapter – 9

Floor Covering, Roofing and Other Finishes

(a) Concrete flooring

Std: No.	Title
ASTM C 1731	Specification for concrete floor tiles
ASTM D 2047	Standard test method for static coefficient of friction of polish-coated floor surface
ASTM F 710	Standard practice for preparing concrete floors to receive resilient flooring
ASTM F 970	Standard test method for static load limit
IS 3670	Code of practice for construction of timber floors
IS 5766	Code of practice for laying burnt clay brick flooring
IS 13801	Specification for chequered cement concrete tiles

(b) Flooring Compositions

Std: No.	Title
ASTM F 1066	Specification for vinyl composition floor tile
IS 9162 floor	Methods of tests for epoxy resin, hardness and epoxy resin compositions for topping
IS 9197	Specification for epoxy resin, hardness and epoxy resin compositions for floor topping

(c) Linoleum Flooring

Std: No.	Title
ASTM F 2034	Specification for sheet linoleum floor covering
ASTM F 2195	Specification for linoleum floor tile
IS 9704	Methods of tests for linoleum sheets and tiles

(d) Ceramic and other finishing

Std: No.	Title
ASTM C 57	Specification for structural clay floor tile
ASTM C 212	Standard specification for structural clay facing tile
ASTM C 373	Determination of water absorption, bulk density, apparent porosity and apparent specific gravity of fired white ware products, ceramic tiles and glass tiles
ASTM C 424	Standard test method for crazing resistance of fired glazed white wares by autoclave treatment
ASTM C 484	Standard test method for thermal shock resistance glazed ceramic tile
ASTM C 648	Standard test method for breaking strength of ceramic tile
ASTM C 1026	Standard test method for measuring the resistance of ceramic and glass tile to freeze-thaw cycling
ASTM C 1027	Standard test method for determining visible abrasion resistance of glazed ceramic tile
ASTM C 1028	Determination of dimensions and surface quality
IS 3951	Specification for hollow clay tiles for floors and roofs
IS 4457	Specification for ceramic unglazed vitreous acid resisting tile
IS13630	Method of test for ceramic tiles

IS 13630	Determination of moisture expansion using boiling water (unglazed tiles)
IS 13630	Determination of linear thermal expansion
IS 13630	Determination of modulus of rupture
IS 13630	Determination of chemical resistance (Glazed tiles)
IS 13630	Determination of chemical resistance (Unglazed tiles)
IS 13630	Determination of resistance to surface abrasion (Glazed tiles)
IS 13630	Determination of scratch hardness of surface according to Mohs'
IS 13711	Sampling and basis for acceptance of ceramic tiles

(e) Roofing

Std: No.	Title
ASTM C 1167	Specification for clay roofing tiles (Mangalore pattern)
ASTM C 1492	Specification for concrete roof tiles
ASTM D 312	Specification for asphalt used in roofing
ASTM D 41	Specification for asphalt primer used in roofing, damp proofing waterproofing
ASTM D 2822	Specification for asphalt roof cement
ASTM D 2823	Specification for asphalt roof coating
ASTM D 3746	Test method for impact resistance of bituminous roofing system
ASTM D 4022	Specification for coal tar roof cement, asbestos containing

ASTM D 4434	Specification for poly (vinyl chloride) sheet roofing
ASTM E 108	Standard for fire test of roof coverings
IS 277	Specification for galvanized steel sheets (plain and corrugated)
IS 459	Specification for corrugated and semi-corrugated asbestos cement sheets
IS 6250	Specification for roofing slate tiles
IS 1464	Specification for clay ridge and ceiling tiles
IS 2690	Specification for burnt clay flat terracing tiles
Part -1	Machine made
Part-2	Hand made
IS 12583	Specification for corrugated bitumen roofing sheets
IS 12866	Specification for plastic translucent sheets made from thermosetting polyester resin (glass fibre reinforced

(f) Wall covering / Finishing

Std: No.	Title
ASTM C34	Specification for structural clay load-bearing wall tile
ASTM C 52	Specification for gypsum partition tile or block
ASTM C 56	Specification for structural clay non-load bearing tile
ASTM C 126	Specification for ceramic glazed structural clay facing tile
IS 15418	Specification for finished wall papers, wall vinyl and plastic wall coverings in roll form

Chapter -10

Glass

Std: No.	Title
ASTM C 1036	Specification for flat glass
ASTMC 1172	Specification for laminated architectural flat glass
ASTM C 1369	Specification for Secondary Edge Sealants for structurally Glazed Insulating Glass Units
ASTM C 1503	Specification for silvered glass mirrors for general purposes
ASTM E 773	Test method for accelerated weathering of insulating glass units
ASTM E 774	Specification for classification of the durability of sealed insulating glass units
ASTM E 1300	Standard practice for determining load resistance of glass in buildings
ASTM E 2188	Standard test method for insulating glass performance
ASTM E 2189	Standard test method for testing resistance to fogging in insulating glass units
ASTM F 1642	Standard test method for glazing and glazing systems subject to air blast loadings
IS 5437	Specification for figured rolled and wired glass
IS 14900	Specification for transparent float glass

Chapter - 11

Gypsum Based Materials

Std: No.	Title
ASTM C 22	Standard specification for gypsum
ASTM C 28/C28M	Standard specification for gypsum plasters
ASTM C 36	Standard specification for Gypsum wallboard
ASTM C 442	Standard specification for Gypsum backing board ,gypsum core board and gypsum shaft liner board
ASTM C 473	Method of tests for gypsum and gypsum products
ASTM C 557	Standard specification for adhesives for fastening gypsum wall board to wood framing
ASTM C 587	Standard specification for gypsum veneer plaster
ASTM C 588	Standard specification for gypsum base for veneer plasters
ASTM C 630	Standard specification for water resistant gypsum backing board
ASTM C 631	Standard specification for Interior bonding compounds for interior gypsum plastering
ASTM C 645	Standard specification for non-load bearing steel studs
ASTM C 931	Standard specification for exterior gypsum soffit boards
ASTM C 955	Standard specification for Load bearing steel studs
ASTM C 960	Standard specification for predecorated gypsum board

ASTM C 1002	Standard specification for steel screws
ASTM C 1047	Standard specification accessories for gypsum wall board and gypsum veneer base
ASTM C 1177	Standard specification for glass mat gypsum substrate for use as sheathing
ASTM C 1178	Standard specification Glass mat water-resistant gypsum backing panel
ASTM C 1278	Standard specification for fibre reinforced gypsum panels
ASTM C 1395	Standard specification for gypsum ceiling board
ASTM C 1396	Standard specification for gypsum board
ASTM F 547	Standard specification joint reinforcing tape and compound
ASTM F 1667	Standard specification nails for gypsum board

Chapter 12

Masonry

Std: No.	Title
IS 1077	Common burnt clay building bricks
Part 3	Method of measurements of brick works
Part 1	Code of practice for construction of stone masonry
IS 2222	Specification for burnt clay perforated building bricks
IS 3495	Method of test for burnt clay building bricks
IS 4139	Specification of calcium silicate bricks
IS 4885	Specification for sewer brick
IS 5454	Methods of sampling of clay building bricks
IS 13757	Specification of burnt clay fly ash bricks

Chapter-13

Paints and Allied Products

(a) Water Based Paints and Pigments

IS No	Title
ASTM D 3726	Standard guide for painting inspectors
IS 427	Specification for distemper, dry, color as required
IS 428	Specification for distemper, washable
IS 5410	Specification for cement paint, color as required
IS 5411	Specification for plastic emulsion paint:
Part-1	For interior use
Part -2	For exterior use

(b) Ready Mixed Paints, Enamels and Powder Coating

IS No	Title
ASTM D 5382	Standard guide to evaluation of optical properties of powder coatings
IS 101	Methods of sampling and test for paints, varnishes and related products
Part -1/ Sec 1	Test on liquid paints (general and physical), Section 1 sampling
Part 1/Sec 2	Test on liquid paints (general and physical), Section 2 Preliminary examination and preparation of samples for testing
Part 1/Sec 3	Test on liquid paints (general and physical) section 3 preparation of panels

Part 1/Sec 4	Test on liquid paints (general and physical), Section 4 Brushing test
Part -1/Sec 5	Test on liquid paints (general and physical), Section 5 Consistency
Part 1/Sec 6	Test on liquid paints (general and physical), Section 6 Flash point
Part 1/Sec 7	Test on liquid paints (general and physical), Section 7 Mass per 10 liters
Part 2/ Sec 1	Test on liquid paints (chemical and examination), Section 1 Water content
Part 2/ Sec 2	Test on liquid paints (chemical examination), Section 2 Volatile matter
Part 3/Sec 1	Tests on paint film formation, Section 1 Drying time
Part 3/Sec 2	Tests on paint film formation, Section 2 Film thickness
Part 3/ Sec 4	Tests on paint film formation, Section 4 Finish
Part 3/Sec 5	Tests on paint film formation, Section 5 Fineness of grind
Part 4/ Sec 1	Optical test, section 1 opacity
Part 4/Sec 2	Optical test, section 2 color
Part 4/Sec 3	Optical test, section 3 light fastness test
Part 4/Sec 4	Optical test, Section 4 Gloss
Part 5/Sec 1	Mechanical test on paint films, Section 1 Hardness tests
Part 5/Sec 2	Mechanical test on paint films, Section 2 Flexibility and adhesion
Part 5/Sec 3	Mechanical test on paint films, Section 3 Impact resistance
Part 5/Sec 4	Mechanical test on paint films, Section 4 Print free test
Part 6/Sec 1	Durability tests, section 1 resistance to humidity under conditions of condensation
Part 6/Sec 2	Durability tests, section 2 keeping properties
Part 6/Sec 3	Durability tests, section 3 moisture vapor permeability
Part 6/Sec 4	Durability tests, section 4 degradation of coatings (pictorial aids for evaluation)
Part 6/Sec 5	Durability tests, section 5 accelerated weathering test

Part 7/Sec 1	Environmental tests on paint films, section 1 resistance to water
Part 7/Sec 2	Environmental tests on paint films, section 2 resistance to liquid
Part 7/Sec 3	Environmental tests on paint films, section 3 resistance to heat
Part 7/Sec 4	Environmental tests on paint films, section 4 resistance to bleeding of pigments
Part 8/Sec 1	Tests for pigments and other solids, section 1 residue on sieve
Part 8/Sec 2	Environmental tests on paint films, section 2 pigments and non-volatile matter
Part 8/Sec 3	Environmental tests on paint films, section 3 ash content
Part 8/Sec 4	Environmental tests on paint films, section 4 phthalic anhydride
Part 8/Sec 5	Environmental tests on paint films, section 5 lead restriction test
Part 8/Sec 6	Environmental tests on paint films, section 8 volumes solids
Part 9/Sec 1	Tests for lacquers and varnish, Section 1 acid value
Part 9/Sec 2	Tests for lacquers and varnish, Section 2 rosin test
IS 104	Specification for ready mixed paint, brushing, zinc chrome, priming
IS 109	Specification for ready mixed paint, brushing, priming, plaster to Indian
Standard	colours No 361
IS 123	Specification for ready mixed paint, brushing, finishing semigloss, for general purposes, to Indian Standard colour No 445,446,448,449,451 and 473 and red
oxide	(colour unspecified)
IS 133	Specification for enamel, interior (a) undercoating, (b) finishing
IS 137	Specification for ready mixed paint, brushing, matt or egg-shell ,flat, finishing, interior, to Indian Standard colour, as required

- IS 158 Specification for ready mixed paint, brushing, bituminous, black, lead free, acid, alkali, and heat resisting
- IS 168 Specification for ready mixed paint, air-drying semi-glossy/matt, for general purposes
- IS 341 Specification for black Japan, Types A, B and C
- IS 2074 Specification for ready mixed paint and air drying red oxide-zinc chrome, priming
- IS 2075 Specification for ready mixed paint, stoving, red oxide-zinc chrome, priming
- IS 2339 Specification for aluminum paint for general purposes, in dual container
- IS 2932 Specification for enamel, synthetic exterior, (a) undercoating, (b) finishing
- IS 2933 Specification for enamel, exterior, (a) undercoating (b) finishing
- IS 3536 Specification for ready mixed paint, brushing, wood primer
- IS 3539 Specification for ready mixed paint, undercoating, for use under oil finishes, to Indian Standards colours, as required
- IS 3585 Specification for ready mixed paint, aluminum, brushing, priming, water resistant, for wood work
- IS 3678 Specification for ready mixed paint, thick white, for lettering
- IS 8662 Specification for enamel, synthetic, exterior (a) undercoating, (b) finishing, for railway coaches
- IS 11883 Specification for ready mixed paint, brushing, red oxide, priming for metals
- IS 13183 Specification for aluminum paints, heat resistant
- IS 13213 Specification for polyurethane full gloss enamel (two pack)

(c) Thinners and Solvents

Std. No	Title
ASTM D 13	Specification for gum spirit of turpentine (oil of turpentine)
IS 324	Specification for ordinary denatured spirit
IS 14314	Specification for thinner general purposes for synthetic paints and varnishes
IS 82	Methods of sampling and test for thinners and solvents for paints

(d) Varnishes and Lacquers

Std. No	Title
IS 337	Specification for varnish, finishing, interior
IS 347	Specification for varnish, shellac, for general purposes
IS 348	Specification for French polish
IS 524	Specification for varnish, finishing, exterior, synthetic
IS 525	Specification for varnish, finishing, exterior and general purposes
IS 642	Specification for varnish medium for aluminum paint

Chapter-14

Polymers, Plastic and Geosynthetics/ Geotextiles

Std. No	Title
IS 1998	Methods of test for thermosetting synthetic resin bonded laminated sheets
IS 2036	Specification for phenolic laminated sheets
IS 2046	Specification for decorative thermosetting synthetics resin bonded laminated sheets
IS 2076	Specification for unsupported flexible vinyl film and sheeting
IS 2508	Specification for low density polyethylene films
IS 6307	Specification for rigid PVC sheets
IS 9766	Specification for flexible PVC compound
IS 10889	Specification for high density polyethylene films
IS 12830	Specification for rubber based adhesives for fixing PVC tiles to cement
IS 13162	Methods of test for geotextiles
ASTM D 4354	Sampling and preparation of test specimen of geotextiles
ASTM D 4355	Determination of resistance to exposure of ultra-violet light and water (Xenon arc type apparatus)
ASTM D 4491	Method of test for determination of water permeability-permittivity geotextiles

ASTM D 4533	Method of test for trapezoid tearing – Geotextiles
ASTM D 4595	Determination of tensile properties using a wide width strip
ASTM D 4751	Method of determination of apparent opening size by dry sieving technique geotextiles
ASTM D 4833	Determination of puncture resistance by falling cone method
ASTM D 4886	Determination of abrasion resistance of geotextiles
ASTM D 5199	Determination of thickness at specified pressure
ASTM D 5261	Determination of mass per unit area of geotextiles
ASTM D 5262	Methods for determination of creep of geotextiles
ASTM D 5321	Method of test for the evaluation of interface friction between geosynthetics and soil (Part -1) modified direct shear test
IS 13262	Specification for pressure sensitive adhesive tapes with plastic base
IS 13325	Method of test for the determination to tensile properties of extruded polymer geogrids using the wide strip
IS 14182	Specification for solvent cement for use with unplasticized polyvinylchloride plastic pipe and fittings
IS 14443	Specification for polycarbonate sheets
IS 14643	Specification for unsintered polytera fluorethy (PTFE) tape for thread sealing applications
IS 14715	Specification for woven jute geotextiles
IS 14753	Specification for poly (methyl) methacrylate (PMMA) (Acrylic) sheets
IS 14986	Jute geo-grid for rain water erosion control in road and railway embankments and hill slopes
IS 15060	Tensile test for joint/seams by wide width method of geotextiles

Chapter-15

Stones

(a) Specifications

Std: No.	Title
ASTM C110	Specification for limestone (slabs and tiles)
ASTMC 530	Specification for marble (blocks, slabs and tiles)
ASTMC 615	Standard specification for granite dimension stone
ASTM C 1364	Standard specification for architectural cast stone
IS 3620	Specification for laterite stone block for masonry
IS 3622	Specification for sand stones (slabs and tiles)
IS 9394	Specification for stone lintels

(b) Methods of testing

Std: No.	Title
ASTM C 97	Standard test method for absorption and bulk specific gravity of dimension stone
ASTM C99/C99M	Test method for modulus of rupture of dimension stone
ASTM C110	Test methods for physical testing of quicklime, hydrated lime, and limestone
ASTM C170/ C170M	Test method for compressive strength of dimension stone

ASTM C 1195	Standard test method for absorption of architectural cast stone
IS 1121	Tests for determination of strength properties of natural building stones -Transverse strength -Tensile strength -Shear strength
IS 1122	Test for determination of true specific gravity of natural building stones
IS 1123	Methods of identification of natural building stones
IS 1125	Test for determination of weathering of natural building stones
IS 1126	Test for determination of durability of natural building stones
IS 1200	Methods of measurements of building and civil engineering works stone masonry
IS 4121	Test for determination of water transmission rate by capillary action through natural building stones
IS 4122	Test for surface softening of natural building stones by exposure to acidic atmosphere
IS 5218	Test for toughness of natural building stones
IS 43478	Test for determination of permeability of natural building stones

Chapter-16

Structural Steel

Std: No.	Title
ASTM A 36	Standard specification for carbon structural steel
ASTM A 82	Standard specification for steel wire, plain, for concrete reinforcement
ASTM A 123	Standard specification for zinc (hot-dip galvanized) coatings on iron and steel products
ASTM A 194,	Specification for carbon and alloy steel nuts for bolts for high pressure and high temperature service
ASTM A 242	Specification for high strength low alloy structural steel
ASTM A 276	Specification for stainless steel bars and shapes
ASTM A 283	Specification for low and intermediate tensile strength carbon steel plates
ASTM A 320	Specification for alloy steel bolting materials for low-temperature service
ASTM A 325/ A325M	Standard specification for high-strength bolts for structural steel joints
ASTM A 370 A 423/ A423M	Standard test methods and definitions for mechanical testing of steel ASTM products
ASTM A 492	Standard specification for seamless and electric-welded low-alloy steel tubes
ASTM A 496 M	Specification for round steel wire for ropes
	Specification for high strength deformed steel bars and wires for concrete reinforcement

ASTM A 510	Specification for general requirements for wire rods, coarse round wire and carbon steel wire
ASTM A 526	Standard specification for steel sheet, zinc-coated (galvanized) by the hot-dip process, commercial quality
ASTM A 555/A555M	Standard specification for general requirements of stainless steel wire and wire rods
ASTM A 563	Specification for carbon and alloy steel nuts
ASTM A 568/A568M	Specification for steel, sheet, carbon, structural and high-strength, low-alloy, hot-rolled and cold-rolled, general requirement
ASTM A 572	Standard specification for high-strength low-alloy columbium-vanadium structural steel
ASTM A 580/A580M	Specification for stainless steel wire
ASTM A 653	Specification for galvanized steel sheets
ASTM A 666	Standard specification for annealed or cold-worked austenitic stainless steel sheet, strip, plate and flat bar
ASTM A 722	Standard specification for uncoated high-strength steel bars for prestressing concrete
ASTM A 759/A759M	Specification for fire resistant steel
ASTM A 775 / A775M	Standard Specification for epoxy-coated steel reinforcing bars
ASTM A 852/A852M	Specification for structural weather resistant steels

ASTM A 992/A992M	Standard specification for steel for structural shapes for use in building framing
ASTM A 1267	Specification for expanded metal steel sheets for general purposes
ASTM F 436	Specification for hardened steel washers
IS 432	Specification for hollow mild steel sections for structural use
IS 1148	Specification for hot- rolled steel rivet bars (up to 40 mm diameter)for structural purposes
IS 1363	Specification for hexagonal wire netting for general purposes
IS 2502	Code of practice for bending and fixing of bars for concrete reinforcement
IS 8081	Specification for slotted sections

Chapter-17

Thermal Insulation Materials

Std: No	Title
ASTM C 163	Practice for mixing thermal insulating cement samples
ASTM C 165	Test method for measuring compressive properties of thermal insulations
ASTM C 166	Test method for covering capacity and volume change upon drying of thermal insulating cement
ASTM C 195	Specification for mineral fiber thermal insulating cement
ASTM C 196	Specification for expanded or exfoliated vermiculite thermal insulating cement
ASTM C 578	Specification for rigid, cellular polystyrene thermal insulation
IS 3677	Specification for unbonded rock and slag wool for thermal insulation
IS 4671	Specification for expanded polystyrene for thermal insulation purposes
IS 6598	Specification for cellular concrete for thermal insulation
IS 7509	Specification for thermal insulating cement
IS 8154	Specification for performed calcium silicate insulation for temperature up to 650°C
IS 8183	Specification for bonded mineral wool
IS 9403	Method of test for thermal conductance and transmittance of built up sections by means of guarded hot box

IS 9489	Method of test for thermal conductivity of materials by means of heat flow meter
IS 9490	Method of determination for thermal conductivity of insulation materials (water calorimeter method)
IS 9742	Specification for sprayed mineral wool thermal insulation
IS 9743	Specification for thermal insulation finishing cements
IS 9842	Specification for preformed fibrous pipe insulation
IS 3144	Method of test for material wool thermal insulation material
IS 11128	Specification for spray applied hydrated calcium silicate thermal insulation
IS 11129	Method of test for tumbling friability of preformed block-type thermal insulation
IS 11239	Method of test for rigid cellular thermal insulation materials
Part-1	Dimensions
Part -2	Apparent density
Part -3	Dimensional stability
Part -4	Water vapour transmission rate
Part -5	Volume percent of open and closed cells
Part -6	Heat distortion temperature
Part -7	Coefficient of linear thermal expansion at low temperatures
Part -8	Flame height, time of burning and loss of mass
Part -9	Water absorption
Part -10	Flexural strength
Part -11	Compressive strength
Part -12	Horizontal burning characteristics

Part -13	Determination of flammability by oxygen index
IS 11307	Specification for cellular glass block and pipe thermal insulating
IS 11308	Specification for thermal insulating castables (hydraulic setting) for temperature up to 250°C
IS 12436	Specification for preformed rigid polyurethane (PUR) and polyisocyanurate (Pir) foams for thermal insulation
IS 13204	Specification for rigid phenolic foams for thermal insulation
IS 13286	Method of test for surface spread of flame for thermal insulation materials

Chapter-18

Wood Based Materials

Std: No.	Title
ASTM D 9	Terminology relating to wood and wood –based products
ASTM D 25	Specification for round timber piles
ASTM D 38	Test methods for sampling wood preservatives prior to testing
ASTM D 143	Test methods for small clear specimens of timber
ASTM D 198	Test methods of static tests of lumber in structural sizes
ASTM D 245	Practice for establishing structural grades and related allowable properties for visually graded lumber
ASTM D 246	Test method for distillation of creosote and creosote-coal tar solutions
ASTM D 370	Practice for dehydration of oil-type preservatives
ASTM D 390	Specification for coal-tar creosote for the preservative treatment of piles, poles, and timbers for marine, land, and freshwater use
ASTM D1036	Test methods of static tests of wood poles
ASTM D 1037	Test methods for evaluating properties of wood-base fiber and particle panel materials
ASTM D 1038	Terminology relating to veneer and plywood
ASTM D1110	Test methods for water solubility of wood
ASTM D1165	Nomenclature of domestic hardwoods and softwoods

ASTM D 1166	Test method for methoxyl groups in wood and related materials
ASTM D 1554	Terminology relating to wood-base fiber and particle panel materials
ASTM D 1666	Test methods for conducting machining tests of wood and wood-base materials
ASTM D 1760	Specification for pressure treatment of timber products
ASTM D 1761	Test methods for mechanical fasteners in wood
ASTM D 1990	Practice for establishing allowable properties for visually-graded dimension lumber from in-grade tests of full-size specimens
ASTM D 2017	Method of accelerated laboratory test of natural decay resistance of woods
ASTM D 2164	Methods of testing structural insulating roof deck
ASTM D 2394	Methods for simulated service testing of wood and wood- base finish flooring
ASTM D 2395	Test methods for specific gravity of wood and wood-based materials
ASTM D 2481	Test method for accelerated evaluation of wood preservatives for marine services by means of small size specimens
ASTM D2719	Test methods for structural panels in shear through-the-thickness
ASTM D2898	Test methods for accelerated weathering of fire-retardant-treated wood for fire testing
ASTM D2899	Practice for establishing allowable stresses for round timber piles
ASTM D2915	Practice for evaluating allowable properties for grades of structural lumber
ASTM D3043	Test methods for structural panels in flexure
ASTM D3044	Test method for shear modulus of wood-based structural panels
ASTM D3200	Specification and test method for establishing recommended design stresses for round timber construction poles

ASTM D 3499	Test method for toughness of wood-based structural panels
ASTM D 3500	Test methods for structural panels in tension
ASTM D 3501	Test methods for wood-based structural panels in compression
ASTM D 3737	Practice for establishing allowable properties for structural glued laminated timber (glulam)
ASTM D 4442	Test methods for direct moisture content measurement of wood and wood-base materials
ASTM D 4444	Test methods for use and calibration of hand-held moisture meters
ASTM D 4761	Test methods for mechanical properties of lumber and wood-base structural material
ASTM D 4933	Guide for moisture conditioning of wood and wood-based materials
ASTM D 5456	Specification for evaluation of structural composite lumber products
ASTM D 5516	Test method for evaluating the flexural properties of fire-retardant treated softwood plywood exposed to elevated temperatures
ASTM D 5536	Practice for sampling forest trees for determination of clear wood properties
ASTM D 5651	Test method for surface bond strength of wood-base fiber and particle panel materials
ASTM D 6815	Specification for evaluation of duration of load and creep effects of wood and wood-based products

IS 1708

Part 3

Determination of volumetric shrinkage

Part 4

Determination of radial and tangential shrinkage and fibre situation point

Part 5

Determination of static bending strength

Part 6

Determination of static bending strength under two point loading

Part 7

Determination of impact bending strength

Part 8

Determination of compressive strength parallel to grain

Part 9

Determination of compressive strength perpendicular to grain

Part 10

Determination of hardness under static indentation

Part 11

Determination of shear strength parallel to grain

Part 12

Determination of tensile strength parallel to grain

Part 13

Determination of tensile strength perpendicular to grain

Part 15

Determination of nail and screw holding power

Part 18

Determination of torsional strength

Chapter - 19

Welding Electrodes and Wires

Std: No	Title
IS 814	Specification for covered electrodes for manual metal arc welding of carbon and carbon manganese steel
IS 1278	Specification for filler rods and wires for gas welding
IS 1395	Specification for low and medium alloy steel covered electrodes for manual metal arc welding
IS 2879	Mild steel for metal arc welding electrodes
IS 3613	Acceptance tests for wire flux combinations for submerged arc welding of structural steel
IS 4972	Specification for resistance spot welding electrodes
IS 5206	Covered electrodes for manual arc welding of stainless steel and other similar high alloy steel
IS 5511	Specification for covered electrodes for manual arc welding cast iron
IS 5897	Specification for aluminium and aluminium alloy welding rods and wires and magnesium alloy welding rods
IS 5898	Specification for copper and copper alloy bare solid welding rods and electrodes

IS 6419	Specification for welding rods and bare electrodes for gas shielded arc welding of structural steel
IS 7280	Specification for bare wire electrodes for submerged arc welding of structural steel
IS 8363	Specification for bare wire electrodes for electro slag welding of steels
IS 10631	Stainless for welding electrode core wire

Chapter - 20

Wire Ropes and Wire Products

Std: No.	Title
IS 278	Specification for galvanized steel barbed wire for fencing
IS 2140	Specification for stranded galvanized steel wire for fencing
IS 2266	Specification for steel wire ropes for general engineering purposes
IS 2365	Specification for steel wire suspension ropes for lifts, elevators and hoists
IS 2721	Specification for galvanized steel wire chain link fences fabric
IS 6594	Specification for technical supply condition for wire ropes and strands
IS 12776	Specification for galvanized strand for earthing

Chapter - 14

Sanitary Appliances and Water Fittings

Std: No.	Title
IS 404	Specification for lead pipes: part 1 for other than chemical purposes
IS 458	Specification for precast concrete pipes (with and without reinforcement)
IS 651	Specification for salt glazed stoneware pipes and fittings
IS 748	Specification for prestressed concrete pipes (including specials
IS 771	Specification for glazed fire-clay sanitary appliances:
Part 1	General requirements
Part 2	Specification requirements of kitchen and laboratory sinks
Part 3	Specification requirements of urinals, Section 1 slab urinals
Part 3/sec 2	Specification requirements of urinals, Section 2 stall urinals
Part 4	Specification requirements of postmortom slabs
Part 5	Specific requirements of shower trays
Part 6	Specific requirements of bed-pan sinks
Part 7	Specific requirements of slop sinks

Std: No.	Title
IS 772	Specification for general requirements for enamelled cast iron sanitary appliances
IS 773	Specification for enamelled cast iron water-closets railway coaching stock type
IS 774	Specification for flushing cistern for water-closets and urinals (other than plastic cistern)
IS 775	Specification for cast iron brackets and supports for washbasins and sinks
IS 782	Specification for caulking lead
IS 783	Code of practice for laying of concrete pipes
IS 804	Specification for rectangular pressed steel tanks
IS 1276	Specification for cast iron manholes covers and frames
IS 1536	Specification for centrifugally cast (spun) iron pressure pipes for waters, gas and sewage
IS 1537	Specification for vertically cast iron pressure pipes for water, gas and sewage
IS 1538	Specification for cast iron fittings for pressure pipes for water, gas and sewage
IS 1592	Specification for asbestos cement pressure pipes and joints

Std: No.	Title
IS 1626	Specification for asbestos cement building pipes and pipe fittings, gutter fittings, and roofing fittings
Part 1	Pipes and pipe fittings
Part 2	Gutters and gutter fittings
Part 3	Roofing accessories
IS 1700	Specification for drinking fountains
IS 1729	Specification for cast iron ductile iron drainage pipes and pipe fittings for grand non-pressure pipe line socket and spigot series
IS 1916	Specification for steel cylinder with concrete lining and coating
IS 2041	Specification for steel plates for pressure vessels used at moderate and low temperature
IS 2056	Code of practice for water supply in buildings
IS 2082	Stationary storage type electric water heaters
IS 2326	Specification for automatic flushing cisterns for urinals
IS 2470	Code of practice for installation of septic tanks
IS 2548	Specification for plastic seats and covers for water-closets:

Std: No.	Title
Part 1	Thermoset seats and covers
Part 2	Thermo plastic seats and covers
IS 2556	Specification for vitreous sanitary appliances
Part 1	General requirements
Part 2	Specific requirements of wash-down water-closets
Part 3	Specific requirements of squatting pans
Part 4	Specific requirements of wash basins
Part 5	Specific requirements of laboratory sinks
Part 6	Specific requirements of urinals and partition plates
Part 7	Specific requirements of accessories for sanitary appliances
Part 8	Specific requirements of siphonic wash-down water closets
Part 9	Specific requirements of bidets
IS 2692	Specification for ferrules for water services
IS 3006	Specification for chemically resistant salt glazed stone wear pipes and fittings

Std: No.	Title
IS 3076	Specification for low density polyethylene pipes for potable water supplies
IS 3114	Code of practice for laying of cast iron pipes
IS 3489	Specification for enamelled steel bath tubs
IS 3989	Specification for centrifugally cast (spun) spigot and socket-soil, waste and ventilating pipes and fittings and accessories
IS 4111	Code of practice for ancillary structures in sewerage system: Part 1 Manholes
IS 4350	Specification for concrete porous pipes for under drainage
IS 4984	Specification for high density polyethylene pipes for potable water supplies
IS 4985	Specification for unplasticized PVC pipes for potable water supplies
IS 5455	Specification for cast iron steps for manholes
IS 6295	Code of practice for water supply and drainage in high altitudes and/or sub-zero temperature regions
IS 6411	Specification for gel-coated glass fibre reinforced polyester resin bath tubs

Std: No.	Title
IS 6530	Code of practice for laying of asbestos cement pressure pipes
IS 6784	Method for performance testing of water meters (domestic type)
IS 6908	Specification for asbestos cement pipes and fittings for sewerage and drainage
IS 7181	Specification for horizontally cast iron double flanged pipes for water, gas and sewage
IS 7231	Specification for plastic flushing cisterns for water-closets and urinals
IS 7319	Specification for perforated concrete pipes
IS 8718	Specification for vitreous enameled steel kitchen sinks
IS 8727	Specification for vitreous enameled steel washbasins
IS 8931	Specification for copper alloy fancy single taps, combination tap assembly and stop valves for water services
IS 9076	Specification for vitreous integrate squatting pans for marine use
IS 9140	Method of sampling of vitreous and fire clay sanitary appliances
IS 9338	Specification for cast iron screw-down stop valves and stop and check valves for water works purposes

Std: No.	Title
IS 9739	Specification for pressure reducing valves for domestic water supply systems
IS 9758	Specification for flush valves and fittings for water closets and urinals
IS 11246	Specification for glass fibre reinforced polyester resins (GRP) squatting pans
IS 12592	Specification for precast concrete manhole covers and frame
IS 13114	Specification for forged brass gate, globe and check valves for water works purposes
IS 13592	Specification for UPVC pipes for soil and waste discharge systems inside buildings including ventilation and rainwater system
IS 13983	Specification for stainless steel sinks for domestic purposes
IS 14333	Specification for high density polyethylene pipe for sewerage
IS 14735	Specification for unplasticized polyvinyl chloride (UPVC) injection moulded fittings for soil and waste discharge system for inside and outside buildings including ventilation and rain water system
IS 14961	Guidelines for rain water harvesting in hilly areas by roof water collection system

**Thank You
for Your Kind Attention!**