

Laboratory	National Test House (N.R.), Kamla Nehru Nagar, Ghaziabad, Uttar Pradesh		
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I. BUILDING MATERIALS

1.	CEMENT 33 GRADE OPC 43 GRADE OPC 43S GRADE OPC 53 GRADE OPC 53 S GRADE OPC PORTLAND SLAG CEMENT PORTLAND POZZOLANA CEMENT FLY ASH AND CALCINED CLAY BASED PORTLAND WHITE CEMENT	Setting Time	IS 4031 (Part 5)-88 RA 2009, Amd. 1	10 to 700 min
		Standard Consistency	IS 4031 (Part 4)-88 RA 2009, Amd. 1	Upto 50%
		Fineness by Specific Surface	IS 4031 (Part 2)-99 RA 2008, Amd. 1	200 to 500 m ² /kg
		Soundness by Le – Chatelier Method	IS 4031 (Part 3)-88 RA 2009, Amd. 1	0.5 mm to 15 mm
		Soundness by Autoclave	IS 4031 (Part 3)-88 RA 2009, Amd. 1	-0.001 to 2%
		Compressive Strength	IS 4031(Part 6)-88 RA 2009, Amd. 3	0.5 to 80 N/mm ²
		Density	IS 4031 (Part 11)-88 RA 2009	2.0 to 3.5 g/cc
		Drying Shrinkage	IS 4031 (Part 10)-88 RA 2009	0.01 to 2%

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2.	FLY ASH PULVERIZED FUEL ASH FOR USE AS POZZOLANA IN CEMENT, CEMENT MORTAR AND CONCRETE FOR USE AS ADMIXTURE IN CEMENT MORTAR AND CONCRETE	Fineness –Specific Surface by Blaine’s permeability method	IS 1727-1967, RA 2008, Amd. 1	200 to 800 m ² / kg
		Lime reactivity- Average Compressive Strength	IS 1727-1967, RA 2008, Amd. 1	0.5 to 15 N/mm ²
		Compressive Strength 28 days	IS 1727-1967, RA 2008, Amd. 1	Up to 120%
		Particles retained on 45 micron IS Sieve (wet sieving)	IS 1727-1967, RA 2008, Amd. 1	Up to 100%
		Soundness by autoclave test	IS 1727-1967, RA 2008, Amd. 1	-0.01 to 2 %
3.	CEMENT CONCRETE FLOORING TILES CHEQUERED CEMENT CONCRETE TILES PRECAST CONCRETE BLOCKS FOR PAVING	Water Absorption	IS 1237-80, RA 2011, Amd. 3 IS 13801-1993, RA 2011, Amd. 1 to 4 IS 15658-2006, RA 2011	1 to 30 %

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		Wet Transverse Strength	IS 1237-80, RA 2011, Amd. 3 IS 13801-1993, RA 2011, Amd. 1to4	0 to 15 N/mm ²
		Resistance to Wear	IS 1237-80, RA 2011, Amd. 3 IS 13801-1993, RA 2011 Amd. 1to 4 IS 15658-2006, RA 2011	0.1 to 30 mm
		Dimensions	IS 1237-80, RA 2011, Amd. 3 IS 13801-1993, RA 2011 Amd. 1to 4 IS 15658-2006, RA 2011	1 to 300 mm
4.	AGGREGATES COARSE AND FINE	Size and Grading	IS 2386 (1) - 63, RA 2011, Amd. 4	Upto 100%
		Deleterious Materials & Organic Impurities Soundness of Aggregates Crushing Value	IS 2386 (2) – 63, RA 2011, Amd. 1 IS 2386 (5) – 63, RA 2011, IS 2386 (4) – 63, RA 2011, Amd. 3	Upto 25% Upto 30 % Upto 50 %
		Impact value	IS 2386 (4) –63, RA 2011, Amd. 3	Upto 50 %
		Abrasion value (by los Angeles)	IS 2386 (4) –63, RA 2011, Amd. 3	Upto 70 %
		Water absorption	IS 2386 (3) –63, RA 2011	Upto 30 %

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		Bulking of Fine Aggregate	IS 2386 (3) – 63, RA 2011	Upto 50 %
		Flakiness Index and Elongation Index	IS 2386 (1) – 63, RA 2011 Amd. 4	Upto 80 %
5.	COMMON BURNT CLAY BUILDING BRICKS PULVERIZED FUEL ASH – LIME BRICKS	Water Absorption	IS 3495 (2) –92, RA 2011	1 to 30 %
		Compressive Strength	IS 3495 (1) –92, RA 2011	0.5 to 80 N/mm ²
		Efflorescence	IS 3495 (3) –92, RA 2011	Visual
		Dimensions	IS 1077 –92, RA 2011, Amd. 1 IS 12894 -02, RA 2012, Amd. 1	Upto 5000 mm
6.	CEMENT CONCRETE CUBES, CORES AND PAVING BLOCKS	Compressive Strength	IS 516-1959, RA 2008, Amd. 2 IS 15658-2006, RA 2011	0.5 to 80 N/mm ²
7.	INTEGRAL WATER PROOFING COMPOUNDS	Permeability to Water	IS 2645 –2003, RA 2009	1 ml to 1000 ml
		Compressive Strength	IS 516-59, RA 2008, Amd. 2	0.5 to 100 N/mm ²
		Setting Time	IS 4031 (5) - 88, RA 2009, Amd. I	Upto 700 min
8.	WATER FOR CONSTRUCTION	Compressive Strength	IS 516-59, RA 2008, Amd. 2	0.5 to 80 N/mm ²
		Setting Time	IS 4031 (5) – 88, RA 2009 Amd. I	Upto 600 min

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9.	TIMBER PANELLED MATERIALS			
	BLOCK BOARDS, PLAIN PARTICLE BOARDS	Dimensional Changes Caused By humidity	IS 1659-2004, RA 2009, Amd. 2	0 to 50 mm (t) 0 to 200 mm (l)
	PRE – LAMINATED PARTICLE BOARDS, MEDIUM DENSITY FIBRE BOARDS, PRE-LAMINATED MEDIUM DENSITY FIBRE BOARDS, PLY WOOD, TIMBER	Resistance to Water	IS 1659-2004, RA 2009 Amd. 2	20 to 99°C
		Water Resistance test	IS 1328 -96, RA 2009 Amd. 6	20 to 99 °C
		Moisture Content	IS 1734 (1) –83, RA 2008 IS 2380 (3) –77, RA 2008 Amd. 4; IS 1708 (1)-86, RA 2010 IS 287-93, RA 2008	1 to 35 %
	WOODEN FLUSH DOORS MARINE PLY WOOD, SHUTTERING PLY, DECORATIVE LAMINATE, VENEERED DECORATIVE PLY WOOD	Spot test	IS 1659 -2004, RA 2009 Amd. 2	Upto 20 mm

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		Modulus of Rupture and Modulus of Elasticity	IS 2380 (4) –77, RA 2008 Amd. 4 IS 1734 (11) –83, RA 2008 IS 1659 -2004, RA 2009 Amd. 2	5 to 150 N/ mm ² 500 to 15000 N/ mm ²
		Dimensions	IS 2380 (2) – 77, RA 2008 Amd. 1 IS 12049 –87, Amd. 3 IS 4020 (2) –98, RA 2008 Amd. 2 IS 2046-95, RA 2010, Amd. 1	1 to 2500 mm
		Density	IS 2380 (3) –77, RA 2008 Amd. 4 IS 1734 (1) –83, RA 2008	100 – 1000 kg / m ³
		Linear Expansion and thickness Swelling (Swelling in water) Swelling in thickness due to surface absorption	IS 2380 (17) –77, RA 2008 Amd. 4	0 to 50 mm (t) 0 to 300 mm(1)
		Tensile Strength Perpendicular to Surface / internal bond	IS 2380 (5) – 77, RA 2008 Amd. 4	0 to 5 N/ mm ²
		Screw withdrawal Strength	IS 2380 (14) – 77, RA 2008 Amd. 4 IS 4020 (16) –98, RA 2008 Amd. 2	10 to 5000 N

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		Surface Abrasion Resistance	IS 12823 – 1990, RA 2009 Amd. 7 IS 14587 –98, RA 2009 Amd. 5 IS 2046 –95, RA 2010 Amd. 1	1 to 3000 Revolutions
		Resistance to Steam	IS 12823 – 1990, RA 2009 Amd. 7 IS 14587 –98, RA 2009 Amd. 5 IS 2046 –95, RA 2010 Amd. 1	0.5 to 35 mm
		Resistance to crack	IS 12823 – 1990, RA 2009 Amd. 7 IS 14587 –98, RA 2009 Amd. 5 IS 2046 –95, RA 2010 Amd. 1	0.5 to 35 mm
		Resistance to cigarette Burn	IS 12823 – 1990, RA 2009 Amd. 7 IS 14587 –98, RA 2009 Amd. 5 IS 2046 –95, RA 2010 Amd. 1	0.5 to 35 mm

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		Water Absorption	IS 2380 (16) –77, RA 2008 Amd. 4	0.1 % to 95 %
		Surface defects & Surface quality	IS 2046 –95, RA 2010, Amd. 1 IS 303 –1989, RA 2008 Amd. 6 IS 1328 –96, RA 2011, Amd. 6 IS 710 –1976, RA 2010	0.5 to 20 mm
		Glue Shear Strength Test	IS 1734 (4) – 83, RA 2008 Amd. 3	Upto 10 kN
		Resistance to Staining	IS 12823 –1990, RA 2009 Amd. 7 IS 2046 –1995, RA 2010 Amd. 1 IS 14587 – 1998, RA 2009 Amd. 5	0.5 to 35 mm
		Mycological Test	IS 1659 –2004, RA 2009 Amd. 2 IS 1734 (7) – 83, RA 2008 Amd. 1	1 to 150 mm
		Adhesion of Plies (Knife test)	IS 1659 –2004, RA 2009 Amd. 2 IS 4020 (14) – 98, RA 2008 Amd. 1 IS 1734 (5) – 83, RA 2008	3 to 40 mm

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		Tensile Strength	IS 1734 (9) – 83, RA 2008	5 to 100 N/ mm ²
		Slamming Test	IS 4020 (10) – 98, RA 2008	450 to 1000 mm
		Local plainness	IS 4020 (4) – 98, RA 2008 Amd. 2	0 to 10 mm
		Impact Indentation	IS 4020 (4) – 98, RA 2008 Amd. 2	0 to 10 mm
		Glue Adhesion Test	IS 4020 (15) – 98, RA 2008 Amd. 2	0 to 150 mm
		End Immersion Test	IS 4020 (13) – 98, RA 2008 Amd. 2	Upto 1000 mm
		General Flatness	IS 4020 (3) – 98, RA 2008 Amd. 2	0 to 10 mm
		Flexure Test	IS 4020 (6) – 98, RA 2008 Amd. 2	0 to 100 mm
		Edge loading test	IS 4020 (7) – 98, RA 2008 Amd. 2	0 to 25 mm
		Shock Resistance test	IS 4020 (8) – 98, RA 2008 Amd. 1	Upto 50 N and 300 N
		Buckling test	IS 4020 (9) – 98, RA 2008 Amd. 2	0 to 100 mm

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		Misuse test	IS 4020 (11) – 98, RA 2008 Amd. 2	Upto 200 N
		Resistance to Immersion in Boiling water	IS 2046 – 95, RA 2010, Amd. 1	0.1 to 12 mm
		Dimensional Stability at deviated temperature	IS 2046 – 95, RA 2010, Amd. 1	0.1 to 200 mm
		Resistance to Dry heat at 180°C	IS 2046 – 95, RA 2010, Amd. 1	0.5 to 10 mm
		Resistance to Impact By small dia ball	IS 2046 – 95, RA 2010, Amd. 1	0.5 to 10 mm
		Resistance to Scratching	IS 2046 – 95, RA 2010, Amd. 1	0.5 to 10 mm
10.	SOIL	Sieve Analysis	IS 2720 (Part 1):1983, RA 2010	Upto 100%
		Atterberg Limits:- a) Liquid Limit b) Plastic Limit	IS 2720 (Part 5):1985 RA 2010	5 to 50 % 5 to 50 %
		Particle Size Analysis	IS 2720(Part 4):1985, RA 2010	Upto 100 %
		Moisture Content	IS 2720(Part 2):1973, RA 2010 Amd. 1	0.1 to 50 %
		California Bearing Ratio (CBR)	IS 2720 (Part 16):1987, RA 2011	1 to 200

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		Optimum Moisture Content and Dry Density:-		
		a) Light Compaction	IS 2720 (Part 7):1980, RA 2011 Amd. 2	0.5 to 3 g/cc
		b) Heavy Compaction	IS 2720 (Part 8):1983 RA 2010	0.5 to 3 g/cc
11.	HARDENED CONCRETE	Ultrasonic Testing	IS : 1331 (Part 2) : 1992, RA 2008	Upto 10000 m/sec
12.	WOODEN FLUSH DOORS	Varying Humidity Test	IS 4020 (Part 12):1998, RA 2008 Amd. 2	0 to 10 mm
13.	PRESSED CERAMIC TILES	Water Absorption	IS 13630 (Part 2):2006, RA 2011	0 to 30%
		Modulus of Rupture/ Breaking Strength	IS 13630 (Part 6):2006, RA 2011	0 to 60 N/mm ²
		Scratch Hardness of Surface (Mohs Scale)	IS 13630 (Part 13):2006, RA 2011	1 to 9 on Mohs Scale
		Chemical Properties	IS 13630 (Part 7):2006, RA 2011/ IS 13630 (Part 8):2006, RA 2011	Visual Examination
		Crazing Resistance	IS 13630 (Part 9):2006 RA 2011	Visual Examination

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II. RUBBER & RUBBER PRODUCTS

1. RUBBER	Hardness	By Durometer Method ASTM –D 2240 -05 IS 3400(Part-1) –1987, RA 2004	35 to 95 Shore A
	Tensile Strength	IS 3400(Part-1) –1987, RA 2004	5 to 30 N/mm ²
	Elongation	IS 3400(Part-10) –1977, RA2003	Upto 900%
	Compression set	IS 1964 –2001, RA 2000	Upto 60%

III. TEXTILES & RELATED PRODUCTS

1. Textiles	Weight	IS 1963-1981, RA 2004	Upto 250 gm/m ²
	Threads per unit length in woven fabric (Ends, Picks)	IS 1969-1985, RA 2006	Upto 100 /cm
	Breaking load	IS 1954-1990, RA 2004	Upto 2000 N
	Length & width of fabric	IS 1954-1990, RA 2002	Upto 700 cm

IV. PAPER & PAPER PRODUCTS

1. PAPER	Gloss/ Opacity Brightness	IS 1060 (Part 1&2)1966 RA 2004, Amnd 5, 2011	0 to 100%
	One Minute Cobb test for water penetration	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	Upto 90
	Tensile Index	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	Upto 100 Nm/g

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		Moisture Content	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	Upto 50 %
		Surface Strength Dennison	IS 1060 (Part 3) 1966 RA 2004, Amnd 5, 2011	2A to 22 A wax picks (Qualitative)
		Ash content	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	Upto 50%
		Weight	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	Upto 400 GSM
		Thickness	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	10 to 500 micron
		Stiffness (Taber stiffness)	IS 1060 (Part 3) 1966 RA 2004, Amnd 5, 2011	0.5 Min.
		Tear Index	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	0.5 to 20 mNm ² /g
		Bursting Strength	IS 1060 (Part 1) 1966 RA 2004, Amnd 5, 2011	20 kg/cm ² (Max)
		Double fold (Folding endurance tester)	IS 1060 (Part 1) 1966 Amd. 5, 2011	Upto 100 Nos.
		Smoothness & Porosity (Bendtsen type)	IS 9894-1981	Max. 2900 mg/ml

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V. METAL & METAL PRODUCTS

1. METAL & ALLOYS (Ferrous & Non Ferrous) Bars, Wires, Pipes, Tubes, Valves, Sheets	Tensile Test	IS 1608-2005	
	Tensile Strength		Min. 100 MPa Max. 1500 MPa
	0.2% Proof Stress / Yield Stress		Min. 200 MPa Max. 800 MPa
	% Elongation		Min. 3%
	Reduction Area %		Min. 30%
	0.2% Proof Load	IS 14268-1995	Min. 1200 N
	Breaking Load / Breaking strength	IS 14268-1995	Min. 1.2 kN
	Bend Test	IS 1599-1985, RA 2006	Qualitative
	Rebend Test	IS 1786-2008	Qualitative
	Compression Test for Steel conduit	IS 9537 (Part-I)-1980, RA 2007	Max. 10%
	Brinell hardness Test	IS 1500-2005	100 to 400 HBW HBW 5 mm/ 750kg HBW 10 mm/ 3000 kg

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		Vickers Hardness Test	IS 1501-2002, RA 2007	250 to 750 HV Test load 30 kg
		Rockwell Hardness Test	IS 1586-2012	20 to 100 HRB 20 to 70 HRC
		Flattening Test	IS 2328-2005	Qualitative
		Crushing strength test	IS 3601-2006	Qualitative
		Bend test for Metallic Tube	IS 2329-2005	Qualitative
		Izod Impact Test	IS 1598-1977, RA 2009	Upto 170 J
		Charpy impact Test	IS 1757-1988	Upto 300 J Upto (-)40 °C
		Reverse Bend Test	IS 1716-1985, RA 2006	Qualitative
		Wrapping Test	IS : 1755-1983, RA 2006	Qualitative
		Bend test for steel conduit	IS 9537 (Part 2)-1981	Qualitative
		Drif Expansion Test	IS 2335-1985, RA 2001	Qualitative

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		Dimension	IS 1239 (Part-1)-2004 RA 2010 IS 1239 (Part-2)-2011 IS 1161-1998, RA 2009 IS 1785 (Part-1)-1983, RA 2009 IS 1785 (Part-2)-1983, RA 2009 IS 1786-2008 IS 3589-2001, RA 2009 IS 3601-2006 IS 2062-2011 IS 4270-2001, RA 2006 IS 778-1984, RA 2005 IS 4923-1997 RA 2009 IS 9537 (Part 2)-1981 RA 2007	Min. 0.01
2.	PIPE TMT / HSD BARS	Mass	IS 1239 (Part-1)-2004 , RA 2010 IS 1161-1998, RA 2009 IS 1786-2008, RA 2008 IS 3589-2001, RA 2009 IS 3601-2006 IS 2062-2011 IS 4270-2001, RA 2006 IS 4923-1997, RA 2009 IS 9537 (Part-I)-1980, RA 2007	Min. 0.5 g

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3.	GATE VALVES , GLOBE VALVES, CHECK VALVES AND OTHERS VALVES FOR WATER WORKS PURPOSES, M.S. TUBULER & OTHER STEEL FITTINGS	Hydraulic Pressure Test	IS 778-1984, RA 2005	Qualitative
4.	TRANSFORMER TANK	Air pressure Test/ Vacuum Test	IS 1180 (Part-1)-1989 & IS 1180 (Part-2)-1989, RA 2009	Qualitative
5.	TMT/HSD BAR	Pullout test	IS 2770 (Part-1)-1967, RA 2002	0.025 mm 0.25 mm
6.	STEEL PIPE / TUBES (Upto 150 mm Nominal size)	Workmanship / Finish (Visual Inspection)	IS 1239 (Part-1)-2004 IS 1161-1998	Qualitative

-X-X-X-X-X-X-X-X-X-X-X-X-