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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

CHEMICAL TESTING

I.	**BUILDING MATERIAL**			
1.	**Cement**			
a.	**Ordinary Portland Cement**	Insoluble Residue	IS 4032: 1985 (RA 2009) Cl 4.10	0.1 % to 15.0 %
		Loss on Ignition	IS 4032: 1985 (RA 2009) Cl 4.2	0.1 % to 8.0 %
		Silica Content (As SiO_2)	IS 4032: 1985 (RA 2009) Cl 4.3	10.0 % to 25.0 %
		Iron Oxide	IS 4032: 1985 (RA 2009) Cl 4.5.2 (EDTA)	1.0 % to 8.0 %
		Alumina	IS 4032: 1985 (RA 2009) Cl 4.6.1 (EDTA)	1.0 % to 15.0 %
		Calcium oxide	IS 4032: 1985 (RA 2009) Cl 4.7.2 (EDTA)	30.0 % to 65.0 %
		Sulphuric Anhydride (SO_3)	IS 4032: 1985 (RA 2009) Cl 4.9	0.1 % to 5.0 %
		Magnesia (MgO)	IS 4032: 1985 (RA 2009) Cl 4.8.1	0.1 % to 10.0 %
b.	**Portland Pozollona Cement**	Insoluble Residue	IS 4032: 1985 (RA 2009) Cl 7.4 & 4.10	0.1 % to 60.0 %
		Loss on Ignition	IS 4032: 1985 (RA 2009) Cl 7.1 & 4.2	0.1 % to 8.0 %
		Sulphuric Anhydride(SO_3)	IS 4032: 1985 (RA 2009) Cl 7.3 & 4.9	0.1 % to 5.0 %
		Magnesia (MgO)	IS 4032: 1985 (RA 2009) Cl 7.2.1 (Gravemetric)	0.1 % to 10.0 %

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II.	**METALS & ALLOYS**			
1.	**Steel Low Alloy Steel, Plain Carbon Steel**	Carbon	IS 228 (Part 1):1987 (RA 2012)	0.05% to 2.5%
		Sulphur	IS 228 (Part 9):1989 (RA 2014)	0.01% to 0.3%
		Phosphorus	IS 228 (Part 3): 1987 (RA 2012)	0.01% to 1.0%
2.	**Aluminum Sheets, GI Sheets**	Anodic Coating	IS 5523:1983 (RA 2006) Cl 2.3 (Stripping Method)	1 µm to 50 µm
3.	**Galvanized Sheets**	Mass of Zinc Coating	IS 6745:1972 RA 1994 Cl 5.1 (Stripping Method)	6 g/m^2 to 500 g/m^2
II.	**WATER**			
1.	**Construction Water**	Acidity	IS 3025(Part 22):1986 (RA 2003)	4 mg/L to 500 mg/L
		Alkalinity as $CaCo_3$	IS 3025 (Part 23) : 1986 (RA 2003)	2 mg/L to 3000 mg/L
		pH value	IS 3025 (Part 11): 1983 (RA 2002)	1 to 13
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2003)	2 mg/L to 5000 mg/L
		Sulphate as SO_4	IS 3025 (Part 24): 1986 (RA 2003)	1.0 mg/L to 2000.0 mg/L
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2012)	10.0 mg/L to 100.00mg/L
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2012)	10 mg/L to 1000.0 mg/L
		Suspended Matter	IS 3025 (Part 17): 1984 (RA 2012)	1.0 mg/L to 3000.0 mg/L

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2.	**Drinking Water, Surface Water & Ground Water**	Turbidity	IS 3025 (Part 10): 1984 (RA 2002)	0.01 NTU to 20NTU
		pH Value	IS 3025 (Part 11): 1983 (RA 2002)	1 to 13
		Total Hardness as $CaCo_3$	IS 3025 (Part 21): 2009	0.5 mg/L to 350mg/L
		Chlorides as Cl	IS 3025 (Part 32): 1988 (RA 2003)	2 mg/L to 5000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1986 (RA 2006)	1.0 mg/L to 2000.0 mg/L
		Calcium as Ca	IS 3025 (Part 40): 1991 (RA 2003)	10.0 mg/L to 10000.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46): 1994 (RA 2003)	1.0 mg/L to 200.0 mg/L
		Sulphate as SO_4	IS 3025 (Part 24): 1986 (RA 2003)	1.0 mg/L to 500.0 mg/L
		Iron as Fe	IS 3025 (Part 53):2003	0.01 mL to 10.0 mL
		Nitrate as No_3	IS 3025 (Part 34): 1988 (RA 2003)	0.1 mg/L to 500 mg/L
		Fluoride as F	IS 3025 (Part 60): 2008	0.1mg/L to 10 mg/L
		Alkalinity as $CaCo_3$	IS 3025 (Part 23) : 1986 (RA 2003)	2 mg/L to 3000 mg/L

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

MECHANICAL TESTING

AT LABORATORY				
I.	**BUILDING MATERIALS**			
1.	**Cement**	Consistency	IS 4031 (Part 4): 1988 (RA 2014)	25 % to 40 %
		Initial Setting Time	IS 4031 (Part 5): 1988 (RA 2014)	30 Min. to 250 Min.
		Final Setting Time	IS 4031 (Part 5): 1988 (RA 2014)	100 Min. to 600 Min.
		Compressive Strength	IS 4031 (Part 6): 1988 (RA 2014)	10 N/mm^2 to 80 N/mm^2
		Soundness by Le-Chatlier's method	IS 4031 (Part 3): 1988 (RA 2013)	0.5 mm to10 mm
		Soundness by Auto Clave method	IS 4031 (Part 3): 1988 (RA 2013)	0.08 % to 1%
		Fineness by Dry Sieving Method	IS 4031 (Part 1): 1996 (RA 2011)	0.1 % to 10 %
		Fineness by Blaine's Method	IS 4031 (Part 2): 1999 (RA 2011)	100 m^2/kg to 500 m^2/kg
		Density	IS 4031 (Part 11): 1988 (RA 2011)	2.80 to 3.18
2.	**Concrete**	Compressive Strength	IS 516:1959 (RA 2013)	10 N/mm^2 to 80 N/mm^2
		Compaction factor	IS 1199:1959 (RA 2013)	0.01 to 1
		Accelerated Compressive Strength	IS 9013:1978 (RA 2013)	10 N/mm^2 to 80 N/mm^2
		Slump Test	IS 1199:1959 (RA 2013)	0 to 300 mm
3.	**Brick Clay**	Compressive Strength	IS 3495 (Part 1): 1992 (RA 2011)	2 N/mm^2 to 10 N/mm^2
		Water Absorption	IS 3495 (Part 2): 1992 (RA 2011)	2 % to 25 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2011)	Qualitative
		Dimension	IS 1077:1992 (RA 2011)	500 mm to 5000 mm
4.	**Coarse Aggregate**	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2011)	0 to 100 % (4.75 mm to 125 mm)
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2011)	1.2 to 1.6 kg/l
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2011)	5 % to 40 %
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2011)	5 % to 40 %
		Impact value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 60 %
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 60 %
		Determination of 10% fine value	IS 2386 (Part 4): 1963 (RA 2011)	50 kN to 300 kN
		Los Angles Abrasion Value	IS 2386 (Part 4): 1963 (RA 2011)	5 % to 60 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2011)	2.5 to 3.5
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2011)	1 % to 10 %
5.	**Concrete Block**	Dimensions	IS 2185 (Part 1): 2005 (RA 2010)	50 mm to 600 mm
		Compressive Strength	IS 2185 (Part 1): 2005 (RA 2010)	2 N/mm^2 to 15 N/mm^2
		Water Absorption	IS 2185 (Part 1): 2005 (RA 2010)	01 % to 20 %
		Block Density	IS 2185 (Part 1): 2005 (RA 2010)	1600 kg/m^3 to 2500 kg/m^3
6.	**Fine Aggregate**	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2011)	0 to 100 % (75 um to 10 mm)

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Bulking of Sand	IS 2386 (Part 3): 1963 (RA 2011)	1 % to 15 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2011)	2.5 to 3.5
		Silt Content	IS 2386 (Part 2): 1963 (RA 2011)	0.5 % to 10 %
		Moisture Content	IS 2386 (Part 3): 1963 (RA 2011)	0.1 % to 20 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2011)	1 % to 5 %
7.	**Marble Slabs, Tile, Granite**	Water Absorption	IS 1124:1974 (RA 2013)	0.01 % to 1 %
		Specific Gravity	IS 1124:1974 (RA 2013)	0.5 to 4
		Flexural Strength(Modulus of Rupture)	IS 1121 (Part 2): 1974 (RA 2013)	10 N/mm^2 to 50 N/mm^2
		Compressive Strength	IS 1121 (Part 1): 1974 (RA 2013)	50 N/mm^2 to 150 N/mm^2
		Abrasion Resistance	IS 1706:1972 (RA 2013)	0.5 mm to 10 mm
8.	**Terrazzo Tiles**	Flatness	IS 1237:2012	0.1 mm to 5 mm
		Perpendicularity	IS 1237:2012	Upto 5 %
		Straightness	IS 1237:2012	Upto 5 %
		Water Absorption	IS 1237:2012	2 % to 15 %
		Transverse Strength	IS 1237:2012	1 N/mm^2 to 50 N/mm^2
		Abrasion Value	IS 1237:2012	0.1 mm to 10 mm
9.	**Pressed Clay/ Roofing Tiles**	Flexural Strength	IS 2690 (Part 1): 1993 (RA 2011)	0.1 N/mm^2 to 10 N/mm^2
		Water Absorption	IS 2690 (Part 1): 1993 (RA 2011)	0.1 % to 25 %
		Warpage	IS 2690 (Part 1): 1993 (RA 2011)	0.01 mm to 5 mm
10.	**Glazed/ Ceramic/ Vitrified Tiles**	Water Absorption	IS 13630 (Part 2): 2006 (RA 2012)	0.01 % to 20 %
		Flexural Strength	IS 13630 (Part 6): 2006 (RA 2012)	1 N/mm^2 to 50 N/mm^2

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Breaking Strength	IS 13630 (Part 6): 2006 (RA 2012)	300 N to 1200 N
		Dimensions:	IS 13630 (Part 1): 2006 (RA 2012)	5 mm to 650 mm
11.	**Bitumen**	Ductility	IS 1208: 1978 (RA 2009) A-2	30 cm to 100cm
		Penetration	IS 1203:1978 (RA 2008) A-3	10 to 100 ($1/10^{th}$ mm)
		Softening Point	IS 1205:1978 (RA 2009) A-1	25 °C to 100 °C
		Flash Point	IS 1209:1978 (RA 2009)	200 °C to 250 °C
		Fire Point	IS 1209:1978 (RA 2009)	30 °C to 60 °C
		Specific Gravity	IS 1202:1978 (Second reprint 1997)	0.95 to 1.05
12.	**Paver Block**	Compressive Strength	IS 15658:2006	15 N/mm^2 to 100 N/mm^2
		Water Absorption	IS 15658:2006	1 % to 10 %
II.	**MECHANICAL PROPERTIES OF METALS**			
1.	**High Strength Deformed Steel Bars for Concrete Reinforcement**	Mass per meter	IS 1786:2008 (RA 2013)	0.2 kg/m to 9.5 kg/m
		Tensile Strength	IS 1608:2005 (RA 2013)	100 N/mm^2 to 800 N/mm^2
		Yield Stress (Proof Stress)	IS 1608:2005 (RA 2013)	100 N/mm^2 to 800 N/mm^2
		Elongation	IS 1608:2005 (RA 2013)	10 % to 40 %
		Bend Test	IS 1599:1985 (RA 2012)	Qualitative (Mandrel Dia: 24, 30, 32, 36, 40, 48, 64, 60,80, 100, 125, 128, 160 mm)
		Re-bend Test	IS 1786:2008 (RA 2013)	Qualitative (Mandrel Dia: 40, 50, 84, 112, 140, 175, 224 mm)

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III.	**WOOD AND WOOD PRODUCTS**			
1.	**Wood**	Moisture Content	IS 11215:1991 (RA 2010)	5 % to 20 %
IV.	**SOIL AND ROCK**			
1.	**Soil**	Water content	IS 2720 Part 2): 1973	1.5 % to 30.00 %
		Specific gravity	IS2720 Part 3) : 1980	1.00 to 3.00
		Grain size analysis	IS 2720 Part 4): 1985	75 micron to 80 mm
		Liquid limit	IS 2720 (Part 5): 1985	5 % to 100 %
		Plastic limit	IS 2720 (Part 5): 1985	5 % to 100 %
		Light Compaction (Standard Proctor)	IS 2720 (Part 7): 1980	MDD :1 to 3.00 g/cc OMC: 1 % to 20 %
		Heavy Compaction (Modified Proctor)	IS 2720 (Part 8): 1983	MDD:1 g/cc to 3.00 g/cc OMC:1 % to 20 %
		CBR	IS 2720 (Part 16): 1987	1 % to 100 %

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AT SITE				
I.	**SOIL AND ROCK**			
1.	**Soil**	Dry density of soils (sand replacement method)	IS 2720 (Part 28): 1974	1.00 g/cc to 3.00 g/cc
		Dry density of soils (core cutter method)	IS 2720 (Part 29): 1975	1.00 g/cc to 3.00 g/cc

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