

Laboratory **Structwel Designers and Consultants Pvt. Ltd., "Structwel",
Plot No. 15, Sector-24, Off. Sion-Panvel Highway, Turbhe,
Navi Mumbai, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-5282 (in lieu of T-0201, T-0202 & T-0656) Page 1 of 17**

Validity **19.12.2016 to 18.12.2018** **Last Amended on 17.03.2017**

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

I.	BUILDING MATERIALS			
1.	Cement			
a.	OPC	Loss on Ignition	IS: 4032 :1985 Reaffirmed 2014	1.0 % to 10.0 %
		Silica (SiO ₂)	IS: 4032 :1985 Reaffirmed 2014	15 % to 30 %
		Ferric oxide (Fe ₂ O ₃)	IS: 4032 :1985 Reaffirmed 2014	3.0 % to 10 %
		Aluminum oxide (Al ₂ O ₃)	IS: 4032 :1985 Reaffirmed 2014	3.0 % to 10 %
		Calcium oxide (CaO)	IS: 4032 :1985 Reaffirmed 2014	40 % to 70 %
		Magnesia (MgO)	IS: 4032 :1985 Reaffirmed 2014	1.0 % to 10 %
		Sulphuric Anhydride (SO ₃)	IS: 4032 :1985 Reaffirmed 2014	1.0 % to 5.0 %
		Insoluble Residue	IS: 4032 :1985 Reaffirmed 2014	0.5 % to 10.0 %
		Total Alkali as Sodium Oxide (Na ₂ O)	IS: 4032 :1985 Reaffirmed 2014	0.05 % to 3.0 %
		Free lime	IS: 4032 :1985 Reaffirmed 2014	0.2 % to 10 %
		Chloride	IS: 4032 :1985 Reaffirmed 2014	0.01 % to 1 %
b.	PSC	Loss on Ignition	IS: 4032 :1985 Reaffirmed 2014	1.0 % to 15 %
		Silica (SiO ₂)	IS: 4032 :1985 Reaffirmed 2014	10 % to 50 %
		Ferric oxide (Fe ₂ O ₃)	IS: 4032 :1985 Reaffirmed 2014	1.0 % to 10 %

**Sangeeta Negi
Convenor**

**N. Venkateswaran
Program Director**

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		Chloride	IS:3025:1988Part- 32 (Argenometric method) Reaffirmed 2014	10mg/l to 2000mg/l
		Total Alkalinity (To neutralize 100 ml water sample, 0.02N, H ₂ SO ₄ required)	IS 456:2000 Reaffirmed 2016 (Indicator method)	0.1ml to 50ml
		Total Acidity (To neutralize 100 ml water sample, 0.02N, NaOH required)	IS 456 2000 Reaffirmed 2016 (Indicator method) Reaffirmed 2014	0.1ml to 5ml
		Total Hardness as CaCO ₃	IS:3025:2009 Part -21 (EDTA method) Reaffirmed 2014	1 mg/l to 10000 mg/l
		Volatile Residue & Fixed Residue	IS:3025:1984Part -18 Reaffirmed 2012	1 mg/l to 1000 mg/l
		Total Suspended solid	IS:3025:1984Part -17 Reaffirmed 2012	10 mg/l to 1000 mg/l

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MECHANICAL TESTING

I.	BUILDING MATERIALS			
1.	Coarse Aggregate	Aggregate Abrasion value	IS 2386 (Part 4) - 1963, Reaffirmed 2016	5 to 50 %
		Specific Gravity	IS 2386 (Part 3) - 1963, Reaffirmed 2016	1 to 4
		Bulk Density	IS 2386 (Part 3) - 1963, Reaffirmed 20116	1 kg/lit to 2 kg/lit
		Ten Percent Fines Value.	IS 2386 (Part 4) - 1963, Reaffirmed 2016	40 kN to 400 kN
		Particle Size Distribution	IS 2386 - 1963 (Part 1), Reaffirmed 2016	125 to 4.75 mm
		Water Absorption	IS 2386 - 1963 (Part 3), Reaffirmed 2016	0.1 % to 10 %
		Impact Value	IS 2386 - 1963 (Part 4), Reaffirmed 2016	5 % to 50 %
		Crushing Value	IS 2386 - 1963 (Part 4), Reaffirmed 2016	5 % to 50 %
		Elongation / Flakiness Index	IS 2386 - 1963 (Part 1), Reaffirmed 2016	5 % to 50 %
		Soundness by a) MgSO ₄ b) Na ₂ SO ₄	IS 2386 - 1963 (Part 5), Reaffirmed 2016	1 % to 20 % 1 % to 15 %
2.	Fine Aggregate	Specific Gravity	IS 2386 - 1963 (Part 3), Reaffirmed 2016	1 to 4
		Determination of Bulkage	IS 2386-1963 (Part 3), Reaffirmed 2016	1 % to 50 %
		Materials Finer than 75 Micron	IS 2386 -1963 (Part 1), Reaffirmed 2016	0.1 to 25 %
		Bulk Density	IS 2386 - 1963 (Part 3), Reaffirmed 2016	1 kg/lit to 2 kg/lit

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		Sieve Analysis	IS 2386 - 1963 (Part 1), Reaffirmed 2016	4.75 mm to 75 µm
		Water Absorption	IS 2386 - 1963 (Part 3), Reaffirmed 2016	0.1 % to 10 %
		Soundness by a) MgSO ₄ b) Na ₂ SO ₄	IS 2386 - 1963 (Part 5), Reaffirmed 2016	1 % to 20 % 1 % to 15 %
3.	Concrete			
a.	Core/ Cylinder/ Cube	Compressive Strength (Including Extraction of core)	IS 456-2000, Reaffirmed 2016 IS-516-1959, Reaffirmed 2013	5 N/mm ² to 100 N/mm ²
		Splitting Tensile Strength	IS 5816 : 1999 Reaffirmed 2013	1 N/mm ² to 10 N/mm ²
b.	Cylinder	Modulus of Elasticity	ASTM C 469-02e1	5 GPa to 60 GPa
c.	Masonry blocks	Moisture Movement	IS 2185 (Part 1) - 2005 Reaffirmed 2010	0.001 % to 1 %
		Density	IS 2185 (Part 1) - 2005 Reaffirmed 2010	1800 kg/m ³ to 2500 kg/m ³
		Drying Shrinkage	IS 2185 (Part 1) - 2005 Reaffirmed 2010	0.001 % to 1 %
		Compressive Strength	IS 2185 (Part 1) - 2005 Reaffirmed 2010	1 N/mm ² to 40 N/mm ²
d.	Autoclaved Cellular Areated Concrete Block	Density	IS 2185 (Part 3) - 2005 Reaffirmed 2010	300 kg/m ³ to 900 kg/m ³
		Drying Shrinkage.	IS 2185 (Part 3) - 2005 Reaffirmed 2010	0.01 % to 1 %
		Compressive Strength.	IS 2185 (Part 3) - 2005 Reaffirmed 2010	1 kg/m ³ to 10 N/mm ²
e.	Concrete Tiles	Water Absorption	IS 13801 - 2013 & IS 1237-2012	0.1 % to 25 %
		Wet Transverse Strength	IS 13801 - 2013 & IS 1237-2012	0.5 kg/m ³ to 5 N/mm ²
		Flatness	IS 13801 - 2013 & IS 1237-2012	0.01 mm to 2 mm

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5.	Door shutter	Measurement of Dimension and Defects of Squareness	IS 4020-1998 (Part 2) Reaffirmed 2013	25 mm to 5000mm
		Measurement of Defects of general Flatness	IS 4020- 1998 (Part 3) Reaffirmed 2013	0.1 mm to 5mm
		Test to examine the general smoothness of the Surfaces	IS 4020-1998 (Part 4) Reaffirmed 2013	0.1 mm to 5mm
		Impact Indentation	IS 4020 -1998 (Part 5) Reaffirmed 2013	0.01 mm to 1mm
		Deflection due to Load applied at its Edge	IS 4020-1998(Part 7) Reaffirmed 2013	0.1 mm to 25 mm
		Resistance to Shock	IS 4020-1998 (Part 8) Reaffirmed 2013	Visual
		Resistance to Buckling	IS 4020-1998 (Part 9) Reaffirmed 2013	0.01 mm to 25 mm
		Resistance to misuse	IS 4020- 1998 (Part 11) Reaffirmed 2013	Visual
		Resistance to Slamming Actions	IS 4020 - 1998 (Part 10) Reaffirmed 2013	Visual
		Screw Holding Power	IS 4020-1998 (Part 16) Reaffirmed 2013	10 N to 5000 N
III.	SOIL AND ROCK			
1.	Soil	Lab Test		
		Free Swell Index	IS 2720 -1977 (Part 40) Reaffirmed 2011	1% to 100%
		Water Content	IS 2720 -1973 (Part 2) Reaffirmed 20105	1% to 50%
		Liquid Limit / Plastic Limit	IS 2720 -1985 (Part 5) Reaffirmed 2015	0 to 80%
		Shrinkage Limit	IS 2720 -1972 (Part 6) Reaffirmed 2011	0 to 50%

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2.	Low, Medium & High Tensile Structural Steel	Percentage Elongation	IS 2062 - 2011 Reaffirmed 2016	5 % to 40%
		Weight per Meter	IS 2062 - 2011 Reaffirmed 2016	0.20 kg/m to 75 kg/m
		Yield strength	IS 2062 - 2011 Reaffirmed 2016	200 N/mm ² to 800 N/mm ²
		Ultimate Tensile strength	IS 2062 - 2011 Reaffirmed 2016	200 N/mm ² to 900 N/mm ²
		Bend Test	IS 2062 - 2011 Reaffirmed 2016	Visual

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