

Standard norms for quality control

Sr No.	Test	Frequency of tests	Acceptance Criteria
1	Cement		
a)	Setting time initial	50 -100 T- 2 sample	Not less than 30 minutes
	final	100-200 T-3 sample	Not more than 600 minutes
		200-300 T-4 sample	
		300 - 500 T-5 sample	
		500- 800 T-6 sample	
		810- 1300 T-7 sample	
b)	Fineness by Sieve	1 in 5 samples	90% passed from 90 micron sieve
c)	Consistency	One sample (Each sample as above)	Above 30 percent
d)	Compressive strength	One sample (Each sample as above)	160 kg / cm ² for OPC & PPC on third day
			220 kg / cm ² for OPC & PPC on seventh day
			310 kg / cm ² for OPC & PPC on twenty eight day
e)	Fineness test through Specific surface	1 in 5 samples	2250 kg/Cm ² and above for OPC FOR PPC 3000 kg/Cm ²
f)	Chemical Analysis IS 4032-986	1 in 5 samples	Mgo less than 6 percent SO ₃ less than 2.75 percent less on ignition upto 5 percent
2	Sand		
a)	Silt Content	1sample of 10 kg /150 cu. mt.	Up to 3 percent
b)	Fineness modulus	- Do-	Specification as per specified standard. No sand of fourth zone shall be used.

Sr No.	Test	Frequency of tests	Acceptance Criteria
3	Kapachi - Grit for Bituminous work		
a)	Gradation	1/200 m3	
b)	Flakiness index	1/200 m3	Max 30 %
c)	Impact	1/100 m3	Max 30 %
d)	Abrasion	1/100 m3	Max 35 %
e)	Bit. Extraction	100 MT - 1	0.80 to 4 %
f)	Bitumin (penetration test)	100 MT - 1	
g)	Stripping value	50 -100 m3 one test	Max. 25 %
3	Kapachi - Grit for Building work		As per IS 183-1970 standards
a)	Gradation	2 test / Season	As per relevant specifications provision
b)	Impact	2 test / Season	wearing surface overlaid surface (IS18.5-1972) 30 % 45 %
c)	Abrasion	2 test / Season	30 % 5 %
d)	Soundness	2 test / Season	Loss with Loss with
4	Bricks		
a)	Efflorescence	20 bricks out of 2000	Moderate
		32 bricks out of 3500	
		50 bricks out of 50000	
b)	Water absorption	-DO-	Less than 20 Percent
c)	Compressive strength	-DO-	Minimum average 35 Kg/cm ² & individual result may fall below up to 20 percent
5	Cement Concrete flooring/Mosaic tiles		

Sr No.	Test	Frequency of tests		Acceptance Criteria	
a)	Water absorption	6 tiles /2000 tiles		Maximum 10 percent	
b)	Transverse strength	12 tiles /2000 tiles		Wet	Dry
				80 Kg/cm ²	120 Kg/cm ²
c)	Abrasion	6 tiles /2000 tiles		Average wear shall not exceed 3.5 mm	
6	Water Chemical Analysis	Once for approval source			
a)	PH	"		6 to 8	
b)	Chlorides	"		2000 mg/L (PCC) & 500 mg/L for RCC	
c)	Organic (matter)	"		200 mg/L Max.	
d)	Inorganic (matter)	"		3000 mg/L Max.	
e)	Sulphate (mg/L)	"		500 mg/L Max.	
f)	TDS	"		2000 mg/L Max.	
7	Cement Concrete cubes ordinary and controlled concrete	As per IS 456-2000		Grade designation	Specified characteristic cube compressive strength. At 28 days N/mm ²
		work m ³	No. of sample	M10	10
		1-5 m ³	1	M15	15
		6-15 m ³	2	M20	20
		16-30 m ³	3	M25	25
		31-50 m ³	4	M30	30
		51 m ³ & above	4+ one	M35	35
		add sample for each 50 m ³ part there of		M40	40

Sr No.	Test	Frequency of tests	Acceptance Criteria			
	ordinary and controlled concrete for road bridge	suces /60m3 each for 7 and 28 days further that every day for first six days and once in three days there after.	Average compressive strength of each day should not be less than specified strengths subject to that 20% cubes per day (i.e.) 1 per 5 may fall below specified strength up to its 85 percent.			
8	Steel					
a)	Mild steel bar	1 test /40 MT	Nominal dia of bars in mm	Ultimate tensile strength Kg/cm ²	Yield stress	Elongation (in %)
			0-20	42	26	23
			20-40	42	26	23
			over 40	42	26	23
			Allsize	49.5	42.5	14.5
b)	TMT bars		Fe-415 Quenched and Tempered (TMT) bars of different diameters satisfying IS : 1786, with Yield stress > 415 N/mm ²² , Tensile strength > 485 N/mm ² And elongation more than 14.5%			
c)	steel for general structural purpose specification IS 2062-1992		Gr.A Fe410 WS 410 N/mm2 (All size) Gr.B. Fe410 WB 410 N/mm2 (All size) Gr.C. Fe410 WC 410 N/mm2 (All size)			
d)	steel wires for prestressed consete IS 1785 part-1 19 lab		8.0	140 Kg/mm2		
			7.0	150 Kg/mm2		
			5.0	160 Kg/mm2		
			4.0	175 Kg./mm2		
			3.0	190 Kg./mm2		
			85 % the minimum specific tensiled strength			
9	Teakwood	As per LOT				
a)	Colour					
b)	Hardness					

Sr No.	Test	Frequency of tests	Acceptance Criteria
c)	Density		
d)	Weight		
e)	Moisture cement		
f)	Porosity		
g)	Rasin		
h)	I.D. Mark		
10	All Other Material	As suggested by Consultant/EIC/ TPI as per relevant IS code	

NOTE :

1) Tests as may be directed by Engineer in charge as shown above shall have to be conducted

2) Above mentioned all the tests of the materials and others shall be carried out for in construction of each and every different lot in External Laboratory.