

महाराष्ट्र गृहनिर्माण व क्षेत्रविकास प्राधिकरण

Maharashtra Housing & Area Development Authority

म्हाडा
MHADA



Office of the Dy.Chief Engineer, Vigilance & Quality Control Cell, M.H. & A.D. Authority,
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No./Dy. CE/EE-I/VQC/A/ ¹²⁴² /2016
Date: 21/10/16

CIRCULAR

Subject : Frequency, Sampling & Acceptance Criteria for testing of various building materials used for construction & required to be tested prior to use, in Material Testing Laboratory, MHADA.

Please find enclosed herewith, the Frequency, Sampling & Acceptance Criteria as per IS codes, for testing of various building materials used for construction & required to be tested prior to use, in Material Testing Laboratory, MHADA. Also a copy of Checklist before casting of slab & report of slab after casting is also enclosed.

The said Frequency, Sampling & Acceptance Criteria and Checklist for slab before casting & after casting work; are to be followed strictly for every construction/project work carried out by MHADA, from the date of issue of this "Circular".

(Approved by Hon. Chief Engineer-I/A.)

DA:- As above (Page 1 to 21)

Dy. Chief Engineer
Vigilance & Quality Control Cell,
M.H. & A.D. Authority

Copy submitted for favour of information please.

- 1) Chief Engineer (I/II/III)/Authority.
- 2) Additional Director General of Police & Chief Vigilance & Security Officer/
M.H. & A. D. Authority
- 3) Chief Office/ M.H. & A. D. Board.

4) Chief Office/ M.B.R. & R. Board.

5) Chief Officer/ M.S.I.B.

Copy f.w.c. for favour of information & necessary action please.

6) Chief Officer (Konkan/Pune/Nashik/Aurangabad/Amaravati/Nagpur)
H. & A. D. Board

7) Dy. Chief Engineer (West)/ (East)/ (PPD)/M.H. & A D Board.

8) Dy. Chief Engineer (Zone-1/2/3/4)/ M.B.R. & R. Board.

9) Dy. Chief Engineer, M.S.I. Board.

10) Dy. Chief Engineer/ICT/Authority.

11) Dy. Chief Engineer/PDC/Pune.

12) Dy. Chief Engineer(Konkan/Pune/Nashik/Aurangabad/Amaravati/Nagpur)
H. & A. D. Board

13) Dy. Chief Engineer/JNNURM/Authority.

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14) Executive Engineer (I/II/III/ JNNURM I,II / ICT-Cell) /Authority.

15) Executive Engineer (I/II)/VQC/Authority.

16) Executive Engineer (A/B1/B2/C1/C2/C3/D1/D2/D3/E1/E2/FS/GS/FN/GN)
M.B.R. & R. Board.

17) Executive Engineer (Bandra/Borivali/Goregaon/Mulund/Kurla/City/
PPD) /M.H. & A.D. Board.

18) Executive Engineer- (I/II) /Konkan H. & A.D. Board

19) Executive Engineer-(East/West/City)/ M.S.I. Board.

20) Resident Executive Engineer M.H. & A.D. Board/M.B.R. & R. Board

Copy forwarded to Deputy Engineer (Lab)/A. for information & Records please.

**FREQUENCIES / SAMPLING/ ACCEPTANCE STANDARDS
OF CONSTRUCTION MATERIALS TO BE TESTED PRIOR TO USE**

Sr. No.	Material	Test	Acceptable standards			Frequency of Testing	Sampling as per IS Code
1	Cement	a) Fineness	After sieving, the residue by weight on 90 micron I.S. sieve, not be exceed 10%, Specific surface by air permeability method not less than in 225 sqmt/kg.			One test for each consignment of 50 M.T or Part thereof	IS:3535:1986
		b) Soundness	When tested by "Le Chatelier method" cement shall not have an expansion of more than 10mm.				
		c) Setting Time	Initial setting time not less than 30 min; Final setting time not more than 600 min				
		d) Compressive strength in N/mm2					
			33 Grade	43 Grade	53 Grade		
		3 days	16.00	23.00	27.00		
		7 days	22.00	33.00	37.00		
		28 days	33.00	43.00	53.00		
			1)33 Grade - IS 269:2013 2)43 Grade - IS 8112:2013 3)53 Grade - IS 12269:2013 4)PPC - IS 1489 (Part-1):1991				
			IS 3535:1986				
2)	Sand	a) Fineness Modulus (By Sieve Analysis)	Shall not be more than 3.0 for masonry and first coat of plaster, shall not be more than 1.60 for Second coat of plaster IS 383:1970			40cum or part thereof	IS:2430:1986
		b) Silt Content	Not to exceed 5% by weight IS 2116:1980			Every 20cum or part thereof Consignment IS 2430:1986	
3)	Coarse Aggregate	a) Foreign matter	Limits of Deleterious Material			On change of source. IS 2430:1986	IS:2430-1986
		i) Coal & Lignite	Not to extend 1 % by weight				
		ii) Clay Lumps	Not to exceed 1 % by weight				
		iii) Material finer than I.S. sieve &	Not to exceed 3 % by weight				

Sr. No.	Material	Test	Acceptable standards	Freq. of Testing	Sampling As per IS code
		iv) Other deleterious materials b) Aggregate crushing value c) Aggregate Impact value d) Los Angeles abrasion value	The total % of deleterious substances shall not exceed 5 % by weight Shall not exceed 45 % for aggregates used for concrete other than wearing surface & 30 % for wearing surface Shall not exceed 45 % for aggregates used for concrete other than wearing surface & 30 % for wearing surface a) Aggregate for wearing surface concrete work 30% b) For other Concrete work 50 % IS 383:1970	Testing on change of source Testing on Change of source Testing on Change of source	IS 2430:1986
4)	Brick 1st class	a) Water absorption b) Crushing strength i) Dry ii) Wet	Not to exceed 20% by weight. Not less than 43.7 kg./Sq.cm Not less than 32.8kg./Sq.cm	One set of test on 10 bricks for every consignment of 50000 bricks	IS:5454-1978
5)	Brick 2nd class	a) Water absorption b) Crushing strength i) Dry ii) Wet	Not to exceed 22% by weight Not less than 39.33 kg./Sq.cm Not less than 29.52kg./Sq.cm	One set of test on 10 bricks for every consignment of 50000 bricks IS 5454:1978	IS:5454-1978
6)	Stone	Water absorption	Not to exceed 5%	Testing on changed of source	
7)	Cement Flooring tiles	a) Water absorption b) Transverse strength c) Resistance to wear	Not to exceed 10% Not less than 3.0 N/mm ² for wet test The average wear shall not exceed 3.5 mm & wear on any individual specimen shall not exceed 4.00 mm for general purpose tiles IS 1237:2012	One set of test on 6 tiles for every 2000 No. tiles One set of test on 6 tiles for every 2000 No. tiles IS 1237:2012	IS:4905-1968
8)	Chequered Flooring tiles	a) Water absorption b) Transverse strength	Not to exceed 10% Not less than 3.0 N/mm ² for wet test IS 1237:2012	One set of test on 6 tiles for every 2000 No. tiles IS 1237:2012	IS:4905-1968
		c) Resistance to wear	The average wear shall not exceed 2 m.m. & wear on any individual specimen shall not exceed 2.5mm for heavy duty tiles.	One set of test on 6 tiles for every 2000 No. tiles	

Sr. No.	Material	Test	Acceptable standards		Freq. of Testing	Sampling As per IS code
9)	Cement concrete cubes	M 10 M 15 M 20	Compressive Strength kg/Sq.cm		6 Nos. of cubes for every 15.00m3 or less quantity per day IS 456:2000 & IS 1199	IS:456-2000 & IS:1199
			7 days	28 days		
			67	100		
			105	150		
			135	200		
			IS 456:2000			
10)	Mild Steel	a) Tensile test Properties i) Ultimate tensile stress N/ sq.mm. ii) Yield stress N/ Sq. mm	Normal size of bar	M.S. Grade I	For every consignment of 5 M.T.	IS:2062-2011
			All Sizes	410.00 (min)		
			Bars upto & including 20mm	250.00 (min)		
			Bars over 20mm upto & including 50mm	240.00 (min)		
		Properties iii) Elongation minimum on gauge length 5.65 (cross sectional area) (v) Tolerance in weight for each batch	Nominal size of bar	M.S. Grade I	For every consignment of 5 M.T.	
			For bars 5mm to 50mm	23.00%		
			1. Upto and including 10mm	± 7%		
			2. Over 10mm & upto 16mm	± 5%		
			3. Over 16mm	± 3%		
11)	H.Y.S.D Steel/ Deformed bars for Fe 415	Min. Ultimate tensile stress N/Sq.mm.	For bars 4mm to 50mm	485	For every consignment of 50 M.T. For every consignment of 5 M.T.	IS:2062-2011
		Min. Yield Stress in N/mm2	4mm to 50mm	415		
		c) Elongation & minimum on gauge length 5.65 (cross sectional area)	14.5%			
		i) Tolerance in weight	1. Upto and including 10mm	± 7%		
		2. Over 10mm upto 16mm	± 5%			
		3. Over 16mm	± 3%			

Sr. No.	Material	Test	Acceptable standards	Freq. of Testing	Sampling As per IS code
12)	Autoclaved Cellular Concrete Block (A.A.C. Block)	a) Density Test b) Compression Test	IS 2185 (Part 3) :1984 Table -1	One set of 15 Blocks for every Batch / consignment lot of 10,000 Blocks IS 2185 (Part 3) : 1984	IS:2185 (Part-3)-1984
13)	Solid Precast Cement Concrete Block	a) Density Test b) Compression Test c) Absorption Test	IS 2185 (Part 1) : 2005 Table-2	One set of 14 Blocks shall be taken from every lot/ consignment of 5000 Blocks IS 2185 (Part I) : 2005	IS:2185 (Part-1)-2005
14)	Ceramic Tiles / Vitrified Tiles	a) Water Absorption Test b) Modulus of Rupture	IS 15622 :2006 Table - 09 to 12.	One set of 14 Tiles for every lot of more than 1000 m ² to 5000m ² of tiles IS 13630 (Part 15) : 2006	IS:13630 (Part-15)-2006
15)	Paver Block	a) Water Absorption Test b) Compression Test	IS 15658:2006 Table - 1 & Table - 3	One set of 11 Blocks for every consignment of 50,000 Blocks IS 15658:2006	IS:15658 : 2006
16)	Timbers	a) Moisture Content Test c) Density Test	IS:287:1993 Table No.1	Every one cum or part thereof	IS:8720-1978 & IS:1708-1986

Note :- Fly Ash Bricks & other materials which are not tested in MHADA Lab but used on various sites are to be tested from nearby government approved Lab, as per prevailing IS codes.