राष्ट्रीय आदिवासी छात्र शिक्षा समिति
(जनजातीय कार्य मंत्रालय के अंतर्गत
एक स्वायत्त संस्थान, भारत सरकार)
भू-तल, गेट नंबर-3ए, जीवन तारा बिल्डिंग,
संसद मार्ग, नई दिल्ली-110001
दूर. 011-23340280

National Education Society for Tribal Students
(An Autonomous Organization under
Ministry of Tribal Affairs, Govt. of India)
Ground Floor, Gate No.3 A, Jeevan Tara Building,
Parliament Street, New Delhi-110001
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File No.: NESTS/Civil/TPQA/49/2020-21/560(PART-I) **Dated: 25.04.2024**
Comp No. 27113

To,

The Director
NIT/IIT (As per standard TPQAA list).

Sub: Third Party Quality Assurance in construction of Eklavya Model Residential School. Timely TPQA inspection & model TPQA report Format for reporting regarding.

Sir,

National Education Society for Tribal Students (NESTS) under Ministry of Tribal Affairs, Govt of India has been entrusted with the responsibility of construction of more than 452 Eklavya Model Residential Schools (EMRSs) across the country. NESTS has further entrusted the responsibility of construction of most of EMRS to Public Sector Undertaking (PSU)s engaged in the field of construction.

The quality and timeline of construction of these schools is being monitored at the highest level as Hon'ble PM has himself laid the foundation of more than 50 such schools and Hon'ble President has inaugurated several such schools. Secretary, Tribal Affairs has been closely reviewing quality & progress of the EMRS project from time-to-time.

With this background, for quality assurance in construction of EMRS, NITs and IITs have been engaged as a Third-Party Quality Assurance (TPQA) agency and have been entrusted the responsibility of ensuring quality of construction and monitoring the work of PSUs. For this purpose, Tri-Partite Agreements among NESTS, the Construction Agency (Public Sector Undertakings) and the NIT/IIT have been entered into.

On perusal of reports submitted by the TPQA agencies, it has been observed that NESTS TPQA guidelines dated 20.04.2022 are not being taken into cognizance while reporting quality issues. TPQA agencies are not giving elaborate comments on all important activities such as quality of RCC, Brickwork, finishing, doors & windows and quality of materials i.e. steel, cement, sand, bricks and workmanship i.e. alignment, line, etc of structure. Frequency and stages of TPQA visits are irregular and sometimes TPQA agencies are visiting the site with a gap of 06 months or more. As a result, the quality of many critical activities is unreported. TPQA agencies are also not serious to get timely compliances from PSUs on defective works and quality issues noticed during inspection. Further, TPQA agencies have not been uploading the TPQA reports on dashboard http://emrs.tribal.gov.in despite being given their user IDs, password and necessary training support for real-time reporting of the quality issues. Thus, the basic purpose of Third-Party Quality Assurance is not up to the mark as desired.

In the meantime, to facilitate comprehensive reporting, NESTS, through various discussions at NESTS, has developed a Model TPQA Format for providing explanatory comments on the important activities of each building and other services of an EMRS project. TPQA agency has already been equipped with mobile application App for reporting and updating the quality issues from construction site on real-time basis.

25/04

Therefore, in view of the above, TPQA activities shall be as under: -

1. Model TPQA Report Format shall be adopted for reporting purpose henceforth.
2. Report shall be uploaded within a week after the completion of inspection.
3. Vetting and acceptance of compliance of quality issues, shall be submitted latest by subsequent visit
4. NESTS TPQA Guidelines dated 20.04.2022 shall be followed so as to cover inspection of all critical activities
5. Report & Compliances shall be uploaded on dashboard http://emrs.tribal.gov.in in an expedited manner.

Timely TPQA inspection and submission of report by the TPQA team will help in achieving quality construction and timely completion of the projects.

This issues with the approval of competent authority please.

Yours faithfully,

25/04

(K. C. Meena)
Additional Commissioner

Enclosure: Model TPQA Report Format.

Copy to:

1. CMD to all PSUs.
2. Concerned ZM of all PSUs.
3. IT Consultant for arrangement of necessary support.
4. CTC- I&III NESTS.
5. Guard File.

INDEX

Section-1

Quality Assurance Activities

Sl. No.	Date of Inspection	Target Activity *	Date of Report	Date of vetting of TPQA report compliances done by PSUs
1	2	3	4	5

***** The activities like layout of building components, like foundation, superstructure, brickwork, finishing, doors & windows, flooring, retaining structures, electrical & plumbing, etc

Signature of TPQAwith Date

Institute Name and Seal

Annexure-V (Modified)

THIRD PARTY QUALITY ASSURANCE (TPQA) REPORT

Date of Inspection:

Section-2

Annexure-V (Modified) as per clause 53.2 of CPWD Works Manual		
Name of TPQA Agency: -		
Sl No.	Particulars of work:	Remarks.
1.1	(a) Name of work & Location	
	(b) Description/Scope of work	
1.2	(a) Name of Site Engineer	
	(b) Name of Project Manager	
	(c) Name of Zonal Manager or Zonal Head.	
1.3	Agency/contractor	
	(a) Name:	
	(b) Registration class	
1.4	Agreement No.	
1.5	Stipulated time and date of start.	
1.6	Stipulated time and date of completion.	
1.7	(a) Estimated cost put to tender	
	(b) Schedule of rates applicable.	
1.8	Accepted tendered cost with overall percentage.	
1.9	Percentage progress at time of inspection vis-à-vis expected as per contract and reasons for delay, if any.	
1.10	Inspection officers (Name and Designation)	
1.11	Officers and contractor present during inspection (Name and Designation)	
1.12	Date of inspection and number	
2.0	Quality control Aids:	
2.1	Is site equipped with	
	(a) Copy of agreement	
	(b) CAs specification along with upto date correction slips.	
	(c) Quality Plan as per CPWD Manual	
	(d) Mix Design Report from IIT/NIT/ Government Institution	
	(e) List of Preferred Make /ISI marked/approved materials to be used.	
	(f) Approved Copy of Architectural Drawings	

	(g) Clear Copy of Vetted Structural Drawings	
	(h) Plumbing and Electrical Drawings (Internal Layout and External Services Drawings)	
	(i) Guard file containing inspection report of CTE/ QCTA/ AE/ QC/ Zonal Head/ GM/ etc.	
	(j) Testing facilities to check conformation to acceptance criteria	
	(f) QAFW circular on quality control	
2.2	Is field laboratory existing and well equipped (See Annexure-I & Annexure-II of Appendix for lab equipment &instrument) – Cube, Set of Sieve, equipment for Slump Cone test, Weight Balance, Compression Testing Machine of 100 Ton electrically operated, Measuring jar etc	
2.3	Is Site is equipped with field instrument (See Annexure-II)- Vernier caliper, Screw Gauge, Plumb bob, magnifying glass, Spirit Level, Moisture Meter, Earth Resistance Meter & Meggar for electrical work etc	
2.4	Is site is equipped with Non-destructive Test instrument- Rebound Hammer, Pulse Velocity Test Meter, Bar Scanner	
2.5	Is site is equipped with essential T & P (Site Logistic) for Batching Plant, Needle vibrator, Plate Vibrator & Earth Compactor	
3.0	Department procedure aspects	
3.1	Maintenance of inspection register of TPQA/ NESTS/ Senior officer	
3.2	Highlights of inspection by ZM, Project Manager requiring compliance.	
3.3	Is all site register maintained in standards forms? (Site Order Book, Cement Register, Steel Register, Cube Test Register, Water Test Register, Cube Test Register, Other field Test Register)	
3.4	Are test registers reviewed by Engineer-in-Charge/ Project Manager/ Zonal Manager with dates	
3.5	Cement Registers	
	a.) Is cement store checked by Engineer-in-Charge/ Project Manager/ Zonal Manager periodically as stipulated	
	b.) Comment of TPQA on cement stock with reference to cement register. (Critical Analysis/ Elaborative opinion of TPQA is required required)	
	c) Whether storage is as per CPWD specification?	
3.6	Site order book and schedule of defects	

	a) Is site order book properly maintained?	
	b) Is site order book reviewed by ZM and Engineer-in-Charge / Project Manager (Mention details)	
	c) Have timely notices been issued to the contractor with the schedule of defects/damages whether action under clause 14/17 initiated? (Please elaborate)	
4.0	Process control aspects:	
4.1	Is soil investigation done? (Give brief details)	
4.2	Suitability of water for construction:	
	(a) What is the sources of water?	
	(b) Has water been tested subsequently (i.e. after every 03 months) and found fit for use in works.	
	(c) Has water been tested subsequently (i.e. after every 03 months) and found fit for use in works.	
4.3	Are 10% (25% for concrete) of all samples for testing taken in presence of Engineer-in-Charge	
4.4	(i) Are Annexure-III (Performa for list of mandatory Test) is maintained at site? (ii) Are all mandatory tests carried out at stipulated frequency?	
4.5	Are materials approved by Engineer-in-Charge/ Competent authority of PSU? If so, are samples available at site?	
4.6	Are sample units/items completed and approved by Engineer-in-Charge before start of mass finishing work?	
4.7	Specific control on RCC work like centering/shuttering, proportioning with boxes: mixing by full bag capacity hopper fed mixer: control of slump: placing/compaction with vibrator. (Are Construction Checklist Annexure IV-A, IV-B for RCC works are followed?).	
4.8	Specific control on Brick Work and Finishing Items (Are Construction Checklist Annexure IV-C, IV-D for Brick works and Plaster are followed?).	
4.8	Any other particular comments on adequacy of process control.	
5.0	Site inspection for observations and comments on quality control system in place.	

Signature of TPQA with Date

Institute Name and Seal

Section-3			
Observation on Quality of Materials by TPQA Agency			
SN	Item	Details	Observation of TPQA Agency
1	Source and Quality of Water	To see whether fit for construction	
2	Cement	Make and Grade, OPC or PPC?	
3	Steel	Make and Grade	
4	Bricks	Factory made fly ash brick/clay brick	
5	Admixture	Make with details	
6	Aggregates (Grading and Nominal Size)	Quality of metal aggregates	
7	Fine Aggregate	Quality of sand, whether approval of competent authority in case of stone dust is being used	
8	Centring and Shuttering	Steel prop and plyboard/steel shuttering to be checked.	
9	Flooring		
	a. Kota Stone	Indicate Quality and Thickness	
	b. Ceramic Floor Times	Indicate Make	
	c. Vitrified Tiles	Indicate Make	
10	SS Railing	To be checked for Finish and Whether section is as per approved make	
11	Profile Sheet	Whether as per NESTS approved make list	
12	Factory MS Made Windows	Whether as per CPWD/NESTS approved Make. In addition to be checked for Frame & Shutter Section, Flash Butt Welding, Sizes & number of Hinges, Finishing Grinding, etc	
13	MS Door Frame	T Section	
14	Doors		
	a. Factory made Machine pressed laminated flush door shutter	Whether as per NESTS approved make list	
	b. Flush Door	Whether as per NESTS approved make list	
	c. Door's Fitting	Whether as per NESTS approved make list	
15	Sanitary & Water Supply		
	a. SWR & fitting	Indicate Brand	
	b CPVC Pipe (White Colour) & fittings	Indicate Brand	
	c. uPVC pipe & Fittings for rain water (Pressure 06 Kg/ Sq cm)	Indicate Brand	

	d. uPVC pipe & Fittings for rain water (Pressure 04 Kg/Sq. cm)	Indicate Brand	
	e. GI Piles	Indicate Make/Brand	
	f. CP Brass Fittings	Indicate Make/Brand	
	g. EWC/IWC	Indicate Make/Brand	
	h. Nahani Trap	Indicate Make/Brand	
16	Paint & Putty		
	Primer	Indicate Make/Brand	
	Internal Emulsion	Indicate Make/Brand	
	External Emulsion	Indicate Make/Brand	
	Synthetic Emulsion	Indicate Make/Brand	
	External Putty	Indicate Make/Brand	
	Epoxy Paint	Indicate Make/Brand	
17	Electrical		
	a. PVC Conduits	Indicate Make/Brand	
	b. Piano/Modular Switches and Sockets	Indicate Make/Brand	
	c. MCBs	Indicate Make/Brand	
	d. LT Panels	Indicate Make/Brand	
	e. HT Panels	Indicate Make/Brand	
	f. Fire Survival cable	Indicate Make/Brand	
	g. Wires (PVC insulated copper conductor cable FRLS - ISI marked)/Telephone Cables / Submersible cables/Co-axial/TV cables	Indicate Make/Brand	
	h. Fans and Exhaust fans (All Types)	Indicate Make/Brand	
	i. LED Luminaries i/c street light fittings (ISI Marked)	Indicate Make/Brand	
	j. LAN Cables	Indicate Make/Brand	
	k. Centrifugal Pump	Indicate Make/Brand	
	l. Submersible Pump	Indicate Make/Brand	
	m. Motors	Indicate Make/Brand	
	n. 25 KVA Generator	Indicate Make/Brand	

Signature of TPQA with Date

Institute Name and Seal

Section: 4

Construction Quality Check (Building Wise) with Comments by TPQA

1. SCHOOL BUILDING: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

2. Boys Hostel Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

Signature of TPQA with Date

Institute Name and Seal

3. Girls & Boys Hostel Warden's Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

4. Kitchen Warden Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

Signature of TPQA with Date

Institute Name and Seal

5. Principal Quarter Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

7. Type- III Quarter Block A & B Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

Signature of TPQA with Date

Institute Name and Seal

8. Type-II Quarter Building: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Foundation & Plinth Work	
2	Bar Bending & Reinforcement	
3	Columns	
4	Ground Floor (GF) Slab	
5	First Floor (FF/SF) Slab	
6	Brick Work	
7	Flooring/Finishing/Doors/Windows	
8	Water Proofing of Toilets & Terrace	
9	Internal Plumbing (Sanitary & Water Supply)	
10	Internal Electrical	
11	Final Review on Completion	

9. Campus Development & Services: -

SN	Critical Activities	Specific Comment on Quality issue on Critical activities to be indicated
1	Compound Wall	
2	Road	
3	Protection Work (Retaining Wall)	
4	External Sewerage & Septic Tank	
5	External Water Supply	
6	Drainage	
7	Electrical Services, Street Light, etc	
8	Final Review on Completion	

Note- In case any particular activity has not started, it may be commented as NA

Signature of TPQA with Date

Institute Name and Seal

Section: 5

Test report of 10% Mandatory Tests by TPQA (To be done independently in outside Lab/Institute Lab) (As per Annexure-III)

Signature of TPQA with Date

Institute Name and Seal

Section-6

Photographs

Signature of TPQA with Date

Institute Name and Seal

Section-7

Verification of TPQA report compliances of previous visit observation

Signature of TPQA with Date

Institute Name and Seal

Section-8

Overall Observation

Signature of TPQA with Date

Institute Name and Seal

Appendix-10.1

Annexure – I		
Sr. No.	**List of Equipment available For Field Testing Laboratory**	**Comments of TPQA (Functional or not Functional)**
A.	**For Building Works**	
1	Balances	
(i)	7 kg. to 10 kg. capacity, semi-self-indicating type – accuracy 10 gm.	
(ii)	500 gm. capacity, semi-self-indicating type – accuracy 1 gm.	
(iii)	Pan balance – 5 kg. capacity – accuracy 10 gms.	
2	Ovens-electrically operated, thermostatically controlled upto 110 C – sensitivity 1 C.	
3	Sieves: as per IS 460=1962.	
(i)	I.S. sieves – 450mm internal dia, of size100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan.	
(ii)	I.S. sieves- 200mm internal dia (brass frame) consisting of 2.36mm, 1.18mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns, with lid and pan.	
4	Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.	
5	Equipment for slump test- Slump cone, steel plate, tamping rod, steel scale, scoop.	
6	Dial gauge, 25 mm travel – 0.01 mm/division least count - 2nos.	
7	100 tonnes compression testing machine, electrical-cum manually operated.	
8	Graduated measuring cylinders 200 ml capacity – 3 Nos.	
9	Enamel trays (for efflorescence test for bricks).	
(i)	300 mm x 250 mm x 40 mm- 2 nos.	
(ii)	Circular plates of 250 mm dia – 4 nos.	

Annexure – II		
Sr. No.	**Field Testing Instruments**	**Comments of TPQA (Functional or not Functional)**
1	Steel tapes – 3 m	
2	Vernier callipers	
3	Micrometre screw 25 mm gauge	
4	A good quality plumb bob	
5	Spirit level, minimum 30 cms long with 3 bubbles for horizontal vertical	
6	Wire gauge (circular type) disc	
7	Foot rule	
8	Long nylon thread	
9	Rebound hammer for testing concrete	
10	Dynamic penetrometer	
11	Magnifying glass	
12	Screw driver 30 cms long	
13	Ball pin hammer, 100 gms	
14	Plastic bags for taking samples	
15	Moisture meter for timber	
16	Earth resistance tests (for Electrical Divisions)	
17	Meggar (for Electrical Divisions)	

Annexure – III

Proforma For Mandatory Tests To Be Attached With Running Bills

Name of the work …… Name of Contractor…….
Agreement No. and Date …….. R/A Bill No. …….

Sl. No.	Item	Quantities as per agreement	Frequency as per specification	No. of tests required	Upto date quantity	No. of tests required	No. of tests actually done	Remarks
1	2	3	4	5	6	7	8	9

Note: If the number is less than that required, then reasons shall be recorded.

1. Signature of Site Engineer……..
2. Signature of Project Manager……
3. Signature of Zonal Manager……

Annexure – IV

Check Lists for Various Items

PART – A

CHECK LIST FOR ITEMS OF FOUNDATION CONCRETE

Name of work ……

Name of contractor ……..

Agreement No. …….

4. Date of inspection
5. Location
6. Material used for concrete whether tested
   (a) Sand Yes/No
   (b) Coarse aggregate Yes/No
   (c) Water Yes/No
   (d) Admixture, if any Yes/No
7. Raft top level, whether provided as per details Yes/No
8. Architectural/structural drawing correlated Yes/No
9. Whether location of construction joint has been discussed with Executive Engineer, and he has approved it Yes/No
10. Cleaning over water proofing surface and construction joint done Yes/No
11. CC cover blocks of 60 mm, thickness provided (min 2 in one square metre area) Yes/No
12. Reinforcement placement as per relevant structural drawing checked Yes/No
13. Layout of columns as per relevant structural drawing checked Yes/No
14. Placement of shuttering plates and key board for proper construction joint with shuttering oil Yes/No
15. Cement slurry applied on construction joint before pouring of concrete Yes/No
16. Trained mason available Yes/No
17. Concreting to start from farthest point to nearest point with respect of weight batching plant Yes/No
18. Concrete mix has been designed Yes/No
19. Plasticiser being used Yes/No
20. Adequate number of concrete vibrators in working condition available Yes/No
21. Slump checked Yes/No
22. Sample cubes taken Yes/No
23. Signature of Site Engineer……..
24. Signature of Project Manager……

PART – B

CHECK LIST FOR COLUMNS/BEAMS/SLABS

1. Date of inspection
2. Drawing No.
3. Location
4. Whether materials used conform to relevant Specifications
   (a) Sand Yes/No
   (b) Coarse aggregate Yes/No
   (c) Water Yes/No
   (d) Admixture, if any Yes/No
5. Whether structural drawings correlated with architectural drawings? Yes/No
6. Whether the centre line of column/beams checked with references to grid lines as per architectural drawings? Yes/No
7. Whether treatment of expansion joint, wherever required, is done? Yes/No
8. Whether cleaning, repairing and approval of shuttering plate, application of quality shuttering oil is done? Yes/No
9. Whether shuttering is in true plumb and vertical and properly done and maintained during concreting? Yes/No
10. Whether reinforcement detailing, their placement are as per structural drawings? Yes/No
11. Whether proper gauge binding wire is used and with full cross binding and tightening of reinforcement bars with stirrups? Yes/No
12. Whether required minimum cover to reinforcement is maintained? Yes/No
13. Whether stainless steel cramps, angle irons for holding stones and any holding arrangement for electrical/mechanical/fire-fighting/other services have been seen and approved by JE (E)/AE (E) Yes/No
14. Whether conduits for various electrical/mechanical/fire-fighting/ other services have been seen and approved by JE (E)/ AE (E) Yes/No
15. Whether concrete of approved design mix within maximum permissible water-cement ratio is used? Yes/No
16. Whether admixture of good brand quality approved by Engineer-in-charge is used? Yes/No
17. Whether technical supervision at batching plant/mixer and at point of concreting done? Yes/No
18. Whether concreting is placed within initial setting time of mixing? Yes/No
19. Whether proper compaction with vibrator is done? Yes/No
20. Whether the concreting has been done in a lift not exceeding 1.5 m? Yes/No
21. Whether cubes as per requirement filled for testing? Yes/No
22. Signature of Site Engineer……..
23. Signature of Project Manager……

Post-concreting:

24. Whether shuttering stripped off as per specification, and laitance removed immediately thereafter? Yes/No

25. Whether proper arrangement of curing and curing period maintained as per specifications? Yes/No
26. Whether hacking of RCC surface by proper hacking tool for subsequent plastering/finishing is carried out? Yes/No
27. Signature of Site Engineer……..
28. Signature of Project Manager……

PART – C

CHECK LIST FOR BRICK WORK

1. Date of Inspection
2. Drawing No.
3. Location
4. Whether materials used conform to relevant Specifications and whether mandatory tests done?
   (a) Sand Yes/No
   (b) Bricks Yes/No
   (c) Water Yes/No
5. Whether structural drawings co-related with architectural drawings? Yes/No
6. Whether the centre line of brickwork checked with reference to grid lines as per architectural drawings? Yes/No
7. Whether bricks soaked in water before use for sufficient period? Yes/No
8. Whether queen closers are used at junction of walls? Yes/No
9. Whether brickwork is in true plumb and vertical and all layers truly horizontal? Yes/No
10. Whether graduated wooden straight edge storey rod being used for keeping height of brick courses uniform? Yes/No
11. Whether wall height being constructed in a day is being restricted to 1 m height? Yes/No
12. Whether parts of wall left at different levels are raked back at an angle of 45 degrees or less with the horizontal? (Toothing is not to be permitted) Yes/No
13. Whether top courses of all plinths, parapets, steps and top of walls below floor and roof slabs laid with brick on edge? Whether marucona provided at corners in such brickwork? Yes/No
14. Whether thickness of joints in brickwork is kept 1 cm +_ 20%? Yes/No
15. Whether mortar of approved mix within maximum permissible water cement ratio is used? Yes/No
16. Whether all horizontal and vertical joints are being filled? Yes/No
17. Whether proper arrangement of curing and curing period maintained as per specification? Yes/No
18. Whether date of work done written? Yes/No
19. Signature of Site Engineer……..
20. Signature of Project Manager……

PART – D

CHECK LIST FOR PLASTERING

1. Date of inspection
2. Drawing No.
3. Location
4. Whether materials used conform to relevant specifications and whether mandatory tests done? Yes/No
5. Whether surface cleaned of all loose mortar and efflorescence? Yes/No
6. Whether all conduiting and electrical piping done? Yes/No
7. Whether all doors, windows etc. fixed? Yes/No
8. Whether all defects of brickwork/CC/RCC rectified? Yes/No
9. Whether preparation of surface done? Yes/No
10. Whether 2.5 m long aluminium straight edge and plumb bob being used to check vertically and evenness of surface? Yes/No
11. Whether 15 cm x 15 cm bunda at every 2 m horizontally and vertically being provided to serve as gauges? Yes/No
12. Whether uniform groove provided at junctions of all plaster and ceiling plaster? Yes/No
13. Whether mortar of approved mix within maximum permissible water cement ratio is used? Yes/No
14. Whether proper arrangement of curing and curing period maintained as per specifications? Yes/No
15. Whether date of word done written? Yes/No
16. Signature of Site Engineer……..
17. Signature of Project Manager……

PART – E

CHECK LIST FOR WATER SUPPLY LINES

1. Date of inspection
2. Drawing No.
3. Location
4. Whether materials used conform to relevant specifications and whether mandatory tests done? Yes/No
5. Whether plumber employed is licensed plumber or not? Yes/No
6. Whether plan for piping system has been prepared and got approved? Yes/No
7. Whether all pipes and fittings are ISI marked? Yes/No
8. Whether a sample system has been prepared and got approved? Yes/No
9. Whether clamps provided at specified spacing? Yes/No
10. Whether pipe lines checked at required pressure before covering? Yes/No
11. Whether weight of flushing pipe checked? Yes/No
12. Whether flushing cistern is ISI marked and internally painted with bitumastic paint? Yes/No
13. Whether fittings like wash basin, sink pan, cistern, bib cock, stop cock, wheel valves, etc. are ISI marked? Yes/No
14. Whether PVC water storage tank is ISI marked? If not, whether sample sent for testing? Yes/No
15. Signature of Site Engineer……..
16. Signature of Project Manager……

Section 10.2

Checklist for Important Activities

SN	Item	Details
1	Reinforcements	*Whether reinforcements are as per the vetted drawings? * Check reinforcement and ring are provided in confinement Zone and column beam junction as per ductile CODE IS 13920 *Check laps are provided in lapping zone and lapping shall not be more than 50% at one location * Check U hooks at Junction * Check for required cover to RCC
2	Centring & Shuttering	*Check for material (Steel Shuttering & MS Props) * Check for stability, base support, levelling & fixing, etc
3	Casting Quality	*Check for honeycomb, bulging, deflection, twisting, out of plumb, etc. * Check for thickness as per vetted drawings * Check whether Construction Checklist (Annexure IVA & IVB) is followed at site
4	Curing Quality	Whether date of casting mentioned & curing being attended
5	Filling in Plinth	Filling to be done in layers well compacted at OMC.
6	Brick Work	*Check for bond, thickness of mortar, plumb and alignment. *Check whether Construction Checklist (Annexure IVC) is followed at site
7	Half brick work	Every third course shall have bars as per Specification
8	Plaster (18/15/12/6 mm)	*Check for thickness *Check whether Construction Checklist (Annexure IVD) is followed at site

Section-10.3

List of Mandatory Tests

Material	Test	Field/ laboratory test	Test procedure	Min, quantity of material for carrying out the test	Frequency of testing	No. of test required	No. of test done till Date
1	2	3	4	5	6	7	8
Reinforced cement concrete (Nominal Mix)	(a) Slump Test	Field/ Lab	Appendix 'D' of Chapter4	(i) 5 cum in case of column (ii) 20 cum for slabs, beams and connected columns (iii)20 cum for other RCC work for all other small items and where RCC done in a day is less than 5 cum test may be carried out as required by Engineer-in-Charge	(i) Every 5 cum of part thereof (ii) Every 20 cum or part thereof (iii) -Do-		
	(b) Cube Test	Lab	Appendix 'A'	(i) 5 cum in case of column (ii) 20 cum for slabs, beams and connected Columns (iii) 20 cum for other RCC work for all other small items and where RCC done in a day is less than 5 cum test may be carried out as required by Engineer-in-Charge	(I) Every 5 cum or part thereof (ii) Every 20 cum or part thereof (iii) -Do-		

1	2	3	4	5	6	7	8	9
Reinforced Cement Concrete (Design Mix)	Coarse Aggregates				50 cum or part thereof & also on each change of source			
	Fine Aggregates				50 cum or part thereof &also on each change of source			
	Cement				50 MT or on each change of source			
	Fresh Conc.	(a) Slump test	Field	Appendix 'D' of Chapter-4	10 cum	50 Cum for RCC work including in all other small locations. RCC done in a day is less than 50 Cum test may be carried out as required by Engineer-in-Charge		
	Fresh Concrete	(b) Cube Test	Lab	Appendix 'A'	10 Cum or Part thereof	50 Cum or 10 batches of 5-7 cum each for RCC work in all location taken together. RCC done in a day is less than 50 cum test may be carried out as required by Engr-in-Charge		
Reinforced Cement Concrete (Ready Mix)	Coarse Aggts				50 Cum or part thereof & also on each change of source			
	Fine Aggregates				50 Cum or Part thereof & also on each change of source			
	Cement				50 MT or on each change of source			

	Fresh Concrete	(a) Slump test	Field/ Lab	Appendix 'D' of Chapter 4	10 Cum	50 Cum for RCC Work including in all other small location. RCC done in a day is less than 50 Cum test may be carried out as required by Engr-in-Charge		

1	2	3	4	5	6	7		8	9
	Fresh Concrete	(b) Cube Test	Lab	Appendix 'A'	10 Cum or part thereof	50 Cum or 10 batches of 5-7 cum each for RCC work in allocation taken together. RCC done in a day is less than 50 cum test may be carried out as required by Engineer-in-Charge			
Steel for Reinforced cement concrete	5.1.3	(A) Physical Test and chemical tests				(a) For consignment below 100 tonnes (i)Under 10 mm dia, one Sample for each 25 tonnes or part thereof (ii) 10 mm to 16 mm dia one sample for each 35 tonnes or part thereof (iii) over 16 mm dia one sample for each 45 tonnes or part thereof	(b) For consignmentover100 tonnes (i) Under 10 mm dia, one sample for each 40 tonnes or part thereof (ii) 10 mm to 16mm, one sample for each 45 tonnes (iii) over 16 mm dia, one sample for each 50 tonnes or part thereof		

Sl. No.	*Material*	*Clause*	*Test*	*Field/ laboratory Test*	*Test Procedure*	*Minimum Qty. of material for carrying out test*	
(i)	Bricks/ Brick Tiles	6.1.3, 6.1.4, 6.1.5	Testing of Bricks/ Brick Tiles for dimensions, Compressive strength, Water absorption and efflorescence	Laboratory	Appendix A, B, C & D of Chapter 6	As per Table 6.3 and 6.4	
(ii)	Sewer Bricks	6.1.4	Dimensions, Compressive strength, Water absorption and Efflorescence	Laboratory	Appendix A, B, C & D of Chapter 6	As per Table 6.3 and 6.4	
(iii)	Burnt Clay perforated building bricks	6.1.5	--do--	--do--	--do--	--do--	

Material	*Clause*	*Test*	*Requirement*	*Field/ laboratory Test*	*Test Procedure*	*Minimum Qty. of Material for Carrying out test*	*Frequency of Testing*
Stone	7.1.1 7.4 7.8 7.9	(i) Water absorption	Not more than 2.5% by Mass for sandstone and as specified in IS 1123 for other stones.	Laboratory	IS 1124	50 Sqm. for slabs and 10 Cum in Stone masonry	100 Sqm/ 20 Cum or part thereof or Change of Source as per direction of Engineer-in-Charge
		(ii) Transverse strength	Not less than 7 N/mm^2 (70 Kgf/cm^2) for sandstone and as Specified in IS 1123 for Other stones.	Laboratory	IS 1121 Part-II	-do-	-do-
		(iii) Resistance to wear	Not greater than 2 mm on the average and 2.5 mm for any individual specimen for sandstone and as specified in IS 1123 for Other stones.	Laboratory	IS1706	-do-	-do-
		(iv)Durability	Shall not develop signs of spalling, disintegration or cracks for sandstone and as specified in IS 1123 for other stones.	Laboratory	IS 1126	-do-	-do-

Material	*Clause*	*Test*	*Field/ Laboratory Test*	*Test*	*Minimum quantity of material/ work for carrying out the test*	*Frequency of testing*
Marble	8.3 (Table-8.2)	(i) Moisture Absorption	Laboratory	IS124	50 Sqm.	100 Sqm or Part thereof.
		(ii) Hardness Test	-do-	Mho's Scale	-do-	-do-
		(iii) Specific Gravity	-do-	IS1122	-do-	-do-
Granite		(i) Moisture	-do-	IS1124	-do-	-do-
		(ii) Specific Gravity	-do-	IS1122	-do-	-do-

Material	*Clause*	*Test*	*Field/ Laboratory Test*	*Test Procedure*	*Min, Quantity of Material for carrying out The test*	*Frequency of Testing*
1	2	3	4	5	6	7
Timber	9.1.6	Moisture content	Field (by moisture meter) laboratory test as required by Engineer-in-Charge	Appendix 'C'	1cum	Every one cum or part thereof.
Flush door	9.7.10	End immersion Test, Knife Test, Adhesion Test	Laboratory	IS 2202 Appendix 'F'	26 shutters	As per sampling and testing specified in Clause 9.7.11
Mortice Locks	9.15.13	Testing of spring	Laboratory	IS 2209-Appendix 'G'	50Nos	100 or part thereof.

Material	*Clause*	*Test*	*Field/ laboratory test*	*Test procedure*	*Min. quantity of Material for Carrying out the test*	*Frequency of testing*
1	*2*	*3*	*4*	*5*	*6*	*7*
Steel if arranged by the contractor	10.1.1	(a) Tensile Strength (b) Bend test	Laboratory	IS 1599	20 tonnes	Every 20 Tone or part thereof.
Steel tubular pipes	10.13	(a) Tensile Test (b) Bend Test (c) Flattening Test	Laboratory	IS 1608 IS 2329 IS 2328	Every 8 tonnes or Part thereof	Every 8 tonnes or part thereof

Material	*Clause*	*Test*	*Field/ Laboratory Test*	*Test Procedure*	*Min. quantity of material for carrying out the test*	*Frequency of testing*
1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*
Pressed Ceramic tiles (for floor)	11.4,11.5& 11.16	1. Dimensions and surface quality 2. Physical properties 3. Chemical properties	Laboratory	IS:13630	3000 Nos.	3000 Nos. or part thereof

Material/ work	Clause / Para No..	Test	Field/ Laboratory	Test Procedure	Frequency of Testing
1)Coarse Aggregate	16.1.1	Los Angeles Abrasion Value or Aggregate Impact Value	Laboratory	IS 2386 (Part4)	Per 200 m^3
		Specific gravity, Water absorption & Density	Laboratory	IS 2386 (Part3)	
		Combined Flakiness and Elongation Indices	Field	IS 2386 (Part1)	Per100 m^3
	16.1.1 Table16. 2	Size and grading of aggregate	Field	IS 2386 (Part1)	Per100 m^3
2) Fine Aggregate	16.1.2	Deleterious materials	Field	IS 2386 (Part2)	As required by the Engineer-in- Charge.
		Specific gravity, Water absorption & Density	Laboratory	IS 2386 (Part3)	
		Size and grading of aggregate	Field	IS 2386 (Part1)	
3)Bitumen	16.1.5	As prescribed in IS:73 or IRC: SP:53, IS:15462	Laboratory	As prescribed in IS 73	As required by the Engineer-in- Charge.
17) Water Bound Macadam		(i) Aggregate Impact Value	Laboratory	IS:2386 (Part 4)	One tests per 1000 Cum of aggregate
		(ii) Grading of aggregate	Field	IS:2386 (Part 1)	One test per 250 Cum
		(iii) Combined Flakiness and Elongation Indices	Laboratory	IS:2386 (Part 1)	One tests per 500 Cum of aggregate
		(iv) Atterberg limits of binding material	Laboratory	IS:2386 (Part 4)	One test per 50 Cum of binding material
		(v) Atterberg limits of screenings	Laboratory	IS:2720 (Part 5)	One tests per 100 Cum of aggregate
		(vi) Water absorption of aggregate	Laboratory	IS:2386 (Part 3)	Once in a month
		(vii) Deleterious material	Field	IS:2386 (Part 2)	As required, once in a month
18) Wet Mix Macadam		(i) Aggregate Impact Value or Los Angeles Abrasion value	Laboratory	IS:2386 (Part 4)	One tests per 1000 cum of aggregate
		(ii) Grading of aggregate	Field	IS:2386 (Part 1)	One tests per 200 cum of aggregate
		(iii) Combined Flakiness and Elongation Indices	Laboratory	IS:2386 (Part 1)	One tests per 500 cum of aggregate
		(iv) Atterberg limits of portion of aggregate passing	Laboratory	IS:2720 (Part 5)	One tests per 200 cum of aggregate

		425 micron sieve			
		(v) Density of compacted layer	Field		One set of three tests per 1000 sqm.
		(vi) Water absorption of aggregate	Laboratory	IS:2386 (Part 3)	Once in a month
		(vii) Deleterious material	Field	IS:2386 (Part 2)	As required, once in a month
19) Cement concrete pavement under controlled conditions	16.37.19	Coarse aggregate 1. Flakiness Index	Laboratory	IS 2386 (Part 1)	Before approval of the quarry and every sub-sequent change in the source of supply and one test per 100 cum.
		2. Impact Value	-do-	IS 2386 (Part 4)	-do-
		3. Loss Angles abrasion Value	-do-	-do-	-do-
		4. Deleterious material	-do-	IS 2386 (Part 2)	Before approval of the quarry and at every subsequent change in the source of supply
		5. Moisture content	-do-	IS 2386 (Part 3)	Regularly as required subject to a minimum of one test per day
		Fine Aggregate			
		1. Silt content	Field	As per CPWD specification Vol. I.	One test per 15 cum.
		2. Gradation of sand	-do-	IS 2386 (Part 2)	-do-
		3. Deleterious material	-do-	IS 2386 (Part 2)	Before approval of the quarry and at every subsequent change in the source of supply
		4. Moisture content	-do-	IS 2386 (Part 3)	Regularly as required subject to a minimum of two tests per day
		5. Mix Aggregate	Field	IS 2386 (Part 1)	One test per 15 cum of concrete
		6. Flexural strength	Laboratory	IS 526	One test consisting of 8 specimens for 30 cum. of concrete