

PARTICULAR SPECIFICATIONS & SPECIAL CONDITIONS

1. GENERAL

1. 1.1 Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items, the work shall generally be carried out in accordance with the "CPWD Specifications - 2019 (Vol. I & II) for civil works with up to date correction slips CPWD Specification for Horticulture works with up to date correction slips and relevant CPWD specifications for electrical works with upto date correction slips (hereinafter to be collectively referred to as „CPWD Specifications“). Wherever CPWD and relevant CPWD specifications with upto date correction slips for electrical works, Specifications are silent, the latest BIS Codes/Specifications, National Building Code 2016, MoRTH specification or any other specification shall be followed.

2. In the case of discrepancy between the Schedule of Quantities, the Specifications and/ or the Drawings, the following is order of preference shall be observed:-

- (i) Description of Schedule of Quantities.
- (ii) Scope of Work
- (iii) Particular Specification and General Conditions mentioned in this tender.
- (iv) Drawings.
- (v) CPWD Specifications.
- (vi) Indian Standard Specifications of B.I.S.

“In the event of any variation/ discrepancy in the drawings, specifications and tender documents etc. the decision of the Engineer-in-charge shall be final binding and conclusive on the contractor and in the case the contractor have any doubt and the same should be got clarified immediately from the Engineer-incharge and no claim of the contractor shall be entertained thereafter. Moreover, the agency is not allowed to take benefit out of any clerical/ grammatical mistake in the standard clauses/Schedule of Quantities/Specifications etc. being used in the agreement”.

A reference made to any Indian Standard Specifications in these documents, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards up to last date of receipt of tenders. The Contractor shall keep at his own cost all such publications of relevant Indian Standard applicable to the work at site.

- 1.2 Wherever any reference to any Indian Standard Specifications of BIS or other International standards of ASTM / BS/EN occurs in the documents relating to this contract, the same shall be inclusive of all amendments issued there-to or revisions thereof, if any, up to the date of receipt of tenders.
- 1.3 The contractor shall work according to the programme of work as approved by the Engineer-in-charge, for which purpose, the contractor shall submit a programme of the work within 15 days from the stipulated date of start of the work based on computer software such as MS Project etc. and shall update the same every fortnight. The contractor shall submit monthly progress report of the work in a computerized form. The progress report shall contain the following, apart from whatever else may be required as specified:
- (i) Project information, giving the broad features of the contract of the work under the contract, and the broad structural or other details.

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- (ii) Introduction, giving a brief scope of the work under the contract, and the broad structural or other details.
 - (iii) Construction schedule of the various components of the work through a bar chart for the next three quarters (or as may be specified), showing the milestones, targeted tasks and upto date progress.
 - (iv) Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative upto the month, with reasons for deviations, if any, in a tabular format.
 - (v) Plant and machinery statement, indicating those deployed in the work, and their working status.
 - (vi) Man-power statement, indicating individually the names of all the staff deployed in the work, along with their designations.
 - (vii) Financial statement, indicating the broad details of all the running account payments received upto date, such as gross value of work done, advances taken, recoveries effected, amounts withheld, net payments, details of cheque payments received, etc.
 - (viii) A statement showing the extra and substituted items submitted by the contractor, and the payments received against them, items pending for sanction/decision by the Department, broad details of the Bank Guarantees, indicating clearly their validity periods, broad details of the insurance policies taken by the contractor, if any, the advances received and adjusted.
 - (ix) Progress photographs, in colour, of the various items/components of the work done upto date, to indicate visually the actual progress of the work.
 - (x) Quality assurance and quality control tests conducted during the month, with the results thereof.
 - (xi) Videography at various stages of construction right from the day of start of work to date of completion/occupation, covering all major events, inspections, visits by dignitaries etc.
- 1.4 The contractor shall take instructions from the Engineer-in-charge for stacking of materials at site. No excavated earth or building materials shall be stacked on areas where the buildings, roads, services or compound walls are to be constructed.
- 1.5 If as per Municipal or prevailing rules of the secured campuses owned by paramilitary forces, Institutions etc, the huts for labour are not to be erected at the site of work by the contractors, the contractors shall provide such accommodation at such locations as are acceptable to local bodies with all provisions concerning labour safety & sanitation as contained in the relevant clause of the contract, for which nothing shall be payable.
- 1.6 Unless otherwise provided in the Schedule of quantities, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing shall be payable to him on this account.
- 1.7 The working drawings appearing at para 8.1(iii) of conditions of contract in the form CPWD-7/8, shall mean to include both architectural and structural drawings

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respectively. The structural and architectural drawings shall be properly correlated before executing the work. In case of any difference noticed between architectural and structural drawings, final decision, in writing of the Engineer-in-charge shall be obtained by the contractor before proceeding further.

- 1.8 Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restriction/instructions including issue of identity cards to all persons authorized by him to do work /visit the work site and nothing shall be payable on this account.
- 1.9 The contractor shall make his own arrangements for obtaining electric connections, if required, and make necessary payments directly to the department concerned.
- 1.10 The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor (s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed, so as not to interfere with the operations of other contractors, or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of Engineer-in-Charge. The contractor shall be responsible for any damage due to hindrance caused by him.
- 1.11 Cast iron pipes and fittings without ear shall be used. However, pipes and fittings with ears may be accepted without any extra payment. In such cases, clamps are not required and no extra payment shall be made for fixing the pipes in a different manner.
- 1.12 Any cement slurry added over base surface for bond or for continuation of concreting, for protecting reinforcement bars, its cost shall be deemed to have been included in the respective items, unless specified otherwise and nothing extra shall be payable nor extra cement shall be considered in the cement consumption on this account.
- 1.13 Stacking of materials and excavated earth including its disposal shall be done as per the directions of the Engineer-in-Charge. Double handling of materials or excavated earth if required at any stage shall have to be done by the contractor at his own cost.
- 1.14 No claim for idle establishment & labour, machinery & equipments, tools & plants and the like, for any reason whatsoever, shall be admissible during the execution of work as well as after its completion.
- 1.15 Only Star headed Stainless Steel screws shall be used unless otherwise specified.
- 1.16 Work shall be carried out in professional manner with finished product serving the intended purpose with specified strength, durability and aesthetics.
- 1.17 Work activities shall be executed in well thought out sequences such that consequent activities not adversely affecting previously done work. Nothing extra shall be payable to protect the works already done.
- 1.18 The contractor shall prepare all the needed shop drawings well in advance and get them approved before placing the order and execution of the item.
- 1.19 The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as

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- may be directed by the Engineer - in -Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications.
- 1.20 The contractor shall not store /dump construction material or debris on metalled road.
 - 1.21 The contractor shall get prior approval from Engineer-in-charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic / inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
 - 1.22 The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot / area using CGI sheets or plastic and / or other similar material to ensure that no construction material dust fly outside the plot area.
 - 1.23 The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes / or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicles are properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air / contaminate air.
 - 1.24 The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
 - 1.25 The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to dust emission.
 - 1.26 The contractor shall ensure that C&D waste is transported to the C & D waste site only and due record shall be maintained by the contractor.
 - 1.27 The contractor shall compulsory use of wet jet in grinding and stone cutting.
 - 1.28 The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2020.
 - 1.29 The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
 - 1.30 The contractor shall ensure that all DG sets comply emission norms notified by MoEF.
 - 1.31 The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 kmph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
 - 1.32 The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.
 - 1.33 The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects.
 - 1.34 Every waste generator shall segregate construction and demolition waste and deposit at collection centre or handover it to the authorised processing facilities.
 - 1.35 Shall ensure that there is no littering or deposition so as to prevent obstruction to the traffic or the public or drains.

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- 1.36 Large generators (who generate more than 20 tons or more in one day or 300 tons per project in a month) shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodelling work.
- 1.37 Large generators shall have environment management plan to address the likely environment issues from construction, demolition, storage, transportation process and disposal/reuse of C & D waste.
- 1.38 Large generators shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar.
- 1.39 Large generators shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities.
- 1.40 The agency has to comply "Contractor & Demolition Waste Management Rules, 2016" and nothing extra will be payable.
- 1.41 **All Expenditure to be incurred for testing of samples e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor. The NIT shall have list of approved laboratories for testing as approved by ADG/SDG.**

2.0 FLOORING, SKIRTING, VENEERING, DADO, TREADS & RISERS OF STEPS, JAMBS, SILLS & SOFFITS

- 2.1 ~~Nothing extra shall be payable for using combination of marble, granite and kota in the required pattern at various locations unless otherwise specified.~~
- 2.2 ~~Flooring in toilets, verandah, kitchen, courtyard and at other places if required shall be laid to the required slope/gradient as per the directions of the Engineer in Charge and nothing extra shall be paid on account of the same.~~
- 2.3 ~~The pattern, spacing and locations of joints shall be as per drawings and direction of the Engineer in Charge and nothing extra shall be paid on account of the same.~~

3.0 SPECIALISED ITEMS

3.1 LIST OF SPECIALISED ITEMS:

- ~~1. Water proofing treatment work~~
- ~~2. Steel work in steel bridge work, space frames for long span structures, steel towers.~~
- ~~3. Special foundations including all types of piles.~~
- ~~4. RCC Overhead Tank with independent staging.~~
- ~~5. Structural Repair and Rehabilitation/ Retrofitting works.~~
- ~~6. Soil Investigation and Survey Work.~~
- ~~7. Facade cleaning system and facade cleaning.~~
- ~~8. Custom made wooden furniture (factory made).~~
- ~~9. Diaphragm walls.~~
- ~~10. Post construction Anti termite chemical treatment.~~
- ~~11. Water Treatment Plants.~~
- ~~12. Security to vacant bungalows/premises.~~
- ~~13. Tentage works.~~
- ~~14. Washing/dry cleaning works.~~

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~~15. Synthetic play area surface for games.~~

~~16. Electronic / Digital Signages.~~

~~17. Environment Impact Assessment Study and Environment Clearance.~~

~~18. Mechanized Housekeeping Work.~~

3.2 Procedure for Execution of the Specialized Items:

For these works, Specialized Agencies shall have to be associated by the CPWD / Non CPWD Contractors in case the Contractor does not possess the requisite eligibility and experiences per the NIT conditions to carry out these works.

3.3 Specialized Agencies

3.3.1 Specialized Agencies for items in case of Civil works shall be approved by the competent authority. The contractors shall quote the rates after careful study of contract conditions, specifications, drawings & schedule of quantities.

3.3.2 It shall be the responsibility of main contractor to sort out any dispute / litigation with the Specialized Agencies without any time & cost overrun to the Department. The main contractor shall be solely responsible for settling any dispute / litigation arising out of his agreement with the Specialized Agencies. The contractor shall ensure that the work shall not suffer on account of litigation/ dispute between him and the specialized agencies / sub-contractor(s). No claim of hindrance in the work shall be entertained from the Contractor on this account. No extension of time shall be granted and no claim what so ever, of any kind, shall be entertained from the Contractor on account of delay attributable to the selection/rejection of the Specialized Agencies.

3.3.3 For specialized items, the main contractor cannot work as a specialized agency unless his name is already included in the list of approved specialized agencies for these items. The contractor shall get these items executed through the specialized agencies as approved by competent authority.

3.4 RATES

3.4.1 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, setting lay out on ground, establishment of reference bench mark(s), installing various signage, taking spot levels, survey with total station, construction of all safety and protection devices, compulsory use of helmet and safety shoes, and other appropriate safety gadgets by workers, imparting continuous training for all the workers, barriers, preparatory works, construction of clean, hygienic and well ventilated workers housings in sufficient numbers as per drawing supplied by Engineer in charge, working during monsoon or odd season, working beyond normal hours, working at all depths, height, lead, lift, levels and location etc. and any other unforeseen but essential incidental works required to complete this work. Nothing extra shall be payable on this account and no extension of time for completion of work shall be granted on these accounts.

3.4.2 The rates quoted by the tenderer, shall be firm and inclusive of all taxes and levies (including GST).

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3.4.3 No foreign exchange shall be made available by the Department for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.

3.4.4 All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies etc., protection works, testing facilities / laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to the Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, site office, positioning of machinery, material yard, cement & other storage, fabrication yard, site laboratory, water tank etc.

3.4.5 For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

3.4.6 All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

3.5 CLEANLINESS OF SITE

The Contractor shall not stack building material / malba / muck/ rubbish on the land or road of the local development authority or on the land owned by the others, as the case may be. So the muck, rubbish etc. shall be removed periodically as directed by the Engineer-in-Charge, from the site of work to the approved dumping grounds as per the local byelaws and regulations of the concerned authorities and all necessary permissions in this regard from the local bodies shall be obtained by the Contractor. Nothing extra shall be payable on this account. In case, the Contractor is found stacking the building material / malba as stated above, the Contractor shall be liable to pay the stacking charges / penalty as may be levied by the local body or any other authority and also to face penal action as per the rules, regulations and bye-laws of such body or authority. The Engineer –in-Charge shall be at liberty to recover, such sums due but not paid to the concerned authorities on the above counts, from any sums due to the Contractor including amount of the Security Deposit and performance guarantee in respect of this contract agreement.

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3.6 INSPECTION OF WORK

In addition to the provisions of relevant clauses of the contract, the work shall also be open to inspection by the Chief Engineer, CPWD, Raipur and other senior officers of CPWD in addition of the Engineer-in-Charge and his authorized representative. The contractor shall at times during the usual working hours and at all times at which reasonable notices of the intention of the Engineer-in-Charge or other officers as stated above to visit the works shall have been given to the Contractor, either himself be present to receive the orders and instructions or have a responsible Site Engineer duly accredited in writing, to be present for that purpose Senior Officers of CPWD Authorities shall be inspecting the on-going work at site at any time with or without prior intimation.

4 CO-OPERATION WITH OTHER CONTRACTORS/SPECIALIZED AGENCIES / SUB-CONTRACTORS

4.1 The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general. The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipments for execution of the work, so as to cause minimum environmental pollution of any kind during construction. Further, the Contractor shall take all precautions to abide by the environmental related restrictions imposed by Chhattisgarh Environment Conservation Board, Raipur (C.G.)

Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim what so ever on account of site constraints mentioned above or any other site constraints, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of construction machinery spare parts and any other constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Tenderers are advised to visit site and get first-hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

4.2 The Contractor shall cooperate with and provide the facilities to the sub-Contractors and other agencies working at site for smooth execution of the work. The contractor shall indemnify the NIBSM, Raipur (C.G.).

4.3 Against any claim(s) arising out of such disputes. The Contractor shall:

- (i) Allow use of scaffolding, toilets, sheds etc.
- (ii) Properly co-ordinate their work with the work of other Contractors.
- (iii) Provide control lines and benchmarks to his Sub-Contractors and the other Contractors.
- (iv) Provide electricity and water at mutually agreed rates.
- (v) Provide hoist and crane facilities for lifting material at mutually agreed rates.

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- (vi) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
- (vii) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.
- (viii) Resolve the disputes with other Contractors/ sub-contractors amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator.

4.4 The work should be planned in a systematic manner so as to ensure proper co-ordination of various disciplines viz. sanitary & water supply, drainage, rain water harvesting, electrical, fire fighting, information technology, communication & electronics and any other services.

4.5 Other agencies will also simultaneously execute and install the works of sub-station / generating sets, air-conditioning, lifts, etc. for the work and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings trenches etc. as may be required for such related works (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be supplied free of cost by the department unless otherwise specifically mentioned) and the contractor shall fix the same at time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.

4.6 The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-In-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and in a proper co -ordination manner and shall perform it in proper sequence to the complete satisfaction of others.

5 CONDITION FOR CEMENT :-

- 5.1 The Contractor shall procure 43 grade Ordinary Portland cement (conforming to IS : 8112) or Portland Pozzolana Cement (PPC) (Fly ash based) – conforming to IS : 1489 (Part-I) as required in the work, from reputed manufactures of cement such as ACC, Ultratech, Ambuja, Jaypee Cement & J.K. Cement or from any other reputed cement Manufacturer having a production capacity not less than one million tonnes per annum as approved by competent authority.

The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacture(s) which the contractor proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturer, given by the tenderer, fully or partially.

Supply of cement shall be taken in 50 Kg bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got issue in accordance with provisions of relevant BIS codes. In case test results indicate that the cement arranged by the Contractor does not conform to the relevant BIS codes, the same shall stand rejected and shall be removed from the site by the Contractor at his own cost within a week's time of written order from the Engineer-in-charge to do so.

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If Portland Pozzolana cement or Portland slag cement is used, suitable modification in de-shuttering time etc. shall be done if need be as per specifications and standards and as directed by Engineer – in – charge and nothing extra shall be payable on this account.

No extra payment / deduction shall be made from the payment to the contractor for using any of the above type of cement.

5.2 The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer - in - charge.

5.3 The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer-in-Charge. The cement godowns of the capacity to store a minimum of 2000 bags of cement shall be constructed by the contractor at site of work for which no extra payment shall be made.

Double lock provision shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer-in-charge or his authorized representative and the key of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge at any time.

5.4 The cement shall be got tested by Engineer –in –Charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the cement required for testing including its transportation cost to testing laboratories. The cost of tests shall be borne by the contractor

5.4.1 All other charges of sampling, packing and transportation of sample shall also be borne by the Contractor.

5.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained separately for each type of cement, as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by conditions laid therein. However, for consumption lesser beyond permissible theoretical variation recovery shall be made in accordance with conditions of contract at Schedule A to F (CPWD-7), without prejudice to action for acceptance of work/item at reduced rate or rejection as the case may be. In case of excess consumption no adjustment shall be made.

5.6 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-charge.

5.7 The damaged cement shall be removed from site immediately by the contractor on receipt of notice in writing from the Engineer-in Charge. If he does not do so within 3 (three) days of receipt of such notice, the Engineer-in-charge shall get it removed at the cost of the contractor.

5.8 in case contractor is permitted to use Portland Pozzolona Cement (PPC) then:-

- a) The base price of cement OPC (43 Grade) shall be reduced by **Rs. 500.00** per M.T.
- b) The recovery @**Rs. 25 (Rupees twenty five)** per bag of 50Kg shall be made in each running account and final bill for using cement (PPC) instead of cement (OPC) 43 grade.

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• **SPECIAL CONDITIONS FOR TMT STEEL/Low Alloy Steel:-**

The Contractor shall procure IS marked TMT reinforcement bars of various grades of Bar Set I conforming to the criteria mentioned in OM No. CSQ / SE (TAS) / EE(TAD) / Steel /2021/50-H dated 17.02.2021 & in the OM No. CSQ/SE(TAS)/Steel/2024/262-H dated 14/08/2024 issued by CPWD Directorate and this tender document only from Reputed Steel manufacturers such as SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and JSW Steel Ltd.

- a) For reinforced cement concrete or pre-stressed concrete works, the reinforcement bars shall consist of the following grades conforming to IS 1786: 2008 (Indian Standard specification for high strength deformed steel bars and wires for concrete reinforcement): Fe 500D or more grade.
- b) The contract shall obtain manufacturer's certificate stating the process of manufacturer, chemical composition and test sheet giving result of each mechanical test applicable to the material purchased and submit it to the Engineer-in-Charge. Each test certificate shall indicate the number of the cast to which it applies corresponding to the number or identification mark to be found on the material.
- a. The steel reinforcement bars shall be brought to the site in bulk supply of ten tones or more as decided by the Engineer-in-charge.
- b. The steel reinforcement shall be **stored by the contractor at site of work in such a way as to prevent distortion and corrosion** and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking. All reinforcement bars should be made corrosion resistant by applying suitable coating so as to be fit for use in coastal region. Nothing extra shall be paid on this account.
- c. For checking nominal mass, tensile strength, bend test, re-bend test etc. specimen of sufficient length shall be cut from each size of the bar at random at frequency not less than that specified below:

Size of bar	For consignment 100tonnes below	For consignment above 100tonnes
Under 10 mm dia bars	One sample for each 25 Tones or part thereof.	One sample for each 40 Tones or part thereof.
10mm to 16mm Dia bars	One sample for each 45 tonnes or part thereof.	One sample for each 50 Tones or part thereof.
Over 16 mm dia bars	One sample for each 50tonnes or part thereof.	One sample for each 75 Tones or part thereof.

- d. The contractor shall supply free of charge the steel required for testing including transportation to testing laboratories. The cost of tests shall be borne by the contractor.
- e. The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as procedure prescribed in **clause 38** of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations leading to under designing of the structural. The work shall be summarily rejected, otherwise recovery at the rate so prescribed shall be made after ensuring structural soundness and stability. In case of excess consumption no adjustment need to be made.
- f. The steel brought to site and the steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.
- g. The contractor shall submit original vouchers from the manufacturer for the total quantity

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of steel supplied under each consignment to be used in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and Test Certificates and furnish the same to the Engineer-in-Charge in respect of all the lots of steel brought by him from approved supplier to the site of work. The original vouchers and test certificates shall be defaced by the Site staff and kept on recording the site office.

- h. Reinforcement including authorized spacer bars and laps shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured.
- i. The standard sectional weights referred to as in Table 5.4 in para 5.3.4 in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, Steel Bars and T.M.T. bars in to Standard Weight.
- j. Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However for the stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors' accounts will be debited by the cost of modified quantity.
- k. (a) If the Derived Weight as in sub-para above is less than the Standard Weight as in Sub-para above then the Derived Actual Weight shall be taken for payment provided, if it is within the following tolerances specified in IS 1786-2008, otherwise whole lot will be rejected.

Tolerances on Nominal Mass

Nominal Size in mm	Tolerance on Nominal mass Percent		
	Batch	Individual Sample*	Individual sample for oil**
a)Upto and including10	±7	-8	±8
b)Over10 upto and Including 16	±5	-6	±6
c)Over16	±3	-4	±4

* For individual sample plus tolerance is not specified.

**For coils batch tolerance is not specified.

- (b) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in sub-para above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight. The standard weight of TMT bars in CPWD specification will be considered for CRS bars standard weight.

1. The following procedure should be followed in case of removal of rejected/sub-standard materials from the site of work.

- i) Whenever any material brought by the contractor to the site of work is rejected, entry thereof should invariably be made in the site order book under the signature of the AE/AEE giving approximate quantity of such materials.

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- ii) As soon as the material is removed, a certificate to that effect may be recorded by the AE/AEE against the original entry, giving the date of removal a mode of removal i.e. whether by truck, carts or by manual labour. If removal is by truck, the registration number of the truck should be recorded.
- iii) When it is not possible for the AE/AEE to be present at the site of work at the time of actual removal of the rejected/sub-standard materials from the site the required certificate should be recorded by the Junior Engineer and the AE/AEE should countersign the certificate recorded by the Junior Engineer.

6. * Jurisdiction of Courts:-

The Court of the place from where the letter of award of work has been issued shall have the jurisdiction to decide any dispute arising out of or in respect of the contract.

In the case of Arbitration, if arise, the seat of Arbitration shall be considered Raipur.

7. (i) CPWD does not have funds of its own and it carries out the works of client departments from their funds (deposit, budgetary, authorization). The CPWD is making payments to the contractors after getting budget / authorization / deposit from various Ministries / Client Departments. The payment to the contractor can be done only on availability of funds for that work from client department and in case of delay in getting funds from Ministry / Client Department, CPWD will not be responsible for delay in payment and no any extra compensation on this account shall be granted apart from specified elsewhere in this document. The contractor has to quote his tender accordingly considering this aspect.
- (ii) In case of delay in release of payment of R.A. bill's by the Deptt. Due to non-availability of funds or other reasons, contractor has to pay all labour / workers engaged on the work shall be paid on time without any delay, delay in payment to the contractor shall be governed by Clause 7 of GCC, CPWD, 2023.

8.0 REINFORCED CEMENT CONCRETE WORK

8.1 DESIGN MIX CONCRETE

- 8.1.1 The RCC work shall be done with Design Mix Concrete unless otherwise specified. In the nomenclature of items wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. For the nominal mix in RCC, CPWD Specifications shall be followed. The Design Mix Concrete will be designed based on the principles given in IS: 456-2000. The contractor shall design mixes for each grade of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirements specified. In case of use of admixture and or white cement, the mix shall be designed with these ingredients as well.

- 8.1.2 The concrete mix design will be carried out by the contractor through any IITs/NITs or other Govt. Engineering College approved by the Engineer-in-Charge/ Laboratory as approved by ADG, CPWD, Bhopal.

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- 8.1.3 In the event of all the above laboratories being unable to carry out the requisite design / testing the contractor shall have to get the same done from any other laboratory with prior approval of the Engineer-in-Charge.
- 8.1.4 The contractor shall submit the mix design report from any of above approved laboratories for approval of Engineer-in-Charge within 45 days from the date of issue of letter of acceptance of the tender.
- 8.1.5 In case of white Portland cement and the likely use of admixtures where CC/RCC is done with concrete pumps in concrete with ordinary Portland/white Portland cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and /or admixtures also, for which nothing extra shall be payable.
- 8.1.6 Each time when there is change of source or characteristic properties of the ingredients used in the concrete mix during the work, a revised mix design shall be done and approval obtained from the approved Laboratory or as per the direction of the Engineer-in-Charge. Preferably only single source of cement shall be kept for the work. In case contractor decides to use more than one source of approved cement brand then for each brand separate design mix shall be done and got approved by Engineer-in-charge.
- 8.1.7 The Mix shall be designed to produce the grade of concrete having required workability and characteristic strength not less than as specified.
- 8.1.8 The mix design for a specified grade of concrete shall be done for a target mean compressive strength $T_{ck} = F_{ck} + 1.65 S$

Where,

F_{ck} = Characteristic compressive strength at 28 days.

S= Standard deviation

The standard deviation for each grade of concrete shall be calculated separately.

The degree of quality control for this work is “Good” for which the standard deviation (s) obtained for different grades of concrete shall be as follows:-

Grade of Concrete	For “Good” quality of control
M 20	4.0
M 25	4.0
M 30	5.0
M 35	5.0

- 8.1.9 Out of the six specimen of each set, three shall be tested at seven days and remaining three at 28 days. The preliminary tests at seven days are intended only to indicate the strength likely to be attained at 28 days. All cost of mix designing and testing connected therewith including charges payable to laboratory shall be borne by the Contractor.
- 8.1.10 The samples of cement, aggregate (fine & coarse) to be sent to the laboratories shall be sealed in the presence of the Engineer- in -Charge and shall have his signature and cost of packaging, sealing, transportation, loading, unloading, cost of samples and the testing charges for Mix design in all cases shall be borne by the contractor.

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- 8.1.11 Notwithstanding the approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc.
- 8.1.12 The Engineer-in-Charge reserves the right to exercise control over the ingredients, water and admixtures, purchased, stored and to be used in the concrete including conducting of tests for checking quality of materials fit or unfit for use in production of mix.
- 8.1.13 The Contractor shall submit the test data of the material used for concrete mix-design in the laboratories, so the material being used at site can be compared with those data / size etc.
- 8.1.14 In case of change of parameters of ingredients (sand, cement, coarse aggregate) fresh concrete mix-design to be done as mentioned in paras 9.1.1, 9.1.2 & 9.1.6 to 9.1.10 above and got approved from the Engineer-in-Charge before execution.
- 8.1.15 The contractor shall make arrangement to install a mini laboratory at site for accelerated testing of design mix concrete as per IS : 9013. The department reserves right to take samples of design mix concrete from the mass production of the concrete for testing and compare with the laboratory's results.
- 8.1.16 Nothing shall be paid extra for installation and cost of batching plant and other arrangement for making necessary test of design mix concrete.
- 8.1.17 The item of design mix cement concrete shall be inclusive of all the ingredients including admixtures if required, labour, machinery T & P etc. (except shuttering which will be measured & paid for separately) required for a design mix concrete of required strength and workability.
- 8.1.18 Concrete shall be handled from the place of mixing to the place of final deposit / placement by methods, which prevent segregation, or loss of any ingredients and contamination.
- 8.1.19 Where concrete is conveyed by chutes, the chute shall be made of metal or fitted with metal lining. The approval of the Engineer-in-charge shall be obtained for the use of chutes in excess of 3 metres length and in such cases the concrete shall be remixed if so required by the Engineer-in-Charge or closed bottom buckets shall be used. If concrete is placed by pumping, the conduit shall be primed properly. Once pumping is started, it shall not be interrupted as far as possible. Concrete shall not be dropped into place from a height more than 1.5m.
- 8.1.20 Concreting of any portion of the work shall be done in presence of the representative of the Engineer-in-Charge and shall be done only after approval of the Engineer-in-Charge.
- 8.1.21 Concreting shall be carried out continuously between constructions joints shown on the drawings or as agreed by the Engineer-in-Charge. The contractor shall closely follow the sequence of concreting where it is specified in the drawings. If concreting is interrupted before reaching the predetermined joint an approved construction joint shall be provided. Construction joints shall be minimized as far as possible. These shall be set at right angles to the general direction of the member. The surface film of the first placed concrete should preferably be removed while the concrete is still green to expose the aggregate and leave a sound irregular surface. However care shall be taken not to disturb the concrete already laid.
- 8.1.22 **Admixtures:** Wherever required, admixtures of approved quality only shall be mixed with concrete as specified. The admixtures shall conform to IS: 9103. The

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chloride content in the admixture shall satisfy the requirements of BS: 5075. The total amount of chlorides in the admixture mixed concrete shall also satisfy the requirements of IS 456-2000.

- 8.1.23 Use of ready mixed concrete (RMC) may also be permitted, with prior approval of Engineer –in – Charge, without any extra payment. Separate account of design mix concrete and RMC shall however be kept. The ready mixed concrete shall conform to the requirement of durability, workability and strength as laid down for design mix concrete.

8.2 Use of Fly Ash and Fly Ash Blended Cements in RCC Structures:-

8.2.1. General

8.2.1.1 IS : 456-2000 Code of Practice for plain and Reinforced Concrete (as amended up to date) shall be followed in regard to Concrete mix Proportion and its production as under :-

8.2.1.1.1 The concrete mix design shall be done as “Design Mix Concrete” as prescribed in clause – 9 of IS 456 mentioned above.

8.2.1.1.2 Concrete shall be manufactured in accordance with clause 10 of above mentioned IS : 456 covering quality assurance measures both technical and organizational, which shall also necessarily require a qualified Concrete Technologist to be available during manufacture of concrete for certification of quality of concrete.

8.2.1.2 Minimum M25 grade of concrete shall be used in all structural elements made with RCC both in load bearing and framed structure.

8.2.1.3 The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of flyash mixed concrete or concrete using flyash blended cements (PPCs) should not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC. Fly ash when used in the production of concrete shall be strictly in conformity with IS : 3812 (Para 1 & 10).

8.2.1.4 To control higher rate of carbonation in early ages of concrete both in flyash admixed as well as PPC based concrete, water / binder ratio shall be kept as low as possible, which shall be closely monitored during concrete manufacture. If necessitated due to low water / binder ratio, required workability shall be achieved by use of chloride free chemical admixtures conforming to IS : 9103. The compatibility of chemical admixtures and super plasticizers with each set OPC, fly ash and / or PPC received from different sources shall be ensured by trials.

8.2.1.5 In environment subjected to aggressive chloride or sulphate attack in particular, use of flyash admixed or PPC based concrete is recommended. In cases, where structural concrete is exposed to excessive magnesium sulphate, flyash substitution / content shall be limited to 18% by weight. Special type of cement with low C3A content may also be alternatively used. Durability criteria like minimum binder content and maximum water / binder ratio also need to be given due consideration in such environment.

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8.2.1.6 Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot and arid regions, the minimum curing period shall be 14 days or its equivalent.

8.2.2. Use of Flyash Admixed Cement Concrete (FACC) in RCC Structures:-
There shall be no bar on use of FACC in RCC structures subject to following additional conditions :-

8.2.2.1 Flyash shall have its chemical characteristics and physical requirements etc. conforming to IS : 3812 (Part-10) and shall be duly certified.

8.2.2.2 To ensure uniform blending of flyash with cement in conformity with IS : 456, a specific facility needs to be created at site with complete computerized automated process control to achieve design quality or with similar facility from Ready Mix concrete (RMC) plants.

8.2.2.3 As per IS : 1489 (Part-I), Maximum 35% of OPC by mass is permitted to be substituted with flyash conforming to IS : 3812 (Part-I) and same is reiterated.

8.2.2.4 Separate storage for dry flyash shall be provided. Storage bins or silos shall be weather proof and permit a free flow and efficient discharge of flysh. The filter or dust control system provided in the bins or silos shall be of sufficient size to allow delivery of flyash maintained at specified pressure to prevent undue emission of flyash dust, which may interfere weighing accuracy.

8.2.3. Use of Fly Ash Blended Cements in Cement Concrete (PPCC) in RCC structures

8.2.3.1 Subject to General Guidelines detailed out as above, PPC manufactured conforming to IS: 1489 (Part-I) shall be treated at par with OPC for manufacture of Design Mix Concrete for structural use in RCC.

8.2.3.2 Till the time, BIS makes it mandatory to print the %age of flyash on each bag of cement, the certificate from the PPC manufacturer indicating the same shall be insisted upon before allowing use of such cements in works.

8.2.3.3 While using PPC for structural concrete work, no further admixing of fly ash shall be permitted.

8.3 CONDITIONS FOR RCC WORKS READY MIX CONCRETE

- Following parameters shall be adopted for mix design in a Moderate Exposure. i. Nominal Maximum size of aggregate 20 mm angular as per C.P.W.D. specification ii. Degree of quality control Good iii. Type of Exposure Moderate iv. Maximum water cement ratio 0.50 v. Cement content a) 330 kg/cum of concrete for M-25 Grade b) 340 kg/cum of concrete for M-30 Grade vi. Type of cement used. PPC conforming to IS:1489 Part-I vii. Sand Coarse sand as per C.P.W.D. specifications. viii. Chemical Admixture As per IS : 9103
- Approved admixtures conforming to IS:9103 shall be permitted to be used. The chloride content in the admixture shall satisfy the requirement of BIS 5075. The total amount of chloride content in the admixture mixed concrete shall satisfy the requirement of IS:456-2000. Fly ash shall not be used in R.C.C.

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3. The concrete mix design with and without admixture will be got carried out by the contractor through laboratories/ Test houses, approved by Engineer-in-charge.
4. The various ingredients of mix design/ laboratory tests shall be sent to the lab/ test houses through the Engineer-in-charge and the samples of such ingredients sent shall be preserved at site by the department till completion of work. The sample shall be taken from the approved materials which are proposed to be used in the work.
5. The contractor shall submit the mix design report from approved laboratory and get approval of Engineer-in-charge. No concreting shall be done without prior approval of the mix design by the Engineer-in-charge.
6. The contractor shall make cubes of trial mixes as per approved mix design at site laboratory for all grades of concrete in presence of the Engineer-in-charge using same ingredients as adopted to design mix, prior to commencement of concreting and get them tested in presence of Engineer-in-charge for 7 day and 28 days.
7. For each change of source/ quality/ characteristic properties of the ingredients from that approved & used in the concrete mix during the work, a fresh mix design shall be got done by the contractor from the approved laboratory. Revised trial mix test shall be conducted at laboratory established at site and shall be submitted by the contractor as per the direction of the Engineer-in-charge.
8. The cost of packaging, sealing, transportation, loading, unloading, cost of samples and the testing charges for mix design in all cases shall be borne by the contractor.
9. The rate for the item of Ready mix concrete shall be inclusive of all the ingredients including admixtures if required, labour, placing, curing, compacting, pumping, machinery, T&P etc. (except shuttering which will be measured & paid for separately) required for a design mix concrete of required strength and workability. The rate quoted by the agency shall be net and nothing extra shall be payable on account of change of quantities of concrete ingredients like aggregates and admixtures etc. as per the approved mix design. If cement used as per approved mix design is less than that as stipulated in the item i.e. 330 Kg/cum for M-25 and 340 Kg/cum for M-30 grade of RMC/DMC respectively then recovery for less use of cement than stipulated in the item shall be made @ Rs. 5.84 per kg of cement and nothing extra shall be payable for use of cement more than 330 kg/cum or 340 Kg/cum of R.M.C./Design Mix Concrete of M-25 and M-30 grade respectively.
10. The contractor shall engage Ready Mix Concrete (RMC) producing plants to supply RMC for the work. The RMC plant proposed to be engaged by the contractor shall fulfill the following requirements: i) It shall be fully computerized ii) It should have supplied RMC for Government/ Public undertaking/ Local bodies projects of similar magnitude. iii) It should have facility for providing printed dispatch slips showing ingredients of concrete carried by each mixer.

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11. The contractor shall within 15 days of award of the work, submit list of at least two RMC plant companies of repute along with details of such plants including details of transit mixer, pumps etc. to be deployed indicating name of owner company, its location, capacity, technical establishment, past experience and text of M.O.U. proposed to be entered between purchaser (the contractor) and supplier (R.M.C. plant) to the Engineer-in-charge who shall give approval in writing (subject to drawl of M.O.U.). The contractor shall draw M.O.U. with approved R.M.C. Plant owner and submit to Engineer-in-charge within a week of such approval. The contractor will not be allowed to purchase ready mix concrete without completion of above stated formalities for use in this project. Notwithstanding the approval granted by Engineer-in-charge in aforesaid manner, the Contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc. The Engineer-in-charge or his representative Engineer will reserve the right to inspect the plant at any stage and reject the concrete if he is not satisfied about quality of product. The contractor should therefore, draw M.O.U./ agreement with R.M.C. owner/ company very carefully keeping all terms and conditions/ specifications forming a part of this tender document.
12. The Engineer-in-charge reserves the right to cancel the approval of plant with or without assigning any reason.
13. The Engineer-in-charge reserve the right to exercise control over the:-
 - i. Ingredients, water and admixtures purchased, stored and to be used in the concrete including conducting of tests for checking quality of materials, recordings of test results and declaring the materials fit or unfit for use in production of mix.
 - ii. Calibration check of the R.M.C.
 - iii. Weight and quantity check on the ingredients, water and admixtures added in batch mixing.
 - iv. Time of mixing of concrete.
 - v. Testing of fresh concrete, recordings of results and declaring the mix fit or unfit for use. This will include continuous control on the workability during production and taking corrective action. For exercising such control, the Engineer-in-charge shall periodically depute his authorized representative at the RMC plant. It shall be responsibility of the contractor to ensure that all necessary equipment, manpower & facilities are made available to Engineer-in-charge/ his representative at R.M.C. plant.
14. Ingredients, admixtures & water declared unfit for use in production of mix shall not be used. A batch mix found unfit for use shall not be loaded into the truck for transportation.
15. All required relevant records of R.M.C. shall be made available to the Engineer-incharge or his authorized representative. Engineer-in-charge shall, as required, specify guidelines & additional procedures for quality control & other parameters in respect of materials & production and transportation of concrete mix which shall be binding on the contractor & the R.M.C. plant.

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16. PPC (Conforming to IS: 1489 Part-I) of brand/ make/ source as approved by Engineer-in-charge shall only be use for production of concrete.
17. **QUALITY CONTROL OF READY – MIXED CONCRETE** It shall be the responsibility of the contractor to ensure that the RMC producer provides all necessary testing equipments and takes all necessary measures to ensure quality control of ready-mixed concrete. In general the required measures shall be :-
- i. **CONTROL OF PURCHASED MATERIAL QUALITY R.M.C.** producer shall ensure that all the materials purchased and used in the production of concrete conform to the stipulation of the relevant agreed standards with the materials supplier and the requirements of the products, mix design and quality control procedures. This shall be accomplished by visual checks, sampling and testing, certification from material supplier and information/ data for material supplier. Necessary equipment for the testing of all material shall be provided and maintained in calibrated condition at the plant by the R.M.C. producer.
 - ii. **CONTROL OF MATERIAL STORAGE** Adequate and effective storage arrangement shall be provided by RMC producer at RMC plant for prevention of contamination, reliable transfer and feed systems, drainage of aggregates, prevention of freezing or excessive solar heating of aggregate etc.
 - iii. **COMPUTER PRINT OUTS OF EACH TRUCK LOAD** Each truckload transit mixer dispatched to site shall carry computer printout of the ingredients of the concrete it is carrying. The printout shall be produced to Engineer-in-charge or his representative at site before R.M.C. is used in work.
 - iv. **TRANSFER AND WEIGHING EQUIPMENT R.M.C.** producer shall ensure that a documented calibration is in place. Proper calibration records shall be made available indicating date of next calibration due, corrective action taken etc. RMC producer shall ensure additional calibration checks whenever required by Engineer-in-charge in writing to contractor. R.M.C. producer shall also maintain a daily production record including details of customers to whom R.M.C. was supplied including details of mixes supplied. Record shall also be maintained of what materials were used for the day's production including water and admixtures. The accuracy of measuring equipment shall be within +2% of quantity of cement, (-) 3% of quantity of aggregate, admixture and water being measured.
 - v. **MAINTENANCE OF PLANT, TRUCK MIXERS AND PUMPS** Plant, Truck, Mixers and pumps should be well maintained so that it does not hamper any operation of production, transportation and placement.

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- vi. **PRODUCTION OF CONCRETE:-** The following precautions shall be taken during the production of RMC at the plant.
- i. Weighing (correct reading of batch data and accurate weighing):- For each load, written, printed or graphical records shall be made of the weights of the materials batched, the estimated slump, the total amount of water added to the load, the delivery tickets number for that load and the time of loading the concrete into the truck.
 - ii. Visual observation of concrete during production and delivery or during sampling and testing of fresh concrete, assessment of uniformity, cohesion, workability, adjustment to water content:- The workability of the concrete shall be controlled on a continuous basis during production. The batch mix found unfit shall not be loaded into the truck for transportation. Necessary corrective action shall be taken in the production of mix as required for further batches.
 - iii. Use of adequate equipment at the plant to measure surface moisture content of aggregates, particularly fine aggregate and the workability of the concrete, cube tests etc. shall also be ensured.
 - iv. Making corresponding adjustment at the plant automatically or manually to batched quantities to allow for observed, measured or reported changes in materials or concrete qualities.
 - v. Sampling of concrete, testing, monitoring of results.
 - vi. Diagnosis and correction of faults identified from observations/ complaints. The RMC plant produced concrete shall be accepted by Engineer-in-charge at site after receipt of the same after fulfilling all the requirements of mix mentioned in the tender documents.
18. Ready mix concrete shall be arranged in quantity as required at site of work. The ready mix concrete shall be supplied as per the pre-agreed schedule approved by Engineer-in-charge.
19. If so required by the Engineer-in-charge, the RMC producer shall provide separate storage space/ godowns for storage of materials approved by Engineer-in-charge for the design mix concrete.
20. Frequency of sampling and standard of acceptance shall be as per CPWD Specifications for design mix concrete.
21. The RMC shall be placed by pump of suitable capacity and the contractor shall arrange sufficient length of pipe at site to place the RMC in the minimum required time. The contractors shall co-ordinate with R.M.C. supplier and pump hirer to have effective concrete placement. Nothing extra shall be paid for placing of concrete through concrete pump.

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22. The representative of R.M.C. supplier shall attend the site meeting as and when decided by the Engineer-in-charge.
- The contractor shall assess the quantity of R.M.C. requirement at site well in advance and order accordingly to the R.M.C. supplier. In case excess R.M.C. is received at site, the department shall not be under any obligation to get the extra quantity utilized and no payment for such R.M.C. shall be made.
 - The contractor shall have to employ labour in shifts to ensure continuous casting of slabs and other RCC members. No extra payment on this account shall be made.
23. The department will recommend to the Traffic Police to issue permits for the entry of the vehicles through the area of no entry zone to the working area. However, absence of such permits will not be cause for delay in completion of the work.

9.0 PARTICULAR SPECIFICATIONS FOR AAC BLOCK MASONRY:

- The AAC Blocks shall be procured from approved manufacturers.
- The blocks shall be stored at site in stacks on a level dry surface.
- The mortar used for joining the blocks shall be mixed in the proportion 1:4 (1 Cement : 4 coarse sand) by volume.
- The thickness of joints in the masonry shall not exceed 10 mm and shall be of uniform thickness.
- Maximum height of wall built on any day shall not be more than 1.2 metres (i.e. 6 layers).
- The joints in the masonry shall be recessed and no flush pointing shall be done.
- A slip membrane with PVC sheet shall be introduced as per the recommendation of blocks manufacturer before laying the first course on the plinth beam.
- The blocks shall not be soaked in water and instead they shall be dipped in water and taken out immediately to have only moist surface.
- The vertical joints of the masonry shall be broken to have a minimum overlap of 100 mm.
- Bed joint 2 Nos 6mm dia reinforcement bars may be placed in the joints after every 3rd course in two successive layers as per the recommendation of the manufacturers to have good lateral stability.
- It shall be ensured that the lintels are rest at either end of window opening only on full block and not on half or part blocks reinforcement shall be placed in the sill course of window openings in two successive horizontal joints and extend the same at least to 600 mm on either side of the jamb surface.
- At a RCC column interface an MS anchor ("L" shape) may be placed and fixed with screws at every 4th course so as to anchor the wall with RCC column for better lateral stability. The anchor shall be got approved from Engineer-in-Charge.
- Curing of the masonry shall be done only by spraying water and no flooding shall be done by water jets / buckets.

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- 9.14 The chases in the wall surface for electrical conduits shall be done only by means of electrically operated saw to cut two parallel lines and the portion between the cuts shall be chiseled carefully. The depth of vertical chases should be limited to 1/3 rd of wall thickness and horizontal chases should not be more than 1/6th of wall thickness. The chases have to be properly packed with cement mortar 1:4 (1 cement: 4 sand) between pipes and chases.
- 9.15 The blocks shall be cut using a carpenter saw to have half blocks or any other suitable size block to close the masonry course or to break the vertical joint from the bottom course. Hammer or a masons trowel shall not be used to cut the blocks.
- 9.16 GI wire mesh shall be fixed on all column wall and beams- wall junctions before taking up the plaster work.
- 9.17 The rates of the item include all the elements described above.

10.0 EQUIPMENTS AND PLANTS (Refer Clause 18 of Schedule 'F')

- 10.1 The contractor has to deploy necessary tools & plants in required numbers to ensure smooth & timely execution of work, at his own cost & risk as per the requirement of work at different stages. The decision of Engineer-in-Charge shall be final regarding use of particular T&P(s) at a particular time(s) & the contractor has to adhere to the same strictly. The description & quantum of T&P is given for general guidance which is not mandatory. However, the successful contractor shall give a list of tools and plants which he proposes to deploy to ensure smooth and timely execution as per different milestone fixed and timely completion of work while submitting the programme and progress chart.
- 10.2 To achieve the program of work as per programme the contractor must bring at site the required shuttering materials required for cement concrete and RCC work etc. within 30 days from the date of start of work. All other equipments shall be brought, installed and commissioned at site of work at least one week before their actual planned use at site. Work shop facilities for fabrication/addition and alterations, and other allied works shall be arranged by the contractor at his own cost.
- 10.3 The list of equipment/T&P/machinery as per para 11.1 is for general guidance. In addition to these, machinery / equipment as required shall be arranged by the contractor in case the requirement at any stage exceeds as per the programme finalized at his own cost and nothing extra whatsoever on this account shall be paid. This include equipment for arrangement of concrete from RMC producing plants also.
- 10.4 All the equipment, T&P and machinery shall be kept in good condition.

11.0 SAFETY MEASURES AT CONSTRUCTION SITE

In order to ensure safe construction, following shall be adhered for strict compliance at the site:-

- (i) The work site shall be properly barricaded.
- (ii) Adequate singnages indicating 'Work in Progress – Inconvenience caused is Regretted' or Diversion Signs shall be put on the sites conspicuously visible to the public even during night hours. These are extremely essential where works are carried out at public places in use by the public.

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- (iii) The construction malba at site shall be regularly removed on daily basis.
- (iv) All field officials and the workers must be provided with safety helmets, safety shoes and safety belts.
- (v) Proper MS pipe scaffoldings with work – platforms and easy-access ladders shall be provided at site to avoid accidents.

Necessary First-Aid kit shall be available at the site.

The above provisions shall be followed in addition to the provisions of General Condition of Contract.

12.0 LIST OF EQUIPMENT FOR SITE LABORATORY TO BE MADE AVAILABLE BY THE CONTRACTOR AT HIS OWN COST (Refer Clause 10 A of Schedule 'F')

Laboratory testing instruments.

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.
1. Ovens-electrically operated, thermostatically controlled upto 110°C - sensitivity 1°C.
2. Sieves: as per IS 460-1962.
 - (i) I.S. sieves - 450mm internal dia, of sizes 100 mm, 80 mm, 63mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75mm, 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.
3. Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.
4. Equipment for slump test- Slump cone, steel plate, tamping rod, steel scale, scoop.
5. Dial gauges, 25 mm travel - 0.01 mm/division least count - 2nos.
6. 100 tonnes compression testing machine, electrical-cum manually operated.
7. Graduated measuring cylinders 200 ml capacity - 3 Nos.
8. Enamel trays (for efflorescence test for bricks).
 - (i) 300 mm × 250 mm × 40 mm- 2 nos.
 - (ii) Circular plates of 250 mm dia - 4 nos.

- A. **Field testing instruments:** The testing instruments in sufficient quantity as directed by the Engineer- in- Charge shall be made available by the contractor. It shall be ensured that the instruments always remain in serviceable condition else the same will be replaced.

FIELD TESTING INSTRUMENTS

1. Steel tapes - 3 m
2. Vernier calipers
3. Micrometer screw 25 mm gauge

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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)

13.0 SPECIFICATIONS FOR FLY ASH BRICKS - All fly ash bricks as brought to the site shall conform to the strength & durability parameters as prescribed in the tender and CPWD specifications.

14.0 The contractor shall submit 'Method Statement' for the approval soon after the award of work. 'Method Statement' is a statement by which the construction procedures for important activities of construction are stated, checked and approved. Method Statement shall have description of the item with elaborate procedures in steps to implement the same. The specification of the materials involved their testing and acceptance criteria, equipments to be used, precautions to be taken, mode of measurements etc.

15.0 TESTING OF MATERIALS.

- 15.1 The contractor shall arrange carrying out of all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including fee for testing unless specified otherwise. In all cases cost of samples and to & fro carriage shall be borne by the contractor. Contractor shall establish a laboratory at site of work at his own cost. The laboratory shall be equipped with all necessary equipment as per requirement of specification or as per direction of Engineer-in-Charge. A list of laboratory equipments to be maintained by the contractor is as per SOP 2022. Annexure 53 page 259. **Establishing.** The laboratory at site shall not absolve the contractor from fulfilling the criteria of getting the test done in independent approved laboratories as per **SOP- 2022, 5/16 Page No. 53.** The decision of the Engineer-in-Charge of allowing any test in the site laboratory shall be final.
- 15.2 Even ISI marked materials may be subjected to quality test at the discretion of the Engineer-in-charge besides testing of other materials as per the specifications described for the item/material. Whenever ISI marked materials are brought to the site of work the contractor shall, if required by the Engineer-in-charge, furnish manufacturer test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfy the provisions if IS codes relevant to the material and/or the work done.

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- 15.3 Sub-standard Material/Work : In case any material/work is found substandard the same shall be rejected by the Engineer-in-Charge and the same shall be removed from the site of work within 48 hour, failing which the same shall be got removed by the Engineer-in-Charge at the risk and cost of the contractor without giving any further notice and time.

16.0 CONDITIONS OF CONTRACT SPECIFIC TO GREEN BUILDING PRACTICES

The contractor shall strictly adhere to the following conditions as part of his contractual obligations:

16.1 SITE

- 16.1.1 The contractor shall ensure that adequate measures are taken for the prevention of erosion of the top soil during the construction. The contractor shall prepare and implement the Erosion and Sedimentation Control Plan (ESCP) provided to him after approval by the Engineer-in-Charge as part of the larger Construction Management Plan

(CMP). The contractor shall obtain the Erosion and Sedimentation Control Plan (ESCP) Guidelines if required from the Engineer in Charge and then prepare “working plan” for the following month’s activities as a CAD drawing showing the construction management, staging & ESCP. At no time soil should be allowed to erode away from the site and sediments should be trapped where necessary.

The contractor shall ensure that all the top soil excavated during construction works is neatly stacked and is not mixed with other excavated earth. The contractor shall take the clearance of the Engineer in Charge before any excavation. Top soil should be stripped to a depth of 20 cm (centimeters) from the areas to be disturbed, for example proposed area for buildings, roads, paved areas, external services and area required for construction activities etc. It shall be stockpiled to a maximum height of 40 cm in designated areas, covered or stabilized with temporary seeding for erosion prevention and shall be reapplied to site during plantation of the proposed vegetation or as directed by the engineer in charge. Top soil shall be separated from subsoil, debris and stones larger than 50 mm (millimetre) diameter. The stored top soil may be used as finished grade for planting areas.

- 16.1.2 The Contractor should follow the construction plan as proposed by the Architect / Engineer in Charge to minimize the site disturbance such as soil pollution due to spilling. If required use of staging and spill prevention and control plan to restrict the Spilling of the contaminating material on site needs to be resorted. Protection of top soil from erosion by collection storage and reapplication of top soil, constructing sediment basin, contour trenching, mulching etc., may also be directed by the engineer in charge.

- 16.1.3 No excavated earth shall be removed from the campus unless suggested otherwise by Engineer in Charge. All subsoil shall be reused in backfilling/landscape, etc as per the instructions of the Engineer in Charge. The surplus excavated earth shall be disposed of by the contractor as per the direction of the engineer in charge at his own cost for reuse. A certificate of reuse as required by the Engineer-in-Charge shall be submitted by the contractor.

- 16.1.4 The contractor shall not change the natural gradient of the ground unless specifically instructed by the Engineer in Charge. This shall cover all natural features like water bodies, drainage gullies, slopes, mounds, depressions, etc. Existing drainage patterns through or into any preservation area shall not be modified unless specifically directed by the Engineer-in-Charge.

- 16.1.5 The contractor shall not carry out any work which results in the blockage of natural drainage.

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- 16.1.6 The contractor shall ensure that existing grades of soil shall be maintained around existing vegetation and lowering or raising the levels around the vegetation is not allowed unless specifically directed by the Engineer-in-Charge.
- 16.1.7 Contractor shall reduce pollution and land development impacts from automobiles use during construction.
- 16.1.8 Overloading of trucks is unlawful and creates the erosion and sedimentation problems, especially when loose materials like stone dust, excavated earth, sand etc. are moved. Proper covering shall be used by the contractor. Also, no overloading shall be permitted.
- 16.2 CONSTRUCTION PHASE AND WORKER FACILITIES
- 16.2.1 The contractor shall specify and limit construction activity in pre-planned/designated areas and shall start construction work after securing the approval for the same from the Engineer in Charge. This shall include areas of construction, storage of materials, and material and personnel movement.
- 16.2.2 Preserve and Protect Landscape during Construction
- a The contractor shall ensure that no trees, existing or otherwise, shall be harmed and damage to roots. These shall be prevented during trenching, placing backfill, driving or parking heavy equipment, dumping of trash and protected from oil, paint, and other materials detrimental to plant health. These activities shall be restricted to the areas outside of the canopy of the tree, or, from a safe distance from the tree/plant by means of barricading. Trees will not be used for support; their trunks shall not be damaged by cutting and carving or by nailing posters, advertisements or other material. Lighting of fires or carrying out heat or gas emitting construction activity within the ground, covered by canopy of the tree is not at all permitted.
- b The contractor shall take steps to protect trees or saplings if any identified for preservation within the construction site using tree guards of approved specification.
- c Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) approved by Engineer in Charge.
- d The contractor shall avoid cut and fill in the root zones, through delineating and fencing the drip line (the spread limit of a canopy projected on the ground) of all the trees or group of trees. The zones of movement of heavy equipment, parking, or excessive foot traffic shall be separated from the fenced plant protection zones.
- e The contractor shall ensure that maintenance activities during construction period shall be performed as needed to ensure that the vegetation remains healthy.
- 16.2.3 Contractor shall be required to develop and implement a waste management plan, quantifying material diversion goals. He shall establish goals for diversion from disposal in landfills and incinerators, if required, and adopt a construction waste management plan to achieve these goals. A project wide policy of "Nothing leaves the Site" shall be followed. The Contractor's ingenuity is especially called towards meeting this prerequisite/ credit (as per IGBC LEED India, New Construction v1.0 & GRIHA , MNRE) and may consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation, designating a specific area(s) on the construction site for segregated or commingled collection of recyclable material, and track recycling efforts throughout the construction process,

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identifying construction haulers and recyclers to handle the designated materials at his cost. The diversion may include donation of materials to charitable organizations and salvage of materials on-site.

- 16.2.4 Contractor shall collect all construction waste generated on site. He may consider at segregating wastes based on their utility and examine means of sending such waste to manufacturing units which use them as raw material or other site which require it for specific purpose. Typical construction debris could be broken bricks, steel bars, broken tiles, spilled concrete and mortar etc.
- 16.2.5 The contractor shall provide potable water and other amenities for all workers as per the contract.
- 16.2.6 The contractor shall provide the minimum level of sanitation and safety facilities for the workers at site as described in CPWD General Conditions of contract. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and effluent; provide clean drinking water and latrines and urinals as per applicable provisions. Adequate toilet facilities shall be provided for the workmen within easy access of their place of work. The total no. to be provided shall not be less than 1 per 30 employees in any one shift. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided and natural or artificial illumination shall also be provided.
- 16.2.7 The contractor shall ensure that air pollution due to dust/generators is kept to a minimum, preventing any adverse effects on the workers and other people in and around the site. The contractor shall ensure proper screening, covering stockpiles, covering brick and loads of dusty materials, wheel-washing facility, gravel pit, and water spraying. Contractor shall also ensure the following activities to prevent air pollution during construction:
- Clear vegetation only from areas where work will start right away
 - Vegetate / mulch areas where vehicles do not ply.
 - Apply gravel / landscaping rock to the areas where mulching / paving is impractical
 - Identify roads on-site if applicable that would be used for vehicular traffic. Upgrade vehicular roads (if these are unpaved) by increasing the surface strength by improving particle size, shape and mineral types that make up the surface & base and add surface gravel to reduce source of dust emission to limit amount of fine particles (smaller than 0.075mm) to 10 – 20%
 - Water spray, through a simple hose for small projects, to keep dust under control. Fine mists should be used to control fine particulate. However, this should be done with care so as not to waste water. Heavy watering can also create mud, which when tracked onto paved public roadways, must be promptly removed. Also, there must be an adequate supply of clean water nearby to ensure that spray nozzles don't get plugged.
 - Water spraying shall be done on:
- 16.2.7.1 Any dusty materials before transferring, loading and unloading

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- 16.2.7.2 Area where demolition work is being carried out
- 16.2.7.3 Any un-paved main haul road
- 16.2.7.4 Areas where excavation or earth moving activities are to be carried out
- The contractor shall ensure that the speed of vehicles within the site is limited to 10 km/hr.
 - All material storages should be adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust / particulate emissions.
 - Spills of dirt or dusty materials will be cleaned up promptly so the spilled material does not become a source of fugitive dust and also to prevent of seepage of pollutant laden water into the ground aquifers. When cleaning up the spill, ensure that the clean-up process does not generate additional dust. Similarly, spilled concrete slurries or liquid wastes should be contained / cleaned up immediately before they can infiltrate into the soil / ground or runoff in nearby areas
 - Provide hoardings of not less than 3m high along the site boundary, next to a road or other public area at his cost.
 - Provide dust screens, sheeting or netting to scaffold along the perimeter of the building at his cost
 - Cover stockpiles of dusty material with impervious sheeting at his cost.
 - Cover dusty load on vehicles by impervious sheeting before they leave the site at his cost.
- 16.2.8 Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals. He shall coordinate the size and functionality of the recycling areas with the anticipated collections services for glass, plastic, office paper, newspaper, cardboard, and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminium can crushers, recycling chutes, and collection bins at individual workstations to further enhance the recycling program
- 16.2.9 The contractor shall ensure that no construction leachate (e.g. cement slurry etc.), is allowed to percolate into the ground. Adequate precautions will be taken to safeguard against this including reduction of wasteful curing processes, collection, basic filtering and reuse. The contractor shall follow requisite measures for collecting drainage water run-off from construction areas and material storage sites and diverting water flow away from such polluted areas. Temporary drainage channels, perimeter dike/swale, etc. shall be constructed to carry the pollutant-laden water directly to the treatment device or facility (municipal sewer line).
- 16.2.10 Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.
- 16.2.11 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 Constructional practices and safety, 2005, National Building code of India, Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to casualties. A telephone may be provided to first-aid assistant with telephone numbers of the hospitals displayed. Complete reports of all accidents and action taken thereon shall be forwarded to the competent authorities.
- 16.2.12 The contractor shall ensure the following activities for construction workers safety,

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among other measures at his cost.

- Guarding all parts of dangerous machinery.
- Precautionary signs for working on machinery
- Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition.
- Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
- Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
- Provide protective equipment; helmets etc.
- Provide measures to prevent fires. Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere.
- Provide sufficient and suitable light for working during night time.

- 16.2.13 The storage of material shall be as per standard good practices as specified in Part 7, Section 2 - Storage, Stacking and Handling practices, NBC 2005 and shall be to the satisfaction of the Engineer in Charge to ensure minimum wastage and to prevent any misuse, damage, inconvenience or accident. Watch and ward of the Contractor's materials shall be his own responsibility. There should be a proper planning of the layout for stacking and storage of different materials, components and equipments with proper access and proper maneuverability of the vehicles carrying the materials. While planning the layout, the requirements of various materials, components and equipments at different stages of construction shall be considered.
- 16.2.14 The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilization of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English with suitable symbols.
- 16.2.15 The contractor shall prepare and submit 'Spill prevention and control plans' before the start of construction, clearly stating measures to stop the source of the spill, to contain the spill, to dispose the contaminated material and hazardous wastes, and stating designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.
- 16.2.15.1 Contractor shall collect & submit the relevant material certificates for materials if irected by the Engineer in charge with high recycled (both post-industrial and post-consumer) content, including materials like RMC mix with fly-ash, glass with recycled content, calcium silicate boards etc.
- 16.2.16 Contractor shall collect the relevant material certificates for rapidly renewable materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheat board, strawboard and cork etc.
- 16.2.17 Where possible, the contractor shall select materials / vendors, harvested and manufactured regionally, within a 800-km radius of the project site.

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- 16.2.18 Contractor shall adopt an IAQ (Indoor Air Quality) management plan to protect the HVAC system during construction, control pollutant sources, and interrupt pathways for contamination. He shall sequence installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard. He shall also protect stored on-site or installed absorptive materials from moisture damage.
- 16.2.19 The contractor shall ensure that a flush out of all internal spaces is conducted prior to handover. his shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.
- 16.2.20 Contractor shall make efforts to reduce the quantity of indoor air contaminants that are odorous or potentially irritating harmful to the comfort and well-being of installer and building occupants. Contractor shall ensure that the VOC (Volatile Organic Compounds) content of paints, coatings and primers used must not exceed the VOC content limits mentioned below in case items of such paints are/is available in schedule of quantities.

Paints

Non-flat - 150 g/L Flat (Mat) - 50, g/L Anti corrosive/ anti rust - 250 g/L

Coatings / Clear wood finishes

Varnish - 350 g/L Lacquer - 550 g/L Floor coatings - 100 g/L Stains - 250 g/L

Sealers

Waterproofing sealer - 250 g/L Sanding sealer - 275 g/L Other sealers - 200 g/L

- 16.2.21 The VOC (Volatile Organic Compounds) content of adhesives and sealants used if prescribed in the schedule of quantities must be less than VOC content limits mentioned: **Architectural Applications** VOC Limit (g/l less water)
Indoor Carpet adhesives - 50 g/L, Carpet Pad Adhesives - 50 g/L, Wood Flooring Adhesive - 100 g/L, Rubber Floor Adhesives - 60 g/L, Sub Floor Adhesives – 50 g/L, Ceramic Tile Adhesives - 65 g/L, VCT and Asphalt Tile adhesives - 50 g/L, Dry Wall and Panel Adhesives - 50 g/L, Structural Glazing Adhesives - 100 g/L, Multipurpose Construction Adhesives – 70 g/L, Substrate Specific Application VOC Limit (g/l less water), Metal to Metal - 30 g/L, Plastic Foams - 50 g/L, Porous material (except wood) - 50 g/L, Wood - 30 g/L, Fiber Glass – 80 g/L
- 16.2.22 Wherever required, Contractor shall meet and carry out documentation of all activities on site, supplementation of information, and submittals in accordance with IGBC LEED India New Construction v1.0 or GRIHA program standards and guidelines. Towards meeting the aforementioned building environmental rating standard(s) expert assistance shall be provided to him up on request.
- 16.2.23 Water Use during Construction Contractor should spray curing water on concrete structure and shall not allow free flow of water. Concrete structures should be kept covered with thick cloth / gunny bags and water should be sprayed on them. Contractor shall do water ponding on all sunken slabs using cement and sand mortar.
- 16.2.24 The Contractor shall remove from site all rubbish and debris generated by the Works and keep Works clean and tidy throughout the Contract Period. All the serviceable and non-serviceable (malba) material shall be segregated and stored separately. The malba

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obtained during construction shall be collected in well formed heaps at properly selected places, keeping in a view safe condition for workmen in the area. Materials which are likely to cause dust nuisance or undue environmental pollution in any other way, shall be removed from the site at the earliest and till then they shall be suitable covered. Glass & steel should be dumped or buried separately to prevent injury. The work of removal of debris should be carried out during day. In case of poor visibility artificial light may be provided.

16.2.25 The contractor shall provide O & M Manuals wherever applicable.

16.2.26 The contractor shall make himself conversant with the Site Waste Management Program Manual and actively contribute to its compilation by estimating the nature and volume of waste generated by the process/installation in question.

16.2.27 MATERIALS & FIXTURES FOR THE PROJECT

- a) Contractor will produce wherever feasible certificate regarding distance of the source of the relevant material.
- b) Unless otherwise stated cement used at site for reinforced concrete, precast members, mortar, plaster, building blocks, etc shall be PPC (Portland Pozzolana Cement). The PPC must meet the requirements of IS 1489 (Part I) as regards to fly ash content in cement. The contractor shall obtain from the PPC manufacturer the certificate regarding fly ash content in the PPC in each batch of consignment.
- c) The contractor has to comply as per MoEF issued notification 8.0.763(E) dated 14th Sept.1999 containing directive for greater fly ash utilization. Every construction agency engaged in the construction of buildings within a radius of 50 km radius of a Thermal Power Plant, have to use of 100% fly ash based bricks/blocks in their construction.
- d) The contractor shall ensure that all paints, polishes, adhesives and sealants used both internally and externally, on any surface, shall be Low VOC products. The contractor shall get prior approval from the Engineer in Charge before the application of any such material.
- e) All plumbing and sanitary fixtures installed shall be as per the prescription of the Engineer in Charge and shall adhere to the minimum LPM (litres per minute) and LPF (litres per flush) mentioned. The contractor shall employ 100% zero ODP (ozone depletion potential) insulation; HCFC (hydro-chlorofluorocarbon)/ and CFC (chlorofluorocarbon) free HVAC and refrigeration equipments and / halon-free fire suppression and fire extinguishing systems.
- f) The contractor shall ensure that all composite wood products/agro-fibre products used for cabinet work, etc do not contain any added urea formaldehyde resin.

16.2.28 RESOURCES CONSUMED DURING CONSTRUCTION

- a. The contractor shall ensure that the water and electricity is not wasted during construction. The Engineer in Charge can bring to the attention any such wastage and the contractor will have to ensure that such bad practices are corrected.
- b. The contractor shall install necessary meters and measuring devices to record the consumption of water, electricity and diesel on a monthly basis for the entire tenure of the project.
- c. The contractor shall ensure that all run-off water from the site, during construction is collected and reused to the maximum.

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- d. The contractor shall use treated recycled water of appropriate quality standards for construction, if available.
- e. No lights shall be turned on during the period between 6:00 AM to 6:00 PM, without the permission of the Engineer in Charge.

16.2.29 CONSTRUCTION WASTE

Contractor shall ensure that wastage of construction material is within 3%.

- a) All construction debris generated during construction shall be carefully segregated and stored in a demarcated waste yard. Clear, identifiable areas shall be provided for each waste type and measures employed to segregate the waste on site into inert, chemical, or hazardous wastes.
- b) All construction debris shall be used for road preparation, back filling, etc, used if described in the schedule of quantities and as per the instructions of the Engineer in Charge, with necessary activities of sorting, crushing, etc.
- c) No construction debris shall be taken away from the site, without the prior approval of the Engineer in Charge.
- d) The contractor shall recycle the unused chemical/hazardous wastes such as oil, paint, batteries, and asbestos.
- e) If and when construction debris is taken out of the site, after prior permissions from the Engineer in Charge, then the contractor shall ensure the safe disposal of all wastes and will only dispose of any such construction waste in approved dumping sites.

16.2.30 Documentation

- a) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer in Charge on a monthly basis:
 - i) Water consumption in litres
 - ii) Electricity consumption in 'kwh' units
 - iii) Diesel consumption in litres
 - iv) Quantum of waste (volumetric/weight basis) generated at site and the segregated waste types divided into inert, chemical and hazardous wastes.
 - v) Digital photo documentation to demonstrate compliance of safety guidelines as specified here and in the Appendix on Safety Conditions.
- b) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer in Charge on a fortnightly basis:
 - i) Quantities of material brought into the site, including the material issued to the contractor by the Engineer in charge.
 - ii) Quantities of construction debris (if at all) taken out of the site

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- iii) Digital photographs of the works at site, the workers facilities, the waste and other material storage yards, pre-fabrication and block making works, etc as guided by the Engineer in Charge.
- c) The contractor shall submit a document after construction of the buildings, a brief description along with photographic records to show that other areas have not been disturbed during construction. The document should also include brief explanation and photographic records to show erosion and sedimentation control measures adopted. (Document CAD drawing showing site plan details of existing vegetation, existing buildings, existing slopes and site drainage pattern, staging and spill prevention measures, erosion and sedimentation control measures and measures adopted for top soil preservation during construction)
- d) The contractor shall submit to the Engineer in Charge after construction of the buildings, a detailed as built quantification of the following:
- Total materials used,
 - Total top soil stacked and total reused
 - Total earth excavated
 - Total waste generated,
 - Total waste reused,
 - Total water used,
 - Total electricity, and
 - Total diesel consumed.
- e) The contractor shall submit to the Engineer in Charge, before the start of construction, a site plan along with a narrative to demarcate areas on site from which top soil has to be gathered, designate area where it will be stored, measures adopted for top soil preservation and indicate areas where it will be reapplied after construction is complete.
- f) The contractor shall submit to the Engineer in Charge, a detailed narrative (not more than 250 words) on provision for safe drinking water and sanitation facility for construction workers and site personnel.
- g) Provide supporting document from the manufacturer of the cement specifying the fly-ash content in PPC used in reinforced concrete.
- h) Provide supporting document from the manufacturer of the pre-cast building blocks specifying the fly ash content of the blocks used in an infill wall system.
- i) The contractor shall, at the end of construction of the buildings, submit to the Engineer in Charge, submit following information, for all material brought to site for construction purposes, including manufacturer's certifications, verifying information, and test data, where Specifications sections require data relating to environmental issues including but not limited to:
- Source of products: Supplier details and location of the supplier.
 - Project Recyclability: Submit information to assist Owner and Contractor in recycling materials involved in shipping, handling, and delivery, and for temporary materials necessary for installation of products.
 - Recycled Content: Submit information regarding product post industrial recycled and post consumer recycled content. Use the "Recycled Content Certification Form", to be provided by the Commissioning Authority appointed for the Project.

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL

AE(C)

EE(C)

- iv) Product Recyclability: Submit information regarding product and product's component's recyclability including potential sources accepting recyclable materials where ever applicable.
- j) Provide final certification of well-managed forest of origin to provide final documentation of certified sustainably harvested status: Acceptable wood "certified sustainably harvested" certifications shall include:
 - a) Wood suppliers' certificate issued by one of the Forest Stewardship Council-accredited certifying agencies;
 - b) Suppliers' invoice detailing the quantities of certified wood products for project;
 - c) Letter from one of a certifying agency corroborating that the products on the wood supplier's invoice originate from certified well-managed forests.
- i) Clean tech: Provide pollution clearance certificates from all manufacturers of materials
- ii) Indoor Air quality and Environmental Issues: Submit emission test data, sourced from the manufacturers, produced by acceptable testing laboratory listed in Quality Assurance Article for materials as required in each specific Specification section.
 - a) Certifications from manufacturers of Low VOC paints, adhesives, sealant and polishes used at this particular project site.
 - b) Certification from manufacturers of composite wood products/agro fibre products on the absence of added urea formaldehyde resin in the products supplied to them to this particular site.
 - c) Submit environmental and pollution clearance certificates for all diesel generators installed as part of this project.

Provide total support to Engineer in Charge and Green Building Consultants appointed by the Engineer- in- Charge in completing all Green Building Rating related formalities, including signing of forms, providing signed letters in the contractor's letterhead whenever required.

16.2.31 EQUIPMENT

- a) To ensure energy efficiency during and post construction all pumps, motors and engines used during construction or installed, shall be subject to approval and as per the specifications of the Engineer in Charge.
- b) All lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL bulbs of the appropriate illumination levels. This condition is a must, unless specifically prescribed.

The contractor is expected to go through all other conditions of the LEED & GRIHA rating stipulations.

Failure to adhere to any of the above mentioned items, without approval of the Engineer in Charge, shall be deemed as a violation of contract and the contractor shall be held liable for penalty as per terms of the agreement.

17.1 Formwork for exposed concrete surfaces:-

CORRECTION	NIL	INSERTION	NIL		
CUTTING	NIL	OVERWRITING	NIL	AE(C)	EE(C)

- 17.1.1 Where it is specifically shown on the drawings to have original fair face finish of concrete surface without any rendering of plastering, formwork shall be carried put by using plywood on steel plates of approved quality.
- 17.1.2 The forms shall be constructed so as to produce a uniform and consistent texture and pattern on the face of the concrete. The formwork shall be placed so that all horizontals are constructed of lumber and are not paneled and the formwork joints shall be staggered.
- 17.1.3 To achieve a finish which shall be free of board marks, the formwork shall be faced with plywood or equivalent material in large sheets. The sheets shall be arranged in an approved pattern. Whenever possible, joints between sheets shall be arranged to coincide with architectural feature, sills, window heads or change in direction of surface. All joints between panels shall be vertical or horizontal unless otherwise directed. Suitable joints shall be approved between sheets. The joints shall be arranged and fitted so that no blemish or mark is imparted to the finished surfaces.
- 17.1.4 Forms for exposed concrete surfaces shall be constructed with grade strips (the underside of which indicate top of pour) at horizontal constructions joints, unless the use of groove strips is specified on the drawings. The reset forms shall be tightened against the concrete so that the forms will not be spread and permit abrupt irregularities or loss of mortar. Supplementary form ties shall be used as necessary to hold the reset forms tight against the concrete.
- 17.1.5 For fair faced concrete, the position of through bolts will be restricted and generally as indicated on the drawings.
- 17.1.6 Plywood and steel plates used in the formwork for obtaining exposed surfaces shall be got approved from Engineer-in-Charge on each use. However no forms will be allowed for reuse if it is doubtful to produce desired texture of exposed concrete.
- 17.1.7 Cement of only approved shade shall be used preferably of single lot to achieve integrity of texture.

17.2 Class of Surface Finish:-

17.2.1 For Beams & Slabs :

The finish shall be uniform, dense and smooth. no grout, no grain pattern, no crazing and no major blemishes shall be permitted. Abrupt irregularities not exceeding 3mm and gradual irregularities less than 5mm in 2m length only shall be permitted.

17.2.2 For Columns/Wall/Fins :

The finish shall be uniform and smooth leveling the surface of the compacted concrete shall be done with a screed board with power floating the surface and over that steel trowelling the surface under firm pressure characteristics of finish shall be brush marks < 3mm gradual irregularities less than 10mm in 2m.

17.3 Tolerance in Finished Concrete:-

The formwork shall be so made as to produce a finished concrete true to shape, lines, level, plumb and dimensions as shown in the drawings subject to the following tolerance unless otherwise specified in this specification or drawings.

17.4 WALL/COLUMN/FINS:

- 17.4.1 Variation from the plumb $\pm 6\text{mm}$ Upto 3m height

CORRECTION	NIL	INSERTION	NIL		
CUTTING	NIL	OVERWRITING	NIL	AE(C)	EE(C)

18.4.2 Variation from the plumb of conspicuous liner $\pm 6\text{mm}$ Upto 6m height

17.4.3 Variation in the size of wall openings $(+)-15\text{mm}$
 $(-)-6\text{mm}$

17.4.4 Variation in parapet wall thickness

(a) Upto 30cm thickness $\pm 6\text{mm}$

17.5 SLAB, BEAM & GIRDER FORMS:

18.5.1 Variation from the level or from the specified grid for beam soffit before removal of shores,

(a) In any 3m $\pm 6\text{mm}$

(b) In any 6m $\pm 10\text{mm}$

All the tolerances mentioned above shall apply to concrete dimensions only, and not to positioning of vertical steel or dowels. The tolerances given above are specified for local aberration in the finished concrete surface and should not be taken as tolerance for the entire structure taken as whole for the setting and alignment of formwork. Any error, within the above tolerance limits, or any other if noticed in any of the structure after part or portion stripping of forms, shall be corrected in the subsequent work to bring back the structure to its true line, level and alignment.

18.0 Ultrasonic pulse velocity method test for RCC as per technical circular No. 18 issued vide CE(CSQ) letter No. G-2/SE(QA)/CSQ/69 dated 12.02.2013 shall be carried out as a routine test to assess the homogeneity and uniformity of concrete. The fulfilling criteria and other conditions shall be as detailed, as per the method stated in the aforesaid circular.

19.0 All items of work shall be considered as inclusive of pumping out or bailing out water, if required, for which no extra payment shall be made. This will include water coming from any source, such as rains, accumulated rain water, floods, leakages from sewer and water mains, subsoil water table being high or due to any other cause whatsoever. The contractor shall make necessary provision of pumping, dredging and bailing out water coming from all above sources and excavation and other works shall be kept free of water by providing suitable system approved by the Engineer-in-Charge.

21.0 ROAD WORK :-

The agency shall submit list of 3 Hotmix plant operators alongwith their location, credentials i/c capacity of plant, technical establishment Laboratory Details, past experience, details of load carriers to the Engineer-in-Charge well in advance. The Engineers-in-Charge shall approve plant and Job mix formula before execution. The Sub Head -16 Road Work of CPWD specifications Vol-II-2019 will be followed.

(SPECIMEN)

(Ref. para 3.7 of Particular Specifications and Special conditions)

GUARANTEE TO BE EXECUTED BY CONTRACTORS FOR REMOVAL OF DEFECT AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS

The Agreement made thisday oftwo thousand and betweenson ofof(hereinafter called the **Guarantor** of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part).

WHEREAS this agreement is supplementary to a contract (hereinafter called the Contract) dated and made between the **GUARANTOR** of the one part and the Government of the other part, whereby the Contractor, inter alia, undertook to render the buildings and structures in the said contract recited completely water and leak – proof.

AND WHEREAS **GUARANTOR** agreed to give a guarantee to the effect that the said structures will remain water and leak-proof for ten years from the date of giving of water proofing treatment.

NOW THE **GUARANTOR** hereby guarantees that water proofing treatment given by him will render the structures completely leak-proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date after the maintenance period prescribed in the contract.

Provided that the guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof or alteration and for such purpose;

- (a) Misuse of roof shall mean any operation which will damage water proofing treatment, like chopping of firewood and things of the same nature which might cause damage to the roof;
- (b) Alteration shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts;
- (c) The decision of the Engineer-in-charge with regard to cause of leakage shall be final.

During this period of guarantee the **guarantor** shall make good all defects and in case of any defect being found, render the building water –proof to the satisfaction of the Engineer-in-Charge at his cost, and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Department by some other contractor at the **GUARANTOR'S** cost and risk. The decision of the Engineer-in-Charge as to the cost, payable by the **Guarantor** shall be final and binding.

That if **GUARANTOR** fails to execute the water proofing or commits breach there under then the **GUARANTOR** will indemnify the Principal and his successors against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the **GUARANTOR** in performance and observance of this supplementary agreement. As to the amount of loss and / or damage and / or cost incurred by the Government the decision of the Engineer – in – Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligor and by and for and on behalf of the PRESIDENT OF INDIA on the day, month and year above written.

Signed, sealed and delivered by OBLIGOR in the presence of –

1.
2.

Signed for and on behalf of THE PRESIDENT OF INDIA byin the presence of –

1.
2.

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(C) EE(C)

LIST OF APPROVED MAKES (CIVIL)

Note :

1. Unless otherwise specified, the brand/make of the material as specified in the item nomenclature or in the particular specifications or in the list of approved materials attached in the tender, shall be used in the work.
2. The Contractor shall obtain prior approval from the Engineer-in-charge before placing order for any specific material/ Brand/ Make.
3. Whenever the specified brand of material is not available then, the Engineer-in-charge may approve any material equivalent to that specified subject to proof being offered by the Contractor for its equivalence and its non-availability to his satisfaction.

S.No.	Material	Approved brand
	(1) Cement	
1.	Cement (OPC/PPC) As per IS: 8112 for OPC & IS: 1489 for PPC	A.C.C., Ultratech, Gujrat Ambuja Cement and Cement Corporation of India, Emami/Birla Gold Cement, Nuvoco/Infracem by NU Vista Ltd/JK Lakshmi/ Shree Cement.
2.	Cement (PSC) confirming to IS 455-2015	Birla Gold Cement/NU Vista/JK cement
3.	Admixtures & Epoxy As per IS: 9103	FOSROC/ Aquomix/ BAL-ENDURA/ ROFF/ Dr.Fixit /CICO/ SIKA/BASF/Asian Paints/Berger/Kryton.
	(2) Reinforcement	
4.	Reinforcement steel	Tata/Sail/RINL/Jindal steel & power ltd/JSW
	(3) Concrete Work	
5.	Super plasticizer as per IS: 9103	MC Baucheme/ Sika/ Fosroc/Cimik by Snowcem/ STP Ltd./Berger/Asian
6.	Post tension slab as per IS: 1343	Ultracon technology limited/Tech-9/CRUX
	(4) Brick Work	
7.	AAC Block adhesive as per IS: 2185-P-III	Ecorex/Ultratech/Ardex Endura/Ferrous Crete/ Berger/Asian
8.	AAC block	Ecorex, E-Nova (ISI marked)/Dinesh AAC (ISI Mark) Aerocon Buildwell
	(5) Wood & PVC Work	
9.	Annealed Float Glass As per IS: 14900	Saint Gobain/ Modi Guard/ Hindustan Pilkington/TATA
10.	Float as Per IS: 14900/Clear/Frosted/Toughened as per IS 2553-1(1890) /Refractive Glass	Modi Float/ Saint Gobain/ Asahi/AIS/ Modiguard/Mr. Glass/GOLD PLUS.
11.	Curtain Carrier	Vista levlor/Carlos/Home Deco
12.	Mechanical / chemical anchor, Rebar chemical, SS stone cladding Clamps, Dash fastner.	M/s Dev Ashish/HILTI/Fischer/ Bosch/Wurth/ Trixel.

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

13.	Door closer as per IS: 3564/ floor springs as per IS: 6315	Dorma/ Haffle/ Falcon/Godrej/Dorset/Kich/ Sandhu/ Hardwyn/ Becker FS/Saint Gobain
14.	Drapery Rod	Vista Levlor/Carlos/Home Deco.
15.	Flush Doors / Shutters as per IS: 2202 P-I	Anchor/ Century/JAYNA/ Greenply /Kitply/ Selected Products Company/Jain Doors pvt.Ltd.(Woodify)/ Duro/AIRDOOR by AIROLAM/ MERINO/Swastik Panels/A1/Shubham.
16.	FRP Shutters/frame As per IS : 14856	Fibre Glass Engineers Raipur/ Aashoo Model or equivalent/JAYNA/ Selected Products Company/ Jain Doors pvt.Ltd.(Woodify).
17.	Laminate/High Pressure Laminates	Marino/ Greenlam/ Decolam/ Century/ Formica/ Kitlam/Action TESA/Sunmica/AIROLAM/VIRGO
18.	Marine Plywood / BWP PlyAs per IS : 710 & IS : 12406.	Kitply/Duro/Century/Greenlam/AIROPLY by AIROLAM
19.	Plywood (Decorative/Non Decorative) As per IS : 303, IS 1328, IS 10701.	Archid/ Kitply/ Green ply/ Century/JAYNA/Green Ply/Merino/Duro/Durian/AIROPLY by AIROLAM /Kanchan Ply
20.	Shuttering ply wood As per IS: 4990	Kanchan Ply/ Century/ Merino
21.	HDF Moulded Panel Door	Kanchan Ply/ Century/ Merino
22.	Pre-laminated Particle Board IS :12823 : 2024 (Gr-I/ Type-II)	Kitlam/ Tesa/ Archidply/Eco brand/ Century/ Bhutan board/Action Tesa/Greenlam/Merino
23.	PVC Door Shutter and frames	Rajshri/Sintex/Polyline/Duroplast/Jain Industries/Vikas Plastic Ply / Plasto Green. wood
24.	Veneer	Archid/ SUN/ Durian/ Ventura/ NLDK/ Merino/Duro
25.	Teak wood/hard wood wire mesh & panel doors	A-1 Teak product Indore/Jayna/ Jain Doors pvt.Ltd.(Woodify).
26.	Block Boards as per IS: 1659.	JAYNA/Century/Greenply/Archid/Kitply/Kanchan Ply.
27.	Wooden Shutter with frame	Jayna/Jain wood industry/A-1 teak
28.	uPVC Windows/Doors As per IS:17953.	Duroplast/ Fenesta/ Komerling/ Wintech/Aluplast/ Vikas Plastic Ply/NCL-VEKA fabricated by Classic Engineers & Fabricators, Raipur/ Allure windoors/ Okotech/ Venster fabricated by Dolphin uPVC system/IKONISH/ Yashpoly/ Astrapia/ Simta Astrix/MARG/Rajshri/Encraft
29.	G.I. /Stainless steel/Wire-mesh/Netting	Selected Products Company/Jayna/ Oswal
30.	Fabrication of aluminium& UPVC doors, windows, Facades including ACP and glazing work	KANHA ALU AND FAB PVT. LTD., Raipur/ Evergreen/ Skyler World/Dolphin uPVC System.
31.	Processing and fabrication of glass (toughened, DGU and lamination	Wadhwa Glass Works (P) Ltd., Raipur/Shivshakti/SK tuff

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

32.	Fire rated doors As per IS 3614:2021, IS: 35476 (Part 20622)	Signum fire protection/Shakti Metdoor/ NAVAIR /Sukri/ Promat International/Supreme fire Door/ASES (Agni Suraksha)/Bhawani fire protection
33.	Fire door hardware	Becker Firesolutions/Tata Pravesh/Navair
34.	Stainless steel door & windows fittings As per IS : 204 P-II, IS: 208.	Jindal/Dorma/Kich/Dorset/Godrej/Ozone/Classic Steel windows/ Becker FS
35.	Extruded Polystyrene Insulation Board and Insulation System	Dow Corning/ Supreme/ Taxes/ Analco/STP Ltd./ Berger ETICS
36.	UPVC Doors and window hardware	Rotto/Dorset/Kinlong
37.	WPC door frames, Shutters, Panel & Sheets	Vikas Plastic Ply/Rajshri/VEKA/ Yashpoly/Vardhman Composite India (bvwn) /Plasto Green.
38.	Stainless Steel butt hinges as per IS: 12817	Prayag/Beeta/Sarthi
39.	Heat Strengthened glass	Mr. Glass/Swastik/Zenith/Saint Gobain
40.	Heat Soaked glass	Mr. Glass/Swastik/Zenith/ Saint Gobain
41.	Insulated glass	Mr. Glass/Swastik/Zenith/ Saint Gobain
42.	Laminated and safety glass	Mr. Glass/Swastik/Zenith/ Saint Gobain
43.	RCC doors Frames	Bothra Duro Frame/Purshottam Industries /Mahalakshmi
44.	Decorative thermosetting synthetic resin bonded laminated sheet as per IS 2046:1895 (High pressure compact laminates)	MERINO/VIRGO/Infotech
	(6) Steel Work	
45.	Galvanized/Stainless Steel Anchor Fasteners	Shakti/ Arrow/ Hilti/ Fischer
46.	Modular SS Railing System	Metallica India / Stark steel Fabricator / D-line International Denmark / Mobel Hardware.
47.	M.S .Pipe (Railing)	Jindal / Prakash Surya/ Tata/ RINL// Apollo/HIRA Fabrication/ Shivam Overseas (ISKCO)/ Sambhv Steel
48.	Stainless Steel	Jindal Stainless Steel/ Salem Steel/TATA
49.	Stainless Steel Screws	Kundan/Arrow/Navair.
50.	Structural steel As per IS: 1239: Part-I, IS: 1161, IS:4923	TATA/ SAIL/ RINL/TISCO/JSW Steel Ltd./Jindal steel & Power Ltd./APL APOLLO /HIRA Fabrication/ Shivam Overseas (ISKCO)/ Sambhv Steel
51.	Pre-Painted/powder coated CRC windows	M/s classic engineers and fabricators/ M/s JK Enterprises Jaipur/ Nclalltek&seccolor ltd. Hyderabad/ ultimate safety metals/Elixir
52.	Stainless steel railing Accessories	Jindal/Dorma/Kich/GEZE/Godrej/Hardwyn
53.	Tubular profile steel door/windows	Classic steel windows/Sehgal door/Tata Parivesh

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

54.	Pressed steel door frames As per IS:4351.	Classic steel windows/Jai Ambey/Super Industries.
	(7) Flooring	
55.	Acid/Alkali Resistant Tile	Somany/ Kajariya/ Bell
56.	Ceramic Tiles As per IS: 15622	Kajaria/ Somany/ Orient Bell/ Johnson/ Varmora/ AGL/ OASIS/Marbitto/Cengres/ Sunheart/ MOTTO/ NITCO.
57.	Ceramic Tiles (Germ Free)	CARE & CRAFT by Johnson.
58.	Cement Concrete Chequered/designer tiles	Raj-Tiles/ Concreto+ by Sai Sales / Rigid Tiles/Advance/Ultra /Asian
59.	Glass Mosaic Tile	Bissazza/ Saon/Kajaria
60.	Hardener	Hard crete of Snowcem India/ MC Deritop F.H./Berger
61.	Terrazzo tiles /Mosaic Tiles	Raj-Tiles/ Bharat/ Rigid Tiles/NIC/A-1/GTC
62.	Vitrified /Porcelain Tile As per IS: 15622	Marbogranit/ Euro/ Somany/ diamond of Naveen /Granamite of Bell /OASIS/ceramic/ Granito/ Kajaria/ M/s Restile//Rak/ Porselano by Johnson/ AGL/Marbitto/ Cengres/ Sunheartt/ Orient Bell/ Varmora/ MOTTO/ NITCO.
63.	Vitrified Double Charged Tiles	Marbonite by Johnson/Kajaria/Somany/ Orient Bell/ MOTTO/ NITCO.
64.	Full Body, Matt Finish Vitrified Tiles	Endura Sandex by Johnson /Kajaria/Somany/ Orient Bell/ MOTTO/ NITCO.
65.	Vitrified Industrial Tiles	Endura by Johnson/Kajaria/Somany/ Orient Bell
66.	Vitrified Step Tiles	Stepping Stone of Endura by Johnson or equivalent.
67.	TAC Tiles	Endura by Johnson/Rac/Raj Tile
68.	Vitrified Tiles (Germ Free)	Porselano by Johnson / Rac/Kajaria
69.	Pavement Tiles	Endura by Johnson/Kajaria/Somany/ Orient Bell/Goyal Concrete pipe
70.	Antistatic Tiles	Endura by Johnson/ Rac/Raj Tile
71.	White Cement	JK White/ Birla White/Ambuja Cement
72.	Tile Adhesive IS: 15477	Ferrous Crete / Ardex/ Endure (Gold Star)/ Pidilite (Fevimatex)/ Weabr (Saint Gobain)/Asian Paints/STP Ltd./Berger/Kryton/ Nuvoco(MBM)/ Polyglaze.
73.	Heat Resistant Tiles	Swastik/Thermatek/Somany
74.	Floor Hardener	Ironite/Ferrok/Hardonate/Shalifloor NM of STP Ltd./ Berger/Asian
75.	Epoxy flooring & coating	Shalifloor SL TC 4E of STP Ltd./Berger/Dr. Fixit/Asian
76.	Polyurethane flooring& coating	Shalifloor PU, of STP Ltd./Dr. Fixit/Asian

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

77.	Antistatic Vinyl flooring	Shalifloor SL AS PU & Shalifloor SL AS 3E of STP Ltd./Asian/Tarkett (IQ Optima)/Gerflor/Forbo
	(8) Roofing	
78.	False Ceiling system	Boral Gypsum / India Gypsum/ Laffarge/ St. Gobain(Gyproc)/ Armstrong/Hunter Douglas/ Aerolite/ Gridsquare/ Interarch/ Credence Industries/Hi-Steel/Anakon/ Bollard.
79.	Metal False Ceiling	Nittobo / Armstrong / Trac / Durlum / Luxalon by Hunter douglas /Aerolite/ Credence Industries/Anakon/Hi-steel/ Bollard.
80.	Mineral Fiber/Calcium silicate Ceiling	Armstrong / Nitobo / Daiken / Hunter Douglas/Aerolite/ Credence Industries/Anakon/ Bollard.
81.	Glass reinforced Gypsum (GRG) false ceiling	'Diamond' manufactured by Diamond International Inex Pvt. Ltd/Gyproc by Saint Gobain/Knauf AMF
82.	Glass fiber acoustic ceiling & wall panels.	Credence Industries/Armstrong/Anakon
83.	Wood wool acoustic wall panel and ceiling tiles	Credence Industries/Armstrong/Anakon
84.	Acoustical Wall paneling	Hush/ Credence Industries/Armstrong/Bollard.
85.	Panels	ARIO- XTERIOR BY AIROLAM/Century/Marino
86.	Corrugated GI Sheets	Tata, Essar , Sail JSW, Bhusan
87.	Collar coated profile sheets	Tata (Ezydeck)/Lloyd Superdeck/JSW/Jindal
88.	Non asbestos high impact polypropylene reinforced Cement sheet	Everest/ Bison(NCL)/HIL(Birla Aerocon).
89.	Polycarbonate sheet	GE Plastic/Lexan/MG Polyplast
90.	Float Glass Profile Sheet TATA (transparent)	Tata, Modiguard, Saint Gobain
91.	FRP Chhajjas	Selected Products Company/Jayna/Creative Engineering
92.	FRP Porta cabin	Selected Products Company/Jayna/ Creative Engineering.
93.	Modular Expansion Joint	Herculus/Sanfield India Ltd./ Vexcolt
94.	Glass Wool	Dow Corning/ U.P. Twinga/Isover
95.	SWR PVC Rain Water Pipe & Fitting	Vectus/Prayag/Finolex/ Classic of Kisan/ Kasta/ Supreme/AKG/Prayag/DRAIN MASTER by ASTRAL/ULTRAFIT, SILENTFIT by Prince Pipes.
96.	uPVC-SWR Pipes as per IS: 13592 and uPVC injection moulded fittings as per IS: 14735	KRISHNA plast pipes/KSR by Kisan irrigation/ Finolex /AKG/ Supreme / ULTRAFIT, SILENTFIT by Prince Pipes./ Ashirvad/ Astral/Prayag/Drain Master by Astral/SFMC/ PARAS/ Kothari.

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

	(9) Finishing	
97.	Premium Acrylic Emulsion Paint: Interior	Asian (Royale)/ ICI (Velvet)/ Berger (Luxol Silk)/ Nerolac Impression/Snowcem paints
98.	Plastic emulsion paint	Asian paint: (Apolite Heavy Duty Premium Emulsion paint)/ Nerolac :Impressio/Berger:Easy clean/ICI-Dulux:Velvet touch /Snowcem/Berger
99.	Epoxy Primer & Paints	Berger/ Pidilite/ CICO/ BASF/ SIKA/Asian/ Nerolac/ ICI Kansai Akzo Nobel/STP Ltd.
100.	Melamine Polish	Melamine Gold of Asian Paint/Wudfinofpidilite/Timbertone of ICI Dulux/ Beegel/Berger.
101.	Oil Bound Distemper/Dry Distemper	Asian (Professional Acrylic Distemper)/Maxilite of ICI / Bisan of Berger/Nerolac (Beauty Acrylic Distemper)/ Snowcem Paints.
102.	Acrylic Distemper 1 st quality (washable/ Readymix/ Low VOC)	Asian Paints (Tractor Aqua Lock Paint)/ Berger: commando or equivalent paints of Nerolac or ICI-Dulux./Snowcem
103.	Polyester Powder Coating	Nerolac/ Berger/ J&N
104.	Primer (Cement Primer) /Interior /Exterior /Metal /Wood	Decoprime WT of Asian/ white primer of ICI/BP white of Berger/ Nerolac/Snowcem
105.	Synthetic Enamel Paints	Gloss Synthetic Enamel of ICI(Dulux)/Asian (Apolite Premium gloss)/Berger (Luxol Hi Gloss)/ Synthetic Hi Gloss of Nerolac/Snowcem Paints/Berger
106.	Textured Exterior wall paint	Spectrum/ Ultratech / Asian paint/Berger/ Nerolac/ Luxture/ Snowcem
107.	Steel/Wood primer / paint	ICI eluxe, nerolac, berger, Asian, Snowcem
108.	Wall Putty (White Cement based) As per IS:17545.	Birla wall care/JK white/Berger/Asian paints/ ferrous Crete/ Snowcem Paints, Nerolac/Berger/ Nuvoco(MBM)
109.	Gypsum plaster	Ferrous crete/ Gyproc (Elite-90)/ Ultratech/Asian
110.	Acrylic Smooth Exterior Paint	Asian Paint : (Apex/ Professional Premium Exterior Emulsion/ Nerolac: XL/Berger: Weather coat/ICI-Dulux: Weather Shield/ Snowcem
111.	Premium Acrylic Smooth Exterior Paint with Silicon Additive	Asian paint: Apex Ultima/Nerolac: XL Total/Berger: Weather coat all guard/ICI dulux: Weather Shield max/ Snowcem Snowcyl.
112.	Fire Retardant Paint	Asian paints/Akzo Nobel Coatings India Ltd./ PROMAT/Jotun/Berger
113.	Ready Mix Plaster	Ultratech/Ferrous Crete/Saint Gobain
114.	Water proof exterior paint	Shalicyl 215 of STP Ltd./Berger/Asian
115.	Synthetic Plaster Texture Paint	SnowcemPaints./Asian Paint/Berger

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

	(10) Road Work	
116.	Cement Concrete Paver Block & Kerb stone As per IS: 15658.	Rigid Tiles/ Raj-Tiles/Concreto+ by Sai Sales./Goyal Concrete pipe
117.	Bitumen 85/25	HPCI, IOCL, BPCL
118.	Bitumen VG-30, VG-10 etc.	As per particular specification of item from IOCL, BPCL, HPCL.
119.	Road safety Products	Shakti/Vectus/Aquatech
120.	Coal tar sealer for roads	Shaliseal RSTC of STP Ltd./Shalimar/ Jemkon Pvt. Ltd.
	(11) Sanitary installation	
121.	P.T.M.T. Taps/Valves and Accessories As per IS:9763	Prayag/ PRAKASH /SURYA/Supreme/ KINGSTON/ Shakti/ Varmora
122.	Plastic Bib cock and other fittings IS : 9763	Prayag/Swastik/Polo/ Varmora.
123.	Centrifugally As per IS: 3989 /Hubless Cast Iron Pipe & Fittings as per IS: 15905	Neco/ RIF/ Kapilansh/ BIC/SKF/Electrosteel/RPMF
124.	CP Bottle Trap	Parryware / Hindware/ Jaquar/Plato Brand/Prayag
125.	CP Brass Bibcock/ Pillarcock/ Stopcock/ Angle Valve/ Concealed Stop Cock & CP fittings (Normal Range) As per IS: 8931:1893	Marc (oriental series)/ Parko/ Jaquar (Continental series)/SPRING COLLECTION OF PRIMA /GEM/ ESS/ Plumber/L&K Metro/Vardhman/'Coral' series of parryware/'JOY' & 'VINTAGE' series of KEROVIT by Kajaria /Shakti/Prayag/ Player/ KINGSTON/ Varmora/ Asian (bathsense/ESS ESS).
126.	CP Waste Coupling	Mark/ Parko/Plato Brand/Prayag
127.	PVC Flushing cistern (single/Dual Flush) as per IS: 7231	Sleek Dual flush PVC cistern of Hindware / 'Slimline' of Parryware/Shakti/ Prayag/Bathsense by Asian Paints
128.	PVC Concealed Cistern & Push Plates	Parryware/Hindware/ Jaquar/TECE by Asian Paints/Prayag
129.	Fiber Glass Shelf	Kamal/ Bath King/Prayag
130.	Flush Valve	Aquel/ Marc/ Parryware/ Jaquar.
131.	Jet Assembly for EWC	Parryware/ Jaquar/ Grohe/ Kohler
132.	Low Level PVC Cistern Single flush	Sleek model Cistern of PVC of Hindware/Slimline model of Parryware/ JINDAL/ Shakti/Prayag
133.	Plastic Connection Pipe	Parryware/Kamal/ Delux/Prayag
134.	Solid Plastic Seat Cover for EWC As per IS: 2548-2	EWC standard seat cover white of Parryware/ Hindware/'KEROVIT' by Kajaria/Prayag
135.	Vitreous China Floor Mounted European W.C. without cistern As per IS: 2556:Part-II.	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/ Bathsense by Asian/Prayag

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

136.	Water closet (Orissa Pan/Indian type) & fittings, accessories as per IS : 2556 Part-3	Parryware / Hindware /'KEROVIT' by Kajaria/ESSCO by Jaquar/ Somany/ Varmora/ Asian (bathsense/ESS ESS) /Prayag.
137.	Virtuosos China Wash Basin Oval As per IS: 2556: Part-IV.	Hindware / Parryware /KEROVIT' by Kajaria/ CERA Jaguar/ ESSCO by Jaquar/Somany/ Bathsense by Asian/Prayag.
138.	Vitreous China Floor moulded European W.C. with Cistern Complete As per IS: 2556:Part-II.	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/ Bathsense by Asian/Prayag
139.	Vitreous China Half stall Urinal and Partition Plates As per IS: 2556:Part-VI.	Model No. 6002 Urinal flat back large of Hindware or magnum of Parryware/ ESSCO by Jaquar/Somany/Prayag
140.	Stainless steel Sink with or without Draining board. As per IS:13983.	Nirali/ Hindware/ Frankee/ Cobra/AMC/ Selected Products Company/ Parryware/ Neelkanth/ Nirali/ Prayag/KINGSTON/Plato Brand/ Varmora/Prayag
141.	Vitreous China laboratory Sink	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/Prayag
142.	Vitreous China Low Level Cistern for European W.C.	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/Prayag
143.	Vitreous China Pedestal for Wash Basin	Pedstal of Parryware / Hindware or equivalent/ CERA/Jaguar/ ESSCO by Jaquar/Somany/Prayag
144.	Vitreous China Wall Mounted W.C. with vitreous Cistern	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/Prayag
145.	Vitreous China Wall Mounted W.C. without Cistern.	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar/Somany/Prayag
146.	Vitreous China Wash Basin Rectangular without Pedestal	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar./Prayag/Somany/Prayag
147.	Waste Pipe	Kamal with brass checknut/Viking/Prince/Prayag
148.	CPVC Pipes as per IS: 15778 and fittings IS: 15576.	AKG/Ashirvad/PRIME FLOW OF KRISHI POLYMERS /Supreme/KSR by Kisan irrigation/Flowguard plus by finolex/ Prince /Prayag/Vectus/CPVC PRO by Astral/SFMC/Flow Guard Plus by Prince Pipes/TEXMO/ PARAS by BothraAgro/ Kothari/Prayag.
149.	CPVC pipes for fire protection system as per IS: 16088 Automatic sprinkler fire extinguishing system	Blazemaster of Ashirvad/Supreme/Astral
150.	uPVC Pipes as per IS: 4985 and fittings IS: 7834, IS: 10124.	KRISHNA plast pipes/AKG/ KSR by Kisan irrigation /Supreme /Astral/ Prince/ Ashirvad/ Prayag/ Aquasafe by Astral/SFMC/ULTRAFIT, SILENTFIT by Prince Pipes/TEXMO/ PARAS/ Fusion/ Kothari.
151.	PVC fittings as per IS: 10124 and IS: 7834	KSR brand/ Astral/Ashirvad/Prince

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

152.	Brass bib cocks/stop cock	Marc/Parko/Jaquar/SPRING COLLECTION OF PRIMA as per IS : 781/ Plato Brand.
153.	Brass ball cocks (Float valve) as per IS:1703	Marc/Parko/Jaquar /SPRING COLLECTION OF PRIMA Prayag/Plato Brand
154.	C.P. Brass fittings (Superior Range)	Jaquar/Grohe/Roca/ Asian (Royal)
155.	C.P. Brass Faucets, Showers, Accessories & Essential	ESS ESS, Bathsense& Premium Range: Royale by Asian Paints/Parryware /Jaquar/Kingston/Plato Brand/Prayag.
156.	Sanitary ware fittings & Accessories (Superior range)	Kohler/Roca/Hindware/Parryware/Bathsense by Asian Paints
157.	Towel Ring/Towel Rod/Towel Rack	Kamal/ Marc/Parreyware/Prayag
158.	Mirror glass	Atul/Modi Guard/Golden Fish/GOLD PLUS
159.	CI Nahani Traps/Floor Tap/Bend/ Foot Steps (KFAI)	Kwality Foundry Industries, Raipur/Kapilansh/Nico
	(12) Water Supply	
160.	GI fitting	Tata/ Jindal/ Zenith
161.	GI Pipe	Tata/ Zenith/ Jindal (HISAR)/SAIL/HIRA/Sambhv Steel
162.	Gun Metal Gate Valve	Zoloto/ Leader/ SAINT
163.	PE-AL-PE Composite pipes for hot & cold water	Jindal / KiTEC/Vectus.
164.	Water meter	SPRING COLLECTION OF PRIMA as per IS: 779/Kranti/Zoloto
165.	HDPE Pipes as per IS:4984 and fittings	KRISHNA plast pipes/KSR by Kisan irrigation /Supreme /Reliance /Jain/Vectus/Astral/ CG Plast/Ashirvad/TEXMO/ Kothari.
166.	Polyethylene water storage tanks as per IS: 12701	Sintex, water well, Siltank, Polywell/Plasto/ 'SILTANK' by Supreme/ Vectus/ CG Plast/STOREFIT by Prince Pipes/Aquasafe/Prayag
167.	UPVC Agriculture/Pressure pipes as per IS: 4985 and fittings	AKG Extrusion Pvt Ltd./Astral/Ashirvad/ Kothari.
168.	UPVC underground drainage & sewerage pipes SN 4/ SN 8/Structured wall type as per IS: 16098	KSR by Kisan irrigation/Finolex/AKG/ Supreme/Foam Core by Astral./Ashirvad/DRAINFIT by Prince Pipes/TEXMO/ Kothari.
169.	PPR-C pipes as per IS: 15801	KSR brand/Supreme/Vectus/SFMC/KPT/GREENFIT by Prince Pipes/Prayag
170.	CPVC pipe for firefighting Sprinkler system	FIREPRO by ASTRAL/Supreme/Ashirvad.
	(13) Drainage	
171.	PVC septic tanks	'Safeguard' by Supreme/Sintex/Plasto

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

172.	PVC underground water tanks	‘Amrutam’ by Supreme/Sintex/Plasto
173.	PVC readymade toilet blocks	‘Cleanage’ by Supreme/Sintex/Plasto
174.	PVC/FRP chambers, Manholes & Covers	Supreme/ Drain Hulk by Astral/Prince
175.	D.I. Pipes & fittings	Electrosteel/Jindal/Tata Ductura/Kapilansh/ Kesorom
176.	C.I. manhole covers, frames & CI Gratings	Neco/Raj iron Foundary Agra/BIC/SKF/ Kapilansh/RPMF/Kwality Foundry Industries/Plato Brand
177.	SFRC/RCC manhole cover & Grating As per IS: 2592:2003	K.K./Concreto+ by Sai Sales/Goyal Concrete pipe
178.	Double wall corrugated polyethylene (DWC PE) Pipes IS : 16098 part II.	Nobale by Noble Polytec/REX by Astral/CORFIT by Prince Pipes.
179.	M.S./Steel Tubes, ERW Pipes, Hollow steel sections (Black, Galvanized, square, rectangular, hollow) for water and sewage. As per IS: 3589	Goel Pipes/APL Apollo/HIRA/Shivam Overseas (ISKCO)/ Sambhv Steel
	(14) Aluminium Work	
180.	EPDM Gasket	Anand Lescuyer/Hanu/Raven
181.	Silicon Sealant	G.E./ DOW Corning/Waker/BASF/Pidilite/ROFF
182.	Aluminium doors & window fittings (Heavy duty)	Jyoti , Argent, Everest/Kilong/Alualpha/ classic/ Ebco
183.	Rigid Phenolic foam for cold and hot insulation as per IS: 13204	Phenotherm manufactured by Bakelite Hylam Ltd/Polybond/Supreme
184.	Aluminium Composite Panel as per IS: 17682.	Alpolic/ Aluco Bond/ Reynobond/ Euro bond/ Al-strong/ Aludewr/Viva/Alstone/VIRGO
	(15) Water Proofing Work	
185.	Poly Sulphide Sealant	PIDISEALbyM/s Pidilite Industry/RDL941-TECHSEAL ChokseyChemicals/BASF/SIKA/Fosroc/ STP Ltd./Asian Paints/Berger/ MYK Arment.
186.	Polymer Modified Cementitious grout	Bal Endura/ PidiliteKero Koal/ Ultratech/ Ardex/Ferrous Crete/Asian Paints/ STP Ltd./Berger/Kryton/ MYK Arment.
187.	Cool Roof Tiles	Endura by Johnson / Rac/Kajaria
188.	Water Proofing Compound (Liquid)	Pidiproof Ltd./CICO/ Super plast by M/s Structural water proofing/ Impermo/FOSROC/Dr. Fixit (Pidilite Industries) /BASF/ ROFF/SIKA/Ardex Endura (Bal Endura)/Asian Paints/STP Ltd./Berger/NEO SEAL Adhesive Pvt. Ltd./ MYK Arment.
189.	White cement based polymer modified self curringmortor	Ultratech/Dr. Fixit/Sika/Fosroc/Berger/Kryton/Asian

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

190.	Integral water proofing compound with cement (for mortar & concrete) as per IS: 2645	FOSROC/ Conplast 421/Dr. fixit: LW+/ Sika :sikacim/Asian Paints: Smart care vitalia& equivalent product of BASF/CICO/Ardex Endura/STP Ltd/Snowcem /Berger/Kryton/ NEO SEAL Adhesive Pvt. Ltd. / MYK Arment.
191.	Water proofing for bathroom/toilet/balcony & other wet areas.	Fosroc: Brush Bond/CICO:Tapecrete/Dr. fixti :Pidilite 2k/Sika: Nito Bond/Asian Paints: Damp Block 2k & Equivalent Product of BASF/Ardex endure/ Snowcem/ STP Ltd. /Berger/Kryton/ NEO SEAL Adhesive Pvt. Ltd./ MYK Arment.
192.	Crystalline water proofing compound.	Fosroc: Fosroc crystalline/Dr. Fixit: Dr. fixit crystalline/Sika: Sika Crystalline/Asian Paints: Crystalline Quart & Equivalent Product of BASF/CICO/Ardex Endura/Berger/Kryton/ MYK Arment.
193.	Water proofing membrane (APP, SBS, PVC, HDPE, EPDM, PU based)	Asian Paints/ Dr. Fixit/STP Ltd./Berger/ MYK Arment.
194.	Water proofing Universal/multipurpose polymers	Asian Paints/STP Ltd./Dr. Fixit./Berger/Kryton Buildmat/ MYK Arment.
195.	Water proofing sealants	Asian Paints/STP Ltd./Dr. Fixit. /Berger/Kryton Buildmat/ MYK Arment.
196.	Water proofing micro concrete/repair mortor	Asian Paints/ STP Ltd./Berger/Kryton Buildmat
197.	Waterproofing Polyurathene Coating/LEC System/Polyurathene Foam	Dr. Fixit/STP Ltd./Asian/Berger/Kryton Buildmat/ MYK Arment.
198.	Swellable type water stop tape/bar	Kryton Buildmat/Supreme/ KINGSTON.
	(16) Rain water Harvesting & Tubewell	
199.	uPVC Screen and casing pipes for bore well/tube well as per IS : 12818 and column pipes for submersible pumps	KRISHNA plast pipes/KSR by Kisan irrigation/Supreme/Astral/Ashirvad/SAFEFIT by Prince Pipes.
	(17) Structure Glazing and Aluminium Composite Panel	
200.	Aluminium Extrusions/ Sections/Profiles	Hindalco/ Indalco/ Jindal/Indian Aluminium Co./ Ultra/Divya Shree/
201.	Structural Silicon Sealant	Dow Corning/ Wacker/ GE/ Du-pont
	(18) Miscellaneous	
202.	Protective coating, Adhesive & Insulation	Shali Urethane PC of STP Ltd./Berger/Kryton Buildmat/Asian

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

203.	Anti corrosive & Anti carbonation coating	STP Ltd./Asian/Trident
204.	Curing compound	STP Ltd./Berger/Asian
205.	Cover blocks/spacers	Bothra Duro Frame/Concreto+ by Sai Sales/Astron
206.	Rest Room cubicle made with compact laminates	MERINO/VIRGO/Infotech
207.	Vault room accessories - safes, lockers, tang bars, security door, emergency door, vault ventilator, exhaust Fan, mobile compactors, filing cabinets, strong room doors as per BIS.	Godrej &Boycee/ Gunnebo-Steelage/Guardwel
208.	Motorised Rolling Shutter (Automated)	Avians Innovations/Gandhi Automations/Toshi

CORRECTION NIL INSERTION NILCUTTING NIL OVERWRITING NIL AE(C) EE(C)

PROFORMAS OF GUARANTEE BONDS

ANNEXURE-I

GUARANTEE TO BE EXECUTED BY THE CONTRACTOR
FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF STONE
WORK/ TILE WORK.

The agreement made this..... day of Two Thousand.....between
S/o (hereinafter called the GUARANTOR on the one
 part)
 and the President of India (hereinafter called the Government on the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated and made between the GUARANTOR ON THE ONE PART AND the Government on the other part whereby the contractor inter alias undertook to render the work in the said contract structurally stable , workmanship, finishing and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty workmanship, finishing and materials.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable after the expiry of maintenance period prescribed in the contract for the minimum life of ten years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-in-Charge with regard to nature and cause of defect During final.
 this period of guarantee, the guarantor shall make good all defects to the satisfaction of the Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all the defects, commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in- Charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator and by for and on behalf of the President of India on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of -

1. 2.

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(C) EE(C)

SIGNED FOR AND BEHALF OF THE PRESIDENT OF INDIA BY in the presence
of :-

1. 2.

ANNEXURE-II
GUARANTEE TO BE EXECUTED BY THE CONTRACTOR
FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF
WATER-PROOFING WORKS.

The agreement made this..... day of Two Thousand..... betweenS/o(hereinafter called the GUARANTOR on the one part) and the PRESIDENT OF INDIA (hereinafter called the Government on the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated and made between the GUARANTOR ON THE ONE PART AND the Government on the other part whereby the contractor inter alia undertook to render the building and structures in the said contract completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain water and leak proof, for 10 years from the date of giving water proofing treatment.

NOW THE GUARANTOR hereby guarantee that work executed by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be 10 years to be reckoned from the date after the expiry of maintenance period prescribed in the contract

The decision of the Engineer-in-Charge with regard to nature and cause of defect shall be final

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in-Charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator and by for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:-

1.
2.

SIGNED FOR AND BEHALF OF THE PRESIDENT OF INDIA BY in the presence of :-

1.
2.

CORRECTION	NIL	INSERTION	NIL	
CUTTING	NIL	OVERWRITING	NIL	AE(C) EE(C)

ANNEXURE-III

**GUARANTEE TO BE EXECUTED BY THE
CONTRACTOR FOR REMOVAL OF DEFECTS
AFTER COMPLETION**

IN RESPECT OF SANITARY INSTALLATIONS / WATER SUPPLY / DRAINAGE
WORK / u-PVC WINDOWS WORK/ STRUCTURAL GLAZING/ ACP
CLADDING/ DRY STONE CLADDING AND ALUMINIUM WORK

The agreement made this..... day of Two Thousand
between.....S/o(hereinafter called the
GUARANTOR on
the one part) and the PRESIDENT OF INDIA (hereinafter called the Government on the other
part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated and made between the GUARANTOR ON THE ONE PART AND the Government on the other part, whereby the contractor inter alia, undertook to render the work in the said contract structurally stable, leak proof and sound material, workmanship, anodizing, colouring, sealing etc.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, defective anodizing / Powder coat colouring and finishing for
years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes, materials used and guaranteed against faulty material and workmanship, defective galvanizing for ten years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-in-Charge with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall good all defects and in case of any defect to satisfaction of Engineer-in-Charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all defects or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in-Charge will be final and binding on both the parties.

CORRECTION NIL INSERTION NIL

CUTTING NIL OVERWRITING NIL

AE(C)

EE(C)

IN WITNESS WHEREOF these presents have been executed by the obligator.....
..... and by
.....for and on behalf of the PRESIDENT OF INDIA on the day, month and year
first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:-

1.

2.

SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY in the
presence of :-

1.

2.

CORRECTION NIL INSERTION NIL

CUTTING NIL OVERWRITING NIL AE(C) EE(C)

केन्द्रीय लोक निर्माण विभाग
कार्यालय ज्ञापन

No. DG/Enlist.Rules-2026/Misc./01

ISSUED BY THE AUTHORITY OF DIRECTOR GENERAL, CPWD

Nirman Bhawan, New Delhi

Dated: 31.12.2025

Subject: Rules for Enlistment of Contractors in CPWD, 2026.

The Rules for Enlistment of Contractors in CPWD, 2026 (ER 2026) have been approved by DG CPWD. These rules come into force w.e.f. 01.01.2026. PDF copy is available in the downloadable form on CPWD website and can be accessed through cpwd.gov.in → Documents → CPWD Publication → Rules for Enlistment of Contractors. Discrepancies noticed, if any, in the ER 2026 may kindly be brought to notice of this office immediately.

2. The enlistment of the contractors whose validity expired/expiring between 01.01.2025 to 31.03.2026 shall deemed to be extended upto 31.03.2026 as per OM No. DG/Enlist. Rules - 2024/07 dated 31.10.2025.
3. Further notification regarding applications for fresh enlistment / revalidation is being issued separately.

This issues with the approval of competent authority.

(चन्द्र पाल)
अधीक्षण अभियंता (सी.एंड.एम.)
चन्द्र पाल, ज्यो. अभि. (सी.एंड.एम.)
Chander Pal, SE (C&M)

Issued from file No. CSQ/CM/18(4)/ER/2026 e-file no. 9036313 (DFA/ 9357938)

Copy to:

1. All the SDGs/ADGs CPWD for information and necessary action.
2. DDG (ERP) for necessary action. He is requested to implement the Rules for Enlistment of Contractors in CPWD, 2026 through CEMS / ERP portal.

CORRECTION NIL INSERTION NIL

CUTTING NIL OVERWRITING NIL AE(C)

EE(C)

Rules for Enlistment of Contractors in CPWD, 2026

3.0 General

- 3.1 The object of enlistment of contractors is to have a ready list of suitable and competent contractors for CPWD works so as to minimize the requirement of verification of their credentials at the time of individual tenders. At the same time, only those contractors are allowed to continue in the list that remain active in CPWD and perform satisfactorily.
- 3.2 The enlistment of a contractor in CPWD shall only entitle him to participate in the tenders, subject to the conditions of each notice inviting tender. It does not confer any right or claim on him to qualify him or to award work to him.
- 3.3 These rules may be revised or repealed by new rules. The enlistment of a contractor shall be governed by the revised or new rules existing on the date of receipt of the application, if any, and not by the rules prevailing at the time of enlistment.
- 3.4 The term CPWD shall also include Public Works Department of the Government of National Capital Territory of Delhi, Civil Construction Unit of the Ministry of Environment, Forest and Climate Change, and any other offices encadared with CPWD.
- 3.5 The enlisted contractors of class-II and above can tender within their tendering limit for works all over the country irrespective of jurisdiction of the enlisting authority. The tendering limit is uniform all over India. Enlisted contractors of class-III, IV and V can tender within their tendering limit for works in the region of enlisting authority only. Enlisted contractors of class-III, IV and V can participate in tenders within the jurisdiction as detailed in table-9 as per their tendering limit for CPWD works, or as amended from time to time. Enlisted contractors of any class shall also have to meet the other requirements of eligibility as per NIT conditions.

4.0 Repeal and savings

- 4.1 All existing rules regarding enlistment and revalidation of contractors in CPWD are hereby repealed.
- 4.2 Notwithstanding such repeal, the contractors already enlisted on the basis of rules hitherto in force shall continue to enjoy the status of enlisted contractors of CPWD till the period of validity of such enlistment, including revalidation or extension granted before coming into effect of these Enlistment rules, 2026. However, all other conditions of enlistment shall be applicable as per the Enlistment rules, 2026.
- 4.3 The applications already received shall be processed as per the enlistment rules prevailing on the date of receipt of the application. For this purpose, the date of receipt of application shall be the 7 days after the date of online submission as recorded by the CEMS / ERP portal.

5.0 Enlistment categories, classes and tendering limit

The contractors shall be enlisted in the categories and classes mentioned in Rules 5.1 & 5.2.

Guidelines for Enlistment of Contractors in CPWD, 2026

		e-mail: adgrcpwd@nic.in Office phone: 044-24912369
Karnataka	ADG Bengaluru	SE (Works cum TLQA), CPWD 2nd Floor, C Wing, Kendriya Sadana Koramangala, Bengaluru-560034. e-mail: blr-sewtlqa@cpwd.gov.in Office phone: 080-25534968
Andhra Pradesh and Telangana,	ADG Hyderabad	SE (Works cum TLQA), CPWD Nirman Bhawan, Sultan Bazar Koti, Hyderabad-500001. e-mail: hyd-adghr@cpwd.gov.in Office phone: 040-24619327
Note:- Any change in address or other details may be notified by concerned SDG/ADG.		

Table 9: Tendering jurisdiction and Enlisting authorities for Buildings & Roads category contractors of class III, IV and V and Horticulture category contractors of class III and IV:

Sl. No.	Region	Enlisting authority	Tendering Jurisdiction
1.	NR	SDG(Chandigarh), ADG(Chandigarh), ADG(Lucknow), ADG(Jammu), ADG(DR) and ADG(PRD)	Punjab, Chandigarh, Rajasthan, Haryana, Uttarakhand, Himachal Pradesh, Uttar Pradesh, Jammu & Kashmir, Leh & Ladakh and Delhi
2.	SR	SDG(Chennai), ADG(Kochi), ADG(Bengaluru) and ADG(Hyderabad)	Tamil Nadu, Andaman & Nicobar, Puducherry, Kerala, Karnataka, Lakshadweep, Andhra Pradesh, and Telangana
3.	ER	SDG(Kolkata), ADG(Patna) and ADG(Guwahati)	West Bengal, Sikkim, Odisha, Bihar, Jharkhand, Assam, Arunachal Pradesh, Tripura, Nagaland, Meghalaya, Mizoram and Manipur.
4.	WR	SDG(Mumbai) and ADG(Bhopal)	Maharashtra, Goa, Daman and Diu, Gujarat, Madhya Pradesh and Chhattisgarh

Central Public Works Department

Office Memorandum

No. DG/CON/Construction 2023/03

ISSUED BY THE AUTHORITY OF DIRECTOR GENERAL, CPWD

Nirman Bhawan, New Delhi

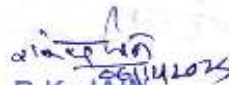
Dated 06.12.2023

Subject: Modifications in Clause 12 and Schedule F for Clause 12 of GCC 2023 for Construction Works

The following amendments are made in the GCC 2023 Construction Works.

Existing provision	Modified provision
CONDITIONS OF CONTRACT Definitions 2. In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:- (i) to (xv) (xvi) No provision (xvii) No provision	CONDITIONS OF CONTRACT Definitions 2. In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:- (i) to (xv) No change (xvi) Extra Items are those items which are not available in the contract. a. Non Schedule Extra Items are those items which are not available in the Standard Schedule of Rates specified in Schedule F. b. Scheduled Extra Items are those items which are available in the Standard Schedule of Rates specified in Schedule F. (xvii) Completion cost: The completion cost includes gross amount of work done, amount of extra items and deviations and escalation admissible as per agreement etc.
Clause 12 Deviations/ Variations Extent and Pricing The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the	Clause 12 Deviations/ Variations Extent and Pricing No Change

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R.K. JAIN
 (EE (Contact))

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progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.	
The completion cost of any agreement for Maintenance works including works of upgradation, aesthetic, special repair, addition/ alteration should not exceed 1.25 times of Tendered amount. Any further deviation beyond this limit upto 1.5 times of tendered amount shall be approved by the authority mentioned in schedule 'F' with recorded reason and in exceptional case, ADG shall have full power to approve the deviation beyond 1.50 times of tendered amount with recorded reason and take suitable corrective action.	Deleted
No provision	The completion cost shall, in no case, exceed 1.5 times the contract amount. Contractor will devise a system to keep a watch on quantum of work taken up vis-a-vis balance items required to complete defined scope of work and will give the alerts to Engineer-in-Charge before taking up extra items, deviations so that completion cost does not exceed above limit. Work executed beyond above limit will neither be recorded nor be paid.


R.K. JAIN
 (EE (Contact))

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	Engineer-in-Charge will verify and confirm the alerts before assigning deviations and / or extra items to the contractor. If additional work(s) is required to complete defined scope of work beyond above limit then Engineer-in Charge may take up such work(s) separately. The contractor will not have any claims whatsoever on this account.
12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows : i. In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus ii. 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge	12.1 The time for completion of the works shall, in the event of any deviations and extra items resulting in additional cost over the contract amount will be extended, if requested by the contractor, as follows : i. In the proportion to the additional cost of work, bears to the original contract amount plus ii. 25% of the time calculated in (i) above.
12.2 Deviation, Extra Items and Pricing In the case of extra item(s) (items which are not available in the contract), the contractor may within fifteen days of the receipt of order or occurrence of the item(s), submit claim for market rate(s), supported with proper analysis of rate and manufacturer's specification for the work, invoices, vouchers, etc. (as applicable), failing which the rate(s) approved later by the Engineer-in-Charge shall be final and binding. Where the contractor submits claim for market rate(s) in the manner prescribed above, the Engineer-in-Charge shall, within 45 days of the receipt of the claims, after giving consideration to the analysis of	12.2 Deviation, Extra Items and Pricing a) Non Schedule Extra Items - The contractor may, within fifteen days of the receipt of order to execute extra item or occurrence of the item(s), submit analysis of rate of extra item(s) based on the rates of materials available in basic rate of Standard Schedule of Rate mentioned in schedule F and market rates of the materials which are not available in standard schedule of rate mentioned in schedule F. For this purpose, the basic rate of materials available in Schedule of Rates mentioned in Schedule F will be enhanced or reduced by the applicable cost index, as the case


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rates and other documents submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

may be.

The rates of the materials which are not available in Standard Schedule of Rates, mentioned in Schedule F, shall be based on, tax paid bills for the material as defined in manufacturer's specification.

Material rates from Standard Schedules of Rates shall be given priority in the analysis of rates.

The rate of extra item will be:-

- i. Analyzed rates as above multiplied by (tender amount divided by estimated cost put to tender), if tendered amount is below the estimated amount put to tender.
- ii. Analyzed rate, if the tendered amount is above the estimated amount put to tender.

Failing which the rate(s) approved later by the Engineer-in-Charge shall be final and binding.

Where the contractor submits **analysis of rate of extra items** in the manner prescribed above, the Engineer-in-Charge shall, within **60** days of the receipt of the **analysis of rate**, after giving consideration to the analysis of rates and other documents submitted by the contractor, determine the rate(s) of **extra items**. The contractor shall be paid in accordance with the rates so determined.

However provisional rates on the basis of invoice will be allowed by the Engineer-in-Charge. Invoice shall be accepted only for materials not available in the Standard Schedule of Rates mentioned in Schedule F. The extra items rate shall be finalized only after submission of tax paid bills by

र.के. जासवाल
R.K. JASWAL
(EE (Contact))

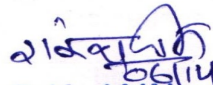
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	the contractor to the Engineer-in-Charge as required above. The Engineer-in-Charge may apply the discount available in the market on the rate of materials taken from tax paid bills.
(b) No Provision	b) Scheduled Extra Items i. For percentage rate tenders, the extra item(s) shall be paid as per the Standard Schedule of Rates, mentioned in Schedule F, enhanced or reduced by the applicable cost index and further enhanced or reduced by percentage above/ below quoted by the contractor on estimated cost put to tender. ii. For item rate tenders, the extra item(s) shall be paid as per the said schedule rate enhanced or reduced by the applicable cost index and multiplied by (tender amount divided by estimated cost put to tender).
The rate(s) of extra items so determined by the Engineer-in-Charge shall be final and binding on the contractor, and shall not be arbitrable.	Deleted


 06/11/2023
 R.K. JAIN
 (EE (Contact))

Deviation, deviated quantities, Pricing In the case of contract items which exceed the limit laid down in Schedule F, the contractor may within fifteen days of the receipt of order or occurrence of the excess, claim revision of the rates, supported with proper analysis of rate and invoices, vouchers, etc. (as applicable), for the quantity in excess of the above-mentioned limit. The Engineer-in-Charge shall within 45 days of receipt of the claims, after giving consideration to the analysis of rates and other documents submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined. The rate(s) so determined by the Engineer-in-Charge shall be final and binding on the contractor, and shall not be arbitrable.	c) Deviation, deviated quantities, Pricing In the case of contract items which exceed the limit laid down in Schedule F, the contractor may within fifteen days of the receipt of order or occurrence of the excess, claim revision of the rates, supported with proper analysis of rates and other documents, as per procedure described in para 12.2(a) or 12.2(b) (as applicable), for the quantities in excess of the above-mentioned limit. The Engineer-in-Charge shall within 45 60 days of receipt of the claims, after giving consideration to the analysis of rates and other documents submitted by the contractor, determine the rates and the contractor shall be paid in accordance with the rates so determined. In case, the contractor fails to submit his claim for revision of rates within 15 days of the receipt of order or occurrence of the excess, the Engineer-in-Charge shall determine the rate(s) of such items in accordance with para 12.2 (a) and 12.2 (b) without giving any notice to the contractor. The rates so determined by the Engineer-in-Charge shall be final and binding. The rate(s) of extra items and deviated items so determined by the Engineer-in-Charge shall be final and binding on the contractor.
12.3 In the case of contract items which exceed the limit laid down in Schedule F, the Engineer-in-Charge shall after giving notice to the contractor within 30 days of submission of that bill by the contractor which contains such item(s), and after taking into consideration any reply received from the contractor within 15 days of the issue of such notice, reduce the rate for quantity in excess of the above-mentioned limit on the basis of market rates, within 30 days of the expiry	Deleted

21/06/2023
R.K. JAIN
(EE (Contact))

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of the said period of 15 days, and the contractor shall be paid in accordance with the rates so determined. The rate(s) so determined by the Engineer-in-Charge shall be final and binding on the contractor, and shall not be arbitrable	
12.4 The cost of any operation necessarily admissible for such operations.	12.3 The cost of any operation necessarily admissible for such operations.
12.4 No provision	12.4 Cost index Latest available Cost index at the time of beginning of execution of extra item and deviation shall be used in sub-clauses 12.2 (a), 12.2 (b) and 12.2 (c) for calculation of rates of extra items.
12.5 No provision	12.5 Labour rates Labour rates will be based on latest available circulars issued by Central Govt. or State Govt. whichever are higher as well as applicable for the work.
PROFORMA OF SCHEDULES (Separate Performa for Civil, Elect.& Hort. Works in case of Composite Tenders) SCHEDULE 'F' Clause 12 Authority to decide deviation upto 1.5 time of tendered amount	PROFORMA OF SCHEDULES (Separate Performa for Civil, Elect.& Hort. Works in case of Composite Tenders) SCHEDULE 'F' Clause 12 Deleted
12.2 & 12.3 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building work	12.2 (c) Deviation Limit beyond which clauses 12.2 (c) shall apply for building work

21/06/23
R.K. JAIN
(EE (Contract))

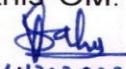
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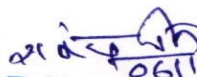
12.4	
(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	(i) Deviation Limit beyond which clauses 12.2 (c) shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)
(ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items	(ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items

This OM is applicable for all NITs issued w.e.f. date of issue of this OM.
This issues with the approval of DG CPWD.


06.12.2023
(V.P. Sahu)

Superintending Engineer (C&M)

Issued from file No. CSQ/CM/17(1)/Construction/2023 e-file no 9163323
All CPWD and PWD officers for information and necessary action.
(Through CPWD website.


06/11/2023
R.K. JAIN
(EE (Contact))

**केन्द्रीय लोक निर्माण विभाग
कार्यालय ज्ञापन**

No. DG/Manual-2024/20

ISSUED BY THE AUTHORITY OF DIRECTOR GENERAL, CPWD

Vidyut Bhawan, New Delhi

Dated: 27.02.2026

Sub: Modification in Para 5.2 for CPWD Works Manual 2024.

Following modification is made in Para no. 5.2 for CPWD Works Manual 2024:

Existing Provision	Modified Provision
5.2 Performance Guarantee	5.2 Performance Guarantee
Sl. No. 1	No Change
2. PG shall be 5% of the contract amount or as prescribed from time to time to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of sixty days beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions.	2. PG shall be 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher , or as prescribed from time to time, to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of six months beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions.
Sl. No. 3	No Change
4. No provision	4. A bid will be treated as abnormally low if the quoted bid amount is lesser than 80% of the estimated cost put to tender.
5. No provision	5. Requirement of Additional Performance Guarantee (APG) : In case of abnormally low bids as defined above, the bidder shall be required to submit Additional Performance Guarantee (APG) in addition to the Standard Performance Guarantee (PG). The amount of Additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be

(Signature) P. P. Jindal
EE(C Contract)

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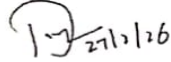
	0.8A – 0.7A). The Additional Performance Guarantee (APG) shall be in the prescribed format of Performance Guarantee and has to be submitted within the time frame prescribed for submission of Performance Guarantee. The other terms and conditions of release etc. of APG shall be same as that of PG.
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This is issues with the approval of DG CPWD.


 27.02.2026
 ((चन्द पाल))
 अधीक्षण अभियंता (सी. एन्ड एम.)
 Chandar Pal, SE (C&M)

Issued from file No. CSQ/CM/16(1)/2026 e-file 9212995 (DFA/ 9365789)

केलोनिवि तथा लोनिवि दिल्ली के सभी अधिकारियों को आवश्यक सूचना एवं कार्यवाही हेतु। (केलोनिवि वेबसाईट के माध्यम से)


 27/2/26

D.P. Jindal
EE (Contract)

CORRECTION NIL INSERTION NIL

CUTTING NIL OVERWRITING NIL AE(C) EE(C)

केन्द्रीय लोक निर्माण विभाग

कार्यालय ज्ञापन

No. DG/ SOP-2026/03

ISSUED BY AUTHORITY OF DIRECTOR GENERAL, CPWD

Vidyut BHAWAN, NEW DELHI

Dated: 27.08.2026

Sub: Modification / addition in SOP No. 5/33 and Annexure-71 for CPWD Works Manual 2026.

Following modification/ addition are made in SOP No. 5/33 and Annexure-71 for CPWD Works Manual 2026:

Existing Provision	Modified Provision
SOP No. 5/33: Operation of Contract Clauses (Refer Para 5.23)	SOP No. 5/33: Operation of Contract Clauses (Refer Para 5.23)
6. Clause 7 of Forms no. CPWD 7 and 8	6. Clause 7 of Forms no. CPWD 7 and 8
Sl. No. (i) to (iii)	No change
(iv) No Provision	(iv) A mandatory checklist (Annexure-71) must be prepared by the Junior Engineer (JE)/ Assistant Engineer (AE) during the preparation or processing of every Running Account (RA) as well as final bill. This checklist is required to be: a. Prepared by the Junior Engineer/ Assistant Engineer. b. Checked and cleared by the Division Office prior to the release of any payment.

Annexure-71

(Refer SOP No. 5/33)

Checklist for R/A/ final Bill

Name of work	
Agreement No.	
Name of agency	
Estimated cost	Tendered cost
% above / below EC	
Date of Start	Date of Completion (Stipulated)
	Date of Completion (extended)
Date of Submission of bill	

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23/8/26
K.G. Bansal
EE (Manual)

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Checklist items		To be filled by JE/AE	
		Yes/No	Remarks
Clearance Obtained by Agency-			
1	Whether Local body approval obtained and submitted to Engineer-in-Charge.		
2	Whether Fire NOC obtained and submitted to Engineer-in-Charge.		
3	Whether environment clearance obtained and submitted to Engineer-in-Charge.		
Approvals Required			
4	Approval of Specialized / Associate agency/ Agencies Obtained & MoU/ Tripartite agreement (If applicable) approved?		
5	Whether the BIM consultant engaged as per requirement of the agreement?		
Clause - 5			
6	Whether the date of start shifted in case of delay in handing over of site.		
7	Whether the program/ revised program chart submitted, if yes then. (Ref no. of Program submission to EE)		
8	Whether recovery done for non-submission of program chart/ revised program chart by the agency		
9	Whether milestone achieved? If not, applied for rescheduling of milestone/ EOT? (Ref. no. of letter submitted or granted EOT/Milestone shifted)		
10	Whether the corresponding amount withheld for not achieving milestone?		
Clause- 12			
11	Number of extra items sanctioned till date with amount, by the competent authority?		
12	Number of deviation items sanctioned till date with amount, by the competent authority?		
13	Nos. Extra Items/ Statements pending till date with No., Amount & Submission reference.		
14	Nos. of Deviated items/statements pending till date with No., Amount & Submission reference.		
Clause - 36			
15	Whether required Technical representative as per agreement deployed? Submitted documents of technical representative and approval status. (Submission/ approval Reference).		
16	Whether any action/Recovery made for not engaging the Technical representative as per requirement of the agreement.		
Quality /QA			
17	Whether Quality Assurance plan submitted/ approved (Reference of submission).		

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K.G. Bansal
EE (Manual)

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18	Whether Job mixes of concrete / Bitumen Mix carried out and approval obtained?		
19	Whether all mandatory test done during the execution. (Reference of submission of mandatory Test Statement)		
20	Whether the QA/TPQA observation conveyed to Agency and compliance status (with Reference)		
21	How many QA paras outstanding and action thereof?		
22	Whether water test done as per CPWD specification? (Date of last water test report)		
23	Whether batch number & make of materials mentioned in MAS register?		
24	Whether duly authenticated copies of purchase vouchers have been furnished to the concerned JE/AE?		
25	Whether Guarantee/ Warranty of items submitted?		
26	Whether Test report of final installation submitted as per Electrical Specifications in respect of all electrical item.		
Labour			
27	Whether Labour License, registration with EPFO, ESIC and BOCW Welfare Board submitted to Engineer-in-Charge (Ref of Submission).		
28	Documents of deposition of EPF and ESI deductions in the employee's accounts up to previous month.		
29	Whether safety gazettes provided to the labour.		
30	Whether crèche, ration, lavatory facilities provided?		
31	Whether FLR submitted along with bills.		
32	Whether skilled labour deployed as per contract requirements / recovery made in case of non-deployment of skilled labour?		
Miscellaneous			
33	Whether work is executed with Architectural & Structural drawings approved by the department?		
34	Whether construction water arranged by contractor? or any recovery proposed		
35	Whether electricity arranged by contractor? or any recovery proposed		
36	Proof of payment of Royalty is attached.		
37	Whether bill amount $\geq$ minimum amount for payment mentioned in contract.		

K.G. Bansal
EE (Manual)

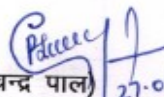
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38	Whether test checked by AE/EE or not ? And Test check statement submitted?	By AE By EE	
39	Whether recovery of advances paid (Mobilization /T&P advance/ secured advance etc.) made in this bill ?		
40	Whether any notice under clause 2, clause 3, clause 14 or clause 16 issued? Or an action proposed.....		
41	Whether Completion drawings in triplicate has been provided in hard copy (Along with final bill).		
42	Whether bill submitted monthly? If not, reason?		
43	Provisional rate sanctioned by the Competent Authority.		
44	Whether all Bank Guarantees and Insurance Policies submitted is valid as on date?		
45	Whether Bill signed by contractor / power of attorney holder?		
46	Labour Cess/ GST/ Income Tax recovered in the bill.		
47	PAN No./GST No. of contractor.		
48	Mandatory inspections of the officers carried out, if applicable.		
49	Any other item / recovery mentioned in the contract.		
	(Dated signature with named stamp)		
			JE /AE
	AE (P)		
	AAO		
	EE		

This is issued with the approval of DG CPWD.


 ((चन्द्र पाल) 27.08.2026
 अधीक्षण अभियंता (सी.एंड.एम.)
 Chandar Pal, SE (C&M)

Issued from file No. CSQ/CM/16(1)/2026 e-file – 9205325 (DFA/ 9389010)

केलोनिवि तथा लोनिवि दिल्ली के सभी अधिकारियों को आवश्यक सूचना एवं कार्यवाही हेतु।
(केलोनिवि वेबसाईट के माध्यम से)


 K.G. Bansal
 EE (Manual)

CORRECTION NIL INSERTION NIL

CUTTING NIL OVERWRITING NIL AE(C)

EE(C)