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PROFORMA OF SCHEDULES**(Civil Works)**

(Separate Performa for Civil, Elect. & Hort. Works in case of Composite Tenders)

SCHEDULE 'A'**Schedule of quantities (Attached) - Civil****SCHEDULE 'D'**

Extra schedule for specific requirements/document **NIL**
for the work, if any.

SCHEDULE 'E'

Reference to General Conditions of contract (CPWD GCC EPC Projects 2022/GCC Maintenance Works 2023/GCC Construction Works 2023)	Applicable GCC is CPWD GCC Construction Works 2023 as modified and corrected up to previous days of last date of submission of tenders. (Whether or not all the amendments in the form of latest circular issued are duly signed and incorporated in this tender or contract document)
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Name of Work:	SITC of 2 No. 11 KV RMU at A.N. Jha Hostel, University of Allahabad, Prayagraj	
Estimated cost of the work:		
	Civil Work	Rs. 2,18,621/-
	Total	
Earnest money	Indicated in schedule F of Electrical component	
Performance Guarantee	Same as in Electrical component	
Security Deposit	Same as in Electrical component	

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SCHEDULE 'F'**GENERAL RULES & DIRECTIONS:**

Officer inviting tender

**Executive Engineer (E),
Allahabad, CPWD, Prayagraj.**

Maximum percentage of quantity of items of work to be executed beyond which rates are to be determined in accordance with Clause 12.2.& 12.3

See below

Definitions:2(vi) **Engineer-in-Charge**
For Civil items of work**Executive Engineer, Allahabad,
C.P.W.D., Prayagraj or his
successor thereof**

For Electrical items of work

**Executive Engineer (E),
Allahabad, CPWD, Prayagraj or
his successor thereof.**

2(viii) Accepting Authority

**Executive Engineer (E),
Allahabad, C.P.W.D., Allahabad.**

2(x) Percentage on cost of materials and labour to cover all overheads and profits 15%

2(x)(b) **Standard Schedule of Rates:**

Civil Items of Work:

CPWD, DSR-2023

Electrical Items of Work:

As mentioned in electrical part.

2(xi) Department: Central Public Works Department

9(ii) Standard CPWD contract Form: Applicable GCC is **CPWD GCC Construction Works 2023** as modified and corrected upto previous days of last date of submission of tenders.

(Whether or not all the amendments in the form of latest circular issued are duly signed and incorporated in this tender or contract document)

Clause 1 i) Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance**As per Electrical component**

ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period as provided in (i) above

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Clause 2 Authority for fixing Compensation under Clause 2

**Superintending Engineer,
Allahabad, CPWD,
Prayagraj Or successor
thereof**

Clause 2 A Whether Clause 2A shall be applicable

No

Clause 5

*As prescribed in Electrical
component*

Number of days from the date of issue of letter of
acceptance for reckoning date of start.

As prescribed in civil component

Schedule of Mile Stone

S. No	Description of mile stone	Time allowed from date of start (in days/months.)	Amount to be with-held in case of non-achievement of milestone.
<i>Same as prescribed in major component.</i>			

Time allowed for execution of work

1 Month

Authority to decide

- | | |
|---|--|
| (i) Authority to convey the decision of shifting of milestone and extension of time | Engineer-in-Charge of major component of work or successor thereof |
| (ii) Authority to decide rescheduling of milestone and extension of time | Superintending Engineer, Allahabad, CPWD, Prayagraj or his successor thereof |
| (iii) Shifting of date of start in case of delay in handing over of site | Superintending Engineer, Allahabad, CPWD, Prayagraj or his successor thereof |

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PROFORMA OF SCHEDULES Clause 5 Schedule of handing over of site

Part	Portion of site	Description	Time Period for handing over reckoned from date of issue of Letter of intent.
Part A	Portion without any hindrance	Entire	At the start of work
Part B	Portions with encumbrances (Land under cultivation)	-	-
Part C	Portions dependent on work of other agencies	-	-

Clause 6

Computerized Measurement Book:

EMB

Mode of Measurement:

EMB

Clause 7	Gross work to be done together with net payment/Adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	First and Final bill
Clause 7A	Whether Clause 7A shall be applicable	Yes
Clause 8	Competent Authorities to inspect and issue completion certificate	Executive Engineer, Allahabad, C.P.W.D., Prayagraj for major component and over all completion.
Clause 8A	Payment liability incase contractor fails to submit completion plans. Authorities to decided	N.A. Executive Engineer of major component.
Clause 10A	List of testing equipment to be provided by the contractor at site lab.	As per list
Clause 10 B (ii)	Whether clause 10-B (ii) shall be applicable.	No
Clause 10 C	Component of labour expressed as percentage of value of work	Not applicable

Clause 10 CC**Not Applicable****Clause 11****Specification to be followed for execution of work:**

CPWD Specifications 2019 Vol. 1 and Vol. 2 with correction slips **upto previous days of last date of submission of tenders.** (Hereinafter called CPWD specifications also)

- (i) Building information model (BIM) is applicable and BIM professional to be deployed by contractor.

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Clause 12

12.2 (c)	i) Deviation limit beyond which clause 12.2 (c) shall apply for building work.	100%
	i) Deviation limit beyond which clause 12.2 (c) shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	100%
	ii) Deviation limit for items mentioned in earth work subhead of DSR and related items	100%

Clause 16	Competent Authority for Deciding reduced rates:	Superintending Engineer, Allahabad, CPWD, Prayagraj Or successor thereof.
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Clause 18	List of mandatory machinery, tools & plants to be deployed by the contractor at site.	<i>As per attached</i>
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Clause 19C	Authority to decide penalty for each default.	Engineer-in-charge.
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Clause 19D	Authority to decide penalty for each default.	Engineer-in-charge.
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Clause 19G	Authority to decide penalty for each default.	Engineer-in-charge.
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Clause 19K	Authority to decide penalty for each default.	Engineer-in-charge.
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Clause 25

(i)	Conciliator	<i>As prescribed in Electrical component</i>
(ii)	Arbitrator Appointing Authority	<i>As prescribed in Electrical component</i>
(iii)	Place (Seat) of Arbitration	<i>As prescribed in Electrical component</i>

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Clause 32 Requirement of Technical Representative(s) and Recovery Rate

Sl. No. cost of work (Rs. in Crore)	Requirement of Technical staff		Minimum experience (Years)	Designation of Technical staff	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 36(i)	
	Qualification	Number (of Major + Minor Component)			Figures	Words
More than 15 lacs to 1.5 crore	Graduate Engineer Or Diploma Engineer	1 of major component	2 Or 5 respectively	Project Manager cum Planning/ Quality/Site/ billing Engineer	Rs. 25,000/- per month	Rs. Fifteen Thousand per month

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 years relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause 38

- i) a) Schedule/ statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2023 printed by C.P.W.D.
- ii) **Variations permissible on theoretical quantities**
 - a) Cement for works with estimated cost put to tender not more than Rs. 25 lakhs. **3% plus/minus**
For works with estimated cost put to Tender is more than Rs. 25 lakhs **2% plus/minus**
 - b) Bitumen all works **2.5% plus only & nil on minus side.**
 - c) Steel reinforcement and structural steel Sections for diameter, section and category. **2% plus/minus.**
 - d) All other materials **Nil**

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ADDITIONAL CONDITIONS

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 and CPWD Specification for Horticulture works with up to date correction slips (hereinafter to be collectively referred to as 'CPWD Specifications'). Wherever CPWD Specifications are silent, the latest BIS Codes/Specifications, National Building Code 2016, MoRTH specification or any other specification shall be followed.
2. The order of preference in case of any discrepancy between SOQ, the specification and/or drawings etc. shall be followed as:
 - (i) Nomenclature of items as per Schedule of Quantities
 - (ii) Additional/ Special Conditions and Particular Specifications as provided forming part of tender document.
 - (iii) CPWD Specifications with up to date Correction slips
 - (iv) Architectural/Structural drawings
 - (v) Indian Standard Specifications of BIS
 - (vi) National Building Code - 2016
 - (vii) Manufacturers specifications.
 - (viii) Sound Engineering Practices
 - (ix) Decision of Engineer-in-charge.

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.

3. The proposed building work is a prestigious project and quality of work is of paramount importance. Contractor shall have to engage well experienced skilled labour and deploy modern T&P and other equipment to execute the work. Many items like stone masonry & stone cladding work, stone flooring, flooring work, wood work, precast RCC coffers, polysulphide/ silicone sealant & other specialized works will specifically require engagement of skilled workers having experience particularly in execution of such items.
4. The tenderer shall acquaint himself with the proposed site of work, its approach roads, working space available etc. before quoting his rates and no claim on this account shall be entertained by the department.
5. The contractor(s) shall get himself acquainted with nature and extent of the work and satisfy himself about the availability of materials from kiln or approved quarries for collection and conveyance of materials required for construction.
6. The contractor(s) shall study the soil investigation report for the site, available in the office of the Engineer-in-charge and satisfy himself about complete characteristics of soil and other

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parameters at site. However, no claim on the alleged inadequacy or incorrectness of the soil data supplied by the department shall be entertained.

7. The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost. No payment shall be made on this account.
8. The building work shall be carried out in the manner complying in all respects with the requirements of the relevant bylaws and regulations of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra shall be paid on this account.
9. The contractor(s) shall inform/issue notices to the Municipality, police and other authorities that may be required as per law and obtain all requisite permission/ licenses for temporary obstructions, enclosures etc. Contractor(s) shall pay all fee, taxes and charges which may be leviable on account of these operations in executing the contract. He shall make good any damage to the property whether public or private and shall supply and maintain lights either for illumination or for cautioning the public at night.
10. The contractor shall fully comply with all legal orders and directions of the Public or local authorities or municipality and adhere by their rules and regulations and pay all fees and charges for which he may be liable in this regard. Nothing extra shall be paid/reimbursed for the same.
11. For construction works which are likely to generate malba / rubbish, the contractor shall reuse it at site as directed by the Engineer-in-charge or hand over to recycling agents or dispose of at his own cost to the notified/specified Municipal dumping ground. No deduction on this account shall be made from the agency as well as no extra payment will be made to agency if it is disposed at pre-defined location within the campus / Municipal dumping ground.
12. The contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties and any pollution of smoke, streams and water-ways. He shall make good at his cost and to the satisfaction of the Engineer-in-Charge, any damage to roads, paths, cross drainage works or public or private property whatsoever caused thereon by the contractor. All waste or superfluous materials shall be carried away by the contractor without any reservation entirely to the satisfaction of the Engineer-in-Charge.
13. 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 building/adjacent properties.
14. The works shall be carried out in accordance with the Architectural drawings and structural drawings, to be issued from time to time by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work and satisfy himself that the information available thereof is complete and unambiguous. The discrepancy, if any shall be brought to the notice of the Engineer-in-Charge before execution of the work. **In general, in case of any discrepancy in**

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the item given in the schedule of quantities appended with the tender and Architectural drawings related to the relevant item, the former shall prevail unless otherwise given in writing by Engineer-in-charge. The contractor alone shall be responsible for any loss or damage executing by the commencement of work on the basis of any erroneous and or incomplete information.

15. The Architectural drawings given in the tender other than those indicated in nomenclature of items are only indicative of the nature of the work and materials/fixings involved unless and otherwise specifically mentioned. However, the work shall be executed in accordance with the drawings duly approved by the Engineer-in-Charge.
16. Other agencies **carrying out works related with the project such as** sub-station / generating sets, air-conditioning, lifts, etc. **may also simultaneously executed their 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.
17. The contractor shall conduct 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 of 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 coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.
18. Some restrictions may be imposed by the security agencies /client on the working and on movement of labour, materials etc in the campus/site and may require to issue identity cards to all persons authorized by contractor to do work / visit the work site. The contractor shall be bound to follow all such restrictions / instructions and no claim whatsoever shall on this account will be entertained. The loss of time on this account, if any, shall have to be made up by generating additional resources etc. at no extra cost.
19. The rates quoted by the contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark(s), spot levels, survey with total station, construction of all safety and protection devices, compulsory use of helmet, safety harness and safety shoes, and other appropriate safety gadgets by workers, imparting continuous training for all the workers, providing and installation of safety signages, barriers, earth embankments, preparatory works, all testing of materials, working during monsoon, working at all depths, height and locations etc. unless specified in the schedule of quantities.
20. Royalty at the prevailing rates wherever payable shall have to be paid by the contractor on the boulders, metal, shingle, sand and bajri etc. Or any other material collected by him for the work direct to revenue authorities and nothing extra shall be paid by the department for the same.
21. Contractor shall make all necessary arrangements for protecting works already executed from rain, snowfall, flood or any other natural calamity, vandalism, whatsoever, during the execution of the work and nothing extra shall be payable on this account. Further, no claim

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financially or otherwise shall be entertained and no payment shall be made for any damage caused by any such aforementioned reasons occurred during the execution of the work. The contractor shall be fully responsible for any damage to the govt. property and work for which the payment has been advanced to him under the contract and he shall make good the same at his risk and cost. The contractor shall be fully responsible for safety and security of his material, T&P, Machinery brought to the site by him.

22. The contractor shall deploy resources e.g. manpower, labour, T&P, Plant & Equipment etc. as per actual requirement of work. No damages/compensation shall be payable on account of idle manpower, labour, T&P, Plant and Equipment and loss of profit etc. for whatsoever reason.
23. The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, material, tools and plants and other inputs involved in the execution of the item.
24. The contractor (s) shall quote all-inclusive rates against the items in the schedule of quantities and nothing extra shall be payable for any of the conditions and specifications mentioned. In the tender documents unless specifically specified otherwise.
25. Unless otherwise specified in the schedule of quantities the rates for all items shall be considered as inclusive of pumping/baling out water, if necessary, for which no extra payment shall be made. Those conditions shall be considered to include water from any source such as inflow of flood, surface and sub-soil water etc. and shall apply to the execution in any season.
26. The work shall be executed and measured as per metric dimensions given in the Schedule of quantities, drawings etc. (FPS units wherever indicated are for guidance only).
27. Unless otherwise specified in the schedule of quantities, the rates tendered by the contractor shall be inclusive of all costs & taxes and shall apply to all leads and lifts and nothing extra shall be payable on this account.
28. The foundation trenches shall be kept free from water while works below ground level are in progress.
29. 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.
30. All ancillary and incidental facilities required for execution of work, onsite and offsite, 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, temporary barricading or fencing around the working sites, 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.

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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.

31. For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). Normally contractors shall not be allowed to execute the RCC, electrical and finishing work at night. Work at night shall, however, be allowed if the site conditions/circumstances so demand. 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.
32. The contractor shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.
33. 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.
34. The contractor(s) shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed. The stacking shall take place as per stacking plan however, if any change is required, the same shall be done with the approval of Engineer-in-Charge. Double handling of materials or excavated earth, if required, at any stage of the work shall have to be done by the contractor at his own cost.
35. The Contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by department/arranged by the contractor.
36. The terms machine batched, machine mixed and machine vibrated concrete used elsewhere in agreement shall mean the concrete produced in concrete batching and mixing plant and if necessary transported by transit concrete mixers, placed in position by the concrete pumps, tower crane and vibrated by surface vibrator /needle vibrator / plate vibrator, as the case may be to achieve required strength and durability.
37. The cost of flooring is inclusive of providing sunken flooring in bath-rooms, kitchen, etc. and nothing extra on this account shall be payable.
38. Any legal or financial implications resulting out of carriage of earth from outside or disposal of earth shall be sole responsibility of the contractor. Nothing extra shall be paid on this account.
39. No chase cutting/dismantling of plaster/RCC/CC shall be allowed, so contractor has to execute the electrical work accordingly. The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors are minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously

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while raising the brick work. The contractor shall ensure proper coordination of various disciplines viz. sanitary & water supply, electrical, fire-fighting and any other services.

40. The work of water supply, internal sanitary installations and drainage etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the contractor shall produce necessary completion certificates from such authority after completion of work.
41. In case of local Municipal regulations / restrictions by client /non-availability space at site, if huts for labour are not allowed to be erected at the site of work, the contractor shall be required to provide such accommodation at suitable place at his own cost and nothing extra shall be paid on this account.
42. Any cement slurry added over base surface for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable and no extra cement considered in consumption on this account.
43. Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar service encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. In case the same are to be removed and diverted. The same shall be payable to the contractor. The contractor shall work out the cost and the same shall be approved by Engineer-in-Charge. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.
44. The contractor shall be responsible for the watch and ward / guard of the buildings safety, fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.
45. The contractor shall make his own arrangements for obtaining electric connections including DG sets, if required, and make necessary payments directly to the department concerned. Nothing extra, whatsoever, shall be paid on this account and neither any extra time for delay in the said operations, whatsoever, shall be admissible on this account.
46. The Department shall in no way be responsible for either any delay in getting electric and/or water and/or telephone connections for carrying out the work or not getting connections at all. No claim of delay or any other kind, whatsoever, on this account shall be entertained from the Contractor. Also, contingency arrangement of stand-by water & electric supply shall be made by the Contractor for commencement and smooth progress of the work so that work does not suffer on account of power failure or disconnection or not getting connection at all. No claim of any kind whatsoever shall be entertained on this account from the Contractor. Nothing extra shall be payable on this account.
47. The rate quoted by the contractor / agency shall be inclusive of mobilization to site all necessary machineries and equipment's, furnishing, handling, storing, installation including placing, cutting holes, splicing, driving, re-driving, bailing out water, pulling out and removal of the temporary earth retaining structure / strutting etc. from site and other machineries, equipment's, instrumentations etc. men ,materials etc. , other incidental to works, for execution of work, with all safety measures as required for the execution of

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construction work for safety of surrounding existing buildings, structures, services, parked / moving vehicles, equipment's and machines etc. as per direction of Engineer-in-charge.

48. **WARNING/ CAUTION BOARDS:** All temporary warning / caution boards / glow signage display such as "Construction Work in Progress", "Keep Away", "No Parking", Diversions & protective Barricades etc. shall be provided and displayed during day time by the Contractor, wherever required and as directed by the Engineer-in-Charge. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. This signage shall be dismantled & taken away by the Contractor after the completion of work, only after approval of the Engineer - in - Charge. Nothing extra shall be payable on this account.
49. **SIGN BOARDS:** The Contractor shall provide, erect and maintain till completion of work, a display board of size and shape as per directions of Engineer in charge and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Engineer-in-Charge. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, Client/Owner, Engineer-in-charges, Structural Consultants, Department etc. besides providing space for names of other Contractors, Sub-Contractors and specialized agencies within 30 days from issue of award letter. Nothing extra shall be payable on this account. In case of non-compliance/delay in compliance in this, a penalty @ Rs. 500/- per day will be imposed which will be recovered from the immediate next R/A Bill of the Contractor.
50. The contractor shall display all permissions, licenses, registration certificates, bar charts, other statements etc., under various labour laws and other regulations applicable to the works, at his site office.

51. SETTING OUT

- 51.1. Contractor shall provide permanent bench marks and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.
- 51.2. The contractor shall carry out survey of the work area, at his own cost, setting out the layout of building in consultation with the Engineer-in-charge & proceed further. Any discrepancy between architectural drawings and actual layout at site shall be immediately brought to the notice of the Engineer-in-charge. It shall be responsibility of the contractor to ensure correct setting out of alignment. Total station survey instruments only shall be used for layout, fixing boundaries, and centre lines, etc., Nothing extra shall be payable on this account.
- 51.3. The contractor shall establish, maintain and assume responsibility for grades, lines, levels and bench marks. He shall report any errors or inconsistencies regarding grades, lines, levels, dimensions to the Engineer-in-Charge before commencing work. Commencement of work shall be regarded as the contractor's acceptance of such grades, lines, levels and dimensions and no claim shall be entertained at a later date for any errors found. If at any time, any error in this respect shall appear during the

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progress of the work, the contractor shall, at his own expense rectify such error if so required to the satisfaction of the Engineer-in-Charge. Nothing extra shall be payable on this account.

- 51.4. Though the site levels may be indicated in the drawings the contractor shall ascertain himself and confirm the site levels with respect to GTS bench mark from the concerned authorities.
- 51.5. The contractor shall ascertain and confirm the site levels with respect to benchmark from the concerned authorities. The contractor shall protect and maintain temporary/permanent benchmarks at the site of work throughout the execution of work. These benchmarks shall be got checked by the Engineer-in-charge or his authorized representatives. The work at different stages shall be checked with reference to bench marks maintained for the said purpose. Nothing extra shall be payable on this account.
- 51.6. The approval by the Engineer-in-Charge of the setting out by the contractor shall not relieve the contractor of any of his responsibilities obligation to rectify the errors/defects, if any, which may be found at any stage during the progress of the work or after the completion of the work.
- 51.7. The contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignment, the level and correctness of every part of the work and shall rectify effectively any errors or imperfections therein. Such rectifications shall be carried out by the contractor at his own cost to the instructions and satisfaction of the Engineer-in-Charge.

52. PROGRAMME CHART

- 52.1. The Contractor shall prepare an integrated programme chart in MS Project, Primavera software, **or as approved by Engineer-in-charge** for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfilment of the programme within the stipulated period or earlier and submit the same for approval to the Engineer-in-Charge within ten days of award of the contract. Non-submission of such programme shall attract the recoveries as mentioned in the Schedule-F of the tender document. The integrated program chart so submitted should not have any discrepancy with the physical milestones attached in the contract agreement.
- 52.2. The programme chart should include the following:
 - (a) Descriptive note explaining sequence of the various activities.
 - (b) Network (PERT/CPM/BAR CHART) in MS Project/Primavera Software
 - (c) Programme for procurement of materials by the contractor.
 - (d) Programme of procurement of machinery / equipment having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.
- 52.3. In addition to above, the contractor shall submit shuttering schedule adequate to complete structure work within laid down physical milestone etc. and to achieve the

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progress of work as per programme, he must bring sufficient shuttering material required for cement concrete and R.C.C. works etc.

52.4. If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved programme referred above, the contractor shall produce a revised programme showing the modifications to the approved programme to ensure completion of the work. The modified schedule of programme shall be approved by the Engineer-in-Charge. Non-submission of such revised programme shall attract the recoveries as mentioned in the Schedule-F of the tender document.

52.5. The submission for approval by the Engineer-in-Charge of such programme or the furnishing of such particulars shall not relieve the contractor of any of the duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

53. MONTHLY PROGRESS REPORT

The contractor shall submit to the Engineer-in-charge on the 7th day of each month, 2 hard copies and one on soft copy (through CD or any other electronic form) of monthly progress report of the. Such progress report will include the project progress, summary, work progress (planned vs. actual), CPM chart, status of financial progress and achievement of milestone, manpower deployment status, inventory of materials and photographs of important activities. For delay in submission of the report, or submission of incomplete report without all the details mentioned herein below recovery from the contractor as mentioned in Schedule F of the contract shall be made.

The progress report shall contain the following, apart from whatever else may be required as specified above:

- (i) Project information, giving the broad features/ brief scope of the contract of the work under the contract, and the broad structural or other details.
- (ii) Construction schedule of the various components of the work through a bar chart for the next two fortnights (or as may be specified), showing the milestones, targeted tasks and up to date progress.
- (iii) Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative up to the month, with reasons for deviations, if any, in a tabular format.
- (iv) Plant and machinery statement, indicating those deployed in the work, and their working status/ condition.
- (v) Man-power statement, indicating individually the names of all the staff deployed in the work, along with their designations. No. of skilled workers (trade wise) and total no. of unskilled workers deployed on the work and their location of deployment, activity wise & block wise.
- (vi) 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.

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- (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 up to date, to indicate visually the actual progress of the work.

Nothing extra, whatsoever, shall be paid on account of the aforesaid submission of monthly report.

54. SAFETY PRECAUTIONS

- 54.1. Contractor shall within two weeks of award of work, submit to the Engineer-in-Charge for his approval, list of measures for maintaining safety of manpower deployed for construction.
- 54.2. Unless provided otherwise elsewhere in the contract, contractor at his cost put up the barricading all around the construction site through suitable method for segregating the construction site and also to control the dust pollution in the campus. Entry to the site shall be controlled for proper security of man and materials and to avoid accidents.
- 54.3. Necessary personal protective and safety equipment's such as helmet, safety shoes & harness, gloves etc. shall be provided to the all site Engineers, Supervisory staff, labour and technical staff of the contractor by the Contractor at his own cost and to be used at site.
- 54.4. The Contractor(s) shall take all precautions to avoid accidents by exhibiting necessary caution boards, day and night speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to existing/new work due to negligence on his part. No hindrances shall be caused to traffic during the execution of the work.
- 54.5. In case of any accident of labours/ contractual staff's the entire responsibility will rest on the part of the contractor and any compensation under such circumstances if becomes payable the same shall be entirely borne by the contractor and department shall have no role on this account.
- 54.6. It shall be ensured by the contractor that no electric live wire is left exposed or unattended to avoid any accidents in this regard.
- 54.7. Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machinery's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.
- 54.8. For facia work, outer finishing and other RCC works etc. double steel scaffolding having two sets of vertical supports with steel staircase for inspection of works by engineer in charge shall be used. The supports shall be sound and strong, tied together with horizontal piece over which scaffolding planks shall be fixed.

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55. QUALITY ASSURANCE

- 55.1. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.
- 55.2. The contractor shall ensure quality control measures on different aspects of construction including materials, workmanship and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.
- ~~55.3. The contractor shall depute Quality Manager exclusively for enforcement of quality control. Such Quality Manager should be a qualified engineer with minimum Eight years of similar experience. For other staff to be deployed for quality assurance, the contractor may refer to clause 32 under schedule "F" attached.~~
- 55.4. Wherever work is specified to be done through specialized agencies, their names shall be got approved well in advance from Engineer in charge. Failure to do so shall not justify delay in execution of work. It is suggested that immediately after award of work, contractor should negotiate with concerned specialist agencies and send their names for approval to Engineer in charge.
- 55.5. All materials obtained from Govt. Stores or otherwise shall be got checked by the Engineer-in-Charge or his any authorized supervisory staff on receipt of the same at site before use.
- 55.6. Materials used on work without prior inspection and testing (where testing is necessary) and without approval of the Engineer-in-Charge are liable to be considered unauthorized, defective and not acceptable. The Engineer-in-Charge shall have full powers to order the removal of any or all of the materials brought to site by contractor which are not in accordance with the contract specifications or do not confirm, in character or quality to the samples approved by the Engineer-in-Charge. In case of default on the part of the contractor in removing rejected materials, the Engineer-in-Charge shall be at liberty to have them removed at the risk and cost of the contractor
- 55.7. The contractor shall provide at his own cost suitable weighing, surveying, levelling and measuring arrangements at site for checking the weight, layout, levels, dimensions as may be necessary for execution of work and directed by Engineer in charge at site for checking. All such equipment shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. The sealed samples are to be handed over to the testing lab by contractor in the presence of Junior Engineer/Assistant Engineer-in-Charge of work. Nothing extra shall be payable on all these account.
- 55.8. Samples of various materials required for testing shall be provided free of charges by the contractor. Testing charges, if any, unless otherwise provided in the contract shall be borne by the contractor. All other expenditure required to**

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be incurred for taking the samples; conveyance, packing etc. shall also be borne by the contractor himself.

- 55.9. The contractor or his authorized representative shall associate in collection, preparation, forwarding and testing of such samples. In case, he or his authorized representative is not present or does not associate him, the results or such tests and consequences thereon shall be binding on the contractor.
- 55.10. For certain items, if frequency of tests not mentioned in the CPWD Specifications and then relevant IS code shall be followed and tests shall be carried out as per the frequency specified therein.
- 55.11. If any load testing or special testing is to be done for any sample whose strength is doubtful, the cost of the same shall also be borne by the contractor.
- 55.12. For ensuring quality of concrete, non-destructive tests such as UPV (Ultrasonic Pulse Velocity) or Rebound Hammer shall be performed on the concrete members particularly columns as per guidelines issued by Technical Circular No. 18 issued vide letter No. G-2/SE(QA)/CSQ/69 dated 12.02.2013. The cost of such tests shall be borne by the department. However all necessary assistance for conducting the test shall be provided by the contractor.
- 55.13. Samples of all materials and fittings to be used in the work in respect of brand manufacturer and quality shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-in-Charge. Wherever brand / quality of material is not specified in the item of work, the contractor shall submit the samples as per approved list of brand names given in the tender document / additional specifications for approval of Engineer-in-charge. For all other items, materials and fittings of ISI Marked shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant specifications or IS codes and use the same only after getting the approval.
- 55.14. To avoid delay, contractor should submit samples as stated above well in advance so as to give timely orders for procurement. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.
- 55.15. The contractor shall get the source of all other materials, not specified elsewhere in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement, to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.

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- 55.16. The contractor shall get the water tested with regard to its suitability and conforming to the relevant IS Code. The contractor shall obtain written approval from the Engineer-in-Charge before he proceeds by using the same for execution of work. The water testing charges shall be borne by the contractor. If tube well water is not suitable, the contractor shall arrange Municipal water or from any other source at his own cost and nothing extra shall be paid on this account. The water shall be got tested at frequency specified in latest CPWD Specifications / BIS Code.
- 55.17. The Stone aggregate/stone, sand shall be brought from any quarries subjected to the said materials conform CPWD specifications.
- 55.18. The gradation of fine sand to be used in plaster work shall be strictly as per CPWD Specifications 2019, conforming to IS:1542-1977. The plastered surface shall be fairly smooth without any undulation of any kind for applying paint/white wash.
- 55.19. Contractor shall prepare and submit shop drawings/layout drawings for approval of Engineer in charge, before taking up execution of different activities like staging and shuttering arrangement, **structural steel items, trusses, frames aluminium doors& windows, uPVC doors & windows, fire door shutters, plumbing for water supply and drainage, sewer lines & manholes with IL, ACP cladding, stone cladding, glass curtain walls etc.** or any other activity as directed by Engineer in charge. Contractor shall be required to make modifications as may be directed by the Engineer in charge in the submitted shop drawings and shall resubmit modified shop drawings. Contractor shall not be allowed to execute the related items without approval of such shop drawings and he shall be fully responsible for all contractual implications, for any delay caused, if any, on account of delay in submission of such shop drawings or modified shop drawings. Nothing extra, whatsoever, shall be paid on this account and his quoted amount shall be deemed to be inclusive of all such activities.
- 55.20. Shop drawings/layout drawings shall be submitted for approval four weeks in advance of planned delivery and installation of any material to allow the Engineer In-Charge ample time for scrutiny. No claims for extension of time shall be entertained because of any delay in the work due to his failure to produce shop drawings at the right time, in accordance with the approved program.
- 55.21. The contractor shall invariably prepare the samples of finishing items i.e. flooring of different types, external & internal finishing i/c colour scheme of paint, tiles in dado, flooring in platforms & staircase, water supply & sanitary fittings and any other item as per direction of Engineer-in-charge. The contractor shall proceed with further finishing items only after getting the samples of these items approved in writing from Engineer-in-charge. Toilets and in case of construction of residential quarters, one sample quarter complete in all shape for each category, shall be prepared by the contractor and got approved from Engineer-in-charge in writing. The contractor shall be allowed to proceed with further quarters only after getting the sample quarters approved in writing from Engineer-in-charge No extra claim whatsoever beyond the payments due at agreement rates will be entertained from the contractor on this account.

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55.22. The construction joints shall be provided in predetermined locations only as decided by Engineer in charge. The cost of shuttering for these construction joints shall be included in item of Concrete work / RCC work and nothing extra shall be payable on this account to the contractor.

55.23. Water tanks, taps, sanitary, water supply and drainages pipes, fittings and accessories should conform to the specifications provided in bidding documents. The contractor(s) should engage approved, licensed plumbers for the work and get the materials (fixtures/fittings) tested, by the municipal Body/Corporation authorities, wherever required, at his own cost. The Contractor(s) shall submit for the approval to the Engineer-in-Charge the name of the plumbing agency proposed to be engaged by him.

55.24. All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested as per the design conditions submitted before covering.

55.25. The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.

55.26. Door/window frames/shutters and other factory-made materials shall be procured from reputed and approved manufacturers or their authorized dealers. Decision of Engineer-in-charge in this regard shall be final and binding.

55.27. Testing of Materials:

(i) **Laboratory at site:** The contractor shall establish a testing lab at site and provide testing equipment and materials for the field tests mentioned in the list of mandatory tests given in CPWD Specifications 2019 Vol. 1 & 2. Nothing extra shall be payable to him on this account. The representatives of the department shall be at liberty to inspect the testing facilities at site and conduct testing at random in consultation with Engineer in charge. The contractor shall provide all necessary facilities for the purpose. The laboratory shall be equipped, inter alia, with the following equipment:

a) **Balances:**

- i) 7 kg to 10 kg capacity, semiself-indicating type – Accuracy 10 gm.
- ii) 500 gm capacity, semiself-indicating type Accuracy 1 gm.
- iii) Pan Balance- 5 kg Capacity- Accuracy 10 gm.

b) **Ovens-** Electrically operated, thermostatically controlled up to 1100C- Sensitivity 10C.

c) **Sieves:** as per IS: 460

- i) IS Sieves – 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan.

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- ii) IS Sieves – 200 mm internal dia (brass frame) consisting of 2.36 mm, 1.18 mm, 500 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.
- d) Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.
- e) Equipment for slump test- slump cone, steel plate, tapping rod, steel scale, scoop.
- f) Equipment for concrete testing
 - i) Concrete cube moulds 15x15x15cm : 18Nos.
 - ii) Pruning Rods 2Kg weight length 40cm and ramming face 25mm : 1 No.
 - iii) Extra Bottom plates for 15cm cube mould : 6 Nos.
 - iv) Standard Vibration table for cubes : 1 No
 - v) Dial gauges 25 mm travel- 0.01 mm/division Least count- : 1 No.
 - vi) **Electrically operated Compression testing machine of 100 tonne capacity with digital display** : 1 No.

Not less than 90% tests for material be performed at site lab with above stated equipment's, however at least 10% testing of materials shall be got done from external laboratories. However, for the tests to be carried out by the external laboratories, the contractor shall supply free of charge all the materials required for testing, including transportation. If the tests which were to be conducted in the site laboratory are conducted in other laboratories for any the reasons the cost of such tests shall be borne by the contractor.

- (ii) **Other Laboratories:** The contractor shall arrange carrying out 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 charges for testing for all materials except cement for which separate condition is provided in tender document.

55.28. Maintenance of Site Registers:

- (i) All the Site Registers including Tests registers for tests to be carried out at construction site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff.
- (ii) The various registers to be issued to the contractor are:
 - Materials at site account register.
 - Cement register.
 - Master test registers.

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- Cube test register.
 - Paint register.
 - Inspection register.
 - Drawing register.
- (iii) All the entries in the registers will be made by the designated engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE.
- (iv) All the registers of tests carried out at construction site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff.
- (v) All samples of materials including cement concrete cubes shall be taken jointly with contractor by JE and out of this at least 50% samples shall be taken in presence of AE in charge. If there is no JE, all samples of materials including cement concrete cubes shall be taken by AE jointly with contractor. All the necessary assistance shall be provided by the contractor. Cost of sampling & testing are to be borne by the contractor and he shall be responsible for safe custody of samples to be tested at site/ outside laboratory.
- (vi) All the tests in field lab at construction site shall be carried out by the Engineering staff deployed by the contractor and shall be 100% witnessed by JE and 50% of tests shall be witnessed by AE –in-Charge. At least 10% of the tests are to be witnessed by the Executive Engineer. Minimum 25% of all samples should be tested in outside approved laboratory/ Govt. Engineering colleges.
- (vii) Submission of copy of all test registers, material at site register along with each alternate running account bill and final bill shall be mandatory. These registers should be duly checked by AE(P) in division office.

55.29. Removal of Rejected / Sub-standard Materials:

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

- a) 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.
- b) 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.
- c) 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.

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56. AS BUILT DRAWINGS:

On completion of work, the Contractor(s) shall submit at his own cost four prints of “as built” drawings to the Engineer-in-Charge within 30 days of completion of work. These drawings shall have the following information.

- (i) **Route of** all piping and their diameters including soil waste pipes and vertical stacks.
- (ii) Ground and invert levels of all drainage pipes together with locations of all manholes and connections, up to outfall.
- (iii) **Route of** all water supply line with diameters, locations of control valves, access panels etc.

On failure of the contractor to do so action shall be taken as per the clause 8A of the General Conditions of the Contract.

57. Contractor shall be mandatorily be required to provide to the engineer-in charge certified copies of original invoices of all kind of materials, T&P etc. being used or procured for this agreement. Failure to provide any of such information to engineer-in-charge to his satisfaction shall render the contractor ineligible for payment for such items and no claim what so ever on this account shall be admissible and decision of engineer-in-charge in this regard shall be final and binding.

58. Condition regarding secured advance:-

Secured advance shall be admissible only on those bonafide materials which are likely to be used in the work in a period not exceeding six months from the date of secured advance payment. If agency fails to use the material (in respect of which secured advance have been paid) in the work in this specified period of six month, the said component of secured advance shall be recovered from next running account bill paid to the agency. Secured advance on the same material shall not be paid again.

59. List of approved laboratories for testing:-

Laboratories approved by the competent authority i.e. **ADG(Lucknow)** or Successor thereof.

60. Contractor shall provide minimum three samples of three different makes for each item of work as per the list of approved makes for the approval of engineer-in-charge. It shall be the discretion of Engineer-in-charge to approve any of the three samples to be submitted by the contractor and decision of engineer-in-charge in this regard shall be final and binding and nothing extra, whatsoever, shall be admissible on this ground.
61. The contractor shall render all help and assistance in documenting the total sequence of this project by way of photography, slides, audio-video recording etc. Nothing extra shall be payable to the contractor on this account.
62. The contractor shall be responsible for the watch and ward/guard of the buildings, safety of all fittings and fixtures including all equipment's, services provided by him against pilferage and breakage during the period of Installations and thereafter till the building is physically handed over in complete shape to the CPWD. The CPWD will take over the building after

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rectification of all defects. No extra payment shall be made on this account and no claim shall be admissible on this account.

63. The contractor shall keep himself fully informed of all acts and laws of the Central & State Governments, all orders, decrees of statutory bodies, tribunals having any jurisdiction or authority, which in any manner may affect those engaged or employed and anything related to carrying out the work. All the rules & regulations and bye-laws laid down by Collector / Central/State Govt. and any other statutory bodies shall be adhered to, by the contractor, during the execution of work. The contractor shall also adhere to all traffic restrictions notified by the local authorities. All statutory taxes, levies, charges (including water and sewerage charges, charges for temporary service connections and / or any other charges) payable to such authorities for carrying out the work, shall be borne by the Contractor. The water charges (for municipal water connection as well as tanker water) shall be borne by the contractor. Also, if the contractor obtains water connection for the drinking purposes from the municipal authorities or any other statutory body, the consequent sewerage charges shall be borne by the contractor. The Contractor shall arrange to give all notices as required by any statutory / regulatory authority and shall pay to such authority all the fees that is required to be paid for the execution of work. He shall protect and indemnify the Department and its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts. The fee payable to statutory authorities for obtaining the various permanent service connections and Occupancy Certificate for the building shall be borne by the Department.
64. The contractor shall protect and indemnify the CPWD, its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives or any of his other direct or indirect action taken in relation to the execution of this work. Nothing extra shall be payable on these accounts. In case of failure on part of the contractor in this respect, department shall be free to recover any such amount due to the contractor under this contract or any other contract under the government and the decision of the Engineer in charge in this regard shall be final and binding on the contractor.

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LIST OF MACHINERY, TOOLS & PLANTS TO BE DEPLOYED BY THE CONTRACTOR AT SITE AS & WHEN REQUIRED

Sl. No.	Name of Equipment	Numbers
1	Excavators (various sizes)	1 No
	Equipment for hoisting & lifting	
1	Tower Crane or Builder's hoist (Desirable)	1 No
2	Crane/hydra for lifting for truss	Nil
	Equipment for Concrete work	
1	Semi-Automatic batching plant of capacity no less than 10 Cum/Hrs. or RMC from the approved plant	1 No
2	Concrete pump	1 No
3	Concrete transit mixer (Desirable)	1 No
4	Concrete mixer (diesel)/ (electrical)	1 No
5	Needle vibrator (electrical)	4 Nos.
6	Needle vibrator (petrol)	4 Nos.
7	Surface vibrator	2 Nos.
	Equipment for Building work	
1	Bar bending Machine	1 No
2	Bar cutting machine	1 No
3	Drilling machine	Nil
4	Welding machine i/c transformer	1 No
5	Cube testing machines (Automatic type with Electronic Display)	1 No
6	Steel shuttering & props and pipes for Structural work	1400 sqm plan area
7	Steel scaffolding for plaster, brick work & finishing work etc.	1400 sqm of elevation area
8	Grinding/polishing machines	2 Nos.
	Equipment for transportation	
1	Tippers/Tractor tipper	2 Nos.
2	Trucks	Nil
	Pneumatic equipment	
1	Air compressors (diesel)	1 No
	Dewatering equipment	
1	Pump (diesel)	1 No
2	Pump (electric) (Desirable)	1 No
	Power equipment	
1	Diesel generator	1 No
2	Plate compactor	1 No

Note: 1. The above list is only indicative and not exhaustive. The Bidder may be required to deploy more T&P as per requirement of work.

2. All the above plants & equipments are to be deployed as and when required or directed by Engineer-in-Charge.

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LIST OF PREFERRED MAKES FOR CIVIL WORKS

Sl. No.	Material description	Approved Manufacturer / Brand Name
RCC Work		
1	Ordinary Portland Cement/ Portland Pozzolana Cement	ACC, Ultratech, Ambuja Cement, J.K. Cement, Century Cement, Shree Cement
2	White Cement	Birla White, J.K. White
3	Reinforcement Steel	SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and JSW Steel Ltd
4	Admixtures, Plasticizer, Super Plasticizer, Curing Compounds	Fosroc, CICO, Sika, BASF, Ardex Endura
5	Modular Expansion Joint	Herculus, Sanfield India Ltd. Vexcolt, MNR, CS
6	Ready Mix Concrete (RMC)	Ultratech, ACC, RMC Ready Mix (India)
Structural Steel Work		
7	Structural Steel	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd. (RINL), JSW Steel Ltd. and Jindal Steel & Power Ltd, APL Apollo
8	M.S. tubular windows	Jangid Engineering, AGFUV, SEN HARVIC, NAVAIR Delhi, SUKRITI Delhi, Chandni industries, or as approved by E-I-C.
9	Pressed steel door frame	Bhawani fire Ghaziabad (UP) any other manufacturer as approved by Engineer-in-Charge
10	GPSP Door frame & Shutters	Tata Pravesch, Shakti Hormann, Home's Guard
11	MS Tubular door frames	Apollo, as approved by Engineer-in-Charge
Block Work		
12	AAC Blocks	Ultratech, HIL, BILTECH or any other ISI marked as approved by E-I-C.
13	AAC Block Adhesive	UltraTech, Ardex Endura, Ferrous Crete, Saint Gobin-Weber,
Roofing Work		
14	Profile Steel Sheet (PPGL)	Ezydec of TATA, JSW Steel Ltd., Jindal Steel & Power Ltd, Super deck of Lloyd
15	Sandwich Insulated Panel	Kingspan, Metecno India, Lloyd
16	Polycarbonate sheet	GE Plastic, LEXAN, DPI Daylighting,
Water proofing		
17	Integral Water Proofing compound with cement (For Plaster & Mortar)	Fosroc : Conplast 421, Dr. Fixit : LW+, Sika : Sikacin, Ultratech weather Pro WP+200 Asian Paints : Smart care vitalia & equivalent product of BASF, MYK Arment, CICO, Ardex Endura, Birla Opus
18	Water proofing for bathroom/toilet/ balcony & other wet areas	Fosroc : Brush Bond Dr. Fixit : Pidifine 2K Sika : Nito Bond Asian Paints : Damp Block 2K, MYK Arment: AquaArm Saniflex & equivalent product of BASF, CICO, Ardex Endura, Ultratech weather Pro HI-FLEX, Birla Opus C2K, C2K+

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19	Crystalline water proofing compound	Fosroc : Fosroc Crystalline Dr. Fixit : Dr. Fixit Crystalline Sika : Sika Crystalline Asian Paints: Crystalline Quarty , MYK Arment: AquaArm C-35 & equivalent product of BASF, Ardex Endura,
20	HDPE/SBS membrane	Fosroc, Pidilite, Tikidan, BASF, MYK Arment
	Flooring	
21	Ceramic Tiles (Antiskid/Matte/Glazed	Kajaria, RAK, Somany, NITCO, Johnson
22	Vitrified Tiles (Antiskid/Matt/Glazed)	Kajaria, RAK, Somany, NITCO, Johnson
23	Mosaic tiles/Chequered Tiles	Ultra Tiles, NITCO, Kajaria, Johnson
24	Grouts, Tile Adhesive	Latecrete, Kerakoll, BASF, Ardex Endura, Ferrous Crete, Roff (Pidilite), Ultratech TILEFLXO
25	Vinyl flooring	Armstrong/Forbo/Polyflor or approved equivalent make
	Wood Work	
26	Flush door shutters	Duro, Merino, Century, Durian, Green Ply (Only ISI marked flush doors shutters to be used.)
27	Particle Board	Kitply, Action TESA, Greenlam, Merino.
28	WPC (Wood Polymer Composite) board, Frame Shutter	ALSTONE, GREEN PLY, RAJSHRI
29	Laminated Particle Board	Action TESA, Greenlam, Century Ply, Merino
30	Laminates	Greenlam, Century Ply, Merino
31	Plywood	Green Ply, Century, Merino, Duro, Durian.
32	Natural veneer	Century, Green Ply, Merino, Greenlam
33	PVC Shutter	Rajshri, Sintex, M/s Jain Wood Industries
34	Block Board	Jayna, Orion Doors(Modern Wudtech Industries), Archidply, Saburi, Black Cobra, Green Panel
35	FRP Doors/Panelled & Wiremesh doors	Jayna, Jain Doors Pvt. Ltd., Bhatt FRP
36	Bamboowood Panel door, Flush door, cupboard shutter	Epitome Bamboo wood products (Mutha Industries Pvt. Ltd.) or approved equivalent make
	Fire doors	
37	Fire Rated Doors	Signum Fire Protection, Shakti Hormann, NAVAIR, Promat International, TATA Pravesh
38	Fire door Accessories	Yale, AssaAbloy, Ozone, Dorma, Becker Fire Solution, Shakti Hormann
	False Ceiling & Wall paneling	
39	False Ceiling suspension Grid	Armstrong, Hunter Douglas, Bollard, USG Boral, Saint Gobain, Aerolite, Dexune, Diamond Ceiling.
40	False Ceiling tiles (GRG tiles, Calcium silicate tiles, Mineral fiber tiles)	Armstrong, Hunter Douglas, USG Boral, Saint Gobain, Aerolite, Diamond Ceiling.
41	Gypsum Board	Gyproc (Saint Gobain), USG Boral,
42	Glass Wool	Dow Corning, U.P. Twiga, Isover

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43	Acoustic Wall paneling	KNAUF (Armstrong), Anutone, Bollard, Saint Gobain, Arolite, Himalayan Acoustics
44	Cement bonded wood particle board	Bison (NCL), Birla aerocon
Aluminium/ uPVC Doors & Windows		
45	Aluminium Section	Hindalco, Jindal, Indian Aluminium Co.
46	UPVC Doors & Windows (PROFILE makers & their authorized Fabricators only)	Fenesta, KOMERLING, Aluplast, Duroplast, Prominence, Rajshri
Hardware (Doors, Windows, Cupboard, Kitchen)		
47	Anodised Aluminium Hardware (Heavy Duty)	Kinlong, Alualpha, Classic, Ebco
48	Aluminium sliding door roller etc.	TPI, Classic or equivalent
49	Hardware for uPVC Windows	Rotto, Dorset, Kinlong, Fenesta
50	Floor Spring	Godrej, Dorma, Hafele, Geze, DORSET, KICH
51	Door Closure	Godrej, Dorma, Hafele, Geze, DORSET, KICH
52	Stainless steel Fittings	Jindal, Dorma, Dorset, Godrej, Ozone, KICH, ARCH
53	Dash/Anchoring Fasteners	HILTI, Fischer, Bosch, Wurth
54	SS 304 Grade Kitchen Baskets	Godrej, Ebco, Hettick
Glass		
55	Clear/Float/Frosted/Reflective/ Coated Glass	Saint Gobain, AIS, Modiguard, Sisecam Flat Glass
Facade work		
56	Aluminium Composite Panel	Alstone, VIRGO, EUROBOUND, ALUTUFF, VIVA, REYNOARCH, Timex, ALEX, ALUTECH.
57	Aluminium High Pressure Composite Panel	VIRGO, ALUTUFF, VIVA, Timex.
58	Structural Glazing	Schueco India Pvt. Ltd./Wicon / Guttman or approved equivalent
59	Curtain Glazing	Hindalco, Jindal, Indal
60	Patch fittings/spider fitting	Godrej Dorma, Kich, Dorset, Hafele
61	High Pressure Laminate	Virgo, Marino, Century ply, Greenlam
Paints & Distempers		
62	Cement Based Wall Putty	Birla wall care, JK White, Berger, Asian Paints
63	Cement Primer (Interior)	Nerolac, BP White (Berger), Decoprime WT (Asian), White Primer (ICI), Birla Opus Prime I-10
64	Cement Primer (Exterior)	Nerolac Popular Primer White, Asian Paints (AP Trucare Exterior Wall Primer), Berger Weather Coat Exterior Primer, Dulux Professional Exterior, Birla Opus Prime E-10
65	Acrylic Emulsion Paint (Interior)	Asian Paints (Apolite All Protek), Nerolac (Beauty Gold Washable), Berger (Platina Easy Clean), ICI-Dulux: (3 in 1.), Birla Opus Calista Ever Clear/150
66	Premium Acrylic Emulsion Paints (Interior)	Asian Paints: Royale, Nerolac : Impression, Berger : Silk Glamor ICI Dulux : Velvet touch Birla Opus Prime One Pure Elegance
67	Oil Bound Washable Distemper/Dry	Asian Paints (Professional Acrylic Distemper),

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	Distemper	Nerolac : Beauty Acrylic Distemper Berger : Bison Acrylic Distemper Dulux ICI : Maxilite Birla Opus Prime D-20
68	1 st Quality Acrylic Distemper (washable/Ready Mix/Low VOC)	Asian Paints (Tractor Aqua Lock Paint) Berger : Commando or equivalent paints Birla Opus Prime D-20
69	Premium Acrylic Smooth Exterior Paint with silicon additive	Asian Paints : Apex Ultima, Nerolac : Excel Total Berger : Weathercoat Long Life 7/ All Guard ICI-Dulux : Weathersheild Ultra Clean Birla Opus Prime E-70/True look
70	Textured Exterior Paint	Asian Paints, Nerolac, Berger Paints, ICI Dulux (Tex-matt), Ultratech Paint, Luxture Birla Opus Prime
71	Synthetic Enamel Paint	Asian (Apolite Premium gloss enamel), Nerolac : Synthetic Hi gloss Berger : Luxol Hi gloss ICI-Dulux : Gloss Synthetic enamel Birla Opus Prime N-53/N52/ Sparkle glass/ Style Cover Max
72	Epoxy Paint	Asian Nerolac, Berger, ICI, Kansai Akzo Nobel, Birla Opus Prime
73	Fire Paint	Asian Paint, Akzo Nobel Coatings India Ltd. PROMAT, Jotun, Berger Paint, Birla Opus
74	Steel Primer (Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Berger, ICI, Birla Opus Prime/ NR8/ SGE RO Primer
75	Wood Primer	Asian Paints (Wood Primer- White/Pink), Berger ICI, Nerolac, Birla Opus Prime
76	Melamine Polish	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI Dulux, Birla Opus Allwood
77	Gypsum Plaster	Ferrous Crete, Gyproc Saint Gobain, Ultratech, JK White
Weather seals		
78	Epoxy Grouting compound	Saint Gobin-Weber, Markchem, Home Pride
79	Silicon based Structural sealant & Weather sealant	G.E. Plastics, Dow Corning, (Wacker), BASF, Pidilite (Dr. Fixit/Roff)
80	Poly-Sulphide Sealant	Fosroc, Pidilite (Dr. Fixit/Roff), Sika, BASF
Plumbing & Drainage Works		
81	G.I./M.S. Pipe	Tata, Jindal (Hisar), PRAKASH SURYA.
82	G.I. Fittings	Unik, AVAk, Zoloto, Leader
83	CPVC Pipe & fitting	Astral, Supreme, Prince, Ashirwad, PRAYAG POLYMERS PVT. LTD
84	HDPE Pipes	Reliance, Jain Pipes, ORIPLAST, Supreme
85	DI Pipes	Electosteel, JSAW-JAL (JINDAL), Tata Ductura
86	DI Fittings	Electosteel, Jindal, Tata Ductura.
87	uPVC pipe and fittings	Astral, Supreme, Ashirwad, Prince, Finolex
88	Centrifugally Cast (spun) Iron pipes & fittings	NECO, Kapilansh, SKF, RPMF, BIC

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89	Hubless Centrifugally Cast (spun) Iron Pipes & Fittings	NECO,SKF, Kapilansh
90	C.I. Manhole covers, frames & GI Gratings	NECO, BIC, Kapilansh, SKF, RAJ Iron Foundary Agra.
91	SFRC/RCC Manhole covers & gratings	KK, JAIN, PARGATI, NTC
92	RCC Pipes (NP-2)/(NP-3)	Lakshmi, Sood&Sood, Jain Pipe Co. (Newai), Mahaveer Enterprises (Newai), any other ISI marked with the approved by Engineer in Charge.
93	PE-AL-PE Composite pressure pipes and accessories	Jindal (Jindal Pex tube Pvt. Ltd.), Kitec.
CP & Sanitary Fitting		
94	CP Brass Fittings (Superior Range)	Jaquar, Grohe, Roca, Kohler
95	CP Brass Fittings (Normal Range)	Hindware, Jaquar (ESSCO Series), Parryware, PRIMA (ISI marked), CERA, Plumber, Johnson, KINGSTON, PRAYAG POLYMERS PVT. LTD. (Series 7000 & 6000), PLATO, KEROVIT, RAK, Euronics
96	Sanitary ware, Fittings & accessories (Superior Range)	Kohler, Roca, Hindware, Jaquar
97	Sanitary ware, Fittings & accessories (Normal Range)	Hindware, CERA, Parryware, Jaquar (Esco), Johnson, PRIMA PRAYAG POLYMERS PVT. LTD, Somany, GLOCERA, RAK Ceramics, KEROVIT, Euronics
98	Mirror Glass	Atul, Modi Guard, Golden Fish, Sisecam
99	Stainless Steel Sink	Neelkanth, Nirali, Jayna, Johnson, PRAYAG POLYMERS PVT. LTD
100	Extruded Polystyrene Insulation Board	Dowcorning, Supreme, Texas, Analco
101	SMC Tank	Sintex (Welspun), Sivosky, Mahindra
Miscellaneous		
102	Stainless Steel Railing, Accessories etc.	JINDAL, Dorma, Giesse, Godrej, Hardwyn, KICH
103	Paver Block & Kerb Stone	Pavcon Hyper Tiles/Dynamic Industries, Dala Tiles, Mayur, KK, Power, Sharda, Navya, Any other ISI marked with the approval of engineer in charge.
104	Floor hardener	Ironite, Ferrok, Hardonate, Saint Gobin-Weber
105	PVC water tank	ISI Market tanks of sintex, Supreme, Prayag, Astral.
Other Chemicals		
105	Acrylic Polymer	Sunanda Polyalk EP, Sika Latex, Dr. Fixit, Forsoc
106	Micro Concrete	Fosroc Renderoc RG or equivalent of Dr. Fixit, Sika, Ultratech, Forsoc
107	Polymer based bonding agent	Nitobond SBR 300 or equivalent of Sika, Dr. Fixit, Ultratech
108	Orgnosilane (water repellant coating on lime)	Zydex- Zycosil Max, CTS- Silo 112, Protecto Seal SW
109	Elastomeric coating compatible with lime and organosilicane protection	Zydex- Elastomax, or equivalent of Dr. Fixit, Forsoc, Sika Ultratech
110	Silicone solvent (Conservation grade water repellent containing silane or siloxane)	Silo 111, Silo 112 or equivalent of product of Dr. Fixit, Forsoc.
111	PU Injection grout	Sika Injection 201 CE, Dr. Fixit PU Foam Injection, Asian smartcare PU Injection foam or equivalent from Forsoc

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Original Estimate

Name
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C/o Lecture Theatre hall complex (G+3) for Science Faculty Building i/c IEI and Fans, Solar Compound Lighting, Service connection, Addressable Fire Alarm System, Down comer system, CCTV, VRV/VRF, Substation & DG set etc. at MCC Campus University of Allahabad. (SH: SITC of 2 No. 11 KV RMU at A.N. Jha Hostel).

SLNo	Description	Qty	Unit	Rate	Amount	DSR No.
1	EARTH WORK					2
1.1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.					2.6
1.1.1	All kinds of soil	2.00	cum	177.50	355.00	2.6.1
	Sub-Total				355.00	
2	CEMENT CONCRETE (CAST IN SITU)					4
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					4.1
2.1.1	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	0.50	cum	6518.60	3,259.00	4.1.10
2.2	Centering and shuttering including strutting, propping etc. and removal of form work for:					4.3
2.2.1	Foundations, footings, bases for columns	1.00	sqm	392.15	392.00	4.3.1
	Sub-Total				3,651.00	
3	REINFORCED CEMENT CONCRETE					5
3.1	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					5.1
3.1.1	1:1.5:3(1 cement: 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	3.00	cum	9045.75	27,137.00	5.1.2
3.2	Centering and shuttering including strutting, propping etc. and removal of form for					5.9
3.2.1	Foundations, footings, bases of columns, etc. for mass concrete	5.00	sqm	392.15	1,961.00	5.9.1
3.3	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.					5.22

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3.3.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	450.00	kg	107.85	48,533.00	5.22.6
	Sub-Total				77,631.00	
4	STEEL WORK					10
4.1	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	800.00	kg	133.70	106,960.00	10.2
	Sub-Total				106,960.00	
5	ROOFING					12
5.1	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-Charge) of total coated thickness 0.50 mm (base metal of minimum 0.45 mm thickness with total coating thickness of 0.05mm) with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	40.00	sqm	738.65	29,546.00	12.5
	Sub-Total				29,546.00	
	Total				218,143.00	
	Modified Estimated Cost after using correction factor on DSR 2023 on account of GST @ 0.973 * 218143 = 212253				212,253.00	
	Add Cost Index as per letter issued by vide letter no. 23(197)/ADG(L)/3164 dated 18.12.2025 @3% on SR&DR Total 2,12,253.00				6,368.00	
	Total				218,621.00	

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