

**CONSTRUCTION OF ACADEMIC & RESIDENTIAL QUARTERS
BLOCK AT AIIMS, PATNA**



CLIENT



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, PATNA
(An Autonomous body under MoHFW, Govt. of India)

EXECUTING AGENCY



HLL INFRA TECH SERVICES LTD. (HITES)

As

Executing Agency of

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, PATNA

(An Autonomous body under MoHFW, Govt. of India)

Invites e-Tender for

**“Construction of Academic Block & Residential Quarters at
AIIMS, Patna”**

on EPC Basis

Tender No.- HITES/AIIMS-PATNA/2023

Volume-3

SPECIFIC CONDITIONS OF CONTRACT

(February, 2023)



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“Construction of Academic Block & Residential Quarters at AIIMS, Patna”

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SPECIFIC CONDITIONS OF CONTRACT

A. SCOPE OF WORK

These Specific Conditions of Contract shall be read in conjunction with General Conditions of Contract. If there are any provisions in these Specific Conditions of Contract which are at variance with the provisions in the above mentioned documents, the provisions in these Specific Conditions of Contract shall take precedence.

1. Scope of Work:

1.1. General:

AIIMS, Patna has proposed to develop and construct additional facilities in the Hospital and Residential complexes. In order to take up this activity, AIIMS Patna has appointed HLL Infra Tech Services Limited, a 100 % subsidiary of HLL Lifecare Limited, a Mini Ratna Central Public Sector Enterprise, under the administrative control of Ministry of Health & Family Welfare as Executing Agency to construct these facilities.

The scope of work relates to Construction of Academic Block & Residential Quarters at AIIMS, Patna. The work is to be executed on Design, Engineering, Procurement & Construction (EPC) basis.

The proposed site is located at Phulwari Sharief in Patna and is in the outskirts, about 10 km, from the Patna Junction Railway Station. The site is surrounded by National Highway 98 and nearest airport is Jayprakash Narayan Airport.

A. Existing AIIMS, Patna Infrastructure

The existing AIIMS Infrastructure comprise of following buildings with allied infrastructure in the Residential Complex and AIIMS, Patna Institute Complex respectively:

AIIMS, Patna Residential Complex

Following type and number of residential units are already constructed in the Residential Complex:

a. Type 1 Quarters-	32 units
b. Type 2 Quarters-	72 units
c. Type 3 Quarters-	18 units
d. Type 4 Quarters-	24 units
e. Type 5 Quarters-	24 units
f. Director's bungalow-	1
Total	171 units

In addition to above, there is a Guest House Building having 10 single rooms, 3 suites, Dining room with kitchen and pantry, and, a Substation Building accommodating transformer, DG sets, LT& HT panels.

AIIMS, Patna Institute Complex

1. Hospital Complex:-

- a. Hospital Block with 960 Beds
- b. OPD Block (LG+G+5)
- c. AYUSH & PMR (LG+G+3)
- d. Trauma Block (LG +G+4)

- e. Ancillary Buildings such as Laundry, Mortuary, Gas Plant Room, Boiler, A C Plant Room, Main Receiving Station, Bio Waste Treatment, Plant & Incinerator
2. Medical College: Medical college building is a five storied building with Lower Ground floor, Ground floor & upper three floors.
3. Nursing College: Nursing college building is a five storied building with Lower Ground floor, Ground floor & upper three floors.
4. Auditorium
5. Hostel Complex: The Hostel complex comprises UG Boys Hostel, Resident Boys Hostel, PG Intern Boys Hostel, UG Girls Hostel, Resident Girls Hostel, PG Intern Girls Hostel, Nurses Hostel, Student Nurses Hostel, Boys Dining & Kitchen, Girls Dining & Kitchen, Nurses Dining & Kitchen, Student and Nurses Dining Hall
6. Besides, Substations, Workshop. Garage, Animal House have been provided in the complexes

B. Infrastructure – proposed up-gradation

The AIIMS, Patna, in this tender, proposes to undertake construction of following Buildings/blocks in the existing campuses to enable development of the proposed infrastructure. All buildings shall be sustainable, energy efficient and use space optimally.

AIIMS, Patna Residential Complex

- Residential Quarters- 112 No. Type V Quarters with related ancillary buildings and integrated infrastructure

AIIMS, Patna Institute Complex

- Academic Block with related ancillary buildings and integrated infrastructure

The bidders is being provided with a Master Plan of the complexes, Concept Plans of the proposed buildings in the existing complexes, Technical specifications and other details forming the part of bid documents. Based on these drawings and documents, the Bidders shall prepare their detailed designs and in conformity with the local Bye-laws. Any modification in the master plan and concept plan, required to meet the conformance to the local bye laws, shall be done with the approval of Client/HITES.

The concept plan, design and drawings prepared in respect of the Project are being provided only as a preliminary reference document by way of assistance to the Bidders. The bidders are expected to carry out their own due diligence, surveys, investigations and other detailed examination of the Concept plan, design and drawings before submitting their Bids. Nothing contained in the concept plan, design and drawings shall be binding on the HITES/AIIMS, Patna. HITES/ AIIMS, PATNA shall have no liability whatsoever in relation to or arising out of any or all contents of the Concept plan, design and drawings. Bidders are expected to do their own due diligence and investigations into the Project and its related details prior to submission of their Bids.

Present scope of work involves construction of various buildings/blocks as per Concept plan, design and drawings in the existing Institute and residential campus of AIIMS Patna with a total tentative plinth area (including stilt area) of 51623 Sqm. Besides, required MEP, HVAC and other services, Utilities, External Development, Horticulture, Landscaping, Roads/approach including Pavements and culverts, Parking, Pathways, Water Supply, Plumbing, Storm Water Drainage, Signage's(internal & external) and all related utilities and as mentioned in the Design Basis Report and Tender drawings otherwise taking into consideration with respect to all statutory regulations as required for development and functioning of campus are also included in the scope of work.

The tentative area of proposed buildings is tabulated below:

Sl. No.	Building / Block	Area (in Sqm.)
A. Residential Complex Buildings		
1.	Residential Quarters- 112 Type-V Units	26,757
B. Institute Buildings		

2.	Academic Block	24,867
	Total Area (A+B)	51,623

1.2. Tender Drawings:

The tender drawings are for e-Tender Purpose only and are intended as a guide to the Bidder / Contractor and give general layout of buildings and general information of the structures and general positions of utilities, services and equipment. The Drawings and Specifications provide an indicative requirement of the works and general design principles and shall be developed, tested and warranted to comply with the design & drawings, specified performance criteria and requirements, and relevant statutory and project requirements.

The bidder/contractor shall prepare their designs & drawings based on the tender drawings and Design Basis Report provided in the tender document. The master plan shall not be varied without approval of the Engineer-In-Charge. The drawings of the respective buildings/ blocks, as provided in the tender documents, shall also be followed unless there is a requirement for their modification/correction as per requirement of the statutory bye laws, and, changes, if any required, due to structural designs consideration shall also be incorporated with the approval of the Engineer-In-Charge. If any modification in design/ drawings is needed as per site conditions or subsequent to proof checking, the contractor shall do/redo the design and proof checking without any extra cost. The decision of the Engineer-In-Charge in this regard shall be final and binding. No claim whatsoever on this account will be entertained. This shall also hold good in respect of drawings/ SLD/ schematic/ P&I diagrams/ drawings for Services Components. All relevant modifications/revisions as required are to be done by the contractor at his own cost and any claim raised by the contractor in this regard shall not be valid in this contract and shall not be accepted by the HITES.

1.3. Design

The Design Basis Report and Drawings provided to the bidders are to ensure a clear understanding of the building design standards and other associated parameters that the Client/HITES wishes to achieve for different components of the project. While the Client/HITES is keen to see innovation, but the required standards of design must be achieved. Contractors shall outline the means by which they will ensure design quality and the design objectives, which have influenced their scheme. This shall include details of how the Client/HITES's objectives are to be achieved.

1.3.1. General Standards:

The facilities shall be completed to high standards of construction and specification. The facilities shall be technically sound and functionally suitable in line with the provisions given in the DBR and to meet the Client/HITES's objectives:

- i. The Architectural finishes shall be of approved brand as per tender documents and such quality that will ensure better hygienic conditions, provide clean room environment in the modernized facilities as well as the new facilities.
- ii. The architectural design of Lecture Hall/ Conference rooms should take in to account the required Acoustic Parameters.
- iii. The architectural design should take in to account the required Green Building Parameters.
- iv. The architectural design should take in to account the requirements of physically challenged persons.
- v. All the material procured or to be used should be with the approval and the satisfaction of the Engineer in charge, before being put to use.
- vi. All materials including fittings and fixtures shall be of approved make. For other materials, the same shall be as per approval of Engineer- in-charge.
- vii. The design should provide for underground/surface Tanks and overhead water tanks with necessary pumping arrangement for both portable and fire fighting requirements.

- viii. The design should incorporate fire fighting system with hydrants, sprinklers, fire extinguishers, electrical and fire alarm system in accordance with the rules and regulations of the local fire authority, NBC 2016, NFPA, Relevant IS codes,(the Tariff Advisory Committee (TAC) of the Insurance Association of India- for guidance only), as amended up to date.
- ix. Planning and design should also incorporate the requirements with respect to the recreational & sports facilities in the project as per requirement.
- x. Lighting should conform to relevant IS Code of practice for Lighting. All electrical system, fixtures, fittings etc. should conform to CPWD specifications, latest IS code, NBC etc.
- xi. The planning should include landscaping and horticulture as per requirements. The contractor shall create parking, approach roads and other requirements for the building.
- xii. Provision should be made for internal and external signage's, display boards, public address system in the required area.
- xiii. Furnishings in the room should be complete in all respects including, communication networking for Data, telephone connection, power points etc. It should also include the provisions of raceways to be laid in floors as per requirements.
- xiv. Mechanical services shall be designed and installed with provisions to contain noise and the transmission of vibration generated by moving plant and equipment schedules to achieve acceptable noise and vibration with respect to human beings specified by ISO standards 13.140 and 13.160
- xv. All moving plant, machinery and apparatus shall be statically and dynamically balanced at manufactures work place and certificate issued.
- xvi. All aspects of Bio Medical Waste(Management & Handling) Rules 1998 with subsequent amendments, if any, issued by the Ministry of Environment and Forest, Government of India should be addressed in the provision for Waste Management as per requirement.

1.3.2. Statutory, Industry and Local Standards:

The following standards shall apply unless otherwise stated:

- Standards set out in National Building Code of India 2016
- Relevant Development Control Rules/Planning Act/Development Act/ Municipal Act/ any other applicable statutes and local bye-laws
- National Electrical Code, 1985
- Indian Electricity Act 2003
- Bio Medical Waste Management Rules - 2016
- Requirements of the local Water Supply Company, Electricity Supply Company/Department
- Requirements of the Pollution Control Board, Fire Department, Aviation authorities and other statutory authorities, as applicable
- Requirements of any other standards and bye laws as applicable.

1.3.3. Preliminary&Detailed Design:

Based on the details provided, as mentioned above, the Contractor shall prepare preliminary& detailed design of all the building & services including external development and these shall be in conformity with the Tender drawings, Technical Specifications, Design Basis Report and other standards set forth in the contract document subject to applicable statutory bye-laws/ regulations as listed below:

- a. Carrying out Topographic Site Survey and Sub-Soil Investigation & submission of Site Survey Report & Sub-Soil Investigation Reports to HITES.
- b. Preparation & submission of Preliminary & Detailed Architectural design/drawings of

- various buildings & blocks including updating Site Plan, Structural designs & drawings with complete services etc. in conformance with Master Plan & other Tender drawings, Design Basis Report & General specifications for the work provided in the Tender Document with complete foundations and sub-structure / structure with all furnishings and interiors including acoustics treatment, as required. The Contractor shall ensure that the drawings shall meet the requirements of the local bye-laws/ statutory bodies etc.
- c. The contractor shall prepare complete structural design drawings for foundations, superstructure, services, and for other structures to be provided/constructed, as per the provision contained in IS Codes / NBC2016, taking into consideration the protection against seismic forces required for earthquake resistance structures. The shear walls, due to structural requirement shall be provided, as required.
 - d. The structural drawings shall be got approved from HITES. The contractor shall ensure proof checking of structural designs and drawings from IIT/NIT or other Govt. Institutes as approved by HITES. After approval of the structural drawings by Engineer-in-Charge, if any modification in design/drawing is needed, as per site conditions, the Contractor shall do/re-do without any extra cost.
 - e. Scope of work shall include scheme finalization based on DBR, tender drawings, concept designs, master plan etc. Contractor shall submit detailed room wise Heat Load Sheet of Air Conditioned Buildings, CFM sizing of ventilation/pressurization fans, detailed electrical load sheets, Equipment sizing, SLDs/Schematic for all MEP services, Technical Submittals & GA Drawings of all MEP Equipment, Lighting/Energy Simulation Reports for MEP Services, Detailed Water Requirement Sheet & Tank /Pump Sizing etc. complete as per requirement of HITES.
 - f. Preparation & submission of Preliminary & Detailed Design & drawings of all internal and external services viz. Electricals including DG Sets, Transformers, Provision of different types of Lifts, HT/ LT Panels, HVAC, Networking, LAN & Wi-Fi, CCTV & PA System, Fire Detection & Alarm system, Firefighting, Waste Management System, ETP, STPs & Water Treatment Plant, Solar Hot Water System etc. & all other systems as mentioned in DBR & elsewhere in this Tender.
 - g. Planning and designing of all external services like water supply, system for recycling of waste water, R.O plant, sewerage system including provisions of STP as per requirement, drainage system, parking lots, Recreational & sports facilities, internal campus roads, pathways, and all connected sub-structures and superstructures within the premises, as per bye-laws and norms of the local bodies including making connections with the peripheral services after getting the services design approved from the local bodies/statutory bodies. HITES's/Client's role shall be limited only to sign the application / drawings / documents for submission to the local bodies in the capacity of the owner for approval. In case of water supply, sewerage and drainage, the cost of getting the scheme approved from service provider is included in the scope of work/bid. The cost of connection of water supply lines/sewer lines from peripheral connection point/outfall sewer shall also be borne by the Contractor apart from internal and external water supply/sewerage lines to be laid to make the system of water supply and sewerage functional/complete. However, statutory charges, if levied by the service provider towards cost of laying of their peripheral services shall only be reimbursed by HITES/Client on production of relevant payment receipts/documents by the Contractor to the satisfaction of Engineer-in-charge.
 - h. The necessary arrangements are to be provided for supply of water through dual pipe system i.e. recycled water duly treated pumped through underground tanks/surface Tank to overhead tanks and piped to flushing in each location/utility as directed by the Engineer-in-charge. However, the requirement in respect of each of the buildings is laid down while specifically detailing the requirement for respective building.
 - i. Planning and designing underground tanks, pump houses for water supply, for firefighting tanks, storm water collection tank including installing of pumps etc.as per approved drawings/ specifications or as directed by Engineer-in-charge.
 - j. Planning and designing of all electrical and mechanical services including related external services for works such as HT/LT Electrical works, firefighting works, Lifts,

Internal electrification, LV works, HVAC, STP/ETP/WTP, as per requirements, etc., as per bye-laws and norms of the statutory and local bodies including making connections with the peripheral services after getting the services design approved from the local bodies/statutory bodies. HITES's/Client's role shall be limited only to sign the application / drawings / documents for submission to the local bodies in the capacity of the owner for approval. However, statutory charges, if levied by the service provider towards cost of providing services shall only be reimbursed by HITES/Client on production of relevant documents by the Contractor to the satisfaction of Engineer-in-charge.

- k. Planning & designing of waste water recycle system, rain water drainage, storage and recycle system including laying of pipe lines and construction of related structures.
- l. Preparation & submission of Preliminary & Detailed design & drawings for Landscaping & Horticulture work, development plans showing Internal Roads, Pathways, Parking lots, Paved areas, Court Yards Landscaping, Drains, Culverts, Compound walls etc. as required and shown in the tender drawings/DBR , External lighting arrangements, Under Ground /Surface tanks & Overhead tanks, Rain Water Collection tank, Internal & external Signage's etc. complete in all respect.
- m. Preparation of landscaping plan, planters and other details etc. for the horticulture works and execution of same including providing unfiltered/recycled water supply lines, construction of pump houses and installation of pumps therein etc. complete will be responsibility of Contractor. Development of parks, water hydrants, the grassing, creepers and planting trees & relocation of existing trees within campus etc. shall be completed as per the specification and drawing approved by the Engineer-in-charge.
- n. Planning & designing of sign boards, guide maps, location boards, direction boards, Numbering of houses etc. all complete as per the drawing approved and direction of Engineer-in- charge.
- o. However, the requirement of services in respect of each of the buildings is laid down while specifically detailing the requirement for respective building.
- p. Setting up a Testing Laboratory at site equipped with the necessary apparatus needed for day to day testing of construction materials during construction period as directed by the Engineer-in-charge.
- q. Obtaining approval of HITES/ Client for all the Detailed/Preliminary Architectural, Structural & Services drawings & designs.
- r. Prepare and submit three-dimensional model(s) of suitable scale as and when required by the HITES/ local authority at no extra cost.

1.3.4. **Scale**

All drawings shall be prepared to the scale as required for proper explanation and shall indicate the size and location of all equipment and accessories therein. The Contractor shall follow all dimensions of approved architectural drawings for the work or part concerned and check proposed drawings for any interference with the building structure or other equipment or services.

1.4. **Statutory Approvals:**

The EPC contractor shall take all necessary action to obtain all approvals from Local Statutory Bodies, Fire Department etc. before commencement of work including payment of all Fees / submission of security money etc. The Contractor shall further be responsible for ensuring all the requisite statutory approvals from other local bodies like Water supply agencies concerned, Electric Supply and Inspectorate Agencies concerned, Police and Security Agencies, Chief Controller of Explosives, Civil Aviation Department, in accordance to prevailing rules, Building Bye-Laws, etc., as the case may be with related to/ required for Construction/ Completion. The contractor shall also assist and liaison for obtaining EIA approval, as required. All expenditure on this account will be borne by the contractor.

These approvals shall also include:

- i. The Environment impact assessment is also part of the scope of work as such its clearance from Ministry of Environment and forest Department, CPCB & State PCB as applicable is the responsibility of the contractor. The contractor shall assist and liaison with the respective department for obtaining the EIA approval, as required.
- ii. Obtaining approval of the Architectural drawings from relevant local statutory body & obtaining Commencement Certificate from local bodies leading to commencement of construction of the project, as required.
- iii. Any other approval required from the appropriate Statutory Authorities/ Local Bodies, as required.
- iv. The design, planning and layout schemes etc. for construction of all buildings/ facilities shall be carried out in accordance with GRIHA Version 2015 & ECBC (latest version) norms/stipulations established by GRIHA Council (for minimum 3-Star Rating). *However, project registration under GRIHA is not required and certification from GRIHA Council need not be obtained.*

1.5. Detailed Drawings/ Shop drawings/ Design

The Contractor shall furnish for approval of the Engineer-in-charge requisite sets of detailed drawings/ Shop drawings well in advance as stipulated/as per specifications & requirements of the contract and especially for Façade work, Aluminum works, Door/Windows, Glazing Work, Structural Steel work, Sanitary, Plumbing, all Services Works like Firefighting (external & internal), Pump Room, Electrical works, LV works, HVAC, VRV/VRF System, Solar Hot Water System, STP/WTP works, MGPS and all other works within scope of this contract.

These drawings/documents shall contain details of construction, size, arrangement, operating clearances, performance characteristics, and capacity of all items, materials and equipment, as also the details of all related items of work of other trades. The work will be executed by the contractor based on the approved detailed/shop drawings from the Engineer-in-charge/ concerned authority and accordingly contractor will be responsible for obtaining all required final NOC / clearance from concerned authorities. All shop drawings are to be made in accordance with latest fire safety norms and building codes.

- a. All drawings necessary for assembly, erection, maintenance, repair and operation of the equipment shall be furnished and different parts shall be suitably numbered for identification and ordering of spare parts.
- b. For any amendments proposed by Engineer-in-charge/ concerned authority in the above drawings, the Contractor shall supply fresh sets of drawings with the amendments duly incorporated, along with the drawings on which corrections were indicated.
- c. No material or equipment shall be brought at Site until the EPC Contractor has the approved Shop drawings for that particular material or equipment.
- d. After approval of the drawings by the Engineer-in-charge, the Contractor shall further furnish required sets of Shop drawings for the exclusive use of and retention by the Engineer-in-charge.
- e. Approval of drawings by the Engineer-in-charge shall not relieve the Contractor of any obligation to meet all the requirements of the Contract or of the correctness of his drawings. The Engineer-in-charge's approval of specific item shall not mean the approval of the assembly of which it is a component. The Contractor shall be responsible for and is to bear the cost for all alternations of the works due to discrepancies or omission in the drawings or other particulars supplied by him, whether such drawings have been approved by the Engineer-in-charge or not.
- f. Where the work of the Contractor has to be installed in close proximity to, or will interfere with the work of other trades, the Contractor shall assist in working out the space conditions to make a satisfactory adjustment. If so directed by the Engineer-in-charge, the Contractor shall prepare composite working drawings and sections to a suitable scale not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, and it is cause for any interference with the work of other trades, he shall make all the necessary changes without extra cost.

- g. All shop drawings and detail drawings will be made as per requirements of local authorities and tender drawings incorporating all latest regulations and requirements. No separate drawings will be, issued for making shop drawings.
- h. Unless otherwise prescribed, the contractor shall submit two sets of shop drawings/technical submittals/data sheets/any other details required for approval of the Engineer-In-Charge. The contractor, after incorporating modifications / deletions/observations/ amendments suggested by the Engineer-In-Charge, shall submit six corrected sets of such documents for final approval and issuance.

1.6. Approved Makes:

- a. Specification/brands names of materials/equipment to be used or supplied shall be as per the scope of work as given in Vol-4 DBR and Vendor list as given in the Vol-5 Technical Specifications. For all other materials /equipment the same shall conform to the relevant Indian Standards or in their absence conform to any International Standards and as approved by the Engineer-in-Charge.
- b. All material and equipment shall conform to the relevant Indian Standards/ IEC codes and bear IS marking where ever applicable. Where interfacing is involved, such equipment shall be mutually compatible in all respects.
- c. Where an item of equipment, other than as specified or detailed on the drawings, is approved by Engineer-in-charge, requires any re-design of the structure, partitions, foundation, piping, etc. or any other part of the mechanical, electrical or architectural layout, all such re-design, and all new drawings and detailing required therefore, shall be prepared by the Contractor at his own expense and approval obtained from the Engineer-in-charge.
- d. All similar equipment, materials, removable parts of similar equipment etc. shall be interchangeable with one another.
- e. The contractor shall submit to the Engineer-in-charge for approval details of all proposed materials, equipment, accessories, equipment characteristics and capacity details of all equipment, accessories and devices etc. as per the specifications and obtain approval of the Engineer-in-charge.

1.7. Project/ Work Execution/Construction:

1.7.1. Commencement of work.

The commencement of work is to be reckoned as per Clause 5 of the General Conditions of Contract (GCC). The work is being executed as per EPC mode. It is anticipated that the Contractor shall be taking up planning and design activities, before any construction can commence at the site. No extension of time whatsoever shall be granted on account of planning and design & mobilization activities or delay if any, accruing on account of these activities.

1.7.2. Handing Over of Site:

- a. The site of work is available. There are building and services in both the residential complex and institute of complex of AIIMS Patna. The site and location of the respective buildings, covered in the scope of work, are available.
- b. The contractor is required to arrange the resources to complete the entire project within the total stipulated time. Traffic diversion, if required, is to be done and maintained as per requirement of the traffic police and / or as per specifications, by the contractor at his own cost and the contractor shall not be entitled for any extra payment, whatsoever, in this regard.
- c. There may be some services crossing the earmarked area of the project premises. The scope of work includes dismantling of services, if any, falling in the construction area and supporting/shifting & making functional existing services/sewerage and water supply lines etc. The contractor shall properly take care & safe guard the all the existing services in the area affected by the construction for up-gradation & development of AIIMS, Patna Complex. The cost to be incurred by contractor in this regards shall be deemed to be included in the quoted rates and contractor shall not be

entitled for any extra payment whatsoever in this regard.

- d. Necessary arrangement including its maintenance is to be made by the contractor for temporary diversion of flow of existing services, drain(s) and road(s) etc., as the case may be. The existing services, drain(s) and road(s) etc., would be demolished, wherever required with the progress of work under the scope of proposed project. The existing services drain(s) and road(s) etc., which are not in the alignment of the said project but are affected and / or need to demolish during execution for smooth progress of the project, shall be rehabilitated to its original status and condition (including black topping) by the contractor at his own cost. The cost to be incurred by contractor in this regard shall be deemed to be included in the quoted rates and contractor shall not be entitled for any extra payment whatsoever in this regard.
- e. The contractor shall be responsible for ascertaining the information/ details through site investigation, about the public utilities (whether over ground or underground) like electrical/telephone/water supply/sewerage lines, power/control cables, OFC Cables, open drain etc. that are likely to be affected during works execution.
- f. The contractor shall be responsible to obtain necessary approval from the respective authorities for shifting/re-alignment of existing public utilities. HITES/Client shall only assist the contractor for liaising in obtaining the approval from the concerned authorities.
- g. Any services affected by the works must be temporarily supported by the contractor who must also take all measures reasonably required by the various bodies to protect their service and property during the progress of works. It shall be deemed to be the part of the contract and no extra payment shall be made to the contractor for the same.
- h. If the work is carried out in more than one shift or during night, no claim on this account shall be entertained. The Contractor must take permission from the different statutory/ Govt. authorities etc. if required for work during night hours. No claim / hindrance on this account shall be considered if work is not allowed during night time.
- i. The Contractor shall be responsible for complete watch and ward / guard of the buildings' safety, equipment, materials, items, fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the buildings are completed as per scope of work and physically handed over and taken over by Client /HITES. No extra payment shall be made on this account.
- j. Contractor shall provide PPE (Personal Protective Equipment) like safety shoes, safety belt/harness, Helmets/Masks/Gloves etc. to all workers at site.
- k. The EPC Contractor shall strictly adhere to & comply with the guidelines issued by Govt. of India, State Govt., National Disaster Management Authority, District Administration, Chief Medical Officer & other statutory bodies from time to time, for effective prevention of infection spread from the Covid-19 pandemic among the workers/ labors/ supervisors/ officials involved in the project activities at AIIMS-Patna site. The EPC Contractor shall take adequate steps and make all necessary arrangements in this direction during entire duration of project (with extended period, if any) including DLP period within the quoted price in financial bid. Nothing extra shall be payable to EPC Contractor on this account. The EPC Contractor shall be solely accountable for all issues& situations arising at site, if any, owing to Covid -19 pandemic. Contractor to comply SOP given under CPWD Circular no. F.No.2/9/2020-WII/169 dated 05.05.2020 & other Government compliance.

1.7.3. Construction of Building & Infrastructure:

Based on the Master Plan/Site Plan, Concept Designs, Design Basis Report and other drawings, Technical Specifications and other documents given in the tender, approved Good for Construction Drawings/ Shop Drawings, Finishing/Flooring Schedule, approved makes of materials/equipment, Schedule of Doors / Windows fittings & fixtures, Schedule of Plumbing/Sanitary Fittings/Fixtures, Scale of amenities, the Construction of all buildings/ blocks, associated infrastructure & external development work & services shall be carried out and completed by the Contractor in a phased schedule as specified in the

tender document. Scope of the Construction work shall also include but not limited to the following:

- a. As per approved Architectural, Structural Drawings & Designs, Construction of foundation/sub structure & entire structure work of different buildings as specified shall be executed including carrying out complete internal & external finishing work, flooring work, doors & windows, external façade work, water proofing treatment of terrace & toilets/kitchen/ pantry etc. & of all blocks & buildings to cater for the complete up-gradation & development of AIIMS, Patna Complex.
- b. Construction of roads, pathways, dropouts at main entrances & around of Academic Block, Residential Quarters Blocks etc. Parking lots, STP/ETP/WTP, water supply, sewerage, drainage works, horticulture & landscaping, Planters, including external lighting, as per requirements, etc. complete as per approved drawings and design as per scope of work.
- c. Complete leveling/dressing including filling of earth, its supply, disposal of surplus earth / debris / malba etc. in the proposed building and external development work as per requirement to be carried out and completed by EPC Contractor as directed by the Engineer-in-charge at his own cost and nothing extra shall be paid on this account.
- d. De-watering, bailing out of water and shoring etc.:-
 - i. For works below ground level, the contractor shall keep the area free from water. If dewatering or bailing out of water is required, the contractor shall do the same at his own cost and nothing extra shall be paid on this account.
 - ii. For execution of any items of work where incidental works such as bailing out water, shoring etc. are actually required but not specifically stated in the scope of work and / or bid document, it is to be understood that the contract amount quoted by the contractor shall cover such charges also and nothing extra on account of such incidental charges, if any, shall be paid.
- e. Besides the scope of work as referred above, the construction of Building & Services with associated infrastructure shall include all components as detailed in Design Basis Report including but not limited to following along with other utilities required for smooth functioning of proposed Building /Blocks of AIIMS, Patna taking into consideration all statutory regulations:
 - i. Fire Fighting, Fire Detection & Fire Alarm System with required underground & overhead fire water tanks, rain water collection tanks, other overhead/underground domestic/flushing/soft water tanks etc., firefighting pumps, equipment, panels, ring mains, fire & smoke detectors, fire alarm panels, PA System etc. complete including construction of Pump room, STP works.
 - ii. HVAC System, VRV/VRF System for all Buildings except Residential Quarters & ESS.
 - iii. Internal Electricals with all fittings & fixtures, Rising Mains, DBs & Panels etc.
 - iv. LAN Network, IPABX System and UPS etc.
 - v. DG Sets, Transformers, Street Lighting, Sandwich Bus Ducts & Sandwich Rising Mains, HT Panels, LT Panels, Hybrid Capacitor Panels, HT & LT power cables, control cables, cable trays, earthing, Lightning Protection etc. complete with necessary RCC Foundations, Platforms/ trenches and connecting approaches/pathways etc. including required cabling & connections as required. Scope of work for EPC Contractor shall commence from existing 11 KV HT Panels located adjacent to various buildings. This includes required modification of existing HT Panels for tapping HT power for the proposed new buildings/facilities.
 - vi. Audio-Video System shall be provided for Lecture Theatres. The following facilities for Auditorium and Lecture Theatres shall be provided:

- Audio System for Seminar/Conference/Meeting Rooms & Lecture Theatres.
 - Video Projection & Control System for Seminar/Conference/Meeting Rooms & Lecture Theatres.
 - Paneling Works considering all architectural, and acoustic measures and as per requirements
- vii. RO Plant Work shall consist of furnishing all labour, materials, equipment and appliances necessary and required. The Contractor is required to completely furnish all the plumbing and other specialized services as described hereinafter and as specified in the schedule of quantities and/or shown on the plumbing drawings for RO Plant.
- viii. Supply, installation, testing & commissioning of Portable Water Purifier (RO+UV) of adequate water flow rate with sufficient storage capacity incl. RO membrane, pumps, motors, cartridge filters, interconnecting pipes, valves, cable etc. complete in all respects as per manufacturer's standards & as directed by Engineer-In-Charge.
- ix. Planning, Designing, Construction with respect to all required Green Building Parameters and Acoustic Parameters.
- x. All aspects of quality assurance, including testing services components of the work.
- xi. Training and orientation of Client's personnel on various systems installed as part of this contract.
- xii. Project Management to ensure completion of Project as per specified timelines.
- xiii. Submission of the completion (i.e. as built) drawings and other related documents.
- xiv. Clearance of site before handing over of the facilities to fulfill after full filling all the obligations.
- xv. Handing over of the facilities after completion of project after fulfilling all obligations and responsibilities as per Contract.
- xvi. Making Good any defect (if any) within Defect Liability Period
- 1.8. The Contractor shall take all precautionary measures to safeguard safety measures against any accidents for the Contractor's employees, labour, public, and staff of HITES/Client by providing all necessary safety equipment, helmets etc. at work site.
- 1.9. The scope of work includes cost of all materials, manpower, equipment, T&P fixtures, accessories, royalties, taxes, watch & ward, and all other essential elements for completion Any change, modification, revision etc. required to be done by HITES/Client, Chief Fire Officer, local bodies, proof consultants etc. in accordance with applicable standards and bid document will have to be done at Contractor's cost and nothing extra shall be payable.
- 1.10. The scope of work is only indicative and not exhaustive. In additions to the above the Contractor shall be responsible for executing all the works/ items required for completing all the building and other services in all respect under up-gradation and development of AIIMS, Patna project habitable and ready for occupation as per direction of Engineer-in-charge.
- 1.11. Approval of Engineer of Client/HITES at any stage of planning, design and construction of the project will not absolve the ingrained responsibility of the Contractor to execute the construction flawless and at par excellence and, if any aspect contrary to this owning up of responsibility is glaring, the Contractor will be held liable for such gross deviation.
- 1.12. The work shall be executed in accordance with the drawings /design approved by HITES which are prepared by the Contractor in conformity with the scope of the project & specifications, standards and statutory requirements. The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Engineer-in-charge.

- 1.13. The Engineer-in-charge may in his absolute discretion and from time to time review the drawings/ designs & approve drawings/ designs and/or written instructions, details, directions and explanations, in regard to:
- a. The variation or modification of the drawings, design, quality or requirement of works or the addition or omissions or substitution of any item.
 - b. Any discrepancy in the drawings or between the requirement of works and/or drawings and/or specifications.
 - c. The removal from the site of any material brought thereon by the contractor and the substitution of any other material thereof.
 - d. The removal and/or re-execution of any works executed by the contractor.
 - e. The removal of any persons employed by the contractor on the site.
 - f. The opening up for inspection of any work covered up.
 - g. The amending and making good of any defects noticed during or after execution of the work.
- 1.14. The contractor shall be solely responsible for the means, methods, techniques sequence and procedure of construction. The Contractor shall be responsible to see the completed work complies accurately with the Contract requirements. The Contractor shall provide all necessary superintendence during the execution of the Works as per contractual provisions.
- a. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. Contractor agrees and undertakes that the construction shall be completed within the Project Completion Schedule and any extension of time granted according to the provisions of this Agreement.
 - b. The Contractor shall, subject to the provisions of the Contract, and with due care and diligence, execute and complete the Works & remedy any defects therein in accordance with the Contract. The Contractor shall provide all labour, including the supervision thereof, materials, Constructional Plant and Machineries and all other things, whether of a temporary or permanent nature, required in and for such execution, completion, maintenance and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.
 - c. The Contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications as given in these documents and also in compliance of the requirements of the local public authorities and to the requirements/ satisfaction/ direction of the Engineer-in-charge and no deviation of any account will be permitted.
 - d. The Contractor shall have to use materials from the makes / manufacturers specified in the list of materials of approved brand and/or manufacture contained in the contract documents and as approved by the Engineer - in- Charge. Wherever different pattern/ Design/ Quality of materials with same specification/ make as specified in the contract, is available in the market, Engineer-in-Charge will approve the pattern/ Design/ Quality of the material/ item which shall be final and binding on the contractor. The contractor shall supply samples of all the materials / fittings / fixtures proposed to be used in the work and obtain approval of the Engineer - in- Charge. These samples shall be retained at site till completion of the work. If subsequently it is found that approved material upon testing does not meet the requirement as specified in the contract the contractor shall get approval of alternate material.
 - e. The work shall be carried out in conformity with the relevant drawings and the requirement of architectural, electrical, structural, and other specialised service drawings approved by HITES.
 - f. The Contractor shall make provision of hangers, sleeves, structural openings and other requirements during construction to avoid holding up progress of the construction schedule. The Contractor should ensure that the structure is designed for additional loads or cut outs. Subsequent Cutting of holes in the RCC structural members /slab shall not be allowed.

- g. The contract items comprise of furnishing of all materials, equipment, labour & transportation etc. necessary to render the installation / item fully operational as per the intent of specifications and drawings, including any necessary adjustment or corrections. Further the installation / item shall be in conformity with local laws and manufacturer's instructions applicable.

1.15. Training & orientation of Client's Personnel

The contractor shall provide necessary training and orientation to the technical personnel deployed by client. The contractor shall arrange visits of the technical personnel / technicians of respective OEM / vendors involved in installation of various electrical and mechanical works under this contract. The duration of training period shall be 15 days or as directed by Engineer-In-Charge with respect to various installed systems like electrical sub-station, HVAC, STP/ETP, WTP, LV Works, Audio Video System, and any other system installed under this contract.

SPECIFIC CONDITIONS OF CONTRACT

B. GENERAL

1. **General:**

1.1. **Force Majeure:**

Any failure or delay in the performance by either party hereto of its obligations under this Contract shall not constitute a breach thereof or give rise to any claims for damages if, and to the extent that it is caused by occurrences beyond the control of the party affected, namely, acts of God, floods, explosions, wars, riots, storms, earthquakes, insurrection, epidemic/ pandemic or other natural disasters. The party so affected shall continue to take all actions reasonably within its power to comply as far as possible with its obligations under this Contract. The affected party shall promptly notify the other party after the occurrence of the relevant event and shall use every reasonable effort to minimize the effects of such event and act in all good faith with due care and diligence.

1.2. **Compliance with Statutes, Regulations, etc.**

The contractor shall conform to the provisions of all statutes, ordinance, laws, acts of the legislature relating to the works, and to the regulations and by-laws of any local or other duly constituted authority and of any water, electric supply and other companies and/or authorities with whose systems the structure is proposed to be connected. The Contractor shall keep the HITES indemnified against all fines or penalties or liability of every kind for breach of any such statutory ordinance, law act of the legislation, regulations, and byelaws as aforesaid.

The contractor shall before making any variations from the drawings or specifications that may be necessitated by such regulations, give to the Engineer- in-charge written notice, specifying the variation proposed to be made and the reasons for making it and apply for instructions thereon. The contractor will not execute any work without written permission from the Engineer-in- charge

The contractor shall bring to the attention of the Engineer-in-charge any specific requirement of the local authorities or any notice required for execution by virtue of such acts, regulations or bye-laws of such authority, or public office. All fees that may be chargeable in respect of these works shall be reimbursed by the HITES on production of authorised receipts.

1.3. **Boreholes & Exploratory Excavation**

If, at any time during the execution of the Works, the Engineer-in-charge shall require the Contractor to make boreholes or to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an additional ordered under the provisions unless a provisional sum in respect of such anticipated work shall have been included in the schedule of items.

1.4. **Fossils, Etc.**

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall be the property of the HITES/ CLIENT/ Government.

1.5. **Absence of Specifications**

If the user requirements, specifications etc., do not contain particulars of materials and works which are necessary for its proper execution, all such materials shall be supplied and item shall be executed by the Contractor without extra charge and if the Contractor requires any information, he shall request in writing well in advance to commencement of the particular work to the Engineer-in-charge who will clarify the issue within a reasonable time.

1.6. **Works by Other Agencies**

The Engineer-in-charge reserves the right to use premises and any portion of the site for the execution of any work not included in this contract which it may desire to have carried out by other persons simultaneously, and the contractor shall allow the reasonable facilities for the execution of such work, but shall not be required to provide any plant or material for the

execution of such work except by special arrangement with the other agency. Such work shall be carried out in a manner so as not to impede the progress of the works included in the contract, the contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

The contractor shall co-operate with other agencies working in the same project, and coordinate his plans and time schedules so that there will be no interference. The Contractor shall forward to the Engineer-in-charge all correspondences and drawings exchanged. Failure to check plans for conditions will render the Contractor responsible for bearing the cost of any subsequent changes found necessary or damages done.

The Engineer-in-charge shall not entertain any claim on account of the Contractor affording necessary facilities to execute the work simultaneously with other agencies executing the works for the same project.

1.7. **Quality Assurance :**

The Contractor shall devise a quality assurance mechanism to ensure compliance with the provisions of this Agreement (the "Quality Assurance Plan" or "QAP"). The Quality Assurance Plan in detailed is specified under Clause 22.2 of Vol-2, GCC

1.8. **Additional Conditions of National Green Tribunal**

- i. The Contractor shall not store/ dump construction material or debris on the metaled road.
- ii. The Contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metaled 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.
- iii. 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.
- iv. 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 material like cement, sand and other allied material are fully covered. The Contractor shall take every necessary precaution that the vehicles are properly cleaned and dust free to ensure that en-route their destination, the dust, sand or any other particles are not released in air/contaminate air.
- v. 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.
- vi. The Contractor shall ensure that C&D waste site only and due record shall be maintained by the Contractor.
- vii. The Contractor shall compulsory use of wet jet in grinding and stone cutting.
- viii. The Contractor shall comply with all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
- ix. The Contractor shall carry out on- Road-Inspection for black smoke generating machinery. The Contractor shall use cleaner fuel.
- x. The Contractor shall ensure that all DG Set comply emission norms notified by MoEF.
- xi. 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 case where reductions speed cannot effectively reduce fugitive dust, the Contractor shall divert traffic to nearby paved areas.
- xii. 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.

- xiii. 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. The HITES/Client shall carry out cost benefit ratio analysis of the same.
- xiv. It is mandatory to use of wet jet in grinding and stone cutting.
- xv. Wind breaking wall around construction site.
- xvi. As per EIA Notification of 2006, sufficient green belt around the building shall be provided. Such green belts shall be in existence prior to applying for occupancy certificate and handing it over.
- xvii. 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/construction area. The HITES shall take such item in the schedule of quantity to ensure that the construction activity does not cause any air pollution during course of construction and/or storage of material or construction activity.
- xviii. 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. The HITES shall carry out cost benefit ratio analysis of the same. Based on the benefit ratio analysis, the HITES shall include the item of paving of path in schedule of item which can be utilized as a permanent path for client after construction of project.
- xix. It shall be ensured that C& D waste is transported from the site in after keeping due record on behalf of Engineer-in-charge. The C& D waste shall only be dumped at sites declared as Dumping ground and having arrangements for recycling of C& D waste in the region.
- xx. Any violation of orders of MoEF including guidelines of State Government, SPCB or any officer of any department shall lead to stoppage of work for which Contractor shall be responsible and no hindrance shall be accounted in this regard.

1.9. Intellectual Property Rights and Royalties

- i. Insofar as the patent, copyright or other intellectual property rights in any Plant, Design Data, plans, calculations, drawings, documents, Materials, know-how and information relating to the Works shall be vested in the Contractor, the Contractor shall grant to the HITES, his successors and assignees a royalty-free, non-exclusive and irrevocable license (carrying the right to grant sub-licenses) to use and reproduce any of the works, designs or inventions incorporated and referred to in such Plant, documents or Materials and any such know-how and information for all purposes relating to the Works (including without limitation the design, manufacture, installation, reconstruction, Testing, commissioning, completion, reinstatement, extension, repair and operation of the Works).
- ii. If any patent, registered design or software is developed by the Contractor specifically for the Works, the title thereto shall vest in the HITES and the Contractor shall grant to the HITES a non-exclusive irrevocable and royalty-free licence (carrying the right to grant sub-license) to use, repair, copy, modify, enhance, adapt and translate in any form such Software for his own use.
- iii. If the Contractor uses proprietary software for the purpose of storing or utilizing records the Contractor shall obtain at his own expense the grant of a license or sub-licence to use such software in favour of the HITES and shall pay such licence fee or other payment as the grantor of such license may require provided that the use of such software under the license may be restricted to use relating to the design, construction, reconstruction, manufacture, completion, reinstatement, extension, repair and operation of the Works or any part thereof.
- iv. The Contractor's permission referred to above shall be given, inter alia, to enable the HITES to disclose (under conditions of confidentiality satisfactory to the Contractor) programmes and documentation for a third party to undertake the performance of services for the HITES in respect of such programmes and documentation.
- v. Any software is developed under the Contract or used by the Contractor for the purposes of storing or utilizing records over which the Contractor or a third party holds

title or other rights, the Contractor shall permit or obtain for the HITES (as the case may require) the right to use and apply that Software free of additional charge (together with any modifications, improvements and developments thereof) for the purpose of the design, manufacture, installation, reconstruction, testing, commissioning, completion, reinstatement, extension, repair, modification or operation of the Works, or any part thereof, or for the purpose of any Dispute.

- vi. The HITES reserves the right to use other Software on or in connection with the Works.

1.10. Obtaining Information's related to Execution of work:

No claim by the Contractor for additional payment will be entertained which in consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the works, nor will any misunderstandings or the obtaining of incorrect information or the failure to obtain information relieve him from any risks or from the entire responsibility for the fulfillment of the contract.

1.11. Miscellaneous:

(a.) Tax Deduction at Source

All Taxes and surcharge as applicable on date shall be deducted from the amount due to the Contractor towards the value of the work done. TDS certificate thereof shall be issued to the Contractor.

(b.) By-Laws of Statutory Authorities

The Contractor and his labour shall not violate municipal /sanitation /health or any other byelaws.

(c.) Delay in starting the work

No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land, encroachment or in the case of clearance of works, on account of any delay in according sanction to estimates in issue of drawings, decisions etc. However, the extension of time shall be granted as per relevant conditions of Contract.

(d.) Signage

The Contractor shall provide at his own cost, sign board(s) at directed location(s) having overall size preferably 2 metres by 4 metres, or any other size, indicating name of the project, and a three-D view of the project as well as the name of the Contractor and the CLIENT and HITES with addresses, cost of the Project, date of start & completion, as approved by Engineer-In-Charge. The signboard should be illuminated during night.

- (e.) No idling charges or compensation shall be paid for idling of the contractor's labour, staff or P&M etc. on any ground or due to any reason whatsoever.

- (f.) The Contractor shall mobilize and employ sufficient resources for completion of all the works within the stipulated time period as per agreement and as indicated in the approved Bar Chart/ Network. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by Engineer-in-charge.

- (g.) In case of delay penalty to be levied under clause 5 or clause 32 of GCC, Vol-2, shall be recovered along with applicable GST.

2. Contract Price and Payments

- 2.1. The bidder shall quote their rates in the prescribed format as per "Vol. 7- FINANCIAL BID" of the tender documents. The quoted rates shall be inclusive of all costs towards site visits, planning, designing, site surveys, soil investigations all material, labour, plant and machinery, tools and tackles, batching plant etc. including water & electricity, overhead charges, all taxes (excluding GST), duties, levies statutory charges / levies applicable from time to time and others as specified etc., incidental works and all other charges for items contingent to the work, such as inspection, packing, forwarding, insurance, freight and delivery at Site, watch and ward of all materials & successful installation, testing & commissioning at site etc, including handing over of the works to the Client/ HITES.

The fee paid by the contractor for obtaining various statutory approvals shall be reimbursed to him after submission of payment receipts and other relevant documents by the contractor.

The successful bidder shall submit the detailed item wise breakup of their quoted amount in Financial Bid as per the requirement of Engineer-In Charge

- i. Rates quoted shall be firm and shall not be subject to any price variations except as specifically provided in the contract.
 - ii. The quantities given in the Schedule of Quantities (Vol-7) are liable to variations. Such variations in quantities shall not, however, vitiate the contract in any way whatsoever. Contractor shall be paid for the actual measured quantities of work executed by the bidder.
 - iii. Unless otherwise specified the rates tendered by the contractor shall be all inclusive and shall apply to all shapes, heights, lifts, leads and depth of the building and nothing extra shall be payable to him on any account.
 - iv. Royalty, whenever payable, shall be borne by the contractor on the boulders, metal, shingle, sand and bajri etc., or any other materials collected by him for the work direct to the revenue authority of the District / State Government concerned and nothing extra shall be payable on this account.
 - v. Royalty, as applicable, shall be paid by the contractor of the ready mix concrete (RMC) supplier as per the terms of supply between them, on all materials such as boulders, metals, all sizes stone aggregates, brick aggregates, coarse and fine sand, moorum, river sand, gravels and bajri etc. collected by him for the execution of the work, directly to the revenue authority of the state government concerned. Further, contractor needs to submit proof of submission of full royalty to the stage government or local authority. Any issue between the RMC supplier and the state government concerned shall be settled by the EPC contractor without any liability to the HITES. Nothing extra shall be payable on this account.
 - vi. The words "as specified", "as described", "as shown", "as directed", or "as approved", shall mean as described in the specifications, Schedule of Quantities and other Contract documents as shown on the drawings or as directed by Engineer-in-Charge.
- 2.2. The payments shall be made on the area basis with respect to each building. The area for the purpose of payment shall be the plinth area actually constructed. The tentative plinth area is as per the Schedule of Quantities-(Volume -7).

Following areas shall not be reckoned with for working out the plinth area and their cost shall be deemed to be included in the respective subheads / items of works.

- i. Open courtyards, Lift wells, Shafts/Niches, Lift Machine rooms, Mumties, Chajjas
- ii. 50% of area of Projections such as Covered drop off's, Balconies, Cantilever projections, refuse terrace area, Ramp, Entrances & Porch.
- iii. Architectural features like boxing, pergolas etc.
- iv. Retaining walls, stability of slopes etc.
- v. Building approach /drop off including sub-base, KERB Stone, Pavers, Toe Wall, Railing, Signages (Internal & External) etc.
- vi. External works such as pump rooms, underground structures including Overhead/UG Tanks/Surface Tanks, STP/ WTP etc.
- vii. The culverts for storm water/ rain water along the road alignment
- viii. Only 50% of the area of the balcony shall be considered in plinth area calculation irrespective of top being protected or not protected above.
- ix. The stilt shall be considered for plinth area calculation.
- x. Plinth area shall not include shafts open to sky. However, the shafts/lift wells covered at top shall be counted at one floor level only.

Payments for Roadwork, Pathways and Surface Parking etc. shall be on the basis of finished

area of each item. Sub-grade, Kerb-stone, joints, culverts, signage etc. are included in the respective item(s) as per tender drawing, DBR & specifications.

2.3. **Submission of bill Statement for Works:**

- i. The Contractor shall submit detailed project schedule in MS Project within 15 days of ward of work, for approval by the Engineer - in- Charge. All the payment shall be made based on the Approved WBS in MS project
 - ii. The HITES shall make interim payments to the Contractor as certified by the HITES's Engineer on completion of a stage, as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in the Contract Document.
 - iii. The interim payment shall be made on "Pro rata basis" and shall be worked out on the percentage of work done out of total scope of work under their activity/item.
 - iv. The Contractor shall base its claim for interim payment for completed till the end of the month for which the payment is claimed, valued in accordance with the above sub-Clause, supported with necessary particulars and documents in accordance with this Agreement.
 - v. The proportion assigned to an item will apply only to the Contract Price stated in this Agreement. It shall not apply to any additions or reductions to the Contract Price arising from the issue of any Order for Change of Scope.
 - vi. The Contractor shall submit interim RA bill, within the time stipulated as per General Conditions of Contract to the Engineer-In-Charge in the form as directed, showing the amount calculated to which the Contractor considers himself entitled for completed Works. The interim RA bill shall be accompanied with the required supporting documents.
 - vii. The Contractor should submit a compliance certificate, as per Appendix A attached to GCC, in every bill as per provisions of the EPF and ESI Act as amended from time to time.
 - viii. All running / intermediate & final payments shall be made to the contractor in accordance with the following schedule and on pro-rata basis. The contractor shall be liable to fulfill all contractual obligations and provide all works and services covered under the contract. Any components, even if not mentioned in payment schedule as given below, shall have to be provided by the contractor within the overall contract price as per terms of contract.
- a. Planning, Designing, and Construction on EPC Basis of Academic Block with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.**

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		item	Sub-group	
A.	Planning, Design & Engineering Works- Investigation, Planning, Designing and obtaining approvals for works			1.00%
	a. On approval of the inception report, soil investigation report& detailed survey, review of master plan and architectural drawings ensuring their conformance to the requirements of the local bodies and statutory authorities as per requirements.		0.05%	
	b. On obtaining all required approvals, if any, from statutory authorities and local bodies for commencement of construction as per requirements.		0.05%	
	c. On approval of structural design by the proof consultant, submission of Good for Construction (GFC) drawings as per requirements and directions of Engineer-in-charge.		0.40%	
	d. On submission of all Good for Construction (GFC) drawings as per requirements:		0.25%	
	i. Architectural drawings	0.10%		
	ii. Design & Drawings for Services	0.15%		

	e. On completion of construction			
	i. On Completion of Foundation work	0.02%		
	ii. On Completion of 100% Super structure	0.04%		
	iii. On Completion of work	0.05%		
	iv. On obtaining required statutory approvals after completion of works	0.12%		
	v. On handing over to Client	0.02%		
B	CONSTRUCTION			
	1. Civil Works			
	i. Foundation Work up to plinth level (including Piling)	20.00%		
	ii. Structure Work (RCC framed) of the entire building, stair, roof, Water tanks, Lift machine room, stilt, etc. including water proofing etc.	25.00%		
	iii. Brickwork & partitioning work	4.00%		
	iv. Flooring, skirting, dado, wall lining work	3.00%		
	v. Doors & Windows.	3.00%		
	vi. False Ceiling Work	2.00%		
	vii. Finishing Work i/c painting (inside)	2.50%		
	viii. Finishing Work i/c painting (outside)	1.50%		
	ix. Steel work, railing, panelling etc.	1.00%		
	2. Services Works			
	a. Electrical & LV Works:	22.50%		
	i. Internal Electrification Works, Sandwich Rising Mains, cables, cable trays, floor panels and DB& other related works as per scope of works	7.50%		
	ii. Earthing & Lightning Protection System	1.00%		
	iii. External Street Lighting works including conventional & solar street light poles, cables, feeder panels, earthing etc. as per scope of works	1.00%		
	iv. LV Works comprising of Telephone/IPABX System, LAN/ Data& Wi-Fi System, CCTV System, MATV System, Public Address System, Access Control System, Information Display System etc. complete as per scope of works	7.00%		
	v. UPS System with electrical panels, cables, batteries etc. as per scope of works	3.00%		
	vi. Light Fixtures, Ceiling & Exhaust Fans and Occupancy Sensors	3.00%		
	b. Water Supply, Sewerage& Effluent System as per scope of works	3.00%		
	i. Water Supply System	1.00%		
	ii. Plumbing & Sanitary Works	1.25%		
	iii. Storm water drainage	0.50%		
	iv. Pipes, Fittings & Fixtures etc.	0.25%		
	c. Fire Protection System as per scope of works	2.75%		
	i. Wet Riser System /Down Comer System	1.00%		
	ii. Automatic Sprinkler System	0.75%		
	iii. Fire Extinguishers, Gas based fire suppression system & Pneumatic Tube based fire suppression system	0.25%		
	iv. External Hydrants etc.	0.50%		
	v. Fire Detection & Alarm System	0.25%		
	d. RO System, Solar Hot Water System & Electrical Geysers etc. complete as per scope of works	0.75%		
	e. Lifts as per scope of works	4.00%		
	f. Solar PV System as per scope of works	0.75%		
	g. Signages (Internal+ External)	0.25%		
			0.25%	
			62.00%	
			97.00%	
			35.00%	

	h. Audio-Video System for Seminar/ Conference/ Demo Rooms, Lecture Theaters etc. as per scope of works	1.00%		
C	Completion and Handing Over to HITES/Client			2.00%
	i. Testing & Commissioning		1.00%	
	ii. Handing Over		1.00%	
	Total =			100.00%

- b. Planning, Designing, and Construction on EPC Basis of Residential Type-V Buildings with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.**

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		item	Sub-group	
A.	Planning, Design & Engineering Works- Investigation, Planning, Designing and obtaining approvals for works			
	a. On approval of the inception report, soil investigation report & detailed survey, review of master plan and architectural drawings ensuring their conformance to the requirements of the local bodies and statutory authorities as per requirements and directions of Engineer-in-charge.		0.05%	1.00%
	b. On obtaining all required approvals, if any, from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.		0.05%	
	c. On approval of structural design by the proof consultant, submission of Good for Construction (GFC) drawings as per requirements and directions of Engineer-in-charge.		0.40%	
	d. On submission of all Good for Construction (GFC) drawings as per requirements and directions of Engineer-in-charge:		0.25%	
	i. Architectural drawings	0.10%		
	ii. Design & Drawings for Services	0.15%		
	e. On completion of construction			
	i. On Completion of Foundation work	0.02%	0.25%	
	ii. On Completion of 100% Super structure	0.04%		
	iii. On Completion of work	0.05%		
	iv. On obtaining required statutory approvals after completion of works	0.12%		
	v. On handing over to Client	0.02%		
B	CONSTRUCTION			
	1. Civil Works			97.00%
	i. Foundation Work up to plinth level.	23.50%	71.00%	
	ii. Structure Work (RCC framed) of the entire building, stair, roof, Water tanks, Lift machine room, stilt, etc. including water proofing etc.	27.50%		
	iii. Brickwork & partitioning work	5.00%		
	iv. Flooring, skirting, dado, wall lining, ceiling works	4.00%		
	v. Doors & Windows	3.50%		
	vi. Finishing Work i/c painting (inside)	3.00%		
	vii. Finishing Work i/c painting (outside)	2.00%		
	viii. Other Works, viz. Steel work, railing, external work etc.	2.50%		
	2. Services			
	a. Electrical Works	14.50%		

	i. Electrical Panels & DBs etc.	3.00%		
	ii. Internal Electrification Works, Rising Mains, cables, cable trays & other related works as per scope of works	6.00%		
	iii. Earthing & Lightning Protection System	0.50%		
	iv. LV System as per scope of works	2.00%		
	v. Light Fixtures, Ceiling Fans, Exhaust Fans	2.00%		
	vi. External Street Lighting works including conventional & solar street light poles, cables, feeder panels, earthing etc. complete as per scope of works	0.50%		
	vii. Ventilation, Pressurization, Smoke Extraction System and related electrical works like panels, cabling, earthing etc. complete as per scope of works.	0.50%		
	b. Water Supply & Sewerage System	4.00%		
	v. Water Supply System	1.00%		
	vi. Plumbing & Sanitary Works	1.00%		
	vii. Storm water drainage	1.00%		
	viii. Pipes, Fittings & Fixtures etc.	1.00%		
	c. Fire Protection System	3.00%		
	i. Wet Riser System /Down Comer System	1.50%		
	ii. Fire Extinguishers	0.25%		
	iii. External Hydrants etc.	1.00 %		
	iv. Fire Alarm System & Other Works	0.25%		
	d. Lifts	4.00%		
	e. Signage (internal & external)	0.50%		
C	Completion and Handing Over			2.00%
	i. Testing & Commissioning		1.00%	
	ii. Handing over		1.00%	
	Total =			100.00%

- c. **Planning, Designing, and Construction on EPC Basis of INFRASTRUCTURE & EXTERNAL DEVELOPMENT with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.**

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		Item	Sub-group	
A.	Planning, Design & Engineering Works- Investigation, Planning, Designing and obtaining approvals for works			
	a. On approval of the inception report, soil investigation report & detailed survey, review of master plan and architectural drawings ensuring their conformance to the requirements of the local bodies and statutory authorities as per requirements.		0.05%	1.00%
	b. On obtaining all required approvals, if any, from statutory authorities and local bodies for commencement of construction as per requirements.		0.05%	
	c. On approval of structural design by the proof consultant, submission of Good for Construction (GFC) drawings as per requirements and directions of Engineer-in-charge.		0.40%	
	d. On submission of all Good for Construction (GFC) drawings as per requirements:		0.25%	
	i. Architectural drawings	0.10%		
	ii. Design & Drawings for Services	0.15%		
	e. On completion of construction		0.25%	

	i. On Completion of Sub base work	0.02%		
	ii. On Completion of 100% work above sub base	0.04%		
	iii. On Completion of entire work	0.05%		
	iv. On obtaining required statutory approvals after completion of works	0.12%		
	v. On handing over to Client	0.02%		
B.	Infrastructure Development Works complete as per scope of works and directed by Engineer-in charge:			
	Roads, Ramp/Approach to building, Path ways, Culverts, Hume pipe crossings, Open/ Surface Parking, External Water Supply, Sewerage and Drainage System, , signages etc. & Landscaping & Horticulture, on pro-rata basis.		97.00% (Split up for various sub items shall be as under)	
	i. Bituminous Roads /Approach to buildings, Pathways (complete including sub base, kerb stones, painting, toe walls, etc. complete)		97%	97%
	ii. Open/ Surface Parking (including sub grade, toe walls/ Kerb stone etc. complete, Parking Shed (MS Structure & Polycarbonate Sheet Roofing)		97%	
	iii. Landscaping and Horticulture works		97%	
	iv. External Water Supply, Sewerage & Storm Water Drainage System, Bore-well as per scope of work (Residential Block)		97%	
	v. RCC Roadwork (Vacuum Dewatered), Ramp/Approach to building, Culvert , Path ways, Open/ Surface Parking		97%	
C	Completion and Handing Over			2.0%
	i. Testing & Commissioning		1%	
	ii. Handing over		1%	
	Total =			100.00%

Note: For each Items no. B, 1% payments is towards Planning, Design & Engineering Works, 97% for Main work of respective item and balance 2% towards completion & Handing over.

d. Planning, Designing and Construction on EPC Basis of STP in (Residential Complex)–with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.

S. No.	Description of Item	Break up of total % payable	%of total payable
A.	Planning, Design & Engineering Works- Investigation, planning, Designing and obtaining approvals for works		
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities	0.10%	1.00%
	b. On approval of structure design by the proof consultant and Engineer-in-charge	0.15%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.	0.15%	
	d. On submission of all Good for Construction (GFC) drawings as per requirements and directions of Engineer-in-charge:		
	i. Architectural drawings	0.06%	
	ii. Structural design & Drawings	0.06%	
	iii. Design & Drawings for Services	0.08%	

	e. On completion of construction		
	i. On Completion of Foundation work	0.05%	
	ii. On Completion of work	0.15%	
	iii. On obtaining required statutory approvals after completion of works	0.10%	
	iv. On handing over to Client	0.10%	
B.	STP in Residential Campus complete as per scope of works on pro rata basis.		97.00%
	a. STP - 250 KLD capacity in Residential Complex including all civil works, electrical works, STP equipment and allied works complete as per scope of works and directions of Engineer-in-charge.		
Note: The payment of above sub-items shall be regulated as under			
	i. Supply of equipment / material	80%	
	ii. Installation	20%	
C	Completion and Handing Over		2.00%
	I. Testing & Commissioning	1.00%	
	II. Handing Over	1.00%	
	Total =		100.00%

- e. **Planning, Designing, and Construction on EPC Basis of VRV/ VRF System for Academic Block with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.**

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		item	Sub-group	
A.	Planning, Design & Engineering Works- Planning, Designing and obtaining approvals for works			1.00%
	a. On Design submission of all Good for Construction (GFC) drawings as per requirements.		0.5%	
	b. On Submission & approval of technical data Sheets.		0.5%	
B	SUPPLY & INSTALLATION OF VRV/ VRF System:			97.00%
	i. Outdoor Units & Treated Fresh Air Units complete with all accessories as per scope of works and as directed by Engineer-In-charge	40%		
	i. Indoor Units like Duct-able/ Cassette / Hi Wall Units. DX Type AHUs, Central Controller System complete with ducting, refrigerant Piping, Drain piping etc with all accessories as per scope of works and as directed by Engineer-In-charge	40%		
	i. LT Panels, Cabling, Earthing, Cable Trays, Communication / Signal Wires for VRV/VRF System, etc. complete in all respect as per scope of works and as directed by Engineer-In-charge.	17%		
Note: The payment of above sub-items shall be regulated as under				
	i. Supply of equipment / material	80%		
	ii. Installation	20%		
C	Completion and Handing Over to HITES/Client			2.00%
	i. Testing & Commissioning		1.00%	
	ii. Handing Over		1.00%	
	Total =			100.00%

- f. **Planning, Designing, and Construction on EPC Basis of Electrical Sub-Station (ESS-1) for Academic Building** with support services & allied facilities by incorporating stipulated

specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		item	Sub-group	
A.	Planning, Design & Engineering Works- Planning, Designing and obtaining approvals for works			1.00%
	a. On Design submission of all Good for Construction (GFC) drawings as per requirements.		0.5%	
	b. On Submission & approval of technical data Sheets.		0.5%	
B	SUPPLY & INSTALLATION OF Electrical Sub-Station (ESS-1):			97.00%
	i. Distribution Transformers (3 X 1600 KVA) complete with all accessories as per scope of works and as directed by Engineer-In-charge	35%		
	i. HT Panels, LT Panels, Hybrid Capacitor Panels, Sandwich Bus ducts etc. complete in all respect as per scope of works and as directed by Engineer-In-charge	35%		
	i. HT Cables, LT Cables, Control Cables, cable trays, earthing work etc. complete in all respect as per scope of works and as directed by Engineer-In-charge	27%		
	Note: The payment of above sub-items shall be regulated as under			
	i. Supply of equipment / material	80%		
	ii. Installation	20%		
C	Completion and Handing Over to HITES/Client			2.00%
	i. Testing & Commissioning		1.00%	
	ii. Handing Over		1.00%	
	Total =			100.00%

- g. Planning, Designing, and Construction on EPC Basis of **Electrical Sub-Station (ESS-2) for Residential Complex** with support services & allied facilities by incorporating stipulated specifications, all services including handing over complete as per scope of work and directions of Engineer In charge.

S. No	Description of Item	Break up of total % payable cost		% of Total payable cost
		item	Sub-group	
A.	Planning, Design & Engineering Works- Planning, Designing and obtaining approvals for works			1.00%
	a. On Design submission of all Good for Construction (GFC) drawings as per requirements.		0.5%	
	b. On Submission & approval of technical data Sheets.		0.5%	
B	SUPPLY & INSTALLATION OF Electrical Sub-Station (ESS-2)::			97.00%
	i. DG Sets (2 X 750 KVA)complete with all accessories as per scope of works and as directed by Engineer-In-charge	25%		
	ii. Distribution Transformers (2 X 1250 KVA) complete with all accessories as per scope of	25%		

	works and as directed by Engineer-In-charge			
	iii. HT Panels, LT Panels, Hybrid Capacitor Panels, Sandwich Bus ducts etc. complete in all respect as per scope of works and as directed by Engineer-In-charge	25%		
	iv. HT Cables, LT Cables, Control Cables, cable trays, earthing work etc. complete in all respect as per scope of works and as directed by Engineer-In-charge	22%		
	Note: The payment of above sub-items shall be regulated as under			
	i. Supply of equipment / material	80%		
	ii. Installation	20%		
C	Completion and Handing Over to HITES/Client			2.00%
	iii. Testing & Commissioning		1.00%	
	iv. Handing Over		1.00%	
	Total =			100.00%

2.4. Submission of Bill Statement for Works

- a. The HITES shall make interim payments to the Contractor as certified by the HITES's Engineer on completion of a stage, as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Volume -7 of the Contract Document. Also, refer relevant clauses stipulated in the General Condition of the Contract.
- b. The Handing Over of buildings and allied services components shall be reckoned as completed in terms of contract after the Handed Over Buildings and allied services are duly Taken Over by the Client/ AIIMS Patna.
- c. The interim payment shall be made on "Pro rata basis" and shall be worked out on the percentage of work done out of total scope of work under their activity/item.
- d. The Contractor shall base its claim for interim payment for completed till the end of the month for which the payment is claimed, valued in accordance with the above sub-Clause, supported with necessary particulars and documents in accordance with this Agreement.
- e. The proportion assigned to an item will apply only to the Contract Price stated in this Agreement. It shall not apply to any additions or reductions to the Contract Price arising from the issue of any Order for Change of Scope.
- f. The Contractor shall submit interim RA bill, within the time stipulated as per General Conditions of Contract to the Engineer-In-Charge in the form as directed, showing the amount calculated to which the Contractor considers himself entitled for completed Works. The interim RA bill shall be accompanied with the required supporting documents.
- g. The Contractor should submit a compliance certificate, as per Appendix A attached to GCC, in every bill as per provisions of the EPF and ESI Act as amended from time to time.
- h. Goods and Services Tax (GST)
 - i. For the purpose of this Bid document, the term GST shall include Central Goods and Services Tax (CGST), State Goods and Services Tax (SGST), Integrated Good and Services Tax (IGST), Union Territory Goods and Services Tax (UTGS) and any other taxes levied under the GST related legislation in India, as may be applicable.
 - ii. Bidder should have valid GST No.
 - iii. If the Bidder has opted for a composition levy under Section 10 of CGST, he should declare the fact while bidding alongwith GSTIN and GST registration certificate.
 - iv. Exemption from Registration: If a bidder is not liable to take GST registration, i.e., having turnover below threshold, he shall submit undertaking/ indemnification against

tax liability. Bidder claiming exemption in this respect shall submit a valid certificate from practising Chartered Accountant (CA)/ Cost Accountant with Unique Document Identification Number (UDIN) to the effect that Bidder fulfils all conditions prescribed in notification exempting him from registration. Such bidder/ dealer shall not charge any GST and/ or GST Cess in the bill/ invoice. In such case, applicable GST shall be deposited under Reverse Charge Mechanism (RCM) or otherwise as per GST Act by the Procuring Entity directly to concerned authorities. Bidder should note that his offer would be loaded with the payable GST under the RCM. Further, Bidder should notify and submit to the Procuring Entity within 15 days from the date of becoming liable to registration under GST.

- v. Break up of different price elements, i.e., as per GST Act, shall be indicated separately, along with its associated HSN code and GST rate.
- vi. It shall be the responsibility of Bidder to ensure that they quote the exact HSN Code and corresponding GST rate for each activity of the Services being offered by them.
- vii. As per the GST Act, the bid and contract must show the GST Tax Rates (and GST Cess if applicable) and GST Amount explicitly and separate from the bid/ contract price (exclusive of GST). If the price is stated to be inclusive of GST, the current rate included in the price must be declared by the bidder.
- viii. Ensure that outward supply return (GSTR-1 is filed correctly and shall declare correct information on the invoice raised to Company and GST, the current rate included in the price must be declared by the bidder.
- ix. In case of profiteering by the contractor relating to GST tax, the contractor shall treat it as a violation of the Code of Integrity in the contract and avail any or all punitive actions thereunder, in addition to recovery and action by the GST authorities under the Act.

2.5. Production of Records

- a. The Contractor shall, whenever required by the Engineer, produce or cause to be produced for examination by the Engineer, any quotation, invoice, cost or other account books, vouchers, receipts, letters, memoranda or any copy of or extract from any such documents and also furnish information and returns, as may be required, relating to the execution of this Contract or relevant for verifying or ascertaining the cost of execution of this Contract or ascertaining the Materials supplied by the Contractor are in accordance with the Specifications laid down in the Contract. The Engineer's decision on the question of relevancy of any documents, information or returns shall be final and binding on the parties.
- b. If any part or item of the work is allowed to be carried out by a subcontractor, assignee or any subsidiary or allied firm, the Engineer shall have power to secure the books of such sub-Contractor, assignee or any subsidiary or allied firm through the Contractor, and shall have power to examine and inspect the same. The above obligations are without prejudice to the obligations of the Contractor under any statute, rules or order.

3. Site Management

- 3.1. The contractor may construct temporary office, storage, accommodation and labour huts within the site premises where the space is available at site.

The contractor may be allowed to construct temporary storage, accommodation and labour huts within Residential Campus in the area to be earmarked by HITES/Client. The Contractor shall take prior approval of HITES/ Client to erect the labour huts and installation of Batching Plant of adequate capacity in this area at its own cost. A separate entry/exit for labour / construction workers with proper security arrangement and other facilities shall be required to be carried out by the contractor with appropriate security measures.

The temporary barricading of 6 meter high or of required height as per site conditions and direction of HITES/ Client) shall be provided by the Contractor all around proposed construction area, Labour Hutment /material storage area and Batching Plant Area.

In case, where surplus land is not available within the site and/or not permitted by the client, the contractor shall arrange the land for temporary office, storage, accommodation and labour huts at his own cost and is responsible for taking the clearance of local authorities, if required, for setting up / construction for labour camp and same is deemed to be included in the rates quoted by the contractor for the works. The contractor shall check the availability of land before tendering and no claim whatsoever in this regard shall be entertained. The contractor shall ensure that the area of labour huts is kept clean and sanitary conditions are maintained as laid down by the local authorities controlling the area. The land for the above purposes shall be so placed that it does not hinder the progress of work or access to the worksite. The vacant possession of the land used, for the purpose shall be given back by contractor after completion of the work.

3.2. Contractor's Working Area

Suitable working space will be provided by the Engineer-in-charge to the Contractor as per site conditions and availability. The Contractor may have to carry out some cutting / filling work for making this area workable. The cost of all such Works shall be deemed to have been included in the contract price quoted for the Works and no payment shall be made on this account.

Before commencement of the work, the Contractor shall obtain approval of the Engineer-in-charge for the location of cement godown, steel stacking and fabrication yard, site office and shall from time to time take instructions from the Engineer – in- charge regarding collection and stacking of materials at the site.

No excavated earth or building material shall be stacked on areas where other buildings, roads, services or compound wall or any other structure are to be constructed.

3.3. Site Office :

- a. The Contractor shall construct/provide office space / accommodation in both complexes i.e. Institute Complex and Residential Complex separately. The office in the Institute Complex shall be the main site office (semi-permanent structure) for use by Engineer-in-charge and his staff consisting of 3 rooms with toilet and one conference Room (20seater) with toilet having area not less than 125 Sqm for HITES/Client's officers & staff. Another site office (semi-permanent structure) in the Residential Complex shall be for use by Engineer-in-charge and his staff consisting of 2 rooms with toilet(s) having area not less than 50 Sqm for HITES/Client's officers & staff. The location and plan of each office shall be got approved from Engineer-in-Charge. Specification for the site offices shall be suitable and matching for running an office which shall be got approved from Engineer-in-charge. The Contractor shall provide a typical plan of site office & conference room (having light fixtures, wiring &, AC for conference room etc.) with specification within 30 days of award of work. The site offices shall have a sample room, A.C conference room, staff rooms along with toilets & pantry with file storage facility, computers (6 Nos.), Broad band (2 Nos.) and printers (3 Nos.) with their consumables, a telephone for each office, licensed version Primavera software, Auto-CAD etc. All running cost & charges for offices including Electricity bill, water supply bills, RO/drinking water bills etc. shall be borne by the Contractor. The Contractor shall provide the following furniture (new) for use of HITES/Client's officers & staff at site office.

S. No.	Articles	Quantity
1.	Executive table with side racks	1 Nos.
2.	Executive Chair	1 Nos.
3.	Office Tables	6 Nos.
4.	Office Chairs	14 Nos.
5.	Work stations	As required
6.	Almirah	5 Nos.
7.	Conference table with Chairs (for 20 seats)	1 Set i/c chairs
8.	Digital display arrangement & sound system	1 Set

- b. Video conference facility, complete in all respects with necessary required equipment and software shall be provided at site office for frequent/periodical interaction between project site office and Corporate/Regional office of HITES.
- c. Besides these, one vehicle (5-7 seater) of good running condition inclusive of all services like drivers, consumables and maintenance etc. at all times to be provided for the exclusive use of Engineer-in-charge and his site staff/ HITES round the clock during the currency of the Contract till the end of defect liability period to HITES as per requirements given by the Engineer-in-charge.
- d. Electricity & drinking water shall also be provided by the contractor free of cost for such period.
- e. IP based Video Surveillance System shall also be provided for surveillance of different locations of project site & site office. In the surveillance system, the cameras shall be provided at different locations of the project site so that the output is available at the Corporate/Regional office of HITES. The system shall be able to work on both wired as well as wireless network. The recording shall be preferably stored for at least 30 days. Along with video surveillance system, video conference facility, complete in all respects with necessary required equipment and software shall be provided at site office for frequent/periodical interaction between project site office and Corporate /Regional office of HITES.

3.4. Contractor's Temporary Structures

- i. The Contractor may, at his own expense and subject to the approval of the Engineer-in-charge and statutory authorities, as required, construct temporary structures for its site office, stores; Workshop etc. in the working area allocated to him as above and remove the same on completion of Works. The Contractor shall furnish such details of his Temporary Works as may be called for by the Engineer-in-charge and the Contractor shall satisfy the Engineer-in-charge as to their structural safety. The Contractor shall be solely responsible for the stability and structural safety of all temporary works including obtaining statutory approvals and payment of statutory fees, if any. Should it be necessary to shift the temporary works to some other place during the execution of the works, the Contractor shall do so, at his own cost.

- ii. Initial and Final Clearance of site for temporary works:

The Contractor shall be responsible for the clearance of the site of all scrub, debris, rubbish, etc. to be removed off site to a location to be provided by the contractor and approved by the Engineer-in-charge. However, no trees shall be removed without the prior permission of the Engineer-in-charge. The structures, services and works required to be demolished and removed shall also be removed off site to a location as mentioned above. The Contractor shall obtain necessary permissions and approvals from the local authorities for such disposals. The demolition shall include digging, excavating and removal of substructures, foundations and buried works. The cost of all this shall be borne by the Contractor.

The above is applicable for all site offices, labour camps, and godowns etc., which are not required after the work is completed.

- iii. Storage, Cleaning and Dewatering

The Contractor shall at all the times during construction keep the Site clean and free from all debris and unwanted materials on a daily basis as per instructions of the Engineer-in-charge.

Storage of materials shall be in an organized manner and in proper compartments as directed by the Engineer-in-charge. Storage on suspended floors shall not be permitted unless specifically approved in writing by the Engineer-in-charge for specific materials in specific locations and in approved manner. The Engineer-in-charge shall be furnished with load details, if requested, before seeking approval for storage.

Regular cleaning operations shall be undertaken to remove all dust, debris, waste materials etc. A cleaning schedule shall be maintained.

The Contractor shall make his own arrangement for storage of those materials, which can be accommodated at site. Contractor shall be fully responsible for safe custody of the same. Materials shall be considered as "Delivered at Site" only after the physical presence of materials at site are verified by the Engineer-in-charge. Storage of materials / equipment elsewhere shall not be considered as "Delivered at Site."

The Contractor shall be responsible to keep entire site free from water due to water coming from any source at any level and shall protect all materials and works from being damaged by the water from any source. Contractor shall make proper arrangements for drainage prior to use of water for curing, testing, cleaning etc.

Any expenditure incurred by the Contractor in fulfillment of his obligations under this sub-clause shall be deemed to have been included in the financial bid and subsequent contract.

- iv. The security deposit of the contractor shall be released only after contractor demolishes all structures including foundations and gives back clear vacant possession of this land.

3.5. Care of Works

From the commencement to the certified completion of the whole of works, the contractor shall be responsible for the care, safety and maintenance of the works executed under the contract thereof and of all temporary works. In case of any damage/ loss or injury shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever save and except the expected risks, the contractor shall at his own cost repair and make good the same, so that on completion the works shall be in good order and condition in conformity to every respect with the requirements of the contract. The contractor shall also be liable for any damage to the works occasioned by him including his subcontractors in the course of any operations carried out by him for the purpose of completing any outstanding work and complying with his obligations under the Contract. In case of failure on the part of the contractor the damage/ loss/ injury shall be made good by the HITES at the risk and cost of the contractor.

3.6. Special care for existing Building & Infrastructure:

As AIIMS, Patna is an existing and running institution and residential complex; the existing operations cannot be stopped or hampered in any way due to the construction activities. The bidders are expected to study the site conditions thoroughly to understand the requirements of the functioning AIIMS, Patna Institute & Residential complex respectively and take due care and diligence to avoid any inconvenience or disruption of services to the existing facilities.

All necessary steps and arrangements to be taken care of for safety and precaution of the existing running Institute & Residential complex buildings, services, infrastructure etc. during construction without any damage to the existing building during execution of foundations works or super structure construction activities. No extra payment will be made for the above conditions. Any rectification/restoration if required will be done at the Contractors cost.

There may be some services crossing the construction area of the proposed Buildings/ Blocks. The scope of work includes dismantling of services falling in the construction area and supporting/shifting & making functional existing services viz. electrical, LV lines, firefighting pipes/equipment's., storm water /sewerage/WTP/STP/WTP and water supply lines etc.

There may be some roadwork, foundation, water tank, septic tank or any other structure falling in the proposed construction area and EPC Contractor's scope of work includes dismantling and relocation /shifting and restoration of same as per site requirement.

3.7. Safety in Construction

The contractor shall adhere to the safety, health & environmental guidelines as prescribed in the tender document. The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by Engineer-in-Charge in writing.

The contractor shall take all precautions and measures to ensure safety of works and workmen and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and

gas welding, use of hoisting and construction machinery shall be governed by the Safety code, relevant safety codes and the direction of Engineer-in-Charge

The Contractor shall be fully responsible for the adequacy, stability and safety of all site operations and methods of construction, the contractor shall ensure that all safety norms are followed as per contractual and other statutory requirements.

3.8. Contractor's Labour Camp

The Contractor shall make arrangements at his own expense for labour camp / accommodation for labour and staff to be employed for execution of the work and their conveyance to Site. Proper ID Cards shall be got approved /authorized by the contractor from the Engineer-in-charge to authorize the Contractor's staff and workers to enter the Site.

3.9. Mobilization of Resources:

Contractor shall not mobilize his resources in terms of materials, machinery, tools & plants, facilities required to implement the project and shall not pay any advances to any party unless he receives letter of Award from HITES. Contractor shall himself be responsible for such cost incurred without receipt of notice to proceed and no such claim of contractor shall be entertained by the HITES.

3.10. Water Supply & Power Supply

The Contractor shall make his own arrangement for water supply at Site for drinking as well as construction purposes & Power Supply at his own cost. Non-availability of power supply and /or water from whatever source shall not entail any additional claims or extension of Contract period in this account.

3.11. Watch & Ward and Lighting

The Contractor shall throughout the execution and completion of the Works and the remedying of the site and the Works and the remedying of any defects therein have full regard for the safety of all persons entitled to be on the site and keep the site and the Works in an orderly state to avoid any accident or danger and provide safety measures, lights, guards, fencing and barricades where ever necessary or required by the Engineer-in-charge, or by any duly constituted authority, for the execution and for the protection of the Work, and/or for the safety and convenience of the public or others and take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to person or property of the public or others resulting from pollution, noise and other causes etc. at his own cost.

3.12. Temporary Barricading

The Contractor shall at his own expense, erect and maintain in good condition temporary barricades all around the plot area/construction areas as per directions of the Engineer-in-charge so that existing buildings in the campus and surrounding area is made free from disturbances.. The specifications of barricading shall be got approved from Engineer-in-charge.

Contractor at his own cost put up the barricading of Corrugated Profile Sheet to a height of 6m or as required as prescribed by NGT, MoEF or building bylaws of the Bihar Government or any other appropriate government authority for the area, all around the construction sites through suitable fixing method as per direction of Engineer-in-charge 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. All management (including watch and ward) of barricades shall be the full responsibility of the contractor. The barricades shall be removed only after completion of the work or part of the work. Nothing extra will be payable on these accounts.

Tentative Plan of Barricading in Residential Block is shown in Red Colour in the following sketch



- a. The contractor shall make, till completion of the project arrangements for/of:
- i. Proper pumping for removing water from the basement or elsewhere at site.
 - ii. Proper security, safety, transportation, manpower, lighting arrangement for execution of works at night.
 - iii. Tower crane, batching plant and other plants & machinery, tools and tackles required for timely execution of work.
 - iv. Diversion of underground services with the approval of Engineer-in-charge.
- b. Restriction in work areas.
- (a). The contractor must see the site of the work, its approaches carefully before tendering, No claim of any sort shall be entertained on account of any site conditions. If any approach from main road is required or existing approach is to be improved and maintained, for cartage and materials by the contractor, the same shall be done by the contractor his own cost.
 - (b). No Entry/exit/roads other than specified by the Engineer-in-charge for purpose of construction activities will be allowed to be used for construction activity purposes or movement of trucks/lorries/load-carriers and nothing extra/ delay whatsoever will be accounted for on this part.
 - (c). The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the existing running campuses/AIIMS, Patna Institute/Residential complex, 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 removed by the Contractor without any reservation entirely to the satisfaction of the Engineer-in-Charge.
 - (d). In the event of any restrictions being imposed by the Security agency, HITES/Client, Traffic or any other authority having jurisdiction in the area on the working or movement of labour /material, the Contractor shall strictly follow such restrictions and nothing extra shall be payable to the Contractor on this account.
 - (e). In case the contractor is not permitted to erect the huts for labour at the site of work, the contractor will have to make his own arrangement to provide such accommodation elsewhere and nothing extra shall be paid on this account.

- (f). The contractor shall obtain approval of the HITES to erect the hutments for labour etc. at the site of work; denial of approval shall not affect the construction activities.
- (g). The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards such as day and night boards, speed limit boards, red lights and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work.
- (h). The Design Mix Concrete shall be transported to the proposed site of Academic and Residential Quarters through Transit Mixers having suitable retarders from the Batch Plant installed by Contractor in the earmarked area of Residential Complex.
- c. Site Data
- (a). The Contractor, with the Tender documents, has been made available such relevant data in HITES's possession on hydrological and sub-surface conditions. The accuracy or reliability of the data/studies/reports and of any other information supplied at any time by the HITES is not warranted with respect to the viability of his design and execution of Works and the Contractor shall be responsible for interpreting all such data. The Contractor shall conduct further investigations considered necessary by him at his own cost and any error, discrepancies if found in HITES's data at any stage will not constitute ground for any claim for extra time and costs.
- (b). The Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works.
- (c). The Contractor shall also be deemed to have inspected and examined the Site, its surroundings, the above data and other available information with respect to the viability of his design and execution of Works and to have satisfied himself before submitting the Tender, as to all the relevant matters including without limitation:
- i. the form and nature of the Site, type of soil including the sub-surface conditions;
 - ii. the hydrological and climatic conditions;
 - iii. the extent and nature of the work, Plant, and Materials necessary for the execution and completion of the Works and the remedying of any defects;
 - iv. the applicable laws, procedures and labour practices
 - v. The Contractor's requirement for access, accommodation, facilities, personnel, power, transport and other services.
 - vi. The risk of injury or damage to property adjacent to the Site and to the occupiers of such property or any other risk.
- d. Access Route
- The Contractor shall be deemed to have satisfied himself as to the suitability and availability of the access routes he chooses to use. The Contractor shall (as between the parties) be responsible for the maintenance of access routes. The Contractor shall provide at his cost signs or directions, which he may consider necessary or as instructed by Engineer for the guidance of his staff, labour and others. The Contractor shall obtain any permission concessions and related easement right that may be required from the relevant authorities for the use of such routes, signs and directions.
- The HITES will not be responsible for any claims which may arise from the use or otherwise of any access route. The HITES does not guarantee the suitability or availability of any particular access route, and will not entertain any claim for any non-suitability or non-availability for continuous use during construction of any such route.
- e. The Contractor shall pay all traffic surcharges and other royalties, licence fees, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials, machine, process, systems, work methods, or Contractor's Equipment required for the Works.
- f. Traffic regulation and safety measures by the Contractor

- i. The Contractor shall take all the required measures and make arrangements for the safety of other inhabitants during the construction of the Project or a Section thereof in accordance with the provisions of Specifications as applicable.

It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under construction or maintenance.

- ii. All works shall be carried out in a manner creating least interference to traffic passing through the Project Site or a Section thereof. In stretches where construction or maintenance works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall be granted promptly and reasonably.

4. Employment of Personnel

Notwithstanding the provisions in the General Condition of the Contract, the contractor shall preferably employ Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no personnel of doubtful antecedents and any other nationalities in any way are associated with the works.

- a. The Contractor shall ensure his presence at site all times during working hours throughout the course of the Contract or depute a Competent representative who shall be empowered to receive instructions from the Engineer - in- Charge in respect of all matters likely to arise in connection with the execution & coordination of the works at the site.
- b. Unless the Contractor's Representative is named in the Contract, the Contractor shall, within 7 days of issue of LOA, submit to the HITES for consent the name and particulars of the person the Contractor proposes to appoint. The Contractor shall not revoke the appointment of the Contractor's Representative without the prior information to the Engineer-in-charge. The Contractor's Representative so nominated shall have full authority to act on behalf of the Contractor. The Contractor's Representative shall give his whole time to directing the preparation of the Construction and/or Manufacture Documents and the execution of the Works. The Contractor's Representative shall receive (on behalf of the Contractor) all notices, instructions, consents, no objection certificate approvals, certificates, determinations and other communications under the Contract. Whenever the Contractor's Representative is to be absent from the Site, a suitable replacement person shall be appointed, with prior consent of Engineer-in-charge. Failure on part of the Contractor to comply with these provisions shall constitute a breach of Contract leading to action under Clause 3 of General Condition of Contract.
- c. The contractor should submit curriculum vitae (CV) of the key personnel proposed to be deployed at site as per Schedule "F" of GCC for supervision and execution of work.

A list of all technical and key personal staffs must be submitted to the Engineer-in-Charge with their area of work / responsibility with verified signature and the link persons to receive the instructions at site (in case the main person was not found at site) during the inspection by representative of Engineer-in-charge. Any staff of contractor found incapable/unsuitable to execute the assigned work shall be replaced by the Contractor if desired by the Engineer-in-Charge.

The Contractor shall ensure that the personnel engaged by it in the performance of its obligations under this Contract are at all times appropriately qualified, skilled and experienced in their respective functions.

The contractor under normal circumstances would not be allowed to replace the key personnel during the execution of the contract. However, for any reasons, due to unavoidable circumstances if it becomes necessary in the interest of the project to replace any one / all the above key personnel the contractor must submit the CV of the new personnel (having qualifications and experience as per requirement of the contract) to Engineer-in-Charge for their approval.

- d. The Contractor's Representative may delegate any of his powers, functions and authorities to

any competent person, and may at any time revoke any such delegation. Any such delegation or revocation shall be in writing and shall not take effect until the Engineer-in-charge has given prior consent thereto. The Contractor's Representative and such persons shall be fluent in the language of day to day communication and the Contractor shall be bound by and fully liable for the acts or omissions of the Contractor's Representatives or any of his employees and/or delegates, agents or nominees.

- e. In case HITES observes misconduct negligence or incompetence etc. on the part of any representative, agent, servant and workmen or employees etc. of the contractor, the HITES shall have full power and without giving any reason to the contractor, instruct the contractor to remove such engineer / staff / worker from site and provide suitable replacements. The decision of the Engineer-in-charge shall be final and binding on the contractor. The contractor shall not be allowed any compensation on this account.
- f. Contractor's Authorized Representative shall take joint measurements and sign the measurement books / bills. Any direction, explanations, instructions or notices given by the Engineer-in-charge to such representative shall be held to be given to the Contractor. In case of absence of said Representative other alternative representative should also be mentioned having same responsibilities.
- g. No unauthorized persons shall be allowed on the site. The contractor shall provide complete security arrangement for the campus during construction to avoid trespassing. The Contractor shall ensure all such persons are kept out and shall take steps to prevent trespassing. However the contractor will make sure to provide free access at any time for Engineer-in-charge to the site and other working places.
- h. In case the Contractor is required to employ foreign nationals for execution of work, then the employment of foreign personnel by the Contractor and/or its Sub-contractors and their sub-Contractors shall be subject to grant of requisite regulatory permits and approvals including employment/residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. Notwithstanding anything to the contrary contained in this Contract, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-contractors or their sub-contractors shall not constitute Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Contract.

5. Safety, Health and Environment

Over and above the provisions made in Safety Code (part of General Conditions of Contract) the following will also be applicable:

- 5.1. In respect of all workmen directly or indirectly employed in the work for the performance of the contractor's part of this agreement, the contractor shall at his expense arrange for the safety provisions as per Indian Standard Safety codes shown below and shall at his own expense provide for all facilities in connection there with. In case the contractor fails to make arrangement and provide necessary facilities, he shall be liable to pay compensations prescribed under Workmen Compensation Act 1923 as amended from time to time for each default and in addition the Engineer-in-charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the cost incurred on that behalf from the contractor, and no claims what so ever shall be entertained.
- 5.2. Details regarding some special provisions to be followed by contractor are as follows:
 - a. **Usage of quality Personal Protection Equipment (PPEs)** through approved vendors. PPEs would include amongst others the following items:
 - i. Safety Helmets.
 - ii. Hearing Protection.
 - iii. Respiratory Protection.
 - iv. Eye Protection.
 - v. Protective Gloves.

- vi. Safety Footwear.
- vii. High Visibility Clothing (Jacket) with approved Logo

All the items should be got approved before issued to the use in the work. Safety Jacket should have HITES Logo as per the size approved.

The contractor shall provide all the PPE (Personnel Protective Equipment) and safety appliances required to carry out the job to all the workmen deployed by the contractor and also ensure that his workmen use those PPE and safety appliances while on the job. The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work. If the contractor fails to ensure provision of safety appliances and its workmen do not use the PPE and safety appliances as needed for safe working, the owner may ask the contractor to stop the work and comply with safety requirements first. The contractor shall at all time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the HITES during the inspections. Failing to do so shall invite appropriate compensations as per the provisions of under Workmen's Compensation Act 1923 as amended from time to time.

It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.

b. Colour coding for helmets

Safety Helmet Color Code (Every Helmet should have the LOGO affixed /painted)	Person to use
White	AIIMS, Patna/HITES staffs, All Designers, Architect, Consultants, etc.
Violet	Contractor (Engineers / Supervisors)
Blue	All Sub-contractors (Engineers / Supervisors)
Red	Electricians (Both Contractor and Sub-contractor)
Green	Safety Professionals (Both Contractor and Sub-contractor)
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White (with "VISITOR" sticker)	Visitors

- i) Logo shall have its outer dimension 2"X2" and shall be conspicuous.
- ii) Logo shall be either painted or affixed.
- iii) No words shall come either on Top / Bottom of Logo.

c. Working at Heights

Contractor shall ensure that work at height is properly planned for any emergencies and rescue appropriately supervised, and carried out in a manner, which is reasonably practicable safe. Contractor shall ensure that work at height is carried out only when the weather conditions do not jeopardize the health or safety of persons involved in the work. Guardrail, Toe-board, Barrier or similar collective means of protection shall be of sufficient dimensions, of sufficient strength and rigidity for the purposes for which they are being used, and otherwise suitable.

Working Platform shall be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area-having regard to the work being carried out there. Possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap through which a person, material or object could fall and injure a person. A working platform and any supporting structure shall not be loaded so as to give rise to a risk of collapse or to any deformation, which could affect its safe use. Strength and stability calculations for scaffolding shall be carried out by the contractor. The dimensions form and layout of scaffolding decks shall be appropriate to the nature of the work to

be performed and suitable for the loads to be carried and permit work and passage in safety.

A personal fall protection system designed for use with an anchor shall be securely attached to at least one anchor, and each anchor and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of supporting any foreseeable loading. Suitable and sufficient steps shall be taken to prevent any person falling or slipping from a personal fall protection system. Any other steps in the opinion of engineer-in-charge suggested will also be taken in Protection system

Only metal ladders shall be allowed. Any surface upon which a ladder rests shall be stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it. A ladder shall be so positioned as to ensure its stability during use. A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented. No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.

d. Lifting appliances and gears.

The contractor shall maintain a register for record of examinations and test details of all lifting appliances. This register should also contain a system of identification of all tools and tackles, its date of purchase, safe working load etc. Contractors can utilize the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories with the permission of the HITES.

e. Automatic safe load indicators

Every lifting appliances and gears like cranes, hydras etc, if so constructed that the safe working load may be varied by raising or lowering of the jib or otherwise shall be attached with an automatic indicator of safe working loads approved by Bureau of Indian standards/ International certifying bodies which gives a warning to the operator and arrests further movements of the lifting parts.

f. Qualification of operator of lifting appliances and of signaller etc.

The contractor shall not employ any person to drive or operate a lifting machine like crane, hydra etc whether driven by mechanical power or otherwise or to give signals to work as a operator of a rigger or derricks unless he is above twenty-one years of age and possesses a valid heavy transport vehicle driving license as per Motor Vehicle Act and Rules, is absolutely competent and reliable, possesses the knowledge of the inherent risks involved in the operation of lifting appliances by undergoing a formal training at any institution of national importance, is medically examined periodically.

6. Requirements for Planning & Design Capabilities

6.1. For planning and design of the buildings and structures in the Institute Complex and Residential Complex of AIIMS, Patna, the bidder should have in-house design capacity to carryout comprehensive planning and design of this project as per requirements and the bidder with his in-house design capacity should have satisfactorily completed the planning & design of non-industrial building Project(s) comprising of multistoried RCC framed structure having one work of minimum plinth area of 20,000 sqm, the work should also consist of atleast one Five Storey Building including finishing works, internal water supply, drainage & sanitary installations, electrical works, Firefighting, LV works, Lifts and HVAC all composite executed under one agreement during the last 7 years ending the previous day to the last date of submission of tender. The bidder shall submit within 7 days of issue of Letter of Award, the particulars of such in-house design capacity available with him and the documentary evidence with respect to Hospital project as per the above referred criteria completed by him with his in house design capacity.

6.2. In case, the bidder does not have in house capacity to carryout comprehensive planning and design of this project, then the bidder shall engage Firm/ Consultant which shall provide the required comprehensive consultancy services for planning and design from commencement to completion of the project based on the Site plan & Concept designs and DBR provided to the bidder as a part of bidding documents. In such a case the bidder

shall depute Project Design Coordinator of requisite qualification and experience who shall coordinate all the required planning & design activities. The criteria for engagement of such Firm/Consultant shall be as under:

- a. The Firm/ Consultant which should be an Indian Consultancy firm and should have in-house design capabilities with minimum experience of 7 years in the field of Consultancy.
 - b. The Firm / Consultant should have provided the consultancy services for the planning & design of at least one completed Multi Storied Project of 20,000 sqm or more area comprising construction of RCC framed structure including finishing works, water supply and sanitary installations, electrical works, firefighting, LV works and HVAC works during the last 7 years ending the previous day to the last date of submission of tender.
 - c. The bidder shall within 7 days of award of work shall submit the details with the design capabilities along with documentary evidence of the Firm/Consultant proposed to be engaged by him and meeting the criteria as given in a & b above for approval by Engineer-In-Charge
 - d. The approved Firm/Consultant shall be associated with the project from commencement till completion.
 - e. Irrespective of the approval of Firm/Consultant as proposed by the bidder and approved by Engineer-In-Charge, the entire responsibility for all coordination and providing the required design services is sole responsibility of the Contractor.
 - f. The Contractor's in house design personnel or approved Firm/Consultant design personnel (in case of outside agency) inclusive of Architects, Structural, MEP, Landscaping etc. shall regularly visit the project site and other locations during execution of work for discussions, clarifications and attending various meetings with Client/HITES etc. wr.t the project and as per directions of Engineer-In-Charge.
- 6.3. The Firm/ Consultant shall provide comprehensive consultancy services in Project covering space utilization, functional relations, preparation of master plan including obtaining its statutory and local bodies approval, detailed architectural drawings, detailed structural analysis, design and detailing including designing and detailing of all services, their drawings & approval, external development works, landscaping, etc. The consultant shall prepare and supply all the coordinated good for construction drawings duly proof checked and approved. The consultant shall be associated till completion of the project and obtain completion certificate from the concerned local body.
- 6.4. If the performance of firm / consultant is not of satisfactory qualities and standard or they fail to adhere to the timeline specified in the bid document, the EPC contractor will take timely suitable necessary action against the firm/consultant. However, this will not absolve the EPC contractor from the levy of liquidated damage due delay in the project; and HITES will be free to take action as per relevant clauses of agreement. In the case of termination of the contract with the firm / consultant by the EPC contractor, the process of selection of new consultant will be same as provided in the bidding document. All additional cost associated with this will be borne by the EPC contractor. They will not be eligible for any extra time/ extension of time for delay in this process. Any loss of time in the process shall be made good within the milestones fixed in the bidding document.
- 6.5. The consultancy services shall be provided through a Team Leader supported by experienced professionals. The firm/consultant will deploy adequate number of professionals and other staff to deliver the requisite services as per time schedule. The consultant shall have to submit an organisation chart giving details of proposed team detailing the roles/work to be performed by each personnel, their tentative duration, inter relationship of each personnel etc.
- 6.6. Design and Construction**
- 6.6.1. Obligations prior to commencement of Works:-Within 7 (seven) days of the Commencement Date, the Contractor shall:

- (a) appoint its representative (the "Contractor's Representative") duly authorised to deal with the HITES in respect of all matters under or arising out of or relating to this Agreement;
- (b) appoint a design head (the "Design Head") who will head the Contractor's design units and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs;
- (c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement including approval from Statutory Authorities, Applicable Laws and Applicable Permits; and
- (d) Make its own arrangements for procurement of materials needed for the Project under and in accordance with the Applicable Laws and Applicable Permits.

6.6.2. Project completion Schedule is set out in the contract document. Design shall be developed in conformity with the specifications and standards set forth in the contract document.

6.6.3. Engagement of Proof Checking Consultant

The Proof checking consultant for vetting/proof checking of structural designs shall be engaged by the Contractor and the same shall be from any Indian Institute of Technology/National Institute of Technology/ Govt. Institute as approved by HITES for which the requisite request shall be submitted by the Contractor. The Contractor shall get the structural details / design & drawings proof checked from the approved proof checking consultant as per requirements and at his own cost. Nothing extra shall be payable to the contractor by HITES on this account.

6.6.4. The Contractor shall submit the designs and drawings, duly certified by the Proof Consultant, to the Engineer for review. Provided, however, that the contractor shall ensure and provide the Engineer-In-Charge additional drawings that may be required for its review in accordance with Good Industry Practice. The programme for submission of the design shall be finalised in consultation with the Engineer-In-Charge.

6.6.5. The Contractor shall arrange to comply with required Green Building parameters in designs and construction of various facilities in line with the provisions of the DBR and as per scope of work.

6.6.6. Contractor's Warranty of Design

- (a) The Contractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the Contractor's proposal.
- (b) The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed and to the highest standards available using proven up-to-date good practice. By submitting the Drawings for review to the Engineer-in-charge, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws.
- (c) The Contractor warrants that the Contractor's Proposals meet the requirements and is fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the Requirements or any part thereof, the Contractor's Proposal shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at Contractor's own cost.
- (d) The Contractor warrants that the Works will, when completed, comply with enactments and regulations relevant to the Works.
- (e) The Contractor warrants that the design of the Works and the manufacture of plant have taken or will have taken full account of the effects of the intended manufacturing and installation methods, Temporary Works and Contractor's Equipment.
- (f) The Contractor shall also provide a guarantee from the Designer for the design for suitability, adequacy, and practicality of design for HITES's Requirements.

- (g) The Contractor shall indemnify the HITES against any damage, expense, liability, loss or claim, which the HITES might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.
- (h) The Contractor further specifies and is deemed to have checked and accepted full responsibility 'for the Contractor' s Proposal and warrants absolutely that the same meets the HITES's Requirements:

The Contractor shall be fully responsible for the Plants, Materials, goods, workmanship, preparing, developing and coordinating all design Works to enable that part of the Works to be constructed and/or to be fully operational in accordance with the Contract's requirements.

Apart from the Contractor, the above warranty shall also be applicable for his designer. This warranty shall be a part of his sub contract with the designer and should be made available at the time of signing of the Agreement.

No claim for additional payment or extension of time shall be entertained and/or no review and/or observation of the Engineer-In-Charge and/or its failure to review and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Engineer or the HITES be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor's cost, notwithstanding any review under this section.

6.6.7. In respect of the Contractor's obligations with respect to the design and Drawings of the Project as set forth in tender document, the following shall apply:

- (a) The contractor shall furnish design and drawings to HITES and in such sequence as is consistent with the Project Completion Schedule, required number of copies of all Drawings, to the HITES for review;
- (b) Within 7 (seven) days of the receipt of the Drawings, the HITES shall review the same and convey its observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards;
- (c) If the aforesaid observations of the HITES indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor and resubmitted to the HITES for review within 7 days of receipt of communication from Engineer. The HITES shall give its observations, if any, within 7 (seven) days of receipt of the revised Drawings; and
- (d) the Contractor shall be responsible for delays in submitting the Drawing as set forth in Schedule-F caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the HITES.

6.6.8. The Contractor's time and cost impacts of revisions arising from review by the HITES of designs caused by the Contractor's non-compliance with the requirements of this Agreement shall be borne by the Contractor, unless there is a change in the Scope of the Works.

6.6.9. The Works shall be executed in accordance with the design reviewed by the HITES, and shall not thereafter be amended or altered without the prior written approval of the HITES. If HITES/ Contractor becomes aware of an error or defect of a technical nature in the design that HITES/ Contractor shall promptly give notice to the other Party of such error or defect. Such error or defect shall be rectified by the Contractor, without any cost to the HITES.

7. Building Information Management:

The EPC Contractor is required to do BIM modeling, clash detection, screen shots, incorporating all disciplines - Architectural, Structural, & MEP services such as Lighting Design, Landscape etc. broadly the points given below are to be followed:

- i. Development of 3D models from architecture, landscape and engineering drawings like structure, MEP etc., showing all elements of works for the basement and super structure of buildings and site.
- ii. Views/ screenshots (jpeg) or any other appropriate format for the conflict points to be generated for review by the decision taking parties.
- iii. All the Elements shall be modeled as specific assemblies accurate in terms of quantity, size, shape, location and orientation.
- iv. A 3D BIM model for Academic Block shall be developed from advanced detailed drawings on Revit/Arch-cad software and Co-ordinated construction drawing shall be issued from 3D BIM model for all the internal and external services in the building. Structural drawing (Good for Construction) shall be prepared duly coordinated with 3D BIM drawings. The same model of completed work shall also be prepared and submitted to Engineer-in-charge.

8. Setting out of the Works

- 8.1. The contractor shall be responsible for the true and proper setting-out of the Works in relation to original points, lines and levels or reference issued by Engineer-in-charge in drawing or in writing and for the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of works and for the provision of all necessary instruments, appliances and labour in connection therewith. If, at any time during the progress of the works, and during defects liability period, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do by the Engineer-in-charge and/ or his authorized representative shall at his own cost, rectify such error to the satisfaction of the Engineer-in-charge. The checking of any setting out or of any line or level by the Engineer-in-charge not in any way relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall carefully protect and preserve the benchmarks; sight-rails, pegs and other things used in setting-out the Works. Any rectification works required should be done by the Contractor at his own cost.
- 8.2. The approval by the Engineer-in-charge, of the setting out by the contractor, shall not relieve the contractor of any of his responsibilities and 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.
- 8.3. The contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignments, 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 entire satisfaction of the Engineer-in-Charge.

8.4. Manufacturer's Instructions

Where manufacturers have furnished specific instructions relating to the materials and equipment used, covering points not specifically mentioned in these documents, manufacturer's instructions shall be followed with the approval of Engineer-in-charge.

8.5. Inspection & Testing during manufacturing of Equipment

The Engineer-in-charge shall be entitled to inspect, examine and test during manufacturing of the materials and workmanship and check the progress of manufacturing of all fabrication materials to be supplied under the contract on the contractor's premises during working hours, and if part of the said materials is being manufactured on other premises, the contractor shall obtain Engineer-in-charge permission to inspect the same at such premises. This inspection, examination or testing shall not relieve the contractor from any obligation under the contract. Inspection Call for any equipment shall be given 15 days in advance from the actual date of inspection.

Following Equipment shall be invariably offered for inspection:

- 1) Transformers
- 2) HT Panels, LT Panels & Capacitor Panels
- 3) DG Sets

- 4) Bus Ducts & Rising Mains
- 5) VRV/ VRF System
- 6) UPS Units
- 7) Lifts

In case of other equipment, the Contractor shall intimate HITES/Engineer-in-charge regarding their readiness so as to decide their inspection if any.

The Engineer-in-charge reserves the right to request inspection and testing at manufacturer's Works at all reasonable times during manufacture of all items for this Contract.

The Engineer-in-charge or his authorised representative shall have full power to inspect the materials and workmanship at the Contractor's Works or at any place from which the materials or equipment is obtained. Approval by the Engineer-in-charge of any material or equipment shall in no way relieve the Contractor of his responsibility for meeting the requirements of the specifications. The cost incurred towards boarding, lodging etc. (inland/abroad) of inspection engineer/engineers deputed by HITES shall be fully borne by the contractor & all such costs shall be deemed to be included in the Bid. Nothing extra shall be paid on this account whatsoever. The inspection and testing shall cover, but not limited to, the following:-

- i. Routine and typical tests for the various items of equipment shall be performed at the Manufacturer's/ Contractor's Workshop in the presence of Engineer-in-charge or his authorized representative, results recorded and test certificates issued.
- ii. After installation has been virtually completed, the Contractor shall carry out under the direction and in the presence of the representative of the Engineer-in-charge such tests and inspections as have been specified, or as considered necessary to determine whether or not the requirements of the item, drawings and specifications have been fulfilled. In case the work does not meet the full intent of the drawings and specifications and further tests after making require changes and as considered necessary shall be done again, the Contractor shall carry them out and bear the expenses thereof. If tests fail to demonstrate the satisfactory nature of the installation or any part thereof, then no claims for the extra cost of modifications, replacement or retesting will be considered. The decision of the Engineer-in-charge shall be regarded as final as to what constitutes a satisfactory test.
- iii. The Contractor shall provide all necessary instruments such as Theodolite, Dumpy level, steel tapes, weighing machine, plumb bobs, spirit levels, hammers, micro-meters, thermometers, hydraulic cube testing machine, smoke test machine and labour, etc. for conducting tests. All such equipments shall be tested for calibration by an approved laboratory. The Contractor shall make adequate records of the test procedures, readings and results to be maintained by the Engineer-in-charge who shall issue test certificates signed by the person authorized by him.
- iv. The contractor shall arrange all necessary instruments, tools, tackles and testing facilities free of cost for such inspections. Contractor shall arrange for inspection visit(s) and bear all inspection costs including Inland/ abroad travel (Air/Rail/Road), conveyance, lodging and boarding expenses etc. free of cost for the Inspection Engineer(s) deputed by HITES.
- v. The above general requirements as to testing shall be read in conjunction with any particular requirements specified elsewhere
- vi. Dates for Inspection & Testing
The dates of Inspection & Testing, after receipt of written request by the Contractor, shall be mutually agreed by the Engineer-in-charge and the contractor.
- vii. Facilities for Testing at Manufacturer's Works
Where the contract provides for tests on the premises of the contractor or of any sub-contractor the contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required and as may be reasonably demanded to carry out such tests.
- viii. Rejection

If as a result of such inspection, examination or test of the works (other than a Test on Completion) the Engineer-in-charge shall decide that such material is defective or not in accordance with the contract he shall notify the contractor accordingly stating in writing his observations and reasons thereof. The contractor shall with due diligence make good the defect and ensure that the material complies with the Contract. Thereafter, if required by the Engineer-in-charge, the tests shall be repeated under the same terms and conditions till satisfactory results are made available.

ix. Delivery of Materials and Equipment

The contractor shall be responsible for all materials and equipment brought at site for the purposes of the contract. Unless the Engineer-in-charge directs, no material shall be brought to the site which is not required for execution of the work.

x. Inspection & Testing and Re-inspection

All deficiencies revealed by testing and inspection shall be rectified by the contractor at his own expense and to the satisfaction and approval of the Engineer-in-charge. Rectified components shall be subject to re-testing till desired results are obtained.

xi. Delayed Tests

If the Engineer-in-charge opines that Tests on Completion are being delayed by the Contractor, the Engineer may by notice require the Contractor to carry out such Tests within 14 (fourteen) days after the receipt of the notice. The Contractor shall carry out such Tests on such day or days as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within 14 (fourteen) days, the Engineer may proceed with such Tests at the risk and cost of the Contractor. The Tests on Completion then shall be deemed to have been carried out in the presence of the Contractor and the results of such Tests shall be accepted as accurate.

xii. Inspection Reports

The contractor shall provide the Engineer - in- Charge with three copies of reports of all inspection and tests.

8.6. **Access for Inspection**

Persons nominated by Engineer-in-charge shall at all reasonable times have free access to work and/ or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall extend necessary service to Engineer-in-charge and their representatives every facility necessary for checking measurements, inspection and examination and test of the materials and workmanship.

9. Time Schedules

9.1. Time shall be the essence of the contract. Time allowed for carrying out the work as mentioned in the contract shall be strictly observed by the contractor and it shall be reckoned from the issue of the Letter of Award. It may be noted that the construction of AIIMS, Patna involves construction of various building including development of the complex as detailed in the detailed user requirement. The milestones shall be as detailed in schedule "F" of the General Condition of the Contract. The contractor shall before commencing the work prepare a detailed work schedule. This schedule shall be strictly followed by the contractor. For completing the work in time, the contractor may have to work round the clock without interruption and no claim whatsoever shall be entertained on this account.

9.2. **Commencement of Works**

i. The Contractor shall commence the Works on the date specified in the Letter of Award. Thereafter the Contractor shall proceed with due diligence, without delay, and in accordance with the programme or any revised or modified programme of the Works.

- ii. The Contractor shall not commence the construction, manufacture or installation of the Works or of any part of the Works unless and until the Engineer has endorsed the relevant Drawings in accordance with the HITES's Requirements.

10. Completion Certificate

10.1. Provisional Certificate of Physical Completion

For the purpose of issuing Provisional Certificate of Physical Completion on substantial completion of the phase wise work as provided in Clause 1(v) of GCC (Volume-II), the work shall be deemed to have been substantially completed after fulfillment of all the following for respective phases of construction by the Contractor:

- a. The phase(s) of the work as per milestone(s)/whole of the Work are substantially completed and have satisfactorily passed required tests that may be prescribed under the Contract and ready to use. The contractor shall handover such certificates to the Engineer-in-charge.
- b. Obtaining all required approvals from the statutory authorities as required for occupation and use of the works and handing over such certificates to the Engineer-in-charge.
- c. Submitting As-Built Drawings, Catalogues, Brochures, and Data Sheets, manuals etc. in the form as directed by Engineer in Charge.

On fulfillment of the above for respective phases of construction, the contractor shall give a written notice to this effect within 10 days of completion along with an undertaking to rectify any shortcoming/defects that may be found during inspection. The Engineer - in-Charge shall jointly inspect the work with the contractor within thirty days of receipt of such notice and see if they are in such a condition so as to be put to its proper or other intended final use and /or occupied without any short comings and no major or minor items of works are remaining which in the opinion of the Engineer-in-charge will cause undue difficulties in satisfactory use/ occupation of the works and issue Certificate of substantial Completion for the respective phases of construction.

After recording of the Provisional Completion Certificate for the work by the competent authority, the 80 % of performance guarantee shall be returned to the contractor, without any interest

10.2. Final Completion Certificate

The contract shall not be considered as completed until a certificate of Final Completion has been issued by the Engineer-In-Charge stating that the works are completed in all respect to his complete satisfaction as per contract and remedying/rectifying all the defects/snags along with the submission of relevant permits/clearance from statutory bodies. It is also a pre requisite that the certificate of Final Completion shall be issued after taking over of the works by the Client/HITES.

The composite work shall be treated as complete when all the phases and components of the work are complete. The Certificate for Final Completion of the total work shall be recorded by the Engineer-in-charge after obtaining / recording of final completion certificate of all the components/phases.

The Defect Liability Period (DLP) for complete work shall start with effect from the date of issuance of the final completion certificate(s) of the complete work.

The balance 20% of performance guarantee shall be returned to the contractor without any interest after fulfillment of all the relevant conditions & obligations of the Contract.

10.3. Certificate of Overall Completion

The Engineer-in-charge shall give the Certificate for Overall Completion as per the following, whichever is later:

- Twenty-eight days after the expiration of the Defects Liability Period

OR

- If different Defect Liability Periods shall become applicable to different sections or parts of the Works, the expiration of the last such period

OR

- As soon as thereafter any works ordered during such period and have been completed to the satisfaction of the CLIENT/HITES.

Hundred percent (100%) of the security deposit of the contractor shall be retained for a period of 12 (twelve) months from the date of completion of work as per completion certificate issued by the Engineer-in-Charge or till the final bill has been passed whichever is later. (Also Refer Clause 17.6 of Vol-2, GCC)

- 10.4. The contractor shall give performance test of the entire work as per standards specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the tests.

11. Handing over & Taking Over Process

Handing over & taking over process shall be done as prescribed in the tender document. Following services / works have to be complied with by the contractor:

- Submission of Guarantees in stamp paper, of appropriate value, (in prescribed format) for all water proofing treatment and Anti termite treatment etc. executed in the works for a period of ten years. If any defects noticed within 10 years from completion of defect liability period the contractor shall be sole responsible for the defects and same shall be rectified by the contractor as per information from CLIENT/HITES within a period of 10 days from the notice.
- Rectification of all defects shall be carried out by the contractor before Handing over/ Taking over process.
- As built drawings : - 6 (six) sets for Architectural, Structural, Plumbing, Electrical, HVAC system, Specialized services and other required drawings as approved by Engineer-in-charge along with their soft copies in the required software version shall be submitted by the contractor before handing over & taking over process.
- All services/equipment are to be run and checked before handing over & taking over process as per requirements of Engineer-in-charge.
- Contractor has to arrange water, electricity, fuel , consumables and manpower at their own cost for the purpose of testing of services and equipments. No amount shall be payable on this account.
- The Contractor shall submit catalogues, brochures, operation manual, manufacturer test certificate, Guarantee/ Warranty papers, licence etc. for all equipment/materials before handing over & taking over process.

12. Guarantees

Notwithstanding provisions in the General Condition of the Contract and elsewhere in these Specific Conditions of Contract, the contractor shall furnish the **guarantees** in the prescribed form appended herewith. These guarantees shall be provided at the stage of virtual completion of work and shall be effective from the completion of work, to be reckoned from the date after the expiry of the maintenance period prescribed in the contract. In case a specialized agency has been approved for execution of a work/system, the Contractor shall ensure that the Guarantees shall be through such agencies (Obligators/Guarantor). The guarantees shall be provided in respect of following works (as per formats appended to this document) and any additional works, as provided for in the contract.

- For removal of defects after completion in respect of Water Supply and Sanitary Installations.
- For Water Proofing Treatment for Basements
- For Water Proofing Treatment for Roof
- For Water Proofing Treatment (Under floors)
- For Anti-Termite Works
- For Aluminum Works
- For Structural Glazing / Curtain Wall System /works

- viii. For Mechanical/ Seismic Expansion Joint/ Works
- ix. For any other work, as prescribed in the tender document.

13. Defect after completion

a) General

Any defect, shrinkage, settlement or other faults that may appear within the “Defects Liability Period” which in the opinion of the Engineer-in-charge are due to materials or workmanship not in accordance with the contract, shall be rectified as per the directions in writing of the Engineer-in-charge to the Authorized representative of the contractor within such reasonable time as shall be specified therein by the contractor, at his own cost. In case of default, the Engineer-in-charge may employ any person’s to amend and make good such defects, shrinkage, settlements or other faults and all expenses consequent thereon or incidental thereto shall be borne by the contractor.

During Defect Liability Period and period extended thereof, all preventive/routine & breakdown maintenance related to all works executed under this Contract shall be in the scope of EPC Contractor & costs incurred to this effect shall be deemed to be included in the quoted price of Bid. Nothing extra will be paid on this account whatsoever. The manpower, spare parts, consumables, tools & tackles etc as required for maintenance of all the works executed under the contract shall be provided by EPC Contractor without any extra cost during Defect Liability Period and period extended thereof.

b) Execution of work of repair etc.

Any defects, shrinkage, settlement or other faults which may appear or be noticed within the defect liability period, and arising in the opinion of the Engineer-in-charge from materials or workmanship not having in accordance with the contract, shall upon the direction in writing of the Engineer-in-charge’s representative and within such reasonable time as shall be specified therein and without any delay, be amended and made good or replaced by the contractor at his own cost.

c) Cost of Execution of Work of Repair, Etc.

All such works shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer-in-charge, be due to the use of materials or workmanship not in accordance with the Contract, or due to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor’s part under the Contract.

d) Contractor’s personnel to be at site

During the defects liability period the contractor shall depute at least one of his authorized representative at site along with required tradesmen to attend the defects to the satisfaction of Engineer-in-charge.

14. Dues not paid by the Contractor

The contractor shall pay all dues or fees to Statutory authorities and Electric and Water supply authorities & Lift licensing authority etc. within due period and indemnify the CLIENT/ HITES and the Engineer-in-charge from any claims or compensations or penalties or damages arising out of non-payment of any such dues or fees. However, in case some dues or fees are not paid by contractor and or claims for compensations or penalties etc. are raised by the Statutory authorities, the HITES may deposit the required amount or any or all of the above and recover or deduct the same from any money payable to the contractor by the HITES or any other means available to the HITES such as bank guarantee.

15. Urgent Repairs

If, by reason of any accident, or failure, or other event occurring to or in connection with the works, or any part thereof, either during the execution of the works, or during period of Defects Liability any remedial or other work or repair, shall, in the opinion of the Engineer-in-charge be urgently necessary for the safety of the Works and the Contractor is unable or unwilling to do such work or repair despite notice, the Engineer-in-charge may employ and pay other persons to carry out such work or repair as the case may be and may consider necessary. If the work or repair so done by the other agency is the work which, in the opinion of the Engineer-in-charge the Contractor

was liable to do at his own expense under the Contract, all expenses incurred by Other agency in so doing shall be recoverable from the Contractor by the Engineer-in-charge, or shall be deducted by the Engineer-in-charge from any monies due or which may become due to Contractor.

16. Plant Temporary Works & Materials

a) Plant, etc. Exclusive use for the Works

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof except for the purpose of moving it from one part of the Site to another, without the consent, in writing of the Engineer-in-charge, which shall not be unreasonably withheld.

b) Removal of Plant etc.

Upon completion of the Works, the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor, within 10 days of obtaining the completion certificate/ Virtual completion of the work.

17. Reports by Contractor

- a) The Contractor shall submit CPM – PERT Chart and activity wise bar charts, indicating the duration of various subheads of the work, for the complete work within 30 days of award of work or as per Clause 5 of the GCC, whichever is earlier, for approval by the Engineer - in-Charge. On the basis of approved bar charts contractor shall submit Progress Charts on or before 5th day of every month. Soft copy of PERT chart shall be supplied whenever demanded by the Engineer-in-charge.
- b) Contractor shall prepare baseline schedule using Primavera P6/ MS Project and updating and submission of Progress Report through Primavera /MS Project on weekly as well as monthly basis.
- c) Daily Progress Report: The Contractor shall submit Daily progress report in hard & soft copies as per format approved by Engineer-in-charge with site photographs of ongoing works of different building/activities in soft copies.
- d) The Contractor shall submit Monthly Progress Report in triplicate in format approved by Engineer-in-charge. Failure to submit reports may result in holding up or delay in Payment of bills.
- e) Monthly Progress Photographs:- The Contractor shall arrange at his own cost to maintain a progress record of the works by taking postcard size colour photographs (preferably digitized photographs) 6 Nos. or more per month per block as directed by the Engineer-in-charge during the construction stages and after completion shall supply three sets at no extra cost. The Contractor will be required to submit monthly reports on the progress of his work as per the format approved by the Engineer-in-charge.
- f) The Contractor shall prepare Weekly Reports of planned and actual progress of work and subsequent week's scheduled work. These will also include material procurement status. These reports shall be submitted to the Engineer-in-charge & shall be reviewed in Weekly Co-ordination Meetings.
- g) The Contractor shall file daily category-wise labour report to the Engineer-in-charge. The report shall indicate scheduled requirement against actual strength.
- h) The contractor shall maintain daily weather record. Daily maximum and minimum temperature and corresponding, humidity shall be recorded and charted. Rainy days shall be recorded when the rain lasting more than one hour hampers the work. Any other inclemency in weather shall be recorded. The records shall be regularly shown to the Engineer-in-charge and his signature obtained.

18. Operations and Maintenance Manual

The Contractor shall provide and submit to the Engineer-in-charge with six copies of the Operation and Maintenance Instruction Manuals. The arrangement of these manuals shall be as follows:

SECTION A:	Index
SECTION B:	Salient features of the Project.
SECTION C:	Description and details of materials, items and fittings and fixtures used for the project along with Catalogues /Brochures Operation & Maintenance Manuals etc.
SECTION D:	Operation & Maintenance instructions
SECTION E:	List of recommended Spare parts /consumables.

Until above mentioned documents are received and approved by the Engineer-in-charge, Contract shall not be considered as complete and payment will be withheld until such documents etc. have been submitted to and approved by the Engineer-in-charge. The cost of providing such records including proper submission thereof is deemed to be included in the Bid.

19. Co-ordination Meetings

The Contractor shall be required to attend co-ordination meetings with the HITES/ CLIENT and the other Contractors during the period of Contract as intimated by the Engineer-in-charge. All costs incidental to such interaction shall be to the Contractor's account and no claim will be entertained by the HITES/ CLIENT on this account.

20. Compliance of Statutory Obligations and obtaining Approvals/ Completion Certificates:

The Contractor shall comply all the statutory obligations and obtain all required clearances to implement the project without any financial repercussions to Engineer-in-charge and ensure all follow up actions with the local authorities in this respect for smooth completion of the project. The Contractor shall obtain all necessary approvals from Municipal bodies and other local bodies including, Water/Sewer supply agencies, Electric Supply and inspectorate agencies, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, Lift inspector, Pollution Control Board, , tree replantation, permission for bore well and for temporary structures etc. in accordance to prevailing rules, Building Bye-Laws etc., as the case may be with related to Construction/ Completion, such as:

- i) Construction Permit, if required
- ii) Pollution control Board,
- iii) Environment Clearances,
- iv) Provisional & Final NOC from fire department,
- v) Lift license i/c NOC,
- vi) Chief Electrical Inspector CEA,
- vii) Local Municipal authority.
- viii) Airport Authority,
- ix) Forest Department for tree replantation etc.,
- x) Explosive Department,
- xi) Local Municipal authority for water and sewer connection,
- xii) Building Occupancy Certificate
- xiii) Any other statutory requirement for execution of work and to occupy the buildings and run the services in all respects.

Contractor shall organize all inspections of concerned authorities & obtain the NOC's within the time for completion. The Engineer-in-charge may, at the written request of the Contractor, assist him in obtaining the approvals from relevant authorities. However any such request by the Contractor shall not bind the Engineer-in-charge in any manner.

All expenditure on these accounts will be borne by the contractor. However the fees paid by the contractor to these statutory authorities only for obtaining the required statutory approvals shall be reimbursed by HITES on submission of valid payment receipts from these statutory authorities.

The contractor is required to submit the relevant drawings/filled application forms as per prescribed format & any other details like completion Drawings and any other statutory documentary

requirements of local bodies in copies as per requirement to obtain the above etc. at their own cost.

21. Training and Operating Instructions

- a. If required by the Engineer-in-charge, the Contractor shall at his cost, train members of the maintenance staff of Client/HITES either at his or the subcontractor's workshop or at such other place or places as may be considered suitable by the Engineer-in-charge.
- b. Upon completion of all work and all tests, the Contractor shall furnish the necessary skilled/unskilled/semi-skilled personnel for operating the entire installation for a period of thirty (30) working days. During this period, the Contractor shall instruct and train the HITES/ CLIENT's representative(s) in operation, adjustments and maintenance of the equipment installed.
- c. The Contractor shall submit to the Engineer-in-charge draft comprehensive operating instructions and maintenance schedule for all systems and equipment included in this Contract. This shall be supplemented, not substituted, by manufacturer's operating and maintenance manuals. Upon approval of the draft, the Contractor shall submit to the Engineer-in-charge six (6) complete bound sets of operating and maintenance schedules along with manufacturers printed literature/catalogues.

22. Test Certificates

The contractor shall submit test certificates for all the materials / systems issued by the Engineer-in-Charge approved inspection / office / manufacturer certifying the Equipment / Materials / installation and its function are in agreement with the requirements of relevant specifications and accepted standards.

23. Quiet Operation and Vibration

All equipment shall operate under all conditions of designed load without any sound or vibration, which is considered objectionable by the Engineer-in-charge. Such conditions shall be corrected by the Contractor at his own expense. Decision of the Engineer-in-charge shall be final in this regard.

24. Accessibility

The Contractor shall locate all equipment, which requires servicing, operation or regular maintenance in fully accessible positions. The exact location and size of access panels, required for each valve or other devices requiring attendance, shall be finalised and communicated to Engineer - in-Charge well in time, to facilitate working by other agencies, failing this, the Contractor shall make all the necessary repairs and changes at his own expense.

25. Licenses and Permits

The Contractor or the approved specialized agency engaged by them shall hold a valid license for services like plumbing, electrical, Lifts etc. & wherever required in addition, issued by the Competent Authority under whose jurisdiction the work falls.

SPECIFIC CONDITIONS OF CONTRACT

C. ELECTRICAL SERVICES

1. General

- i. The Specific Conditions of the Contract - Electrical Services shall read in conjunction with the Specific Conditions of the Contract-Scope of Work, and, Specific Condition of the Contract-General. In case of variations / deviations, if any, the Specific Conditions of the Contract-Electrical Services shall prevail.
- ii. The electrical installations shall be in total conformity with the Shop Drawings, Single Line Diagrams (SLD), Design Basis Report, Schematic Drawings, Power & Control wiring drawings etc. prepared by the Contractor and approved by the Engineer-in-charge & shall be tested & commissioned in the presence of the Contractor and the Engineer - in- Charge.
- iii. The responsibility for the sufficiency, adequacy and conformity to the Contract requirements of the electrical installation work lies solely with the Contractor.
- iv. The planning, design, construction and workmanship shall be in accordance with the best engineering practices to ensure satisfactory performance and service life and shall be complete in all respects. Any materials or accessories which may not have been specifically mentioned, but which are necessary for the satisfactory and trouble-free operation and maintenance of the equipment shall be provided without any extra cost. This shall also include spares, consumables, tools & tackles required for commissioning of the equipment.
- v. The Contractor shall obtain all statutory approvals (electrical loads, approval of drawing/ ESS/ D.G. / approval of meter room etc.) from the concerned statutory authorities and permits required for the HT/LT electrical installation work. All statutory fee payable in this regard will be reimbursed against production of receipts/documentary evidence. On completion of work, the contractor shall obtain NOC from SEB/ Power Distribution Company & Director of Safety of the concerned state; a copy of the same shall be delivered to HITES. Contractor shall be responsible for dealing with SEB/ Power Distribution Company and other statutory authorities till project commissioning/ handing over and getting electricity in the complex.
- vi. The HITES shall have full power for getting the materials or work tested by independent agency at the electrical contractor's expenses in order to prove their soundness and adequacy. The contractor will rectify the defects/suggestions pointed out by HITES/ independent agency at his own expenses.

2. Regulations and Standards

- i. The installation shall comply in all respects with the requirements of Indian Electricity Act 1910, Indian Electricity Rules (IER) 1956 and other related Laws and Regulations as amended up to date, there under and special requirements, if any, of the State Electricity Boards/ Power Distribution Company etc. The bidder is liable to furnish the list of authorized licensed persons/ employed/deputed to carry out the works/perform the assigned duties to fulfill the requirements of IER 1956 as amended up to date.
- ii. Wherever these Specific Conditions call for a higher standard of material and/or workmanship than those required by any of the above regulations, then these Specific Conditions shall take precedence over the said Regulation and Standards. All Internal & External Electrical works, LV works, HVAC, Fire Fighting, Fire detection & alarm system etc. to be done as per specifications & relevant BIS codes and other applicable codes as relevant.

3. Conformity with Statutory Acts, Rules and Standards

- i. All installations shall be in conformity with the Bye-laws, Regulations and Standards of the local authorities as applicable. But if the specifications and drawings call for a higher standard of material and/or workmanship than those required by any of the above Regulations and Standards, then the specifications and drawings provided in the contract shall take precedence over the said regulations and standards as per the directions of the Engineer-in-charge.

- ii. However, if the drawings or specifications required something which violates the Bye-laws and Regulations, then the Bye-laws and Regulations shall govern the requirement of this installation as per the directions of the Engineer-in-charge.
- iii. Indian Electricity Act and Rules: All electrical works in connection with installations of the system shall be carried out in accordance with the provision of the Indian Electricity Act, 1910 and the Indian Electricity Rules 1956, both amended up to date.
- iv. CPWD Specifications: as at Schedule "F" of GCC.
- v. Indian Standards: The system / components shall conform to relevant BIS wherever they exist and to the National Building Code-2016 and ECBC with latest amendments / addendums.
- vi. Nothing in these specifications shall be construed to relieve the Contractor of his responsibility for the design, manufacture and installation of the equipment with all its accessories in accordance with applicable Statutory Regulations and safety codes in force.

4. Completeness of Bid

All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the quoted prices, whether such items are specifically mentioned in the Bid documents or not.

5. Works to be done by the Contractor:

Unless and otherwise mentioned in the Bid documents, the following works shall be done by the Contractor, and their cost shall be deemed to be included in the contract price:

- i. Foundations for equipment and components where required, including foundation bolts
- ii. Cutting and making good all damages caused during installation and restoring the same to their original finish
- iii. Sealing of all floor openings including shafts and niches etc. provided for pipes, ducts, cables, bus ducts etc. from fire safety point of view, as per NBC 2016 & NFPA norms after laying of the same.
- iv. Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/ distribution gear items, cubicle switch board etc. damages during erection, shall however be rectified by the contractor.
- v. Testing and commissioning of complete installation.

6. Cutting of structural members

No structural member shall be chased or cut without the written permission of the Engineer-in-Charge.

7. Drawings

The tender drawings have been appended to the tender document for guidance of the contractor. The contractor shall plan and design all services and prepare shop drawings. The shop drawings shall cover, but not limited to, the extent and general arrangements of the fixtures, controlling switches, wiring system, distribution boards, panels, sub-panels etc. The Contractor shall submit requisite number of working electrical drawings based on tender drawings including reflected ceiling plan for the Engineer-in-charge's approval. Contractor has to make necessary changes if any as per comments given by Engineer-in-charge before execution. The work shall be executed as indicated in the approved drawings, however any minor changes found essential to co-ordinate the installation of this work with the other trades shall be made in consultation with the Engineer-in-charge.

Any discrepancies noticed shall be reported to the Engineer-in-charge for clarification. In case of failure to do so Contractor shall not be entitled to any cost for omissions or defects in electrical drawings due to any conflict with other services work.

Any information/data shown/not shown in these drawings shall not relieve the contractor of his responsibility to carry out the work as per the specifications. Additional information required by the bidder/tenderer for successfully completing the work shall be obtained by him.

8. Position of HT/LT Switch Boards & DG Sets

The recommended position of the switch boards & DG Sets as shown on the layout drawings will be adhered to as far as practicable.

The contractor shall procure such equipment/ materials as per list of the approved makes with prior approval of Engineer-In-Charge. For all non-specified items, approval of the HITES shall be obtained prior to procurement of the same. HITES shall in no way be liable for rejection of the any material due to poor quality, poor workmanship, poor material etc.

9. Shop Drawings

Prior to the laying of the conduits and trunking, the Contractor shall submit the shop drawings for the approval of the Engineer-in-charge. The observations, if any, of Engineer-in-charge shall be incorporated and drawings shall be re-submitted for the approval of the Engineer-in-charge.

The Contractor shall prepare and submit to the Engineer-in-charge for his approval detail shop drawings, General Arrangement Drawings, SLD, power/ control wiring drawing for Main & Sub Panels / Distribution Boards, special pull boxes, light & fan switchboards, telephone distribution boards, FDA system and lightning protection system and other equipment to be procured/ fabricated by the Contractor.

The contractor shall prepare detailed coordinated electrical shop drawing indicating lighting/lighting fixtures, convenience outlets, DG Sets, LT Panel Boards/ Panels, PCC, DB's, Rising Mains, Cable Schedule with other relevant services and submit for approval of the Engineer-in-Charge before commencing the work. The shop drawings shall indicate all setting out details and physical dimensions of all components, GA Drawings, wiring and cable details for LT Panels, Package Substation, D.G.'s, PCC's, MCC's, cable schedule and routes, manhole trap etc. The fixing details for conduits indicating run and size of wire/cables, outlet/pull/junction boxes etc. with fixing details etc. shall be provided. All works shall be carried out after the approval of these drawings. However, approval of these drawings do not relieve the contractor of his responsibility for providing maintenance free and fool proof system including any missing component/ accessories to meet with the intent of the specifications. Contractor will submit requisite no of prints for preliminary approval and finally requisite sets of prints for distribution.

The Contractor shall submit and get approved the relevant drawings at least 15 days before placing of the orders with manufacturers/suppliers.

The approval of shop drawings, schedule, brochures etc. by Engineer-in-charge and shall not relieve the Contractor from responsibility for any deviation from drawings or specifications unless he has in writing informed by Engineer-in-charge of such deviations at the time of submission of the drawings nor shall it relieve the Contractor from any responsibility for errors or omissions of any kind in the shop drawings.

10. Materials & Equipment and Approval Thereof

All the materials and equipment shall be of the approved make and design. Unless otherwise called for any approval by Engineer-in-Charge, only the best quality materials and equipment shall be used.

All materials and equipment shall be ISI marked, as applicable, and shall be of the make and design approved by the Engineer-in-charge. Unless otherwise called for, only the best Grade of materials and equipment shall be used. The Contractor shall be responsible for the safe custody of all materials and equipments till these are taken over by CLIENT/HITES and shall insure them against theft, damage by fire, earth quake etc. A list of items of materials and equipment, together with a sample of each shall be submitted to the Engineer-in-charge for his approval and shall be kept in the sample box.

All materials used on the Works shall be new and of the approved quality, conforming to the relevant specifications. Prior approval shall be obtained in writing from the Engineer-in-charge for all materials proposed and when approved, sample shall be duly identified and labeled, it shall be deposited with the by Engineer-in-charge/ and shall be kept in the sample room at Site

10.1. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for

approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

- i. Manufacturer's technical catalogues and brochures giving technical data about performance and other parameters
- ii. Manufacturers drawings / sketches showing construction, dimensional and installation details
- iii. Rating charts and performance curves clarifying rating of equipment proposed.

10.2. Samples, Catalogues, Brochures and Data

Contractor shall submit the samples & catalogue of the material, which are proposed to be used at Site as per the approved makes for obtaining approval of the Engineer-in-charge.

The Contractor shall submit the number of copies, as required, of all brochures / manufacturer's description data, operation manuals with internal complete circuit diagrams and other similar literature while obtaining the approval of product from Engineer-in-charge.

11. Inspection, Testing and Inspection Certificate

- a. The HITES or duly authorized representative shall have at all reasonable times free access to the Contractor/ Manufacturer's premises or works and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the works during its manufacture or erection, if part of the works is being manufactured or assembled at other premises or works, the Contractor shall obtain permission to inspect as if the works were manufactured or assembled on the Contractor's own premises or works. Inspection may be made at any stage of manufacture, dispatch or at site at the option of the HITES and the equipment if found unsatisfactory due to bad workmanship or quality, material is liable to be rejected.
- b. All equipment being supplied shall conform to Routine and Type Tests in accordance with relevant IS Codes requirements stipulated under respective sections. Routine and Type Tests shall be carried out at manufacturers' works/ factories. Expenditure incurred on conducting such tests shall be to the Contractor's account. Bidder shall submit the routine & type tests reports to Engineer-In-charge.
- c. The contractor shall inform HITES within fifteen (15) days from the date of inspection or as defined, inform in writing to the Contractor of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due consideration to such objections and make the necessary modifications accordingly.
- d. Before dispatch to site, the contractor shall offer the equipment for inspection at premises of the manufacturer, 15 days in advance and inform HITES about the date of inspection. Subsequently, HITES shall depute its Inspection Engineer(s) for carrying out the inspection at premises of the manufacturer on mutually agreed date(s). Contractor shall invariably depute his representative(s) for witnessing the complete inspection procedure jointly with Inspection Engineer(s) of HITES.
- e. The contractor shall arrange all necessary instruments, tools, tackles and testing facilities free of cost for such inspections. Contractor shall arrange for inspection visit(s) and bear all inspection costs including Inland/ abroad travel (Air/Rail/Road), conveyance, lodging and boarding expenses etc. free of cost for the Inspection Engineer(s) deputed by HITES.
- f. For tests whether at the premises or at the works of the Contractor or of any Sub-Contractor, the Contractor except where otherwise specified shall provide free of charge such items as labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be required by HITES or this authorized representative to carry out effectively such tests of the equipment in accordance with the Specification.
- g. The inspection by HITES and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed quality assurance programme forming a part of the Contract.
- h. The HITES will have the right of having at his own expenses any other tests(s) of reasonable nature carried out at Contractor's premises or at site or in any other place in addition of aforesaid type and routine tests to satisfy that the material comply with the specifications.

- i. The HITES reserves the right for getting any field tests not specified in respective sections of the technical specification conducted on the completely assembled equipment at site. The testing equipment for these tests shall be provided by the Contractor.
- j. HITES reserves the right to waive off inspection of any equipment, items etc at its sole discretion.
- k. Notwithstanding approval of tests or equipment by the by Engineer-in-charge, the Contractor shall be required to perform site tests and prove the correctness of ratings and performance of equipment / machinery and materials supplied and installed by the Contractor as per the Contract specifications and conditions. The Engineer-in-charge shall also have the power to order the material or work to be tested by an independent agency at the Contractor's expense in order to prove soundness & adequacy.

12. Testing and Commissioning

The Contractor shall pay for and arrange without any cost to the Engineer-in-charge, all necessary balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/ or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be retested after rectification of defects and shall be commissioned only after approval by the Engineer-in-charge. All tests shall be carried out in the presence of the Engineer-in-charge or his representative.

13. PACKAGING

All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at Site till the time of erection. While packing all the materials, the limitation from the point of view of availability of Railway wagon/truck/trailer sizes in India should be taken account of the Contractor shall be responsible for any loss or damage during transportation, handling and storage due to improper packing. Any demurrage, wharfage and other such charges claimed by the transporters, railways etc. shall be to the account of the Contractor. HITES takes no responsibility of the availability of any special packaging/transporting arrangement.

14. TESTS

i. Charging

On completion of erection of the equipment and before charging, each item of the equipment shall be thoroughly cleaned and then inspected jointly by the HITES and the Contractor for correctness and completeness of installation and acceptability for charging, leading to initial pre-commissioning tests at Site. The pre-commissioning tests to be performed as per relevant I.S. given and shall be included in the Contractor's quality assurance programme.

ii. Commissioning Tests

The available instrumentation and control equipment will be used during such tests and the Contractor will calibrate all such measuring equipment and devices as far as practicable. However, unmeasurable parameters shall be taken into account in a reasonable manner by the Contractor for the requirement of these tests. The tests will be conducted at the specified load points and as near the specified cycle condition as practicable. The Contractor will apply proper corrections in calculation, to take into account conditions, which do not correspond to the specified conditions.

All instruments, tools and tackles required for the successful completion of the Commissioning Tests shall be provided by the Contractor, free of cost.

Pre-commissioning test shall be carried out as per relevant IS and/or as specified.

The Contractor shall be responsible for obtaining statutory clearances from the concerned authorities for commissioning of the equipment. However necessary fee shall be reimbursed by HITES on production of requisite documents.

15. Performance Guarantee Certificates for Equipment

All equipment shall be guaranteed against unsatisfactory performance and/or break down for a minimum period of 12 (Twelve) months or date of handing over of work to the CLIENT/ HITES,

whichever is later. The equipment or component or any other part of installation so found defective within the guarantee period shall be replaced / repaired by the Contractor free of cost to the satisfaction of the CLIENT / HITES. The above guarantee and/ or warrantee provided by the manufacturer will be submitted along with all the test certificates from manufacturer to HITES.

16. Completion Drawings (As Built Drawings)

On completion of the work and before issue of certificate of virtual completion, the Contractor shall at his own cost submit to the Engineer-in-charge requisite Sets of layout drawings drawn at the approved scale indicating the actual installations. These drawings shall clearly indicate the complete plant layouts, and piping layouts, location wiring, exact location of all the concealed piping, valves, controls, wiring and other services. The Contractor shall also submit requisite sets of consolidated control diagrams, technical literature on all automatic controls and complete technical literature on all equipment and materials. The Contractor shall mount a set of all consolidated control diagrams and all piping diagrams/Single Line diagrams in a frame with glass, and display in the plant room.

Also, the contractor shall submit soft copy of 'As Built' drawings (in AutoCAD & PDF format) of the work including write up (trouble shooting, installation, operation and maintenance manual with instructions) incorporating all such changes and modifications during engineering and execution along with warrantee & guarantee certificates from manufacturers. As-Built Drawings for all buildings/ blocks/ facilities constructed in AIIMS, PATNA Complex shall be provided as following:

- a. Single Line diagrams showing 33/11 kV Substation and all 11/0.433 kV Substations, all HT/ LT Panels, DB, Rising mains etc. as applicable
- b. Routing and locations of Conduits, inspection and junction boxes etc.
- c. Locations and rating of Light, Power and UPS sockets and switches
- d. Location and details of main & sub distribution boards, distribution boards indicating the circuit number controlled by them
- e. Type of fitting viz. fluorescent, pendants, brackets, bulkhead etc., including their rating & type of lamp, fans and exhaust fans
- f. A complete wiring diagram as installed and schematic drawing showing all connections for the complete electrical system
- g. Location of telephone outlets, junction boxes and sizes of various conduits and number & sizes of wire drawn
- h. Layout of Telephone/ LAN/OFC cables
- i. Location of all earthing stations, route and size of all earthing conductors, manholes etc.
- j. Layout and particulars of cables & sub mains.
- k. Schematic drawing for Telephone & IPABX System
- l. Layout of conduits & locations of for LAN/ Wifi Points
- m. Layout and details of Earthing Network & Lightning protection system including Insulation tests and earth test results
- n. PA System drawings & Fire Alarm Control System Drawings
- o. Cable TV/ Dish Antenna drawings
- p. General Arrangement drawings for all Electrical & LV Equipment
- q. Cable route layout of HT, LT, Control cables & other cables
- r. External lighting drawing with road layout
- s. Schematic Drawings for BMS System
- t. GA & Layout Drawings for Audio Video System
- u. Any other drawings/details as per requirements and directions of Engineer-in-charge

17. Checks during Defect Liability Period

During the Defect Liability Period/ Maintenance Period, the Contractor shall monthly check all

controls in various areas to ensure that these are functioning satisfactorily. This shall apply to all pressure switches and pressure gauges, contacts, relays, controller switches, high and low pressure cut-outs etc.

18. Check List

The Contractor shall provide to the HITES/ Engineer-in-charge, 4 (four) copies of a comprehensive maintenance checklist and shall place a copy of it in the Substations & Plant Room. The checklist shall be a list of each piece of equipment in this Contract, and shall provide a space for each of the next fifty-two weeks to record the maintenance results and status of various equipments during the maintenance period. This list shall be updated every month at the time of inspection. The Contractor shall certify on this check list that he has examined each piece of equipment and that; it is operating as intended in the contract/ by the manufacturer, and that all necessary tests have been performed.

19. Repairs

All equipment that requires repairing shall be immediately serviced and repaired during the maintenance period. All spares/parts and labours shall be furnished by the contractor free of cost.

20. Training of Personnel

The Contractor shall arrange for training of the HITES/ CLIENT's personnel prior to provisional takeover of the project including for the following:

- a. Substation Equipment
- b. Telephone Exchange
- c. All other Equipment like pumps, panels etc.
- d. Adjustment of setting for controls and protective devices
- e. Preventive maintenance
- f. Operation of all electrical panels including their interconnectivity and interlocking scheme
- g. All LV Works
- h. Any other specialized system as executed under this contract

21. Safe Custody and Storage

Safe custody of all machinery and equipment dismantled, shifted & supplied by the Contractor shall be his own responsibility till the final taking over by the CLIENT/HITES. The Contractor should, therefore, employ sufficient staff for watch and ward at his own expenses. CLIENT/HITES may, however, allow the Contractor to use the building space for temporary storage of such equipment, if such space is available.

22. Handling, Storing and Installation

- In accordance with the specific installation instructions as shown on manufacturer's drawings or as directed by the HITES or his representative, the Contractor shall unload, store, erect, install, wire, test and place into commercial use all the equipment included in the contract. Equipment shall be installed in a neat, workmanlike manner so that it is level, plumb, square and properly aligned and oriented.
- Contractor shall follow the unloading and transporting procedure at site, as well as storing, testing and commissioning of the various equipment being procured by him separately. Contractor shall unload, transport, store, erect, test and commission the equipment as per instructions of the manufacturer's Engineer(s) and shall extend full co-operation to them.
- In case of any doubt/ misunderstanding as to the correct interpretation of manufacturer's drawings or instructions, necessary clarifications shall be obtained from the HITES. Contractor shall be held responsible for any damage to the equipment consequent for not following manufacturer's drawings/instructions correctly.
- Where assemblies are supplied in more than one section, Contractor shall make all necessary connections between sections. All components shall be protected against damage during unloading, transportation, storage, installation, testing and commissioning. Any

equipment damaged due to negligence or carelessness or otherwise shall be replaced by the Contractor at his own expense.

- The Contractor shall submit to the HITES every week, a report detailing all the receipts during the week. However, the Contractor shall be solely responsible for any shortages or damages in transit, handling and/or in storage and erection of the equipment at Site. Any demurrage, wharfage and other such charges claimed by the transporters, railways etc. shall be to the account of the Contractor.
- The Contractor shall be fully responsible for the equipment/material until the same is handed over to the HITES in an operating condition after commissioning. Contractor shall be responsible for the maintenance of the equipment/material while in storage as well as after erection until taken over by HITES, as well as protection of the same against theft, element of nature, corrosion, damages etc.
- The Contractor shall be responsible for making suitable indoor storage facilities, to store all equipment, which require indoor storage.
- The words 'erection' and 'installation' used in the specification are synonymous.
- Exposed live parts shall be placed high enough above ground to meet the requirements of electrical and other statutory safety codes.
- The minimum phase to earth, phase to phase and section clearance along with other technical parameters for the various voltage levels shall be maintained as per relevant IS codes.

23. Operation and Running of entire system

The contractor shall arrange for operation & running of entire electrical system and other equipment for a minimum period of Two Weeks after satisfactory completion of supply, installation, testing & commissioning of works as per directions of Engineer-in-charge. The period of operation & running of entire system shall be reckoned with-in the stipulated completion date of the project. Cost of operation & running of entire system including required materials, consumables, tools & tackles, requisite manpower etc. shall be deemed to be included in the contract price and nothing extra shall be paid on this account.

- 24.** Layout of all services, SLD/ P&I diagrams, operating and maintenance instructions, DO's and Don'ts's etc. for all the Substations, Plant rooms, pump room, control panels etc. must be provided along with coloured prints at each floor.

SPECIFIC CONDITIONS OF CONTRACT**D. HVAC/ VRV/ VRF SYSTEM****1. General**

The Specific Conditions of the Contract - HVAC System & VRV/ VRF System shall be read in conjunction with the Specific Conditions of the Contract-Scope of Work, and, Specific Condition of the Contract-General. In case of variations / deviations, if any, the Specific Conditions of the Contract- HVAC System shall prevail.

2. Scope of Contract

The scope of works to be carried out under this section comprises of Design, Supply, Installation, Testing and Commissioning of Heating, Ventilation and Air-conditioning works as illustrated in Tender Drawings, Schematic Diagram, Design Basis Report, Technical Specifications etc.

3. Stores and Materials

The contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the drawings and specifications etc. taken together whether the same may or may not be particularly shown or described therein provided that the same can be reasonably inferred there from.

4. Supply of Equipment

Equipment shall be strictly as per the list of approved makes/ manufacturers given in the Bid documents subject to approval of the Engineer-in-charge. The Contractor shall submit manufacturer's test certificates of equipment supplied.

5. Shop / Working Drawings etc.

5.1. To achieve the desired parameters/requirements as specified in Design Basis Report/Technical Specifications/Tender Drawings etc., the Contractor shall prepare detailed Heat Load Sheets of all rooms/occupancies of Air conditioned areas, CFM sizing of Fans (ventilation/pressurization) & submit to Engineer-in-charge for approval.

5.2. Subsequent to approval of the scheme as above, the Contractor shall prepare and submit to the Engineer-in-charge for approval, requisite sets of detailed shop drawings/layouts of various rooms/floors, Plant Room, External Layout. GA drawing of various equipment as applicable like VRV/ VRF System, Chillers/Cooling Towers/pumps/Panels along with foundation & other relevant details etc., equipment characteristics, pump curves and capacity details of all equipment, accessories and devices etc. as per specifications shall be submitted well in advance or as required for approval of Engineer-in-charge. The structure works should not be affected due to delay on this account. No claims for extension of time shall be entertained because of any delay in the work due to failure on part of the contractor to produce shop drawings in time.

5.3. If the Engineer-in-charge makes any amendment in the above drawings, the Contractor shall supply requisite sets of fresh drawings with the amendments duly incorporated, along with the drawings on which corrections were made. After final approval has been obtained from the Engineer - in- Charge, the Contractor shall submit a further requisite sets of shop drawings for the exclusive use of and retention by the Engineer-in-charge.

5.4. Approval of shop drawings shall not be considered as a guarantee of measurement or of building condition. It will in no way relieve the contractor from his responsibility of furnishing materials or performing work as required by the contract.

6. Completion Drawings(As Built Drawings):-

Following "AS BUILT" drawings shall be submitted by the Contractor on completion of the work:

- a. Installation drawings giving complete details of the entire equipment as applicable like VRV/ VRF System, Chillers, Cooling Towers, Pumps, Hot Water Generators, AHU's and their foundations.
- b. Ducting drawings showing all sizes, damper (Fire/VCD) locations and sizes of all air

outlets and intakes, for all floors.

- c. Electrical drawings showing cable sizes, equipment capacities, control components and control wiring.
- d. Schematic control drawings giving detailed sequence of operation and notes to explain the operation of the control circuit.
- e. Piping drawings showing all pipe sizes, valves and fittings etc.
- f. Any other drawings to be supplied as per instructions of the Engineer-in-charge .

7. Operation and Service Manuals

- 7.1. The Contractor shall submit requisite sets of operation and service manuals in respect of the air-conditioning plant including salient details of plant including internal circuit diagrams. Following minimum details shall be furnished:
- i. Detailed equipment data as approved by the Engineer-in-charge.
 - ii. Manufacturer's maintenance and operating instruction.
 - iii. Approved test readings.
- 7.2. The Contractor shall also submit requisite sets of technical literature on all automatic controls and complete technical literature on all equipment and materials. The Contractor shall frame under glass, in the Air conditioning plant room all consolidated control diagrams and all piping diagrams.
- 7.3. Coloured Layouts of all electrical lines in A-1 size properly laminated to be fixed at various locations at the time of handing over of building.

8. Inspection at Work / Contractor's Premises

- 8.1. The CLIENT/ HITES or their representatives shall at all reasonable time have free access to the Contractor's premises/works. The Contractor shall give every facility to them and necessary help for inspection and examinations and test of the materials and workmanship.
- 8.2. These representatives shall have full powers to inspect drawings of any portion of the work or examine the materials and workmanship of the plant at the Contractor's works or at any other place from where the material or equipment is to be obtained. Acceptance of any material or equipment shall in no way, relieve the Contractor of his responsibility for meeting the requirement of the specifications.
- 8.3. The contractor shall arrange all necessary instruments, tools, tackles and testing facilities free of cost for such inspections. Contractor shall arrange for inspection visit(s) and bear all inspection costs including Inland/ abroad travel (Air/Rail/Road), conveyance, lodging and boarding expenses etc. free of cost for the Inspection Engineer(s) deputed by HITES.

9. Sub-contracting

The Contractor may sub-contract part of the works with the written approval of the Engineer-in-charge . Sub-contractors as approved by the Engineer - in- Charge shall be appointed for carrying out the entire work of supplying, installation, testing and commissioning of all the equipment covered under this package. However, the overall responsibility for compliance of the Contract lies with the Contractor. The agency/ sub-contractor so chosen shall be got approved from the Engineer-in-charge.

10. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

- i. Manufacturer's technical catalogues and brochures, pump curves, Certifications etc. giving technical data about performance and other parameters.
- ii. Manufacturers drawings / sketches showing construction, dimensional and installation details.
- iii. Rating charts and performance curves clarifying rating of equipment proposed.

11. Samples and Prototypes

The Contractor shall submit samples of items such as grilles/ diffusers, controls and/ or any other parts or equipment as required by the Engineer-in-charge for prior approval in writing before placing the order. The Contractor shall also construct prototype or samples of work as laid down in the Contract or as instructed by the Engineer-in-charge.

12. Testing and Commissioning

12.1. Tests on equipment as called for in the specifications shall be carried out by the Contractor in accordance with the specifications, the relevant Bureau of Indian Standard Codes (BIS) and International Standards.

12.2. The initial tests shall include but not be limited to the following:

- i. To operate and check the proper functioning of all electrically operated components viz., VRV/ VRF System, compressor motor, pumps, blowers, air handling units, rotating machine, fans, boilers, etc.
- ii. To operate and check the proper functioning of all electrical panels, switch gears, safety and other controls
- iii. To adjust and balance air, water, steam and gas quantities to provide the designed flow rates by adjusting valves, dampers, diverters etc.
- iv. To check the systems against leaks in different circuits, alignment of motor, 'V' Belt adjustments etc.
- v. To check the vibration and noise levels of the equipment
- vi. Setting of all control and all such other tests which are essential for smooth functioning of the plant.

12.3. The Contractor shall pay for and arrange without any cost, all necessary balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be tested again after removal of defects if any and shall be commissioned only after approval by the Engineer-in-charge. All tests shall be carried out in the presence of the Engineer-in-charge or his representative.

12.4. After completion of the HVAC system, the same shall be put to a continuous running test for a period of 12 (Twelve) hours. All adjustments should be made prior to this test so that proper conditions / working are achieved during this testing. The Contractor shall pay for and arrange at his own cost for materials, accessories, power, water, fuel and the requisite labour for this testing the test readings shall be noted in the Testing format approved by the Engineer-in-charge.

13. Final Performance and Capacity Test

In addition to the above testing, final performance and capacity tests shall be carried out on the equipment as per the "Testing Schedules" as follows:

- i. Peak summer / monsoon test during the period from 15th May to 31st July on the dates decided by HITES/ CLIENT. The installations should be able to maintain the specified inside temperature/conditions within the tolerance limits prescribed in the Contract and the duration of the test shall be 72 hours.
- ii. Peak winter test during the period from 1st December to 15th February on the dates decided by HITES/ CLIENT. The installations should be able to maintain the specified inside temperature within the tolerance limits permitted in the Contract. The duration of the test shall be 72 hours.

The above seasonal tests may also be conducted during the defect liability period as per time periods indicated above. All the arrangements required for making the entire system operational /running, for the performance test as above, including cost of manpower, materials, and fuel (Gas etc.), electricity etc. will be borne by the Contractor.

13.1. The user shall have the right to get the operation of all equipment, if these are in the

operating condition if such equipment, have been accepted as complete and satisfactory. Repairs and alterations if required shall be carried out by the Contractor as and when directed by the CLIENT/ HITES. In special circumstances, CLIENT/ HITES may request Air conditioning of some areas even before the completion of whole of HVAC work. The Contractor shall arrange accordingly as per requirements.

14. Guarantee and Defects Liability Period

All equipment shall be guaranteed against unsatisfactory performance and/or break down for a minimum period of 12 (Twelve) months or date of handing over of work to the CLIENT/ HITES, whichever is later. The equipment or component or any other part of installation so found defective within the guarantee period shall be replaced / repaired by the Contractor free of cost to the satisfaction of the CLIENT / HITES. The above guarantee and/ or warranty provided by the manufacturer will be submitted along with all the test certificates from manufacturer to HITES.

15. Performance Guarantee from Sub-contractor

The Contractor shall submit a performance guarantee certificate from the agency which executed the HVAC work, counter signed by the Contractor that the system shall maintain the desired parameters within tolerance limit of the specified parameters who shall also guarantee that the capacity of various components as well as the whole system covered under the scope of work, technical schedules and requirements etc., shall not be less than the specified capacities. The guarantee of the specific equipment supplied alone with regard to the performance of the system shall not be acceptable and overall responsibility of the Contractor for performance of HVAC work & its compliance with the Contract terms and conditions remains unchanged.

16. Maintenance

The Contractor shall carry out routine and preventive maintenance of the plant and attend to any defects and shortcomings that may arise in operation of the plant during the Defect Liability Period.

17. Validation: -Validation of Classified Areas (such as OTs/ICUs/Labs & other Critical Areas etc.) shall be in the scope of EPC contractor & nothing extra will be paid in this regard.

It shall include as follows:

- Documentation for DQ/IQ/OQ with certificates of all brought items
- Duct leakage testing during duct installation as & when required.
- Air flow velocity test
- Air borne particulate test
- Temperature & RH monitoring test
- Area recovery test
- Room pressure balancing & any other test as required.

18. Painting

All equipment and ancillary items such as pipes, supports etc., will be painted in an approved manner, using standard paints as approved by HITES/ Engineer-in-charge

19. Safe Custody and Storage

The contractor shall be responsible for safe custody of all machinery and equipment supplied and installed till the final taking over by the CLIENT/ HITES.

20. Training of Personnel

The Contractor shall arrange to train the HITES/CLIENT's personnel on the following aspects prior to provisional takeover of the plant:

- a) Operation of plant

- b) Gas charging and pumping down of the system
- c) Adjustments of settings for controls and protective devices
- d) Preventive maintenance
- e) Disassembling and assembling of compressor including identification and replacement.

21. Operation and Running of entire system

The contractor shall pay for and arrange for operation & running of entire VRV/ VRF System and other equipment for a minimum period of One month after supply, installation & satisfactory testing/ commissioning of works as per directions of Engineer-in-charge. The period of operation & running of entire system shall be reckoned with-in the stipulated completion date of the project. Cost of operation & running of entire system including required materials, Water, Electricity, consumables, tools & tackles, requisite manpower etc. shall be deemed to be included in the contract price and nothing extra shall be paid.

FORMATS FOR GUARANTEES**GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER SUPPLY AND SANITARY INSTALLATIONS****(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)**

The agreement made this..... Day of Two thousand and between S/O..... (hereinafter called the GUARANTOR of the one part) and the ----- (herein after called the Client of the other part). WHEREAS THIS agreement is supplementary to the contract. (Herein after called the Contract) dated.....and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable workmanship and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable and guarantee against faulty workmanship, finishing, manufacturing defects of materials and leakages etc.

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 of completion of work, to be reckoned after the expiry of maintenance period prescribed in the contract.

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

During the 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 Client 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 goods 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 Client the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WEHREOF those presents have been executed by the obligator. And by for and on behalf of the Client on the day, month and year first above written.

Signed sealed and delivery by OBLIGATOR in the presence of:

- 1.
- 2.

SIGNED FOR AND ON BEHALF OF ----- BY..... in the present of:

- 1.
- 2.

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR ANTI TERMITE TREATMENT.
(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the building and structures in the said contract recited completely Anti Termite proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely Anti Termite proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that Anti Termite treatment given by him under agreement Item No. _____, will render the structure completely Anti Termite proof and the minimum life of such Anti Termite treatment given by him will render the structures completely leak proof and the minimum life of such Anti Termite treatment shall be TEN years, to be reckoned from the date of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Building or alteration and for such purpose:

- a. Misuse of Building shall mean any operation which wills Anti Termite treatment to the Building.
- b. Alteration shall mean construction of any addition or construction adjoining to existing Building whereby Anti Termite treatment is removed/damaged in parts ;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

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

That if the guarantor fails to execute the Anti-Termite treatment, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENT FOR BASEMENTS.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the building and structures in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him under agreement Item No. _____, will render the structure completely leak proof and the minimum life of such 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 of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Basement or alteration and for such purpose:

- a. misuse of basement shall mean any operation which will damage proofing treatment to the basement of the Building.
- b. Alteration shall mean construction of any addition or construction adjoining to existing basement whereby proofing treatment is removed in parts ;
- c. The decision of the Engineer with regard to nature and cause of defects 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 at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to 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 of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENT FOR ROOF.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the building and structures in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him under agreement Item No....., will render the structure completely leak proof and the minimum life of such 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 of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Basement or alteration and for such purpose:

- a. misuse of roof shall mean any operation which will damage proofing treatment like chopping of fire wood and things of the same nature which might cause damage to the roof of the building.
- b. Alteration shall mean construction of any additional storey or part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts ;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the building water proof to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to 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 of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENT
(UNDER FLOORS).**

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the toilets, terraces and such related areas of the building in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the said toilets, terraces and such related areas will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment under the floors in toilets, terraces and such related areas given by him under the contract, will render the areas completely water and leak proof and the minimum life of such water proofing treatment shall be TEN years, to be reckoned from the date of completion of work i.e. to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of floors or alteration and for such purpose:

- a. misuse of such floors shall mean any operation which will damage proofing treatment and things of the same nature which might cause damage to the such floors of the building.
- b. Alteration shall mean construction of any addition or construction adjoining to existing such floors whereby proofing treatment is removed in parts;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the building water proof to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to 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 of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OF ALUMINIUM WORKS.
(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor inter alia, undertook to render the Aluminum Works in the said contract recited safe against water leakage, unsound material and workmanship and defective anodizing etc..

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Aluminum Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for TEN years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Aluminum Works executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for TWO years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Aluminum Work or alteration and for such purpose:

- a. misuse of the Aluminum Work shall mean any operation which will damage the Aluminum Work executed by him;
- b. Alteration shall mean construction of an addition to the Aluminum Work executed by him or part thereof or construction adjoining to the existing Aluminum Work whereby the Aluminum Work is likely to be effected/ damaged;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the Aluminum Work to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to 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 of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OF STRUCTURAL
GLAZING/ CURTAIN WALLSYSTEM/WORKS.**

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this _____ day of _____ two thousand and _____ between _____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the _____ (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the Structural Glazing / Curtain Wall System/ work under agreement Item No _____ safe against water leakage, unsound material and workmanship and defective anodizing etc..

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Structural Glazing/ Curtain Wall System/Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for FIVE years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Structural Glazing/ Curtain Wall System /Work executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for FIVE years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Structural / Curtain Wall System/ Work or alteration and for such purpose:

- a. misuse of the Structural Glazing / Curtain Wall System /Work shall mean any operation which will damage the Structural Glazing / Curtain Wall System /Work executed by him;
- b. Alteration shall mean construction of an addition to the Structural Glazing / Curtain Wall System Work executed by him or part thereof or construction adjoining to the existing Structural Glazing / Curtain Wall System / Work whereby the Structural Glazing / Curtain Wall System/Work is likely to be effected/ damaged;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found to render the Structural Glazing / Curtain Wall System /Work to the satisfaction of the Engineer-in- Charge at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if Guarantor fails to rectify the Structural Glazing / Curtain Wall System /work 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 the supplementary agreement. As to the amount of loss and/ or damage and/or cost incurred by HITES/Client, the decision of Engineer will be final and binding on the parties.

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

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF _____ BY _____ In presence of:

1. _____ 2. _____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OF SEISMIC/ MECHANICAL JOINT WORKS.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this ___ day of _____ two thousand and ___ between ___ S/o _____ (hereinafter called the GUARANTOR of the one part) and the----- (hereinafter called the Client of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Client of the other part, whereby the contractor interalia, undertook to render the Seismic/ Mechanical Joint System/Work under agreement Item No _____ in the said contract recited safe against water leakage, unsound material and workmanship and defective anodizing etc..

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Seismic/ Mechanical Joint System/Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for TEN years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Seismic/ Mechanical Joint System/Works executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for TWO years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Seismic/ Mechanical Joint System/Work or alteration and for such purpose:

- a. misuse of the Seismic/ Mechanical Joint System/Work mean any operation which will damage the Aluminum Work executed by him;
- b. Alteration shall mean construction of an addition to the Seismic/ Mechanical Joint System/Work executed by him or part thereof or construction adjoining to the existing Seismic/ Mechanical Joint System/Work whereby the Seismic/ Mechanical Joint System/Work is likely to be effected/damaged;
- c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found to render the Seismic/ Mechanical Joint System/Work non-functional to the satisfaction of the Engineer at his cost and shall commence the work for 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 Client by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the Seismic/ Mechanical Joint System/Work, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any 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 cost incurred by the Client on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator _____ and by _____ by for and on behalf of ----- on the day, month and year first above written.

Signed sealed and delivered by OBLIGATOR in presence of:

1. _____ 2. _____

SIGNED FOR AND ON BEHALF OF ----- BY _____ In presence of:

1. _____ 2. _____

END OF VOLUME –3