

**CONSTRUCTION OF NATIONAL CENTRE OF AGEING AT IMS,  
BHU, VARANASI, INDIA  
UNDER MOHFW**

**HLL INFRA TECH SERVICES LTD. (HITES)**

**As**

**Executing Agency of**

**MINISTRY OF HEALTH & FAMILY WELFARE**

**E-Tender**

**For**

**“Construction of National Centre of Ageing at IMS, BHU, Varanasi  
On Design, Engineering, Procurement and Construction on EPC  
Basis”**

**Tender No. HITES/IDN/NCA-BHU/EPC/2023**

**Volume: 3**

**Special Condition of Contract (SCC)**



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**CLIENT**  
**MINISTRY OF HEALTH AND FAMILY**  
**WELFARE, GOVT OF INDIA**

**EXECUTING AGENCY**



## **Construction of National Centre of Ageing at IMS, BHU, Varanasi on Design, Engineering, Procurement and Construction on EPC Basis**

### **Specific Conditions of Contract-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:**

The scope of work relates to Construction of National Centre of Ageing (NCA) at IMS BHU Varanasi India. The work is to be executed Design, Engineering, Procurement & Construction (EPC) basis including Operation & Maintenance of buildings/services after completion and handing over and up to the expiry of the defect liability period of complete project.

The proposed site is spread over around 0.52 acres (approx.) at IMS, BHU Varanasi. Varanasi is located at an elevation of 80.71 metres (264.8 ft) in the centre of the Ganges valley of North India, in the Eastern part of the state of Uttar Pradesh, along the left crescent-shaped bank of the Ganges, averaging between 15 metres (50 ft) and 21 metres (70 ft) above the river.

The design approach intends to undertake all proposed construction in one single phase to enable development of the proposed infrastructure. The building shall be sustainable, energy efficient and use space optimally.

The bidders is being provided with Concept Plans of the proposed building in the complex, 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 Byelaws. 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 HITES.

Present scope of work involves construction of buildings/blocks as per concept designs with a total tentative area of 15889Sqm. Besides these, all required MEP, HVAC and other services, Utilities, External Development, Horticulture, Landscaping, Roads including Roundabouts and Pavements, Parking, Pathways, Planters, Sports Facilities, Internal Compound Walls with Gates, remaining External Boundary Wall work at site, Drainage work, Water Supply, Plumbing, Storm Water Drainage, Signages (internal & external), Medical services like MGPS & augmentation of existing LMO and all related utilities as mentioned in the Design Basis Report and 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, as per requirements.

The execution shall be done on the basis on the approved working architectural & structural drawings. CPWD Specifications, relevant IS codes, National Building Code 2016, Harmonized Guidelines & Standards for Universal Accessibility in India 2021, Guidelines of AERB, NMC Norms and other standard specifications shall be followed in general except otherwise mentioned in bid document. Samples of the materials of approved make or otherwise shall be got approved from the Engineer-in-charge before use in the work.

For ease of understanding the scope of work, brief description is as given below:

- Site Survey, Soil Investigation
- Design & Detailed working drawings for Architecture, Structure, Fire Fighting & FA-PA

System, MEP Services, External Development, Landscaping, Tree / Plantation etc.

- Planning & Design of all E&M equipment.
- Substation Equipment's
- Diesel Generating Sets
- Internal Electrical (Power Wiring & Plugs, Lighting Conductors, Telephone Conduits)
- BMS
- Streetlight, Landscape Light & Façade Light, Solar Street Light
- Uninterrupted Power Supply
- HVAC Plant Room, VRV, Split AC's
- Solar Photo Voltaic Power Generation System
- Solar Water Heating System
- Solid Waste Management System
- Fire Fighting System, Public Address System
- Nurse Call System
- Information Display System & Video Wall in OPD Lobby
- CCTV System
- LAN, Wi-Fi, IPBAX system
- Access Control System
- STP/ETP/WTP
- Centralize RO System
- Water Coolers with RO + UV Unit
- Electric Geysers
- Heat Pumps for Hospital Building
- Pneumatic Tube based Fire Suppression System for Main LT Panels and Gas Flooding Fire Suppression System for Data Rooms
- Electrical Vehicle Charging Stations, DC Fast Charger & accessories
- Audio Visual System & Stage Lighting for Auditorium
- Master Antenna TV (MATV) System including LED Monitors
- CSSD, MOT (16 Nos.), MGPS, PTTS, Minor OT & Integration
- Boundary wall /fencing near Main Gates & Security Cabins as per drawing,
- Internal Compound Wall with Gates & Porta Cabin as shown in Master Plan
- Internal RCC Roads, Open Pathways /Cycle Track/ Building approach /drop off.
- Covered Path ways, Surface Parking, Covered Parking.
- Storm Water Drains
- Cutting, Filling, & Leveling
- Landscaping and Horticulture works
- External Sewerage System, Water-Supply System, Drainage System, Rain Water Harvesting (R.W.H), Trenches for Services.
- Under Ground RCC Water & Firefighting Tanks, RCC Tanks for STP, ETP & WTP.
- Bore wells
- Signages (Internal & External)
- Lifts (Passengers & Bed Lifts)
- Construction and commissioning of building(s) complete along with the above-mentioned services. Items which are not mentioned above but are essential considering functional requirements and according to Medical College & Hospital building must be executed by the Contractor.

- Obtaining mandatory approvals (Pre & Post Construction) from all local bodies/ State & Central authorities/ Municipal Corporation, EIA (Environmental Impact Assessment) clearance, fire clearance, forest clearance etc.
- i. The plinth level should be as per levels shown in the Concept plan/ DBR.
- ii. All cables passing through holes in floor or walls shall be sealed with fire retardant Sealant and shall be painted with fire retardant paint upto one meter on all joints, terminations and both sides of the wall crossings by “VIPER CABLE RETARD” or equivalent product satisfying the NBC 2016.
- iii. Medical Equipment, Non-Medical Equipment’s (KITCHEN & LAUNDRY) are excluded from scope of work of contractor. However, the contractor shall ensure to design & provide Provision of all these services keeping in mind the future functional requirement. However, Client at its sole discretion may get it executed through EPC contractor or through separate contract. EPC contractor will not have any claim in this regard whatsoever.
- iv. Mockup of Consultant Room, Nurse Station, Classroom, Faculty Area, Work station, Hostel Room, Toilets, Corridor Staircase, Front Facade etc. Typical module has to be made by contractor for ease of approval and understanding before going ahead with mass execution.
- v. C & D waste generated at site to be properly done as per norms at authorized recycling plant of municipal body.
- vi. Landscaping work and road network to be taken up parallel to building work and should be completed within time limits as stipulated.
- vii. The Contractor shall obtain all Pre & all Post construction clearances/approvals from Environmental Authority, Municipal and other relevant statutory authorities/local bodies including Water supply agencies concerned, Electric Supply and inspectorate. Agencies concerned, such as, but not limited to, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, concerned in accordance to prevailing rules, Building Byelaws, tree cutting etc., as the case may be with related to/ required for Construction/Completion. All expenditure on this account will be borne by the contractor. However, statutory payment on this account will be reimbursed by the client at actual on submission of documentary evidence of payment made. The status of applications for pre-construction clearances submitted/applied to local authorities if any; shall be provided to the contractor for obtaining clearances/approvals.
- viii. Architectural feature as matched in master plan is deemed to be included in quoted price.
- ix. Concept Plan as attached may undergo changes as per state govt./ Local body/Client requirements. The contractor has to design and execute the same after doing necessary modifications without any extra cost implication.
- x. All other facilities as required for GRIHA-III/Functional requirement limited to PublicUtility such as water kiosk, toilets, transport hub, street furniture, walk way to be provided by the contractor and all expenditure to be included in quoted price.
- xi. Other Items which are not mentioned above but are essential considering functional requirements and according to Medical College & Hospital building have to be executed by the Contractor.
- xii. **Minimum acceptable condition:** Contractor has to design and execute items as per CPWD Specifications as covered in CPWD PAR’2023 and as per tender document. Higher Specification items and Items which are not covered in CPWD Specification/PAR’ 2023 to be executed as per BOQ/ DBR/Drawing /Finishing Schedule/ Technical Specification as per Tender Documents.
- xiii. The Contractor has to design and construct RCC Box Culvert drain of suitable size as per requirement and also to cater load of the earth and fire tender movement etc.

(drain as per location shown in the master plan). All expenditure towards the same to be included in quoted price and nothing extra will be payable.

- xiv. In addition to above Buildings Fire Station and Solid Waste Management Building along with Organic Waste Composter is also to be provided.

### **1.2. Special Conditions for Non-Medical Equipment:**

Refer Clause 1.26 of Section II, NIT & ITB Vol.1

### **1.3. 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 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. 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.

### **1.4. 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.

#### **1.4.1. 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 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 should take in to account the required Green Building and Acoustic Parameters.
- iii. The architectural design should take in to account the requirements of physically challenged persons.
- iv. All the material procured or to be used should be to the satisfaction of the Engineer in charge before being used for the works intended to.
- v. 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.
- vi. The design should provide for bore-wells, underground and overhead water

tanks with necessary pumping arrangement for both portable and fire fighting requirements.

- vii. 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.
- viii. Planning and design should also incorporate the requirements with respect to the recreational & sports facilities in the project as per requirement.
- ix. 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.
- x. The planning should include landscaping and horticulture as per requirements. The contractor shall create parking, approach roads and other requirements for the building.
- xi. Provision should be made for internal and external signage's, display boards, public address system in the required area.
- xii. 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.
- xiii. 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
- xiv. All moving plant, machinery and apparatus shall be statically and dynamically balanced at manufactures work place and certificate issued.
- xv. 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.
- xvi. Provision should be made for Modular Operation theatres based on seamless integration with modular concept and complete Medical Gas Pipeline System.
- xvii. Provision should be made for CSSD & PTTS
- xviii. Space provision should be made for Furniture for Hospital, Laboratories and General Admin Furniture for Institutional Buildings, Hostels, Night Shelter, Guest House etc.

#### 1.4.2. 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 & Handling) Rules 1998
- 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.

#### 1.4.3. 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. 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 preparation of 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 Engineer-in-Charge. The contractor shall ensure proof checking of structural designs and drawings from IIT/NIT or other Institutes as approved by HITES/ BHU. 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, Provision of different types of Lifts, HVAC, Networking, LAN & Wi-Fi, CCTV & PA System, Fire detection, Fire Alarm & firefighting, BMS, Waste Management System, ETP, STPs & Water Treatment Plant, Nurse Call System, 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, installation of tube wells, R.O plant, sewerage, 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 to overhead tanks and piped to flushing in each location/utility as directed by the Engineer-in-charge.
- i. Planning and designing of bore walls, 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, HSD storage, Lifts, Internal electrification, LV works, HVAC, STP/ETP/WTP 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 system including laying of pipe lines and construction of related structures.
- l. Preparation & submission of Preliminary & Detailed design & drawings for Landscaping & Horticulture work, Main Entrance Gates, development plans showing Internal Roads, Pathways, Parking lots, Paved areas, Court Yards Landscaping, Drains, Culverts, Compound walls, External lighting arrangements, Under Ground & Overhead tanks, Storm Water Collection tank, HSD UG Storage Tank, Internal & external Signage's, Recreational Sports facilities etc. complete in all respect.
- m. Preparation of landscaping plan including parks, 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, construction of its boundary wall, providing MS railings (including painting), wicket gates, 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 boundary wall, MS gates, Wicket gates, Security Cabins, sign boards, guide maps, location boards, direction boards, Numbering of houses/hostels etc. all complete as per the drawing approved and direction of Engineer-in-charge.
- o. Planning & detailed design of Modular Operation theatres based on seamless integration with modular concept and Medical Gas Pipeline System complete in all respect as per specification/matrix/description and direction of Engineer-in-charge.



**p. Central Sterile Supply Department (CSSD) / TSSU**

Planning & detailed design of Central Sterile Supply Department System suitable for 200 bedded hospitals to provide centralized Sterile Stores to Operation theatres and other related departments.

- q. Planning & Design of interior design layouts / details, including furniture layouts detailed working drawings, etc. for all Hospital, Laboratory and other areas fixed and loose furniture items.
- r. 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.
- s. Obtaining approval of HITES/ Client for all the Detailed/Preliminary Architectural, Structural & Services drawings & designs.
- t. Prepare and submit three dimensional model(s) of suitable scale as and when required by the HITES/ local authority at no extra cost.

**1.4.4. Scale**

All drawings shall be prepared to the scale as required for proper explanation and shall indicate the size and location of all equipments 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.

**1.5. Statutory Approvals:**

The Contractor shall obtain all required statutory approvals including pre-construction from Municipal and other local bodies, Water supply agencies concerned, Electric Supply and Inspectorate Agencies concerned, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, in accordance to prevailing rules, Building Bye-Laws, tree re-plantation etc., as the case may be with related to/ required for Construction/ Completion. The contractor shall liaison and follows up for obtaining EIA approval. All expenditure on this account will be borne by the contractor. These approvals shall include:-

- i. Obtaining approval of all the competent authorities and other statutory bodies like Ministry of Environment and forests, State Pollution Control Board, Air Force , civil aviation, railways and local development bodies etc. as applicable necessary according to the local Acts, Laws, Regulations, etc. and make any changes desired by such authorities at no extra cost.
- ii. 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 request for obtaining EIA approval has already been submitted. The contractor shall liaison and follow up with the respective department for obtaining the EIA approval.
- iii. Obtaining approval of the Architectural drawings from relevant local statutory body & obtain Commencement Certificate from local bodies leading to commencement of construction of the project.
- iv. Obtaining NOCs (No Objection Certificates) from Fire Department, Lift Inspector, Storm water drainage & sewerage department, Municipal Corporation / Local Bodies, Civil Aviation, Railways, EIA completion and / or occupancy certificates etc.
- v. Obtaining approval of electrical drawings from Central / State Electrical Inspectorate, as applicable.
- vi. Any other approval required from the appropriate Statutory Authorities/ Local Bodies.

- vii. Obtaining approval of AERB
- viii. The EPC Contractor/MGPS vendor shall be responsible for obtaining license for the LMO Storage Installation Tank on behalf the Institute as required under " The static and Mobile pressure vessels (unfired) rule, 1981" from the chief controller of Explosives (CCOE), Nagpur.
- ix. Compliance as per GRIHA norms and obtaining approval and certification for minimum 3 Star, Green Building Rating for following buildings/blocks from GRIHA Council etc.

- Hospital Block

The original documents of approval/certificates etc. shall be submitted to the HITES.

### **1.6. Shop drawings/ Design**

The Contractor shall furnish for approval of the Engineer-in-charge requisite sets of detailed Shop drawings as stipulated/requirements of the contract and specially for Façade work, Aluminum works, Door/Windows, Structural Glazing Work, Structural Steel work, Sanitary, Plumbing, Firefighting (external & internal), Pump room, Electrical works, LV works, HVAC, STP/ETP/WTP, CSSD, MGPS and all other works within scope of this contract.

Solar Hot Water System & all other services, equipment and materials required to complete the work as per specifications well in advance. These drawings/documents shall contain details of construction, size, arrangement, operating clearances, performance characteristics, and capacity of all items of 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 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 may be brought at Site until the 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 six 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.

### **1.7. Approved Makes:**

- a. Specification/brands names of materials/equipment to be used or supplied as per the scope of work are listed 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's 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 inter-changeable 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.

### **1.8. Project/ Work Execution/Construction:**

#### **1.8.1. 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, and mobilization for initial two months, 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.

#### **1.8.2. Handing Over and Clearing of Site:**

- a. The site of work is 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 of the National Centre of Ageing (NCA).

- 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 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.
- e. The information about the public utilities (whether over ground or underground) like electrical/telephone/water supply/sewerage lines, OFC Cables, open drain etc. is the responsibility of contractor to ascertain the utilities that are to be affected by the works through the site investigation.
- f. The contractor shall be responsible to obtain necessary approval from the respective authorities for shifting/re-alignment of existing public utilities.
- 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 not 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 the watch and ward / guard of the buildings safety, fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

### 1.8.3. Construction of Building & Infrastructure:

Based on the Master 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, Main Gates & Security Cabins 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 National Centre of Ageing (NCA).
- b. Construction of roads along with roundabouts, pathways (covered & open), dropouts at main entrances of Hospital, Parking lots,ETP/WTP, water supply, sewerage, drainage works, horticulture & landscaping, Planters, including external lighting, etc. complete as per approved drawings and design.
  - c. Complete leveling/dressing including filling of earth, its supply, disposal of surplus earth / debris / Malbaetc. if any is to be completed as directed by the Engineer-in-charge.
  - d. Construction of External boundary wall with Main Gates, Security cabins etc., as required and complete as per approved drawings and design are included in the scope of the work.
  - e. Besides the scope of work as referred above, the construction of Building & Services with associated infrastructure shall include the following along with other utilities required for smooth functioning of National Centre of Ageing (NCA) taking into consideration all statutory regulations:
    - i. Fire Fighting, Fire Detection & Fire Alarm System with required underground & overhead fire water tanks, storm water collection tanks, other overhead/underground domestic/flushing/irrigation/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.
    - ii. Centralized HVAC System for complete block.
    - iii. Internal Electricals with all fittings & fixtures, Rising Mains, DBs & Panels etc.
    - iv. LAN Network, EPABX & Telephone Network System and Centralized UPS System etc.
    - v. Electrical Substations, Transformers, DG Sets, Street Lighting, sandwich Bus ducts& sandwich rising mains, HT panels, LT Panels, Capacitor Panels etc. complete with necessary foundations and approaches etc. including required cabling & connections as required. Scope of work for EPC Contractor shall commence from 11 kV HT Panel provided by BHU Varanasi, in 11 KV substation onwards. The 11 kV HT power shall be tapped for catering to electrical load requirements of National Centre of Ageing (NCA).
    - vi. 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.
    - vii. Supply, installation, testing and commissioning of Medical Gas Pipeline System complete in all respects as per Technical Specifications and approved drawings & as directed by Engineer-in-charge.
    - viii. All aspects of quality assurance, including testing services components of the work,
    - ix. Training and orientation of Client's personnel on various systems installed as part of this contract
    - x. Project Management to ensure completion of Project as per specified timelines.

- xii. Submission of the completion (i.e. as built) drawings and other related documents.
  - xiii. Clearance of site before handing over of the facilities to fulfill after full filling all the obligations.
  - xiv. Handing over of the facilities in phases and overall after completion of project after fulfilling all obligations and responsibilities as per Contract.
  - xv. Making Good any defect (if any) within Defect Liability Period
- 1.9.** 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.
- 1.10.** 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, CFO, local bodies, proof consultants, GRIHA Council etc. in accordance with applicable standards and bid document will have to be done at Contractor's cost and nothing extra shall be payable.
- 1.11.** 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 to make the National Centre of Ageing (NCA) habitable and ready for occupation as per direction of Engineer-in-charge.
- 1.12.** 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.
- 1.13.** 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.
- 1.14.** 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.
- 1.15.** 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 specialized 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.

#### **1.16. Operation & Maintenance:**

Upon completion of supply, installation, testing & commissioning of all works, the Contractor shall furnish the necessary skilled/unskilled/semi-skilled personnel for operating the entire installations for a period of thirty (30) working days which is included in the completion period of respective milestones/phases.

The operation and maintenance shall be construed beyond above period of completion of respective milestone/ phases and upto completion of the defect liability period or extended period thereof for the entire project. O&M of various Civil & E&M



works, MGPS, etc. shall be carried out by EPC Contractor either himself or through respective OEM & Vendors who are involved in supply & installation of works at site. Such operation and maintenance shall commence in a phased manner with respect to completion and handing over of the phases and upto end of defect liability period or extended period thereof for the entire project. For MGPS ,Warranty shall be as given in the tender document separately.

#### **1.17. 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, ETP, WTP, LV Works, MGPS, & any other system installed under this contract.

## SPECIFIC CONDITIONS OF CONTRACT-GENERAL

### 1. **General:**

#### 1.1. **Force Majeure:**

Any failure or delay in the performance by either party hereto of its obligations under his 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 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 authorized 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., donot 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 metalled 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 metalled road. This area shall not cause any obstruction to the free flow of traffic /inconvenience to the pedestrians. It should be ensured by the Contractor that no accidents occur on account of such permissible storage.
- 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.

- xii. 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.
- xiii. 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.
- xiv. 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.
- xv. It is mandatory to use of wet jet in grinding and stone cutting.
- xvi. Wind breaking wall around construction site.
- xvii. 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.
- xviii. 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. 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.
- xix. 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.
- xx. 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.
- xxi. 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 license (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-license to use such software in favour of the HITES and shall pay such license 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's

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.

## 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 (including 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, Operation & Maintenance during Defect Liability Period etc. complete as per Scope of Work. The quoted rates shall also include cost of all other inputs required in the execution of the item, all taxes and duties including Goods & Services Tax. 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 within 15 days from the date of Letter of Award, the breakup of total quoted amount of each item of Financial Bid (Part –A & Part-B) as Base Rate & GST separately which shall form part of the agreement and bills for the executed work shall be raised accordingly.

- 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. **For calculation of plinth area, rules for working out the plinth area from plans as given in the Annexure II of PAR-2023 shall be followed.** The tentative plinth area is as per the Schedule of Quantities- Part-A (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, Shafts for sanitary, water supply installations, garbage chute, telecommunication, electrical, firefighting, air conditioning and lifts etc.
  - ii. 50% of area of Projections such as Covered drop off's, Balconies, Cantilever projections, refuse terrace area, Ramp in hospital, Entrances & Porch.
  - iii. Architectural features like Porch, boxing, pergolas, Facade etc.
  - iv. External treatment such as dry cladding, structural glazing, pump rooms, underground structures including UG Tanks, ETP/ WTP/ Bore wells etc.
  - v. Areas for security cabins at entrances.
  - vi. Area of Mumty/Machine room, architectural feature if any, above terrace not to be counted in the Plinth area for the calculation of EPC area calculation.
  - vii. The total plinth area of a building shall be the sum total of the plinth area at every floor including the basement, if any.
  - viii. OPD Ramp to be counted 50% of the area of Ramp.
  - ix. All Light weight porch with steel and polycarbonate/Tefflon fabric etc. at entrance of academic, Hospital not to be counted in the Plinth area for the calculation of EPC area calculation.
  - x. All Courtyard covering with steel structure and polycarbonate sheet not to be counted in the Plinth area for the calculation of EPC area calculation.
  - xi. Stilted area not to be counted in the Plinth area for the calculation of EPC area calculation.
  - xii. Busbay, Public Toilets (3 Nos.) as shown in master plan not to be counted in the Plinth area for the calculation of EPC area calculation.

Payments for Roadwork, Pathways, Surface Parking etc. shall be on the basis of finished area of each item. Sub-grade & Kerbstone, joints etc. are included in the respective item(s) as per tender drawing, DBR & specifications.

- 2.3. All running/intermediate & final payments shall be made to the contractor in accordance with the following schedule and on pro-rata basis:
- i. The Contractor shall submit detailed project schedule in MS Project within 15 days of award 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.
- ix. Missing items which are part of scope of work but not reflecting in payment schedule is deemed to be included in quoted price.
  - a. Planning, Designing, and Construction on EPC Basis of **Hospital 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.

Sl. No.	Description of Item	Break up of total % payable cost		% of Total payable cost
		Item	Sub-group	
<b>A.</b>	<b>Planning, Design &amp; Engineering Works-</b> 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%	<b>1.00%</b>
	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:		0.20%	
	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 100% Super structure	0.05%		
	iii. On Completion of work	0.10%		
	iv. On obtaining required statutory approvals after completion of works	0.10%		
	v. On handing over to Client	0.10%		
<b>B</b>	<b>CONSTRUCTION</b>			
	<b>a. Civil Works</b>			
	i. Foundation Workup to plinth level	10.00%		
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room etc. including water proofing etc.	25.00%		
	iii. Brickwork & partitioning work	4.00%	<b>56.00%</b>	
	iv. Flooring, skirting, dado, wall lining work	4.00%		
	v. Doors & Windows.	3.50%		
	vi. External Glazing, GRC Jali, External Cladding etc.	2.00%		
	vii. False Ceiling Work	1.00%		
	viii. Finishing Work i/c painting (inside & outside)	4.00%		
	ix. Other Works, viz. Steel work, railing, panelling, Signages etc.	2.50%		
	<b>i. Services</b>			<b>94.00%</b>
	<b>a. HVAC</b>	<b>7.50%</b>		
	i. Air Conditioning & Heating System and related electrical work	6.00%		
	ii. Mechanical Ventilation System and related electrical work	1.50%		
	<b>b. Electrical Works</b>	<b>19.50%</b>		
	i. ESS, Internal Electrical Works, rising mains and DB & other related works	8.00%	<b>38.00%</b>	
	ii. Earthing & Lightning Protection System	0.50%		
	iii. LV & BMS System	8.00%		
	iv. Nurse Call System	0.50%		
	v. UPS System	0.50%		
	vi. Light Fixtures, Fans and Occupancy Sensors	2.00%		
	<b>c. Water Supply &amp; Sewerage System</b>	<b>2.50%</b>		
	i. Water Supply System	0.75%		

	ii. Sanitary & Sewerage System	0.75%		
	iii. Storm water drainage	0.25%		
	iv. Fittings & Fixtures	0.75%		
	<b>d. Fire Protection System</b>	<b>3.00%</b>		
	i. Wet Riser System /Down Comer System	0.50%		
	ii. Automatic Sprinkler System	2.00%		
	iii. Fire Extinguishers	0.25%		
	iv. Gas based fire suppression system	0.25%		
	<b>e. WTP, ETP, Hot Water Generator System &amp; Solar Hot Water Generator System</b>	<b>1.00%</b>		
	<b>f. Lifts</b>	<b>4.00%</b>		
	<b>g. Solar PV System</b>	<b>0.50%</b>		
<b>C</b>	<b>Completion and Handing Over</b>			<b>5.00%</b>
	i. Testing & Commissioning		2.50%	
	ii. Handing over		2.50%	
	<b>Total =</b>			<b>100.00%</b>

- b. Planning, Designing, and Construction on EPC Basis of **Medical Gas Pipeline System** 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
<b>A.</b>	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		<b>1.00%</b>
<b>B</b>	<b>Complete MGPS / augmentation of LMO as per scope of work</b>		<b>90%</b>
	<b>Note :The payment above item shall be regulated as under</b>		
	i. Supply of equipment / material	75%	
	ii. Installation	25%	
<b>C.</b>	<b>Completion and Handing Over</b>		<b>9.00%</b>
	i. <u>Testing &amp; Commissioning</u>	4.50%	
	ii. <u>Handing over</u>	4.50%	
	<b>Total =</b>		<b>100.00%</b>

- c. Planning, Designing, and Construction on EPC Basis of **Sewage Line** 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.	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		1.00%
B	<b>As per scope of work mentioned below</b>		90%
<b>Note :The payment above item shall be regulated as under</b>			
	iii. Supply of equipment / material	75%	
	iv. Installation	25%	
C.	<b>Completion and Handing Over</b>		9.00%
	iii. <u>Testing &amp; Commissioning</u>	4.50%	
	iv. <u>Handing over</u>	4.50%	
	<b>Total =</b>		<b>100.00%</b>

- d. Planning, Designing, and Construction on EPC Basis of **Green Boundary Wall** 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.	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		1.00%
B	<b>As per scope of work mentioned below</b>		
C.	<b>Completion and Handing Over</b>		99.00%
	<b>Total =</b>		<b>100.00%</b>

- e. Planning, Designing, and Construction on EPC Basis of **Providing Trench for laying of Oxygen Pipeline Connection with existing LMO including providing and laying of Copper pipeline** 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.	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		1.00%
B	<b>As per scope of work mentioned below</b>		90%

	<b>Note :The payment above item shall be regulated as under</b>		
	v. Supply of equipment / material	75%	
	vi. Installation	25%	
<b>C.</b>	<b>Completion and Handing Over</b>		<b>9.00%</b>
	v. <u>Testing &amp; Commissioning</u>	4.50%	
	vi. <u>Handing over</u>	4.50%	
	<b>Total =</b>		<b>100.00%</b>

- f. Planning, Designing, and Construction on EPC Basis of **Open Parking Area 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.

<b>S. No</b>	<b>Description of Item</b>	<b>Break up of total % payable</b>	<b>% of total payable</b>
<b>A.</b>	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		<b>1.00%</b>
<b>B</b>	<b>As per scope of work mentioned below</b>		
<b>C.</b>	<b>Completion and Handing Over</b>		<b>99.00%</b>
	<b>Total =</b>		<b>100.00%</b>

- g. Planning, Designing, and Construction on EPC Basis of **Augmentation of existing 10KL LMO tank to 20KL** 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.

<b>S. No</b>	<b>Description of Item</b>	<b>Break up of total % payable</b>	<b>% of total payable</b>
<b>A.</b>	<b>Planning, Design &amp; Engineering Works-</b> Investigation, planning, Designing and obtaining approvals for works		<b>1.00%</b>
<b>B</b>	<b>As per scope of work mentioned below</b>		<b>90%</b>
	<b>Note :The payment above item shall be regulated as under</b>		
	vii. Supply of equipment / material	75%	
	viii. Installation	25%	
<b>C.</b>	<b>Completion and Handing Over</b>		<b>9.00%</b>

	vii. <u>Testing &amp; Commissioning</u>	4.50%	
	viii. <u>Handing over</u>	4.50%	
	<b>Total =</b>		<b>100.00%</b>

#### 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.
- 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/ National Centre of Ageing (NCA).
- 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 the respective 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. 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, within 30 days of issue of letter of award, at his own cost, provide a reasonably furnished site office of area 150 Sqm (approx.) having, a sample room, A.C meeting room, staff rooms along with toilets & pantry with file storage facility, Almiras (2 Nos.), 3 computers/ 1 Laptop (4 Nos.), Broad band (2 Nos.) and 1 No. coloured MFP printer and 1 No. monochrome laser printer with their consumables, a landline telephone with broad band connection with wifi Modem/router, licensed version Modern Software techniques such as MS Excel, MS Project, Primavera or equivalent as per instructions of Engineer-in-charge, Auto-CAD, etc. There shall be video conferencing facilities with adequate Bandwidth to accommodate video conference call with 3 participants at different locations.
- b. 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.
- c. Besides these, vehicle /car ( one nos.) 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.

### 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. 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.

### **3.7. 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 authorise the Contractor's staff and workers to enter the Site.

### **3.8. 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.

### **3.9. 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.

### **3.10. 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.

### **3.11. Temporary Barricading**

The Contractor shall at his own expense, erect and maintain in good condition temporary barricades all around the working area as per directions of the Engineer-in-charge. The barricading shall be as required or at least 3 meter high approx.,

whichever is higher. The specifications of barricading shall be got approved from Engineer-in-charge and external face of barricading to display name of CLIENT & HITES.

- 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. Proper barricading around site so that surrounding area is made free from disturbances.
  - v. 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 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.
- 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 nationality in any way is 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 Equipments (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	BHU/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 National Centre of Ageing (NCA), 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 at least one Super-Specialty/ Multi-Specialty Allopathic Hospital Project 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. 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 Master 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 Super-Specialty/ Multi-Specialty Allopathic Hospital Project of minimum 160 beds 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 of HITES.
  - 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. w.r.t the project and as per directions of Engineer-In-Charge.

### 6.3. 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 Hospital Building 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

### 6.4. Design and Construction

#### 6.4.1. 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.

6.4.2. 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.

#### 6.4.3. 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 or other institutes as approved by HITES/ BHU 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.

6.4.4. 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.

6.4.5. Considering the need for specific green building parameters and to obtain the required GRIHA Green Building Rating Certification with respect to project 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.

**6.4.6. 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.

6.4.7. 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. The Contractor shall not be obliged to await the observations of the HITES on the Drawings submitted pursuant hereto beyond the said period of **21 (twenty one) days** and may begin or continue Works at its own discretion and risk;
- (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.

6.4.8. 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.

6.4.9. 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. Setting out of the Works**

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. Quality of Materials & Equipment, Workmanship and Test**

8.1. All the materials used in the work shall be subjected to the mandatory tests as prescribed in the specifications detailed in Schedule F of the General Conditions of Contract and other specifications referred to in the contract and workmanship shall



be the best of the respective kinds described in the Contract and in accordance with the Engineer-in-charge's instructions and shall be subjected from time to time to such tests as the Engineer-in-charge may direct at the place of manufacture or fabrication or on the Site or at an approved testing laboratory. The source of supply and / or manufacturing within/ outside India may be inspected by the Engineer-in-charge or any representative as nominated by the HITES. The expenditure on this account is deemed to be included in the rate quoted.

The contractor shall upon the instruction of the Engineer-in-charge's representative furnish him with documentation to prove that the materials & goods comply with the requirements of contract and for requirement stated above. The Engineer-in-charge may issue instruction in regard to removal of material from site or any work, if these are not in accordance with the contract. The contractor shall provide such assistance, instruments, machinery, labour and materials as are required for examining, measuring, sampling, testing of material or part of work.

### 8.2. Audit Inspection/ Technical Examination/Third Party Inspection

The HITES/ Engineer-In-Charge shall have the right to cause Audit Inspection by Audit team under Comptroller and Accountant General of India./ Technical Examination by Chief Technical Examiner under Central Vigilance Commission, Govt. of India /Third Party Inspection of the works and the final bills of the contractor including all supporting vouchers, abstracts, etc. to be made as per payments of the final bill. The Contractor shall provide all assistance and full access to site to carry out inspection and perform tests at site, to provide samples for testing in outside laboratories and to show site records and their records as asked for by the inspecting teams. Findings of such inspection shall be notified to contractor and contractor shall be bound to take remedial measures to the satisfaction of Engineer-in-charge. If as a result of such Audit Inspection/ Technical Examination/Third Party Inspection, the sum is found to have been overpaid in respect of any work done by the contractor under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for the HITES/ Engineer-in-charge to recover the same from the Security Deposit or Performance Security of the contractor or from any dues payable to the contractor. If it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid. Since, the work comes under the purview of CVC, all such orders and instructions issued by CVC are applicable to this work.

In the case of any audit examination and recovery consequent on the same the contractor shall be given an opportunity to explain his case and the decision of the HITES/ Engineer-in-charge shall be final. Payment on this account will be recovered from the contractor.

In the case of Technical Audit /Third Party Quality Assurance /Audit by an independent agency/ individual/firm/institute at any time, consequent upon which there is a recovery from the contractor, recovery shall be made with orders of the HITES/ Engineer-in-charge whose decision shall be final.

### 8.3. Samples

- i. The HITES will not supply any materials required for execution of the Works under this Contract. The Contractor must, therefore, make his own arrangements for timely procurement of various materials including steel and cement etc.
- ii. Prior to ordering any equipment/ material/ system, the Contractor shall submit to the Engineer-in-charge the catalogues, along with samples from approved list of manufacturers. No material shall be procured without written approval of the Engineer-in-charge.



- iii. All samples of materials and /or items of works in adequate numbers, sizes, shades & pattern as per specifications shall be supplied free of charge by the contractor without any extra charge. All other expenditure required to be incurred like conveyance for taking the samples for testing at the laboratory, packing, etc., shall be borne by the contractor. If the test results do not conform to the specifications and standards laid down, the materials shall be rejected, the contractor shall remove such materials from site. The laboratory for testing of samples shall be decided by the Engineer – in charge, whose decision shall be final and binding.
- iv. Contractor shall submit Samples to the Engineer-in-charge for approval. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature / test certificate of the same shall be provided to the satisfaction of the Engineer-in-charge. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalogue numbers and the use for which intended and otherwise as the Engineer-in-charge may require to review the submittals for the limited purposes required by paragraph (d) below. The numbers of each sample to be submitted will be as specified in the Specifications, or as shall be specified by the Engineer-in-charge.
- v. Submittal Procedures
  - a. Before submitting each Sample, Contractor shall have determined and verified all materials with respect to intended use, fabrication, shipping, handling, storage, assembling and installation pertaining to the performance of the Work and All information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programmes incident thereto.
  - b. Each submittal will bear a specific written indication that Contractor has satisfied Contractor's obligation under the Contract Documents with respect to Contractor's review and approval of that submittal.
  - c. At the time of each submission, contractor shall give the Engineer-in-charge specific written notice of such variations, if any; that the sample submitted may have from the requirements of the contract document. Such notice shall be separate from the submittal and in addition shall cause a specific notation to be made on each sample submitted for review and approval of each such variation
- vi. Review and Approval:
  - a. Sample shall be reviewed and approved only to determine if the items covered by the submittals will, after installation or incorporation in the work, conform to the information given in the contract documents and be compatible with the design concept of the completed project functioning as a whole as indicated by the contract documents, drawings.
  - b. Review and approval will not extend to means, methods, techniques, sequences or procedures of construction. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer-in-charge and shall submit as required new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for and by the Engineer-in-charge on previous submittals.
  - c. Above referred review and approval of Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Document unless Contractor has in writing called the Engineer-in-charge attention to each such variation at the time of submission as specified above and received written approval of each such variation by specific

written notation thereof incorporated in or accompanying the Sample approval; nor will any approval by Engineer-in-charge relieve Contractor from responsibility for complying with the requirements of contract.

- d. Only when the samples are approved in writing by the Engineer-in-charge, the contractor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be signed by the Engineer-in-charge for identification and shall be kept on record at site office until the completion and acceptance of the work and shall be available at the site for inspection / comparison at any time. Samples approved shall be kept in the sample room till the completion of the work. The contractor shall keep with him a duplicate of such samples to enable him to process the matter.
- e. For items of works where the samples are to be made at the site, the same procedure shall be followed. All such samples shall be prepared at a place where it can be left undisturbed until the completion of the project.
- f. The Engineer-in-charge shall communicate his comments / approval to the Contractor to the samples at his earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications or other discrepancies, inadequacy in furnishing samples of appropriate quality from various manufacturers and such other aspects causing delay on the approval of the materials / equipment's etc., shall be ascribable to the account of the contractor. In this respect the decision of the Engineer-in-charge shall be the final.
- vii. On delivery of the supplies of materials / equipments for permanent works at the site, the contractor shall specifically arrange to get the supply inspected by the Engineer-in-charge and compared with the approved sample and his specific approval obtained before using the same in the work.

viii. Cost of Tests

The cost of making any test shall be borne by the Contractor as intended by or provided for the Contract or as found necessary by the Engineer-in-charge for ascertaining whether the quality of materials intended to be used by the Contractor in the Works is acceptable, whether any finished or partially finished work is appropriate for the purposes for which it was intended to fulfill.

ix. Testing facilities

The Contractor shall, at his own cost, provide testing facilities as per CPWD specifications and IS Codes at site as stipulated in the General Conditions of Contract (GCC) or as directed by the Engineer-in-charge including staff required for testing. The tests shall be carried out jointly in the presence of Engineer-in-charge or his representative and the contractor or his representative.

The contractor shall also provide suitable weighing and measuring arrangement and testing instruments and machines for testing of materials and cubes at site as per details given in GCC.

The contractor shall carryout all the mandatory tests and shall maintain records of testing & checks of material, in formats, checklists etc. to be given by Engineer-in-charge. All such records shall be maintained jointly by the contractor and Engineer-in-charge these shall remain under the custody of the Engineer-in-charge.

The laboratory shall be connected to the main potable water, electricity and other Services.

Some of the mandatory tests for each item of work and /or materials shall be carried out in approved outside laboratory as directed by the Engineer-in-

charge. The Contractor shall bear the entire cost of testing charges for samples of items of work and /or materials and also the other expenditure towards making samples, packaging, and transport etc.

The materials brought at site of work shall not be used in the work before getting satisfactory test result as per relevant mandatory tests, detailed in the relevant CPWD specifications and BIS codes.

#### 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 & LT Panels
- 3) DG Sets
- 4) Bus Ducts & Rising Mains
- 5) Chillers

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 items for this Contract.

The Engineer-in-charge or his authorized 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), 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 contractors 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 five 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 National Centre of Ageing (NCA) 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.

### 9.3. Time for Completion

- i. Project completion Schedule including setting out date of completion in phases as defined under Schedule F of the GCC Vol-II.
- ii. Time is the essence of Contract and will remain so at all times during the pendency of the Contract including the extended period of Contract. The Contractor shall complete works as per completion schedule and ensure defect free completion and have passed the tests on the completion, including integrated testing where ever in the scope of work and commissioning of the whole of the Works and/or parts thereof before the same is taken over by the Client/HITES.

### 9.4. Mile Stones

- i. The time allowed for execution of the Works and Mile Stones shall be as specified in the Schedule F of GCC, Vol-II. In case, the contractor does not achieve a particular milestone mentioned in or the re-scheduled milestone(s) by the HITES, the amount shown against that milestone shall be retained and will be adjusted against the Liquidated Damages at the final grant of Extension of Time after completion of work.
  - ii. On failure to achieve a milestone, retaining of this amount from payments due to the contractor shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the entire retained amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be retained. However, no interest, whatsoever, shall be payable on such amount retained by the HITES.
- 9.5. Operation & Maintenance of Buildings handed over / taken over prior to the stipulated date of completion for the complete project.
- i. The construction of National Centre of Ageing (NCA) involves Design, Engineering, Procurement and Construction (EPC) basis as per the Scope of work. The buildings and other services are required to be handed over in phases as per the milestones detailed in schedule "F" of the General Conditions of the Contract.
  - ii. In respect of the buildings handed over/taken over in phases, prior to the stipulated date of completion of the entire project, the contractor shall carry out the operation and maintenance of such buildings and services from the completion of respective phases till the completion of the defect liability period of entire project.

## **10. Completion Certificate**

### **10.1. Provisional Completion Certificate**

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 shortcomings 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 36 (Thirty Six) 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 in phases as per the scope of phased construction given in Schedule "F" of the tender document. For handing over & taking over process, in addition to clauses specified elsewhere, following services / works have to be complied with by the contractor:

- a. 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.
- b. Rectification of all defects shall be carried out by the contractor before Handing over/ Taking over process.
- c. 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 alongwith their soft copies in the required software version shall be submitted by the contractor before handing over & taking over process.

- d. All services/equipment are to be run and checked before handing over & taking over process as per requirements of Engineer-in-charge.
- e. 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.
- f. The Contractor shall submit catalogues, brochures, operation manual, manufacturer test certificate, Guarantee/ Warranty papers, license 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.

- i. For removal of defects after completion in respect of Water Supply and Sanitary Installations.
- ii. For Water Proofing Treatment for Basements
- iii. For Water Proofing Treatment for Roof
- iv. For Water Proofing Treatment (Under floors)
- v. For Anti-Termite Works
- vi. For Aluminum Works
- vii. 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.

The scope of work shall also include operation and maintenance of various Civil & E&M works. Operation and maintenance shall be carried out by EPC Contractor either himself or through respective OEM & Vendors who are involved in supply & installation of works at site. O&M activities shall be provided up to completion of the defect liability period and extended period thereof and shall be separately paid as per respective terms and conditions of this Contract.

### 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 15 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 5<sup>th</sup> day of every month. Soft copy of PERT chart shall be supplied whenever demanded by the Engineer-in-charge.
- b) 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.
- c) 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.
- d) 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.
- e) The Contractor shall file daily category-wise labour report to the Engineer-in- charge. The report shall indicate scheduled requirement against actual strength.
- f) 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 re-plantation, 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. The contractor shall liaison and follow to obtain all NOC, completion & Occupancy certificates from respective local bodies and other statutory authorities, 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) Obtaining AERB approvals for required facilities such as LINAC etc. and furnish to HITES/ Client.
- xiv) Any other statutory requirement for execution of work and to occupy the buildings and run the services in all respects.

No Time extension

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, liaison and follow up 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 equipments 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 equipments, which require 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-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 bars etc from fire safety point of view, 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/Transformer & DG Sets**

The recommended position of the switch boards, transformer & 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, HT Panels, Transformers, 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 11 KV Panel Board, 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 atleast 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), 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 36 (Thirty Six) 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 National Centre of Ageing (NCA) shall be provided as following:

- a. Single Line diagrams showing 11kV Receiving Station and all 11 kV Substations, all LT Panels, DB, Rising mains etc.
- 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/ Wi-fi 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. 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. HSD storage & pumping System
- i. SCADA & BMS and Chiller Plant Manager
- j. MGPS, MOTs, CSSD, PTTS etc.
- k. 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 pay for and arrange for operation & running of entire electrical system and other equipment for a minimum period of one month after satisfactory completion of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. Water, electricity, consumables, tools & tackles, requisite manpower etc. shall be deemed to be included in the contract price and nothing extra shall be paid.

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



## **Specific Conditions of Contract-HVAC SYSTEM**

### **1. General**

The Specific Conditions of the Contract - HVAC 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 like Chillers/Cooling Towers/pumps/AHUs/FCUs/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. Plant Room/ AHU Room installation drawings giving complete details of the entire equipment including 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.

## **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., 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 72 (Seventy Two) 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" during the defects liability period 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.

All the arrangements required for making the entire system operational /running, for the performance test as above, including cost of manpower, 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 period of 36 (Thirty Six) 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 special maintenance of the plant and attend to any defects that may arise in operation of the plant during the Defects 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 HVAC system for a minimum period of **one month** after satisfactory completion of installation including testing & commissioning of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. consumables, water, electricity, refrigerant, tools & tackles, requisite manpower etc. shall be deemed to be included in the contract price and nothing extra shall be paid on this account.

### **Specific Conditions of Contract-GRIHA RATING SYSTEM**

1. This Project is to be designed & executed for achieving min. GRIHA 3 star rating Certifications as per latest version stipulated by GRIHA (Green Rating for Integrated Habitat Assessment) Council in respect of the buildings & blocks listed in the Design Basis Report.
2. Accordingly, the contractor is required to adhere to the various environment friendly and GRIHA compliance aspects of construction as well as documentation with respect to use of Materials, Manpower, Machinery and other relevant mandatory requirements. Nothing extra shall be payable over and above the quoted rates as per the financial bid to comply with such requirements.

#### **3. Certification of Facilities as per GRIHA Standards:**

All required services from concept planning to completion, documentation including obtaining certification from GRIHA Secretariat/Council are included in the scope of work. This shall also include Energy Simulation and Modeling, Documentation & Co-ordination with GRIHA Council and obtaining Provisional & Final Certification. The Contractor shall ensure that the Project shall be registered with GRIHA Council after award of work. The Contractor shall be required to incorporate all the necessary provisions required for minimum Three Star GRIHA Rating in the drawings, specifications etc. & to undertake the necessary documentation and submissions with GRIHA Council accordingly. They will also be required to provide the various services as referred below:

##### **a. Feasibility:**

The Contractor will evaluate the certification levels that may be achieved by the project. The feasibility report will comprise of a report, which will divide the overall points in three categories:

- i) Points that are already planned, if any,
  - ii) Points which are possible to be planned
  - iii) Points those are not feasible (not applicable) for the project.
- b. All the design and documents prepared for Civil, Structural, MEP, HVAC, and Firefighting Systems etc. shall be in conformity to GRIHA requirements.
  - c. The Contractor, upon award of work, shall ensure registration of the Project with GRIHA Council.
  - d. The Contractor shall ensure that the materials are in conformity with the requirements to achieve Minimum Three Star Rating under GRIHA Green Building Rating Systems.
  - e. To periodically monitor the parameters set out in the planned score card & suggest remedial measures in case of any shortcomings.
  - f. To carry out Building Envelope Analysis, Orientation and Shading Analysis, Day lighting Studies, Energy Modeling, Water Balance Charts etc. using relevant simulation tools.
  - g. Preparation, submission and documentation from initiation till completion and receipt of required Green Building Rating for the Project which amongst other requirements as per GRIHA shall include collection, compilation & preparation of filled-in templates/documents, under intimation & in co-ordination with HITES, submission of complete compliance documents as required by GRIHA Council in order to get the minimum GRIHA- 3 Star Rating for the Project. This shall also include all required coordination with GRIHA Council etc. and other relevant statutory bodies inclusive of responding to queries from these offices.
  - h. Contractor shall ensure & follow necessary Guidelines, Procedures and formats for records to be maintained (at various stages of the Project) as per requirements of GRIHA Council.

- i. Contractor should apprise HITES of the status with regard to implementation of provisions of GRIHA periodically as per the requirements.
  - j. The Contractor shall arrange to get the Energy Audit completed & report prepared through BEE Certified Energy Auditor as per GRIHA norms for obtaining Final GRIHA Certification from GRIHA Council & nothing extra is payable on this account.
  - k. The Contractor shall co-ordinate with GRIHA Council & all other relevant statutory authorities as per requirements and nothing extra is payable on this account. However, the required statutory fee payable to the GRIHA Council /statutory authorities, if any, will be borne by HITES. The Contractor shall incur such expenditure after prior approval of HITES who shall pay/ reimburse the same to Contractor on submission of payment receipts and documents towards this expenditure. However, Contractor shall be responsible for all the required coordination and liaisoning work.
  - l. The contractor shall be responsible for carrying out Orientation Workshop, Due Diligence Site Visits etc. & all expenditures on this account shall be borne by the Contractor.
  - m. Any suggestion/remedy indicated by GRIHA Council shall be the responsibility of the contractor, without any extra cost.
- 4. The Contractor shall also adhere to the following during construction :**
- 4.1. Soil excavation, soil erosion and sedimentation control etc.- Proper site management strategies shall be followed on the site to ensure proper material staging, soil spill prevention, soil erosion and sedimentation control. The following strategies are listed below:
    - a) Temporary sedimentation basins shall be made on the lowest possible elevation on site during construction to manage all the storm water generated during rains at the site. Photographs of the sedimentation tank shall be submitted to the Engineer-in-charge.
    - b) Spill prevention and control: Spill prevention and control plans to ensure so as to stop the source of the spill and dispose the contaminated material and hazardous wastes. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.
    - c) Proper construction material staging shall be executed on the site.
    - d) Trenches shall be laid along the periphery of the site to carry the storm water from the various locations on the site to the sedimentation basins.
    - e) During the earth excavation, top soil of 0.20m shall be stacked separately on or near by the site at a maximum height of 0.40m.
    - f) Vegetation / mulching of the areas shall be done where the excavated top soil is stacked.
    - g) The soil excavation, particularly during rainy season, shall be done in such a way to minimize site disturbance such as soil pollution due to spillage of construction material and mixing with rainwater.
    - h) The existing vegetation shall be protected by preventing disturbance or damage to specified areas during construction. This will minimize the amount of bare soil exposed to erosive forces. All existing vegetation shall be barricaded on site and marked on a site survey plan.
    - i) Stacked top soil shall be mulched and protected by barricading as stated above and re-laid over pre-designated landscape areas post construction.
    - j) The contractor shall not store /dump construction material or debris on metalled road.
    - k) The contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of



traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible.

4.2. Proper site management strategies shall be followed on the site to ensure labour safety and sanitation. Some of these are listed below:

- a) Display warning and safety signs all across the site. Also ensure that safety nets and harnesses are provided for construction workers working on higher floors. The walking boards and formwork shall also be stable. Workers shall be provided with safety equipment like safety helmets, jackets, boots and gloves.
- b) Provide fire extinguishers and barrels of water with bucket tans on the site and sufficient light for workers to work safely at night.
- c) The Contractor shall provide adequate level of sanitation and safety facilities for construction workers.
- d) Provide accommodation and amenities for all staff and labours, employed for the purpose of, or in connection with the contract including fencing, water (both for drinking and other uses), electricity, furniture and other such requirements. Such accommodation and amenities shall be provided by the contractor at a location specifically demarcated by the Client/ HITES, in case such space is made available by the Client/ HITES. In case the contractor makes his own arrangement, all such facilities shall be provided in such accommodation. On completion of the contract, such accommodation shall be removed and the site shall be cleared.
- e) The contractor shall employ an officer on the site concerned solely with the safety and protection of all staff and labour against accidents. The officer shall be qualified and shall have authority to issue instructions and take protective measures to prevent accidents or the contractor may setup a working arrangement with a local practitioner to handle injury in an emergency situation.
- f) Contractor shall provide PPE (Personal Protective Equipment) like safety shoes, safety belt/harness, Helmets to all workers at site.
- g) The contractor shall provide mask to every worker working on the construction site and involved loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to dust emission.
- h) The contractor shall establish a fully equipped first aid centre on site to deal with accidental injuries and workers health. The first aid box shall be marked with a red cross on a white background.
- i) The contractor shall not allow an individual to work on site while his ability or alertness is impaired by fatigue, illness or some other cause which might expose him to injury.

4.3. Proper site management strategies shall be adopted on the site such as:

- a) Preparation of site :
  - i. Clear vegetation only from the areas where work will start right away.
  - ii. Vegetate/mulch areas where vehicles don't ply.
  - iii. Apply gravel to the area where mulching/paving is impractical.
  - iv. Identify roads on site that would be used for vehicular traffic. Add surface gravel to reduce source of dust emission.
  - v. Limit vehicular speed on site to 10 km/hour.

**b) During Construction and Demolition(C&D):-**

- i. Water shall be sprayed to prevent dust pollution on the following:
    - a. Any dusty materials before transferring, loading and unloading.
    - b. Areas where demolition work is being carried out.
    - c. Areas where excavation or earth-moving activities are to be carried out.
    - d. Arrangements for wheel washing should be made near the entry/exit gates to prevent air pollution.
  - ii. The contractor shall ensure that C&D waste is transported to the C&D dedicated place within the site earmarked for storing and sorting construction waste side only and due record shall be maintained by the contractor.
  - iii. The contractor shall compulsory use of wet jet in grinding and stone cutting.
- c) The following activities shall be carried out:
- i. 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.
  - ii. The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes / or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicles are properly cleaned and dust free to ensure that en-route their destination, the dust, sand or any other particles are not released in air /contaminate air.
  - iii. Covering full stockpile of dusty material with impervious sheeting.
  - iv. Transferring, handling/storing dry loose materials like bulk cement, dry pulverized fly ash inside a totally enclosed system.
- d) Concrete Curing: - Use of gunny bags, ponding for curing purposes. Adding admixtures to concrete which cause a reduction in the water required for curing as per directions of the Engineer-in-charge. Also construct curing tanks on the site for efficient usage of water.
- e) Efficient use of available water.
- f) Plan utilities efficiently and optimize on-site circulation efficiency.
- g) Reduce air and noise pollution due to storage / use of materials and machinery.
- h) Preservation and protection of landscape during construction.
- i) Reduction in waste of construction materials.
- j) Implement recycling programme as far as possible to recycle construction waste materials during construction.
- k) Suitable arrangement for preventing dust and debris entering duct work and working areas.
- l) Create physical barriers between work and non-work areas.
- m) Protection of materials and equipment against moisture dust etc.
- n) Keeping work area clean and dry as possible.
- o) To take safety measures to avoid damage to existing plants and trees.
- p) The contractor shall comply with all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.

- q) The contractor shall carry out on road- Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
- r) The contractor shall ensure that all DG sets shall comply with emission norms notified by MoEF.
- s) The contractor shall use vehicle having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 Kmph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.

#### 4.4. Materials:-

- i. Use of materials which conform to the GRIHA Rating System criteria.
  - ii. Use of low emitting materials, adhesives and sealants to -
    - a) reduce / avoid use of materials, which are irritating and naturally cause health problems to the construction workmen and occupants.
    - b) achieve specified Volatile Organic Compounds (VOC) limits as per the GRIHA requirements.
5. The Contractor shall maintain proper record of all the materials/ equipment procured with respect to their source & specifications with details of their manufacturing and recycled content etc. and submit along with all supporting documents to the Engineer-In-charge.

#### 6. Construction Waste Management Plan :

As already detailed, the broad intent is to avoid materials going to landfills, during construction. It is required to develop a plan to recycle all possible waste generated during construction. Typical items would include land clearing debris, concrete, steel, ductwork, clean dimensional wood, paperboard and plastic used in packing, etc.

#### 7. Indoor Air Quality (IAQ) Management plan.

The HVAC works, in general, shall conform to ECBC 2017. The contractor shall be required to take the specific measures during construction with respect to following main areas of concern:

##### a. HVAC System Protection :

- When performing construction activities that produce dust, such as drywall sanding, concrete cutting, masonry work, wood sawing or adding insulation, seal off the supply diffusers and return air system openings completely for the duration of the task.
- Shut down and seal off the supply diffusers and return air ducts during any demolition operations
- Till the HVAC system is put into use, seal-off the supply diffusers and return air system openings to prevent the accumulation of dust and debris in the duct system during construction.
- Do not use the mechanical rooms to store construction or waste materials. Keep rooms clean and neat.
- Provide periodic duct inspections during construction; if the ducts become contaminated due to inadequate protection, clean the ducts as per requirements and directions of Engineer-In-Charge

##### b. Contaminant Source Control:

- i. Use low VOC products as indicated by the specifications to reduce potential problems

- ii. Restrict traffic volume and avoid idling of motor vehicles as their emissions could be drawn into the building
  - iii. Utilize electric or natural gas alternatives for gasoline and diesel run equipment where possible and practical. Use low-sulphur diesel in lieu of regular diesel
  - iv. Cycle equipment off when not being used or needed
  - v. Exhaust pollution sources to the outside with portable fan systems
  - vi. Prevent exhaust from re-circulating back into the building
  - vii. Keep containers of wet products closed as much as possible. Cover or seal containers of waste materials that can release odour or dust.
  - viii. Protect stored on-site or installed absorptive building materials, for instance, Cement, Gypsum / POP etc. from weather and moisture; wrap with plastic and seal tight to prevent moisture absorption.
- c. Pathway Interruption:
- i. Provide dust curtains or temporary enclosures to prevent dust from migrating to other areas including existing Hospital Complex, as applicable.
  - ii. Locate pollutant sources as far away as possible from supply ducts and areas occupied by workers when feasible. Supply and exhaust systems may have to be shut down or isolated during such activity.
  - iii. During construction, isolate areas of work to prevent contamination of clean or occupied areas. Pressure differentials may be utilized to prevent contaminated air from entering clean areas.
  - iv. Depending on weather, ventilation using 100% outside air will be used to exhaust contaminated air directly to the outside during use of VOC emitting materials.
- d. Housekeeping:
- i. Provide regular cleaning concentrating on HVAC equipment and building space to remove contaminants from the building prior to occupancy.
  - ii. All coils, air filters, fans & ducts shall remain clean during installation and, if required, will be cleaned prior to performing the testing, adjusting and balancing of the systems.
  - iii. Suppress and minimize dust with wetting agents or sweeping compounds. Utilize efficient and effective dust collecting methods such as a damp cloth, wet mop, or vacuum with particulate filters, or wet scrubber.
  - iv. Remove accumulations of water inside the building. Protect porous materials such as insulation and ceiling tile from exposure to moisture.
  - v. Thoroughly clean all interior surfaces prior to replacing filters and running HVAC system for system balancing, commissioning and building flush-out.
- e. Scheduling and Construction Activity Sequence:
- Schedule high pollution activities that utilize high VOC level products (including paints, sealers, insulation, adhesives, caulking and cleaners) to take place prior to installing highly absorbent materials (such as ceiling tiles, gypsum wall board, fabric furnishings, carpet and insulation, for example)

## **8. Green Building (GRIHA) provisions for Electrical works and Materials**

The Electrical works, in general, shall conform to latest ECBC Norms. Moreover, the contractor shall be required to take the specific measures during construction with respect to following:

- i. All items shall be as per the Green Building provisions and shall adhere to GRIHA Green Building rating system and other Green building standards. This is irrespective

of whether the same have been mentioned in the technical specifications or the requirement.

- ii. The vendor to conform during negotiation meetings and before quoting that the MAKE of MATERIAL specified in the e-Tender conforms to Green Building norms and requirements and in case of any queries would clarify during the negotiation meeting. Since we are aiming for the GRIHA 3 Star rating, it is mandated that all products have to be accordingly compliant and if the contractor has not accounted for it in his cost, he WILL NOT be entitled for any further compensation and will have to provide in the same cost.
- iii. Minimum allowable luminous efficacy of all the lamps shall be as per latest ECBC/ NBC 2016.

#### **9. Photographs :**

During various stages of construction, the photographs shall be taken by contractor and submitted to the Engineer-In-charge, showing details of specific requirements / measures being taken by the contractor towards above for documentary compliance and records.

10. Contractor shall coordinate with suppliers of various materials and equipment to be procured by him for use in works and provide all required details with respect to their manufacturing facilities; raw materials etc. as per requirements of GRIHA Certification guidelines. Preference should be given to GRIHA compliant products/ materials.

### **Specific Conditions of Contract - Operation & Maintenance**

#### 1. General:-

- a. The scope of Operation & Maintenance (O&M) of various Civil & E&M works at National Centre of Ageing (NCA) to be executed by the EPC Contractor has been detailed in the Specific Conditions of Contract- General, which may be referred to.
- b. The proposed completion period for National Centre of Ageing (NCA) is 18 months for construction plus 36 months towards defect liability period. O&M activities shall be provided for different phases from the completion of work and handing over of respective phases and upto the expiry of the defect liability period of complete project which shall be 36 months beyond the overall completion of the total project.
- c. Contract Agreement for O & M Services shall be executed directly between National Centre of Ageing (NCA) BHU& EPC Contractor under a supplementary agreement to be executed at appropriate stage.
- d. The Operation, CMC & AMC for various components of work shall be carried out as per following table:

Sr. No.	Package	CMC	AMC	Operation
1	HVAC Work	R	-	R
2	Electrical Substations & HT/ LT works	-	R	R
3	DG Works including Fuel Pumping System	-	R	R
4	Lifts	-	R	R
5	WTP, Heat Pump	R	-	R
6	STP /ETP	R	-	R
7	Fire Fighting System	R	-	R
8	Solar Hot Water System	R	-	-
9	CCTV /Access Control/ LAN/ IPABX/Information Display/ Audio-Visual System/ Stage Lighting/ Public Address/ Fire Alarm/BMS/Nurse Call System /SCADA/ Boom Barrier etc.	-	R	R
10	Civil & Internal Electrification including Solar PV Systems	-	R	-
11	Medical Gas Pipeline System	R	-	R
<b>Note: R= Services Required</b>				

#### 2. General Requirements

- 2.1 The Agencies shall deploy adequate Engineers from various engineering fields like civil, electrical, electronics, IT, computer, mechanical etc. on Part Time basis and

- Supervisors on full time basis who shall have individual mobile phones to enable the Engineer-in-charge/ National Centre of Ageing (NCA) timely communication of operational breakdowns and emergencies.
- 2.2 The staff employed by the O&M agencies shall be present at site as per requirements on all working days. Monthly maintenance services as per the manufacturer's Guidelines /maintenance Manuals shall be provided. In Emergency breakdown, troubleshooting to be provided and breakdown to be attended immediately & submit service report to Engineer in charge/ National Centre of Ageing (NCA).
  - 2.3 All T&P including ladders, wire drawing equipment, chase cutting equipment, drilling machine, insulation meggers, earth resistance testing equipment, line testers etc. required for the work shall have to be arranged by these agencies. No T&P whatsoever shall be issued by the Engineer-In-Charge/ National Centre of Ageing (NCA). All consumable shall be included in CMC. All spare part/material required during CMC must be of Approved make only or from original equipment manufacturer.
  - 2.4 Staff deployed by the agencies shall be well behaved, polite & courteous. In case of any complaint against staff such staff shall be replaced by the agency on demand from Engineer-in-Charge/ National Centre of Ageing (NCA).
  - 2.5 The O&M agencies shall make all safety arrangements required for the labour engaged by him at his own cost. All consequences due to negligence or due to lapse of security/safety or otherwise shall remain with the agency. The department shall not be responsible for any mishap, injury, accident or death of the agency's staff. No claim in this regard shall be entertained /accepted by the department.
  - 2.6 The agency shall take immediate action to attend to any complaint assigned to him through site order book/verbal instructions from Engineer-in-Charge/ National Centre of Ageing (NCA) or on telephones/Internet from occupants.
  - 2.7 Agency shall be fully responsible for any damage caused to Govt. property or allottee's property, by him or his labour in carrying out the work and the same shall be rectified by the agency at his own cost. Chases, holes & drilling works etc. shall be done using only power operated tools.
  - 2.8 All the malba or rubbish obtained from dismantling or otherwise during the execution of the work shall be brought down through the staircase and shall not be thrown to the ground directly from the floors etc. Collected Malba shall be promptly disposed off by the agency to the authorized municipal dumping ground.
  - 2.9 The agency shall be provided with an inventory list of items in campus to be maintained. The agency shall be responsible for watch and ward of such items. The loss, if any shall be made good by the agency at his cost. The decision of Engineer-in-Charge in this respect shall be final and binding on the agency.
  - 2.10 Stores and bins shall be provided by the agency for storing the Materials.
  - 2.11 The labour deployed for attending complaints should carry necessary tool kit, container (Tasla), required for mixing any cement sand or other material and should carry with them water bottle and waste bag for collection of minor rubbish material if received during attending the complaints, so that the site of work shall remain neat and clean.
  - 2.12 Each worker shall maintain a complaint diary and get the feedback recorded from the allottees regarding attending the complaint. In case, it is found that the complaint has been attended unsatisfactorily, it will be considered as unattended. List of such complaint shall be submitted to the Engineer-in-charge/ National Centre of Ageing (NCA) or his representative in daily basis.
  - 2.13 The agency will maintain attendance records of the staff, which may be checked by the Engineer-in-charge or his representative of the work.



- 2.14 Bad workman ship whenever noticed and conveyed to the agency shall be rectified by the agency to the satisfaction of the Engineer-in-charge/ National Centre of Ageing (NCA).
- 2.15 All defects and deficiencies shall have to rectified by the agencies to the entire satisfaction of Engineer-in-charge/ National Centre of Ageing (NCA) failing which the work shall be got done at the risk and cost of these agencies.
- 2.16 The agency shall provide neat & clean uniform to all workers as per concurrence of Engineer-in-charge.
- 2.17 The agency shall follow all rules & regulations as prescribed by the concerned Department of Labour. Agencies shall have registration with Employees Provident Fund Commissioner and Employees State Insurance Corporation for safeguarding interest of their workmen. Agencies shall obtain all other necessary approvals from statutory bodies as per law in force.
- 2.18 No residential accommodation shall be provided to any of the staff engaged by the agency. The agency shall also not be allowed to erect any temporary set up for staff in the campus.
- 2.19 O&M Services for all Electrical, LV & Mechanical Works shall be provided after completion of Phase-I work as mentioned in table above.

### 3. Schedule of O&M Manpower Deployment:-

Sl. No.	Package Description	Deployment Details
1.	Maintenance of Civil Works including Solar PV System, Internal Electrification, External Street Lighting, Horticulture & Landscape, Plumbing etc.	General Shift of 8 Hours each/Day
2.	External Substations, DG Works, LV Works, HVAC Plant, ETP, WTP, Fire Fighting System, Lifts, Emergency Civil & Internal Electrical Works etc.	3 Shifts of 8 Hours each/Day

### 4. Scope of Maintenance

#### 4.1 Civil Works:

- 4.1.1 The Agency shall maintain all assets of Civil works created through this agreement.
- 4.1.2 The Agency shall be responsible to attend all complaints arises through any medium in the spirit of maintaining the campus and all assets in impeccable condition. Accordingly, depending upon the number of complaints, the agency shall employ the number of workers to attend the complaint within prescribed time for which no extra payment will be admissible. All workers shall be qualified and trained for the assigned works. In all cases the complaint shall be attended in the specified duration as mentioned below:
- a. The following complaints (Known as "No delay") shall be attended within 6 hrs. on receipt:
    - i. Removing chokage of drainage pipes, manholes.
    - ii. Restoration of water supply.
    - iii. Leakage of water supply pipes.
    - iv. Repair of overflowing cisterns/tanks.
  - b. The following complaints (Known as "Minor") shall be attended within 24 hrs. on receipt:
    - i. Replacement of glass panes.

- ii. Carpenter complaints.
- iii. Mason complaints, such as patch plaster, corner repair, etc.
- c. Major Complaints – Complaints other than no delay and minor complaints shall be attended with in shortest reasonable time in consultation with Engineer-in-Charge.

#### 4.2 O&M of Electrical & Mechanical Works

The Agency shall maintain and operate all MEP assets created through this agreement and as mentioned in the Table under Clause 1 above.

##### 4.2.1 Internal Electrical Installations and Outdoor Lighting

- i. The scope of all work includes maintenance of Electrical Installations and Solar PV System created through this agreement for Institutional, Residential & other allied buildings including street lighting etc.
- ii. The following activities are covered under the scope of work:
  - a. Taking steps for preventive Maintenance.
  - b. Checking of DB's, main boards and rising mains etc.
  - c. Cleaning of fans and fittings once in a year or as required.
  - d. Insulation test and recording the test results once a year.
  - e. Earth test and recording the test result once a year.
- iii. Maintenance activities carried out as per schedule should be recorded in the Maintenance register. When tests are carried out the test result should be recorded with appropriate identification references and got authenticated by Engineer-in-charge.
- iv. Maintenance of all type of wiring in all Institutional, Residential & other allied buildings including street lighting etc.
- v. Repair & replacement of all type of fittings to make the installation functional.
- vi. Repair and rewinding of A.C. ceiling fan, exhaust fan, replacement of ball bearing/ bush, capacitor etc.
- vii. Replacement of piano type/modular 6, 16 amps 1 way/ 2-way switch, socket, bell push, telephone socket etc. and call bell, wall bracket fitting, choke starter etc.
- viii. Replacement of faulty SP/DP/TP/FP MCB, Isolators and MCCB's etc. to keep the installation intact and functional.
- ix. Replacement of LED fittings and their driver, choke, tube, HPSV/MH lamp Halogen Lamp, CFL lamp, Igniter etc.
- x. In case of wiring of any circuit or point or sub-main is burnt/ damaged the replacement of faulty wiring will be executed by the firm within the scope of this contract.
- xi. In case UG cable at feeder pillar/street light pole/near main board or en route is damaged the firm shall repair and make straight through joint to make the installation healthy and functional.

##### 4.2.2 Qualification and experience

- i. Wireman should possess class II license for wireman issued by electricity authority with 3 years' experience in maintenance and electrical installation.
- ii. Khallasi should be physically and mentally fit to work, should be able to read and write and three years' experience in assisting the wireman in the electrical work.

4.2.3 The agency shall take prompt action to attend any complaint assigned to him through site order book/ verbal instruction from Engineer-in-charge or on telephones from occupants. In all cases agencies will attend the complaints in the specified duration as mentioned below: -

- i. Complaints of emergency nature (such as electricity not being available) shall be attended within 4 hours.
- ii. Minor complaints will be attended within 24 hours.
- iii. Major complaints will be attended within 15 days or as decided by Engineer-in-charge.

4.2.4 Sub-Station and DG Sets

- i. The scope of work includes operation and maintenance of Sub Station and DG Sets, HSD storage tanks & pumping system.
- ii. The scope of work includes annual maintenance of Substation equipment i.e. servicing of HT Panels, LT Panels, PT's, calibration of IDMT relays, as and when required.
- iii. Repair and replacement of MCCB/ FSU, indicating instruments, meters etc. in HT panel, LT panels/ feeder pillars etc.
- iv. Repair and replacement of internal wiring, fuses, MCB in HT/LT panel whenever required.
- v. Carrying out B check of DG sets (replacement of all filters and lube oil, coolant corrosion register element etc. Regular checking and maintenance of Cooling Towers, HSD storage tanks, fuel pumping system, cabling and all related components for smooth operation.
- vi. Replacement of battery terminals, hose pipes, V belt etc. whenever needed.
- vii. Topping of distilled water in the batteries, replacement of battery whenever required.
- viii. Cleaning of DG Sets, AMF panel and making minor adjustment / repair whenever required to make the DG Set functional.
- ix. Daily Routine Checks
  - a. Keep the Substation and DG Set Room clean: wipe out dirt from external surface of engine, generator and control panels, transformer, HT panel etc.
  - b. Check the levels of diesel in daily services tank, lubricant oil, in engine crankcase, and water in radiator, Fill / Top up as necessary.
  - c. Inspect the engine for leakage of diesel oil, engine (lub.) oil, and coolant in the respective system.
  - d. Check that the selector in control panel is in AUTO mode.
  - e. Record the reading of voltage of supply and engine battery voltage.
  - f. Run each DG Sets for a period of 5-10 minutes daily for testing and entries of these tests shall be recorded in log books of each DG Sets.
  - g. Checking the LT panel etc. for local heating of any feeder.
- x. Weekly Checks
  - a. Check the automatic starting of engine by switching of the main supply to the AMF panel. Run the set on load for 15 minutes. Observe for any abnormality of noise. Vibration, bearing surface heating (whether warm), engine pick up, voltage level and frequency.
  - b. Check the level of electrolyte in the battery of the engine. Top up with distilled water as necessary. If the battery needs charging (as can be

- judged by the cell voltage). Arrange for its charging early and also examine whether trickle charger is defective.
- c. Check whether all panels, lamps, fuses & instruments are healthy in the control panel.
- xi. Monthly Checks
- a. Checks engine radiator for air restriction if any. Clean up Check the conditions of drive belts, hose and radiator cap.
  - b. Clean the battery terminals and apply grease to prevent corrosion. Check specific gravity of the electrolyte.
  - c. Check the exhaust system for leakage, corrosion and vibration, see whether the exhaust smoke is not very dark.
  - d. Check that there is no restriction to air flow in air cleaner.
  - e. Check that oil heater is functional.
  - f. Check coupling with alternator for any sign of fatigue.
- xii. Six Monthly Checks
- a. Inspect the electrical control panel and starters to see that all power/control contacts are clean all terminations, including control cables. Tighten as required.
  - b. Inspect all cable end terminations, including control cables, tighten as required.
  - c. Check all safety control and alarms in the set supply system.
  - d. Check and change filters of diesel oil, engine (lub.) oil, coolant and air cleaner element of the engine after checking total hours of operation and manufacture's recommendation. Drain and change the cooling water.
  - e. Check the belt tension. Tighten if required.
- xiii. Annual Checks
- a. Inspect the fuel tank for any sedimentation. Clean up.
  - b. Replace the engine oil as per hours of operation and recommendation of the manufacturer, oil will be provided by department "free of cost" at site.
  - c. Check shaft alignment and condition of anti-vibration mountings, in case any abnormal noise or vibration is observed.
  - d. Blow through radiator core in a direction opposite to the normal flow of air (Reverse flushing). Conduct megger test on all cabling, mains and control wiring motors, and earth test, (Earth test is to be done in summer).
- xiv. Qualification and experience
- a. Electrician cum Operator (E & M): - Electrician should possess license for supervisory competency for 11 KV and above issued by electricity authority with 3 years' experience in installation and/ or maintenance of Sub-Station / DG sets.
  - b. Khallasi: Should be physically and mentally fit to work, should be able to read and write and three years' experience in assisting the wireman in the electrical work.
  - c. Mechanic: - Should have passed ITI certificate in Trade and 3 years practical experience in a workshop/ Department dealing with operation and maintenance of DG set and mechanical plants.

#### 4.2.5 Water Treatment Plant/Fire Fighting Systems/Solar Hot Water System /Heat Pump:-

- i. The scope of work includes Operation and comprehensive maintenance of water supply pump set, firefighting pump sets, water treatment plant including filters, softeners, Solar Hot Water System, Heat Pumps etc.
- ii. Repair / rewinding of pump sets, replacement of ball bearing, impeller, gland plate etc. as per requirement to keep the system functional.
- iii. Repair/replacement of starters, MCCB, contactor, pressure switch, relay etc. for water supply and firefighting pump set.
- iv. Rectifying any leakage in the pipe line of fire fighting systems, replacement of any accessories of firefighting system whenever needed.
- v. Daily checks:-
  - a. Checking of the power supply of all the panels in Plant Rooms.
  - b. Checking of the healthiness of battery and battery water/electrolyte as required.
  - c. Checking of the fault indication of the panel and rectify the same.
  - d. Checking of whether signals of fire and fault condition are transmitted from detector / devices on main control panel.
- vi. Weekly Checks:-
  - a. Checking of the water level in the fire tank/terrace tank and fill-up the tank.
  - b. Checking of the all glands/valves at the terrace and prevent leakage, if any
  - c. Checking of the healthiness of the power supply of main control / starter panel, voltage, fuses, remote starters, contactors, power, connection etc.
  - d. Checking of the status of hose pipes, nozzles, sprinklers etc.
  - e. Check the working condition of the pump- motor set
- vii. Monthly Checks:-
  - a. Test checks auto-manual function of pressure switch of the down comer system.
  - b. Check and clean the Y-strainer/stop valves flange gaskets as reqd.
  - c. Conducting of fire drills. For making the users familiar with the system, Fire drill shall be carried out. Local fire service and nodal officers in charge of various parts of the building shall be involved in conducting fire drill. Operation of the system shall be demonstrated so that all users are confident of the system and aware of their duties and responsibility during fire.
  - d. For DOWN COMER SYSTEM, the following work i/c tests/ checks are to be carried out as per the demand of the installation and/ are, as per direction of Engineer-in-charge and proper logbook should be maintained and got test check by the Engineer-in-charge or his authorized representative.
- viii. Healthiness of System:-
  - a. The Healthiness of the system shall be checked through fortnightly testing. During the fortnightly testing a particular block shall be taken up all internal hydrants and adjoining yard hydrant of all the building shall be operated and checked.

- b. During the subsequent fortnightly different blocks shall be selected so as to ensure that all the internal hydrants and yard hydrants of all the block is checked once in six months.
- c. First Aid Box shall be kept at readily accessible place.

#### 4.2.6 Solar Hot Water System:-

Yearly System Inspection: Checking needs to be done as mentioned below:-

- i. Evidence of water leakage from tank, pipes, panels or relief valve. Check the pipe, tank, heat exchanger, absorber connections carefully.
- ii. Proper system operation.
- iii. Loose wires and wire connections.
- iv. Tightness of panel mounting bolts.
- v. Dirt on panels – clean if necessary.
- vi. Cracked insulation – replace or paint it, as necessary.

#### 4.2.7 ETP & STP:

Scope of work shall include operation and maintenance of sewage/effluent disposal/transfer pump set, any repair of pump set, replacement of parts, rewinding of motor, repair/replacement of valves, rectification of leakage in the pipe line, welding, repair/replacement of starter etc.

Other processes to be followed during operation/maintenance are mentioned as below:-

- a. Checking of (i)pH Value (ii) COD (iii) BOD(iv)TSS(v) TDS every day, together with all chemicals required for conducting various tests, maintaining necessary registers, obtaining PCB certificate for the effluent, Aeration chamber, and treated water to be in conformity to the standards, etc.
- b. Maintenance of pump sets:
  - The pumps and motors required for operating the STP requires periodical maintenance with consumables like grease, packing material, bearing etc. The spares and consumables required shall be issued free of cost by Contractor.
  - Any major break downs for pumps, motors, generators, control panels, etc., is not included in the general maintenance.
  - Maintenance of sewer lines upto underground tanks in STP/ETP will be maintained by contractor.
  - The Contractor has to ensure the operation of pumps such that, there is no overflow of sewage or idle running of pumps at any of the sumps at any period of time. Process parameters like MLSS etc. are to be maintained as per standards.
- c. For Electrical and Mechanical equipment:
  - Daily: checking of oil levels of all equipment
  - Weekly: Oiling and greasing of bearings and gears of mechanical equipment's.
  - Monthly: checking of nuts and Bolts of equipment's tightening of all nuts and Bolts of equipment's etc.,
  - Quarterly: replacement of Gear oil and lubricants as necessary verification of section bearings, gears, motor winding, oil condition of Transformer, installation terminals of cable connections etc.
- d. For various units at STP and collection sumps:

- Course screen chamber: cleaning daily
  - Raw sewage sump cleaning at sump side walls & bottom in every month
  - Removing Grit in grit chamber, Bar screen chamber and transporting every week.
  - The minimum requirement of chemicals for 15 days shall be maintained at site.
- e. Contractor shall ensure the employee fulfills the following duties in the operation of the Plant
- Performing laboratory tests such as chlorine level and pH, analyzes results, takes or recommends necessary action.
  - Maintaining lab records, equipment, orders supplies
  - Cleaning and maintaining aeration basins and clarifiers. Determines and adjustments to aeration basin and adjusts pH as needed.
  - Inspecting, flushing, and maintaining tanks and sewage lines.
  - Inspecting and maintaining outlying pump station to ensure standards of operation.
  - Performing preventive maintenance on machinery and schedules necessary repair activities with skilled trades.
  - Operating waste water treatment plant to maintain the quality of water ultimately discharged from the plant.
  - Performing ground maintenance and lab cleaning activities.

#### 4.2.8 HVAC Works

Scope of work for O&M shall include the following but not limited to:-

- i. Monthly maintenance services as per the manufacturer's Guidelines / maintenance Manuals shall be provided. In Emergency breakdown, troubleshooting to be provided and breakdown to be attended immediately & submit service report to Engineer in charge.
- ii. Required spare parts, consumables shall be made available immediately. Adequate stock of all spare part, consumables are to be kept at Hospital premises.
- iii. The rate of Comprehensive Maintenance Contract (CMC) shall be inclusive of following but not limited to:-
  - a. All Equipment and electrical panels of the AC Plant must be running at the design efficiency without any interruption during 24 hrs. Operation.
  - b. All consumable shall be included in this CMC offer.
  - c. The contractor has to check at regular interval for filter clogging and clean, replace same as per the filtration requirement.
  - d. The contractor shall carry out routine maintenance and shall attend any break down immediately.
  - e. Particle Count (twice in a year) and DOP test in all Operation Theatres and Critical Care areas shall be carried out once in a year.
  - f. Contractor shall provide cooling tower chemical and chemical treatment to keep cooling tower Water quality as per required quality after virtual completion and for entire CMC period.
- iv. Work to be done on every day basis for HVAC:-



- a. The reading of the suction and discharging pressure, oil pressure, oil and gas level, suction and discharging pressure of pumps, voltmeter & Ammeters etc. shall be checked and recorded in the LOG BOOK (provided by the contractor/contractor/contractor/ on hourly basis. Necessary action is to be taken if the reading is not normal.
  - b. To check all electrical motors and their bearing for abnormal noise/heating and to take necessary action if found abnormal.
  - c. To check water level in the make- up water tank on terrace and check functioning of float valve. See proper function of the circulation pumps.
  - d. To drain out water and clean the AC plant room/cooling tower/AHU's etc. as and when required/scheduled.
  - e. The inside ambient conditions i.e. DB, WB, & RH of all the AHU's shall be recorded on hourly basis. Filters of the AHU's/fresh air inlet etc. is to be cleaned regularly as per schedule.
  - f. Any other work required for the equipment for proper functioning.
- v. Work to be done on weekly basis for HVAC:
- a. To check refrigerant system.
  - b. To clean all the strainers and the filters.
  - c. To check the alignment/looseness of all the belt driven equipment and rectify if required.
  - d. Filters of AHU's/fresh Air inlet etc. are to be cleaned regularly as per service maintenance schedule.
  - e. To check water inside the make-up tank for hardness/dirty and fill with soften water if required
  - f. Clean of grills and diffusers.
- vi. Work to be done on monthly basis for HVAC:-
- a. To check the gland /seal, coupling of pumps.
  - b. Checking the alignment & conditions of all rubber couplings between pumps.
  - c. Checking all bolts, nuts for tightness.
  - d. To check the solenoid valve, safety controls mechanical, Electrical/ Electronics and inter-locking of the various equipment.
  - e. To check all AHU ducts/insulation/proper positioning/damage and rectifying the same where ever required.
  - f. Purging of air from all water coils.
  - g. Coil to be cleaned by a) spray of high pressure clean water (not exceeding 30 psi b) with chemical spray, if necessary.
  - h. Cleaning of condensate pans, trays & drains.
  - i. Checking the tension of all belts drives & adjust as necessary.
  - j. Checking of all fan bearings & lubricate with grease as necessary.
  - k. Checking all operating pressure & temperature of Chillers.
  - l. Checking of refrigerant level, leak test with electronic leak detector of Chillers.
- vii. Work to be done after every three month for HVAC:-
- a. To check and lubricant (if required) the bearing of the pumps/motors and keep the proper record.

- b. The check the foundation bolts of the pumps / motors and to take the necessary action if required.
  - c. Check the quantity of Air flow from various out lets in each room/ Area as per drawings and do adjustment of dampers etc as and when required.
  - d. Check the performance of each equipment of HVAC plant for proper functioning.
- viii. All the equipment/installations shall always be kept in good and trouble free operating conditions.
- ix. All the required record for break-downs/repairs and maintenance etc. shall be maintained in the form of history books and logbooks etc. as per directions.

#### 4.2.9 Lifts

- i. The Annual Maintenance of Lifts should be carried out by OEM or their authorized representative.
- ii. The firm shall depute trained supervision staff for the maintenance and up keep of the lift in safe operating conditions.
- iii. The technician/lift mechanic of the firm shall make entries in the logbook of the service and other works carried out by him. The lift mechanic of the company shall certify in the logbook that “the lift is fit for use” and that all the safety devices are working. He shall also mention his name with dates and time in the logbook.
- iv. The complaint lodged over telephone shall be made by the EIC or National Centre of Ageing (NCA) officials and the same will be entered in the logbook and the said complaint must to be attended within 24 hours by the firm.
- v. The maintenance, routine as well as preventive shall be carried out as per manufactures standard prance.
- vi. The firm shall be responsible to carry out the following free of cost during maintenance contract replacement of:
  - vii. All parts of main control panel i.e. relay, relay coils, moving contract/fixed contact, landing locks, rectifiers, resistance, transformer, indicating light, rewinding of motor, transformer and other items covered under maintenance sheave.
  - viii. Replacement/repair of control board of lift, DC motor, AC motor, gear box, DC generator, safety devices of all lifts indication lamps, guide rail, steel ropes, flywheel sheave.
- ix. The existing parts required to be replaced shall be replaced with existing make of the part the rates agreed for comprehensive maintenance will be dismantled material will not be returned the department.
- x. In the event of mishap/accident caused not due to the user/lift operator than the firm shall stand responsible on any damage/injury to this staff and equipments.

#### 4.2.10 All LV works like CCTV /Access Control/LAN/IPABX/Information Display System/ Public Address/ Fire Alarm Control System/ BMS/ Nurse Call System etc.

- i. The agency should be the manufacturer /authorized Agency.
- ii. T & P shall be arranged by the Agency.
- iii. The Engineer/Technician deployed should have the knowledge of latest IT system/Equipment installed at site.
- iv. Normal maintenance i/c cleaning of all LV equipment, checking of line devices, cameras/ panels/ detectors/ MCPs/ Hooters/ DDC controllers/ Amplifiers/ NCS

central controllers/Bed side units/ Remotes/ SCADA etc. The agency shall intimate to the department for any major defect/ breakdown and shall record in the log book accordingly.

#### 4.3 **Operation of MGPS & LMO:**

4.3.1 The primary objective of the bidder is to ensure safe and reliable MGPSs and their efficient Operation and use as per standards(HTM/ NFPA/ DIN/ ISO etc. Bidder will be responsible for operational management and maintenance of complete MGPS System during DLP

4.3.2 Bidder shall responsible for plant operation should be aware of the activities necessary to ensure the continued safe operation of the system and what action should be taken in an emergency. The authorised person (MGPS) in particular should take a lead in explaining to users the function of the system and will have to be adequately trained and informed about the system. Operator will be responsible for safe cylinder handling, storage and transportation. Any work involving alterations, extensions or maintenance work on the system should be subject to the permit-to-work procedure as per standards. The Bidder will be responsible for operating the Gas Manifolds (O<sub>2</sub>, N<sub>2</sub>O, Co<sub>2</sub>), Plants (Air, Vc& AGSS) and LMO tank.

Also bidder will be responsible for free maintenance of all components of MGPS including consumable during DLP, Warranty and CMC

#### 4.3.3 Operation of Medical Gas Pipeline System & LMO

The contractor should provide manpower to operate the plant throughout the day, 365 days in an year. The duty of the worker should be limited to 8 hours per day. The necessary backup arrangement for leave and emergency should be considered.

Separate Agreement will be executed for Operation of MGPS between EPC-Contractor & Client.

#### 4.4 **General Terms & Conditions for MGPS and LMO**

##### 4.4.1 **Warranty & CMC Conditions**

- i. The EPC-Contractor is to assure uninterrupted service without compromising MGPS and LMO system for complete system including labour, spares and consumables.
- ii. Should have comprehensive onsite warranty for five years; commencing from the date of issue of installation certificate by the institute/HITES.
- iii. Post guarantee annual comprehensive maintenance contract (CMC) to cover main equipment/civil construction including all accessories supplied with the unit. - Incremental Cost (if any) for, up gradation, if required, should form part of the contract for the Warranty and Post Warranty period.
- iv. The EPC-Contractor / Manufacturer or its authorised Agent shall set-up a maintenance base to provide maintenance service, of the entire turnkey system being offered, at short notice during the warranty and post warranty period.
- v. If the performance of any individual equipment or system is not satisfactory, the same shall be replaced by the EPC-Contractor free of cost.
- vi. If it is found that to meet the performance criteria, any extra equipment is required the same will be provided free of cost by the EPC-Contractor.
- vii. All faults appearing and their rectification shall be periodically advised to the hospital, the period being not more than a month.
- viii. Any lacuna or lacunae noticed in the functioning of the installation as a result of any design feature shall be rectified by the EPC-Contractor free of cost.
- ix. The EPC-Contractor shall fully associate the engineers and technicians of the Institute during installation, testing and commissioning.

- x. The EPC-Contractor warrants comprehensively that the goods supplied under the contract is new, unused and incorporate all recent improvements in design and materials unless prescribed otherwise by the Client/HITES in the contract.
- xi. The EPC-Contractor further warrants that the goods supplied under the contract shall have no defect arising from design, materials (except when the design adopted and/or the material used are as per the Client/HITES's specifications) or workmanship or from any act or omission of the EPC-Contractor, that may develop under normal use of the supplied goods under the conditions prevailing in India.
- xii. The warranty shall remain valid for 60 months from the date of completion of works with a regular updates of newer technology as and when evolved followed by a CMC for a period of 5 (Five) Years for all the equipment after the goods or any portion thereof as the case may be, have been delivered to the final destination and installed and commissioned at the final destination and accepted by the Client/HITES in terms of the contract, unless specified otherwise in the SCC.
- xiii. No conditional warranty like mishandling, manufacturing defects, etc. will be acceptable.
- xiv. Warranty as well as Comprehensive Maintenance contract will be inclusive of all accessories and Turnkey work and it will also cover the following wherever applicable:-
  - a) Any kind of motor.
  - b) Plastic, filters & Glass Parts against any manufacturing defects.
  - c) All kind of sensors. • All kind of coils, probes and transducers.
  - d) Printers and imagers including laser and thermal printers with all parts.
  - e) UPS including the replacement of batteries.
  - f) Air-conditioners
  - g) All kinds of painting, civil, HVAC and electrical work - Proper marking has to be made for all spares for identification like printing of installation and repair dates.
- xv. In case of any claim arising out of this warranty, the Client/HITES shall promptly notify the same in writing to the EPC-Contractor.
- xvi. Upon receipt of such notice, the EPC-Contractor shall, within 8 hours on a 24(hrs) X 7 (days) X 365 (days) basis respond to take action to repair or replace the defective goods or parts thereof, free of cost, at the ultimate destination. The EPC-Contractor shall take over the replaced parts/goods after providing their replacements and no claim, whatsoever shall lie on the Client/HITES for such replaced parts/goods thereafter.
- xvii. In the event of any rectification of a defect or replacement of any defective goods during the warranty period, the warranty for the rectified/replaced goods shall be extended till the completion of the original warranty period of the main equipment.
- xviii. If the EPC-Contractor, having been notified, fails to respond to take action to repair or replace the defect(s) within 8 hours on a 24(hrs) X 7 (days) X 365 (days) basis, the Client/HITES may proceed to take such remedial action(s) as deemed fit by the Client/HITES, at the risk and expense of the EPC-Contractor and without prejudice to other contractual rights and remedies, which the Client/HITES may have against the EPC-Contractor.

- xix. During Warranty period, the EPC-Contractor is required to visit at site at least once in 6 months commencing from the date of the installation for preventive maintenance of the goods
- xx. The Client reserves the rights to enter into Annual Comprehensive Maintenance Contract between Client and the EPC-Contractor for the period as mentioned in tender document.
- xxi. The Client reserve the rights to enter into Operation Contract between Client and the EPC-Contractor for the period as mentioned in tender document.
- xxii. The EPC-Contractor along with its Indian Agent and the CMC provider shall ensure continued supply of the spare parts for the machines and equipment supplied by them to the Client/HITES for 10 years from the date of installation and handing over.
- xxiii. The EPC-Contractor along with its Indian Agent and the CMC Provider shall always accord most favoured client status to the Client/HITES vis-à-vis its other Client/HITESs of its equipment/ machines/ goods etc. and shall always give the most competitive price for its machines/equipments supplied to the Client/HITES.
- xxiv. Dedicated phone number should be provided for lodging the compliant.

#### 4.4.2 Performance Security (For Warranty period)

- i. The EPC-Contractor, shall furnish a Separate Performance Security (For Warranty period for MGPS) for an amount equal to ten percent (10%) of the total value of the contract (total value of MGPS), valid up to sixty (60) days after the date of completion of all contractual obligations by the EPC-Contractor, including the warranty obligations or the extended period, thereof.
- ii. The Performance security shall be denominated in Indian Rupees or in the currency of the contract as detailed below:  
  
It shall be in any one of the forms namely Account Payee Demand Draft or Fixed Deposit Receipt drawn from any Scheduled bank in India or Bank Guarantee issued by a Scheduled bank in India, in favour of the Client/HITES. The validity of the Fixed Deposit receipt or Bank Guarantee will be for a period up to sixty (60) days beyond Warranty Period.
- iii. In the event of any failure /default of the EPC-Contractor with or without any quantifiable loss to the government including furnishing of consignee wise Bank Guarantee for CMC security, the amount of the performance security is liable to be forfeited. The Administration Department may do the needful to cover any failure/default of the EPC-Contractor with or without any quantifiable loss to the Government.
- iv. In the event of any amendment issued to the contract, the EPC-Contractor shall, within fifteen (15) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary), rendering the same valid in all respects in terms of the contract, as amended.
- v. The EPC-Contractor shall enter into Annual Comprehensive Maintenance Contract with respective consignees, 3 (three) months prior to the completion of Warranty Period. The CMC will commence from the date of expiry of the Warranty Period.
- vi. The Client/HITES will release the Performance Security without any interest to the EPC-Contractor on completion of the EPC-Contractor's all contractual obligations including the warranty obligations, extension of time (with or without Liquidated Damages) & after receipt of Consignee wise bank guarantee for CMC security in favour of Head of the Hospital/ Institute/ Medical College of the consignee

#### 4.4.3 Comprehensive Annual Maintenance Contract (CAMC) (Post warranty performance)

- i. The cost of Comprehensive Annual Maintenance Contract (CAMC) shall include preventive maintenance including testing & calibration as per technical/service/operational manual of the manufacturer, labour and all spares, after satisfactory completion of Warranty period may be quoted for next five years on yearly basis for complete equipment including third party items
- ii. Cost of CAMC will be added for Ranking/Evaluation purpose on NPB basis.
- iii. Before commencement of CAMC period, the EPC-Contractors shall furnish a Performance Bank Guarantee for 5 % of the cost of the MGPS component valid till 3 months extra after expiry of entire CAMC period.
- iv. The payment of CAMC will be made on half yearly basis after satisfactory completion of said period duly certified by end User.

#### 4.4.4 Uptime & Downtime Penalty Clause:

- i. The firm should provide uptime guarantee of 95% during warranty period and CAMC period.
- ii. The penalty clause for non-rectification will be Rs. 50,000/- per day in case of non-functioning of services like MGPS after 48 hrs of lodging the compliant.

#### 4.5 Suggested tentative Manpower for Operations of various works:

- 4.5.1 The adequate Manpower for Operation of various works shall be provided after completion and handing over of Buildings & Services as per Phases given in Volume-1. However adequate manpower as per requirement based on the buildings completed shall be deployed in consultation with Engineer-in-charge.
- 4.5.2 After completion phases the deployment of Man Power shall be as per site requirement.

Tentative Man Power requirements for Operation of HVAC Plant Room & BMS on overall completion of project is as given below:-

Sr. No.	Manpower for 3 Shifts of 8 Hours each	Personnel
1.	HVAC Plant Room/Equipment Operator/BMS Operator -Mechanical Engineer (Graduate Engineer with 2 years' experience or diploma holder with 5 years' experience in operation and maintenance of Chilled Water Plants/ HVAC System)	1 No./ Shift
2.	Helper/Khallasi (should be physically and mentally fit to work, should be able to read and write and three years' experience in assisting the operator)	1 Nos./ Shift

Tentative Man Power Requirements for Operation of Fire/Water Treatment Plant/ETP Room on overall completion of project:

Sr. No.	Manpower for 3 Shifts of 8 Hours each	Personnel
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1.	Fire/Water Treatment Plant/ETP Room Operator - Mechanical Engineer (Graduate Engineer with 2 years' experience or diploma holder with 5 years' experience in operation and maintenance of Fire & Water Treatment System including Centralized RO, Heat Pump, Centralized Solar Hot Water System etc.)	1 No./ Shift
2.	Helper/Khallasi (should be physically and mentally fit to work, should be able to read and write and three years' experience in assisting the operator)	1 Nos./ Shift

Tentative Man Power Requirements for Operation of ESS including Transformers, DG, Lifts sets on overall completion of project:

Sr. No.	Manpower for 3 Shifts of 8 Hours each	Personnel
1.	Substation Operator including DG sets, etc. Operator -Electrical Engineer (Graduate Engineer with 2 years' experience or diploma holder with 5 years' experience in operation and maintenance of Substations)	1 No./ Shift
2.	Electrician (Diploma/ ITI)	1 No / Shift
3.	Lift Operator/Technician	1 No / Shift
4.	Helper	1 No / Shift

Tentative Man Power Requirements for Operation of LV Works etcon overall completion of project:

Sr. No.	Manpower for 3 Shifts of 8 Hours each	Personnel
1.	All LV Works – IT/ Electrical/ Electronics Engineer (Graduate Engineer with 2 years' experience or diploma holder with 5 years' experience in operation and maintenance of Substations)	1 No./ Shift
2.	Electrician cum Helper	1 No./ Shift

Tentative Manpower Requirement for maintenance of Civil Buildings & Services, Solar PV, External Lighting, Horticulture & Landscaping etc. on overall completion of project.



S. No.	Category	Nos.
1.	Mason	1 No.
2.	Fitter/Plumber	1 No.
3.	Electrician	1 No.
4.	Beldar	2 Nos.
5.	Carpenter	As per requirements.
6.	Sewer Men	As per requirements
7.	Welder	As per requirements
8.	Horticulture & Landscaping	As per requirements

Tentative Man Power Requirements for Operation for MGPS including LMO etcon overall completion of project:

Sr. No.	Manpower for 3 Shifts of 8 Hours each	Personnel
1.	Supervisor cum technician (Diploma in Mechanical/ Electrical/Biomedical ) With 3 years' Experience in installation maintenance & operation of MGPS	1 No.
2.	Helpers (10th Standard or more) with minimum 1 year experience in operation of MGPS	1 No / Shift

### **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 interalia, 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 will 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 Termiteproof 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 inter alia, 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 inter alia, 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 interalia, 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 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.

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 inter alia, 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 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.

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**