CONSTRUCTION AND SETTING UP OF HADRON BEAM (PROTON THERAPY) & SUPPORT FACILITIES

FOR TATA MEMORIAL CENTRE IN KHARGHAR, NAVI MUMBAI

Request For Proposal – Volume I

(NIT, ITT, SCC & EMPLOYERS REQUIREMENT)

TENDER NO. HLL/ID/16/01

APRIL 2016

HLL Lifecare Limited
(A Government of India Enterprise)
एचएलएल लाइफ़केयर लिमिटेड
(भारत सरकार का उद्यम)

(EPC CONSULTANT TO TATA MEMORIAL CENTRE)

HLL LIFECARE LIMITED
Infrastructure Development Division
"Adarsh" TC 6/1781, Vettamukku,
Thirumala Post Office
Thiruvananthapuram-695006

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DISCLAIMER

HLL Lifecare Limited, India (HLL) has prepared this document as EPC consultant to Tata Memorial Centre (TMC), Mumbai to give bidders, background information on the Project. The information is provided to bidders on the terms and conditions set out in this RFP document and any other terms and conditions subject to which such information is provided.

This RFP document is not an agreement, is not an offer or invitation to any other party. The purpose of this RFP document is to provide interested parties with information to assist the formulation of their bid. The information is not intended to be exhaustive. Bidders are required to make their own inquiries and respondents will be required to confirm in writing that they have done so and they do not rely solely on the information in RFP.

The information is provided on the basis that it is non – binding on Tata Memorial Centre (TMC), Mumbai, or HLL Lifecare Limited, any of its authorities or agencies or any of their respective officers, employees, agents or advisors.

Tata Memorial Centre (TMC), Mumbai, reserves the right not to proceed with the Project or to change the configuration of the Project, to alter the timetable reflected in this document or to change the process or procedure to be applied. It also reserves the right to decline to discuss the Project further with any party submitting the Tender.

While HLL Lifecare Limited and TMC have taken due care in the preparation of the information contained herein and believe it to be accurate neither Tata Memorial Centre (TMC), Mumbai, nor HLL Lifecare Limited, any of its authorities or agencies nor any of their respective officers, employees, agents or advisors gives any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it.

No reimbursement of cost of any type will be paid to persons or entities submitting their Tender.

DEFINITIONS

"ACTREC" means Advanced Centre for Treatment, Research & Education in Cancer.

"AERB" means Atomic Energy Regulatory Board, Government of India

"DAE" means Department of Atomic Energy, Government of India

"Employer" means Tata Memorial Centre (TMC)

"Engineer" means the person(s) nominated or appointed from time to time by HLL Lifecare Limited, the EPC consultant to TMC, as the Engineer in charge, who acts on behalf of the Employer under the contract.

"HLL" means HLL Lifecare Limited, who is the EPC consultant to TMC for the project.

"IBA" means the Proton Therapy Equipment Vendor (PTEV), who shall supply, erect and install the Hadron Beam equipment.

"IBD" means **Interface Building Document** – detailed technical specifications and plans for housing Hadron facility provided by **IBA**

"Project" means ''Construction of and Setting up of Hadron Beam (Proton Therapy) & Support Facilities for Tata Memorial Centre in Kharghar, Navi Mumbai on 'Design and Build' basis.

"**Site**" means the place where the buildings and associated infrastructures are to be constructed.

"Tender" or **"Bid"** shall mean the offer submitted by a Tenderer in accordance with this document for the above project..

"Tenderer" means a firm that has submitted its Tender of Bid for the Project**.**

"TMC" means Tata Memorial Centre, Mumbai, India

NOTICE INVITING TENDER (NIT)

1.1 GENERAL

1.1.1 HLL Lifecare Ltd on behalf of Tata Memorial Centre invites sealed tenders from Firms shortlisted under EOI dated 12.08.2014 for **Construction and Setting up of Hadron Beam (Proton Therapy) & Support Facilities for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai.**

1.1.2 HLL Lifecare Ltd on behalf of TMC invites sealed tenders for the above-mentioned work (clause 1.1.1).

Approximate cost of work	**Rs. 73.93 Crores (Rs. Seventy Three Crores and Ninety Three Lakhs only**)
Tender Security amount	**Rs. 83.93 Lakhs (Rs. Eighty Three Lakhs and Ninety Three only**)
Cost of Tender form **(Non-refundable)**	**Rs. 24,000/- (Rs. Twenty Four Thousand Only)** payable by a Demand Draft in favour of "HLL Lifecare Limited" at Thiruvananthapuram
Completion period of the Work	24 Months (Twenty four Months Only) from the date of issue of letter of acceptance or handing over of site, whichever is later.
Tender documents on sale	From 04.04.2016 to 22.04.2016 (between 10.00 Hrs to 17.00 Hrs) on working days
Last date for submission of queries/ Date of Pre-Bid conference	28.04.2016 at Tata Memorial Centre, Mumbai
Last date for Issue of addendum/reply to pre bid queries	03.05.2016
Last Date & time of Submission of Tender	17.05.2016, up to 14.00 Hrs
Date & time of opening of Tender (Technical Package – Part I & II)	17.05.2016, 15.00 Hrs

Tender documents can be downloaded from the website of HLL @ www.lifecarehll.com from 04.04.2016 to 22.04.2016. In such cases, the cost of tender document shall be submitted in the form of Demand draft from any scheduled bank in favour of HLL Lifecare Limited payable at Thiruvananthapuram along with the RFP document.

1.2 POINTS TO BE NOTED

1.2.1 Works envisaged under this contract are required to be completed in all respects within the period of completion mentioned above.

1.2.2 Applicant should be an Indian firm and fulfill the criteria set out in para 2.1 to 2.3 of Section II, Instructions to Bidders (ITT).

1.2.3 This tender is to be submitted in two parts i.e. **TECHNICAL PACKAGE** and **FINANCIAL PACKAGE.**

1.2.4 Applicant must not have been blacklisted or deregistered by any govt. agencies or public sector undertaking during last 5 years.

1.2.5 The net worth of the firms during last three years should not be negative.

1.2.6 Tender documents consist of:

Volume 1

- Notice Inviting Tender (NIT)
- Instructions to Bidders (ITB) (Including Annexures)
- Special Conditions of Contract (SCC)
- Employer's requirements

Volume 2

- General Conditions of Contract (GCC)

Volume 3

- Indicative concept plans proposed for the Hadron Beam (Proton Therapy) and support facilities
- Annexure I – **Interface Building Document (IBD)** from IBA containing detailed plans and technical specifications for the Hadron Beam facility.

Volume 4

- Design Requirements & Specifications for buildings & services

1.2.7 The Contract shall be governed by the documents listed in Para 1.2.6 above and relevant standards and specifications, which may be referred by the bidders.

1.2.8 Bidders may obtain further information in respect of these tender documents from the office of the Deputy Vice President (T), HLL Lifecare Limited, ID Division, Adarsh, TC 6/1718,Vettamukku, Thirumala P.O., Thiruvananthapuram - 695006

1.2.9 All Bidders are hereby cautioned that tenders containing any material deviation or reservation as described in Clause 6.4 of "Instructions to Bidders" and/ or minor deviation without quoting the cost of withdrawal shall be considered as non-responsive and shall be summarily rejected.

1.2.10 **The offers of Bidders who fulfill the minimum requirements as specified in para 2.1 to 2.3 and para 6.5.1 of Section II (ITT), only shall be evaluated further.**

1.2.11 TMC reserves the right to accept or reject any or all proposals without assigning any reasons. No tenderer shall have any cause of action or claim against the TMC for rejection of his proposal**.**

For and on behalf of TMC

Deputy Vice President (T), HLL Lifecare Limited

2. SCOPE OF WORK

2.1 General

The work involves Project Planning, Design, Construction and procurement, installation, testing & commissioning of equipments (except medical equipments and loose furniture) for the Construction and setting up of Hadron Beam (Proton Therapy) & support facilities for TATA Memorial Centre at Kharghar, Navi Mumbai. The construction has to be carried out in TMC – ACTREC campus, Plot No.1 & 2, Sector 22, Kharghar, Navi Mumbai).

The proposed Project includes establishment of

- **Hadron Beam (Proton Therapy) Facility and**
- **Support Facilities**

Brief details of the various elements of the proposed Project are presented in the following section.

The concept plan provided with the RFP document is indicative of the Employer's Requirement. This represents the structural & spacial requirements for the Hadron - and support facilities planned to be developed at site. The total builtup area for the entire project shall be about 6518 Sq.m The support facilities shall be designed in line with concept plan with necessary modifications to suit site conditions, development control rules, etc.

The facility for hadron beam (with three gantry and one cyclotron and treatment facility) should be designed exactly as per the design document along with plans provided by IBA (annexure I of Volume III). The same should be strictly followed by the EPC developer and no deviations either in details or dimensions will be allowed. The design will be verified and approved by IBA during evaluation of the design proposal.

The foundation for housing hadron facility shall be designed to suit the requirements of IBA (the equipment manufacturer) and as specified in IBD provided by IBA (Annexure I of Volume III). The foundation details shall be verified with respect to the soil investigation report and the loading of Hadron equipment prior to sending for proof checking (peer review) to IIT, Mumbai.

The plan for the Construction of Hadron facility should be complementing the existing developments in the same ACTREC facility of TMC and shall be designed to achieve

maximum allowable FSI. The total ground coverage should not exceed the maximum allowable ground coverage as per prevailing DCR and should also tap the maximum development potential of the allotted plot.

The scope of work consists of Project planning (Architectural designs, submission drawings to corporation/CIDCO, working drawings), design, construction, procurement, installation, testing and commissioning of MEP services including but not limited to Electrical, DG sets, PHE, HVAC, Fire Protection System, Lifts, STP, ETP, WTP, CCTV, Solar water heating, UPS, Computer Network, Data cables etc. and integrated commissioning of the above facilities. The scope also includes the external development works like levelling, horticulture, street lighting, signage, etc. Statutory car parking requirement and their provision shall be suitably planned and indicated in the lay out design. All the buildings shall be designed on the basis of concept plans attached with this and the drawings provided by IBA and executed as per relevant codes, technical Specifications, detailed design details provided by IBA and statutory regulations. The scope also includes continuous coordination with the Hadron equipment manufacturer, M/s. IBA, and providing necessary support during the installation of Hadron Equipment by IBA.

There will be periodical visit during the entire period of construction by IBA .

The activities required for completion of the Project on a turnkey basis include interalia

i. Planning of the Facilities including functional analysis, workflow analysis etc. giving due regard to the other existing facilities in the same campus.
ii. Design development including preparation of architectural brief, design concept, concept for services etc. It may be noted that the indicative concept plans and the Interface Building Document (IBD) of IBA in Annexure-I, Volume III of the RFP document shall be referred for this.
iii. Design development based on the indicative concept plans and IBD of IBA (annexure I, Vol III) including preparation of architectural brief, design concept, concept for services etc.
iv. Detailed design engineering including architectural design and construction documents (based on approved option), structural engineering, electrical engineering, utilities like Electricals including permanent power supply, Water supply including permanent water supply, heating ventilation and air conditioning plans, medical gas piping, plan for the central sterile services department, elevators, communication system and networking plan including permanent telephone & internet lines, fire detection and protection plan, and the MEP services, MEP & other engineering installations for medical equipments, signage STP,WTP, Landscaping etc.
v. Building construction and installation of all services and making all the building services fully and functionally operative.
vi. Continuous support during Hadron equipment installation by IBA and attending to post installation works.
vii. Project Management to ensure completion of Project as per the specified timelines
viii. All aspects of quality assurance, including testing of equipments and other components of the work
ix. Compliance with Environmental and Energy efficiency norms and obtaining at least 3 Star GRIHA rating.

x. Procurement and installation of internal and external signages.
xi. Handing over of the facilities after fulfilling all the obligations under "Employer's Requirement" and making the facility fully functional excluding Medical equipment.
xii. Getting all required approvals / permissions / permits / NOC's of statutory / local / governmental agencies (including for proton / radiation treatment)
xiii. The proposed development should meet the prevailing design standards laid by NBC, AERB & such statutory bodies in India, the Hadron equipment manufacturer (IBA) and as per the local town planning authorities.
xiv. The design of Hadron facility should strictly consider all the standards (Indian and International) specified in the IBD provided by IBA. No deviation from the IBA requirement will be allowed.
xv. All aspects of quality assurance, including testing of equipments and other components of the work
xvi. Submission of the completion ('as-built') drawings and other related documents along with a soft copy in Auto CAD or other similar software.
xvii. Providing House Keeping facilities during the entire duration of progress of work and maintaining the site neat and clean.
xviii. Site clearance including cutting approved trees within the site and replanting required number of trees as per Mandatory requirements within the site and dismantling of obstructions before the start of work. (EPC consultant shall only obtain permission for approval of tree cutting)
xix. Clearance of site before Handing over of the facilities after fulfilling all the obligations under "Employer's Requirement"
xx. Making good any defect (if any) in Defects Liability Period.

2.1.1 Design criteria to be specified with the proposal by the Tenderer

The design of the tenderer shall conform to all relevant Indian and International standards. It should be complete in all respects as per international best practices. Detailed design including the design criteria, codes and standards and specifications of the materials to be used for the design should be submitted by the Tenderer along with his proposal. Other documents as detailed in Employer's Requirements and Sub-clause 4.2.4 of Instruction to Bidders should be submitted along with the design. The design shall conform to all norms and stipulations of the Hadron beam equipment manufacturer, IBA as specified in the IBD.

Reference to the Standard Codes of Practice

2.1.1.1 All Standards, Technical Specifications and Codes of practice referred to shall be latest editions including all applicable official amendments and revisions. The EPC developer shall make available at site all relevant Indian Standard Codes of practice as applicable.

2.1.1.2 Wherever Indian Standards do not cover some particular aspects of design/ construction, relevant International Standards shall be referred to. The EPC developer shall make available at site such standard codes of practice.

2.1.1.3 In case of discrepancy among Standard codes of practice, Technical Specifications and provisions in Employer's Requirements, the order of precedence shall be as below:

i) Provision in General Requirements of Employer's Requirements

ii) Technical Specifications in Employer's Requirements,

iii) Standard Codes of Practice.

In case of discrepancy in reference to Standard Codes of Practice, the order of precedence shall be BIS, IRC, BS, ASTM, DIN

2.1.2 Dimensions

The levels, measurements and other information concerning the existing site as shown on the conceptual / layout drawings are believed to be correct, but the tenderer should verify them for himself and also examine the nature of the ground as no claim or allowance whatsoever shall be entertained on account of any errors or omissions and commissions in the levels or strata turning out different from what is shown on the drawings.

2.2 TIME SCHEDULE

The tenderer shall submit with the tender "Time Schedule" for completion of various portions of works. This schedule is to be within the overall completion period of **24 months, including the time period for getting approvals/permissions/permits from the statutory authorities including Occupancy / Completion Certificate**. The detailed programme in the form of a Critical Path Method (CPM) network shall include all activities starting from design to completion. The manpower planning during the project period shall be presented in the form of a histogram along with the time schedule. The planned schedule of procurement of equipments and major materials shall be submitted in the form of a procurement schedule.

2.3 The EPC developer shall take care so that the ongoing activities are not disturbed in any manner whatsoever by the activities of the EPC developer during the execution of the project.

The above instructions are only indicative, other precautions which are specified from time to time by the utility owning agencies shall be followed by the successful Tenderer at all times.

3. TENDER PRICES AND SCHEDULE OF PAYMENT

3.1 TENDER PRICES

a. Unless stated otherwise in the Tender Documents, the Contract shall be for the whole Work and payment shall be based on the milestones as accepted in the Contract.

b. The design notes, calculations, specifications, dimensioned drawings and milestone schedules prepared by the tenderer in respect of technically acceptable proposal shall be for limited purpose of prima facie evaluation for determining its technical acceptability, price and construction time.

c. Irrespective of the estimated quantities and /or dimensioned details for various items of work as furnished in the design notes, calculations, specifications or dimensioned drawings accompanying the tender for the work, the successful tenderer shall carry out all changes, modifications or alterations that may, during the scrutiny of the detailed designs and working drawings, or during construction be considered necessary in the opinion of the Engineer for compliance with the Employer's Requirements.

d. The tenderer shall include in his quoted price all taxes (VAT, Service Tax etc.), fees, and all other levies, payable by the tenderer under the Contract. Any change in indirect taxes like WCT, Service tax or any other taxes/ duties after the last date of receipt of tender will be reimbursed by the client on submission of proof of remittance.

For change in direct taxes, no reimbursement will be there.

The Payment shall be in accordance with the provisions of **Clauses 14.0 and 15.0** of the General Conditions of Contract (RFP Volume II).

3.2 SCHEDULE OF MILESTONES FOR PAYMENTS

S. N	Milestone	% of construction value
1.	Submission of Detailed Design for buildings along with all required attachments	2%
2.	On approval of Architectural design by Employer	1%
3.	On approval of Detailed Structural Design by EPC Consultant vetted by IIT	1%
4.	On obtaining plan sanction and commencement certificate from all concerned authorities	1%
5.	On mobilization of all construction machinery/equipments like, DG set for backup power etc, obtaining construction power supply & commencement of construction activities.	1%

6	On completion of excavation works for foundation including earth protection if any necessary	2%
7	On completion of foundation works	2%
8	On completion of basement works upto ground floor level including foundation for gantry and cyclotron	5%
9	Completion of basic structure of buildings on Pro Rata basis (RCC Frame & BW)	40%
10	Supply & installation of MEP equipments on Pro Rata Basis	15%
11	Completion of building including finishing and services on Pro Rata basis	10%
12	Completion of installation of Hadron equipment and clearance by IBA on Pro Rata basis	10%
13	Successful commissioning and trial run of service	5%
14	On obtaining completion/occupancy certificate/ Building Completion Certificate from all statutory authorities and permanent power supply and water and sewerage connections from concerned departments and GRIHA certification & Taking over of works by HLL & TMC	5%
	Total	**100%**

Payment to EPC Developer

Based on the certification of EPC Consultant, the payment to the EPC developer shall be released by TMC. The contract agreement shall be executed between TMC & EPC developer.

4. INFORMATION ON SITE

4.1 WORK SITE

4.1.1 The project site is located Plot No.1 & 2, Sector 22, TMC-ACTREC campus, Kharghar, Navi Mumbai for TMC in the same plot.

4.1.2 The EPC developer shall plan his works keeping in view availability of space, approach to site, time and construction activities for the 'Construction and setting up of Hadron treatment facility at TMC-ACTREC campus, Kharghar, Navi Mumbai.

4.2 GENERAL

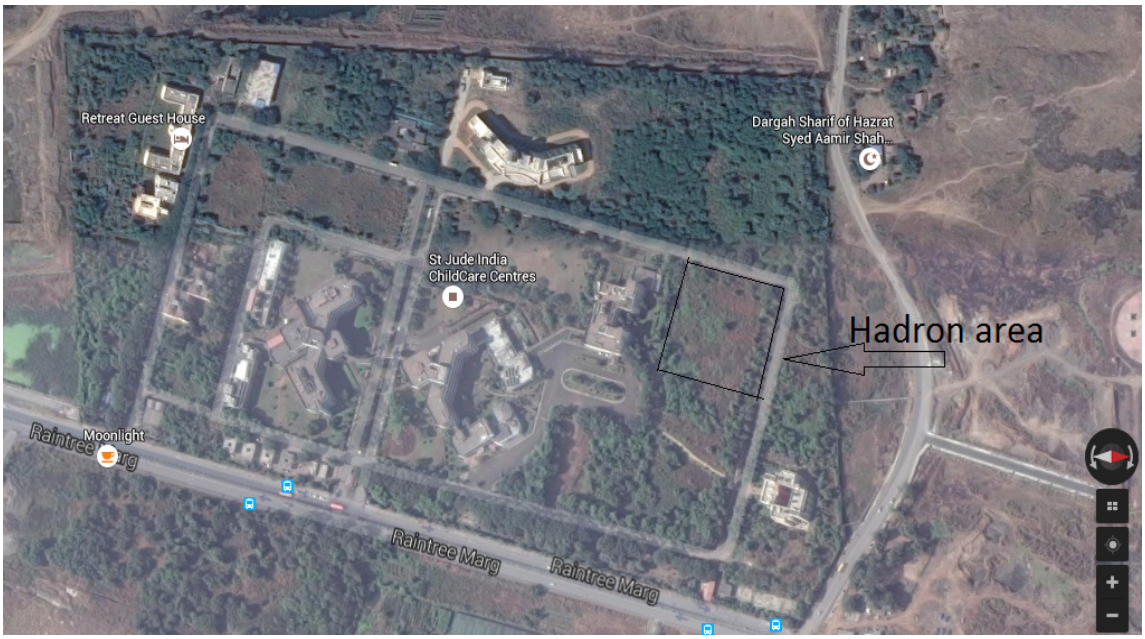
4.2.1 TMC campus is situated in TMC-ACTREC campus, Kharghar, Navi Mumbai in India.

4.2.2 Main language spoken in the region is Marathi**.** However, Navi Mumbai being adjacent to Mumbai which is a cosmopolitan city also accepts several other languages such as Gujarati, Kannada, English, Telugu, Konkani, Dangii, Varhadii and Hindi.

4.2.3 The Climate of Navi Mumbai is a tropical wet and dry climate. Navi Mumbai's climate can be best described as moderately hot with high level of humidity. Its coastal nature and tropical location ensures temperatures won't fluctuate much throughout the year. The mean average is 27.2 ℃ and average precipitation is 242.2 cm (95.35 inches)

4.2.4 Navi Mumbai experiences four distinct seasons: Winter (December–Feb); Summer (March–May); Monsoon (June–Sep); and Post-Monsoon (Oct–Dec).

4.3 Site map


Retreat Guest House
Dargah Sharif of Hazrat Syed Aamir Shah...
St Jude India ChildCare Centres
Hadron area
Moonlight
Raintree Marg
Raintree Marg
Raintree Marg

SECTION-II

INSTRUCTIONS TO BIDDERS (ITB)

1.0 **GENERAL**

1.1 **The Proposal**

2.2.1 HLL on behalf of TMC (hereinafter also referred as Employer) invites sealed tenders from short-listed EOI applicants for **Construction and Setting up of Hadron Beam (Proton Therapy) and support facilities for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai**, on 'Design & Build' basis.

The tender papers consist of the documents as specified in Clause 1.2.6 of NIT, along with their Annexures, appendices, addenda and errata if any.

Bidders should refer to relevant standards and specifications before preparing bid..

Tenders shall be prepared and submitted in accordance with the instructions given herein.

1.2 **Address for Communication**

Deputy Vice President (T)
HLL Lifecare Limited,
Infrastructure Development Division,
"Adarsh", T.C 6/1718(1),
Vettamukku, Thirumala PO,
Thiruvananthapuram- 695 006
Phone - 0471 2365872/73
Fax – 0471 2368144

1.3 Some essential data/requirements pertaining to this Tender along with reference to Clause Number of this Volume where full details have been given are detailed below (also refer Clause 1.2 of NIT):

a. Date and time of opening of tender (Clause 1.1.2 of NIT) is 17.05.2016, 15:00 Hrs.

b. Period for which the tender is to be kept valid (Clause 4.7), **180 days** from the last date of submission of Tender.

c. Commencement of Contract Period (Form A), from the date of issue of LOA

d. Defects Liability Period (Form A) **12 months** from the date of issue of "Taking over Certificate".

e. Period of completion (Form A) **24 Months** from the date of issue of "Letter of Acceptance".

f. Validity Period for Performance Security (Form D) **6 months** from the date of expiry of "Defects Liability Period"

2.0 TENDER REQUIREMENTS

2.1 All tenders submitted shall include the following information:

2.2 General information of the Tenderer shall be furnished in Form T-I. Copies of original documents defining the constitution and legal status, certificate of registration and ownership, principal place of business of the company, corporation, firm or partnership shall also be required to be furnished.

2.3 The Bidders to qualify for award of Contract shall submit a written power of attorney authorizing the signatory (ies) of the tender to commit the Tenderer.

2.4 The authorized signatory of the Tenderer shall sign each page of tender. Power of Attorney in favour of the signatory will be required to be furnished as detailed in the Clause 4.10

2.5 Cancellation or creation of a document such as Power of Attorney, Partnership deed, Constitution of firm etc., which may have bearing on the Tender/Contract shall be communicated forthwith in writing by the Tenderer to TMC, through HLL

2.6 Each Tenderer, or any associate will be required to confirm and declare in the tender submittal that no agent, middleman or any intermediary has been, or will be, engaged to provide any services, or any other items of work related to the award and performance of this contract. They will have to further confirm and declare in the submittal that no agency commission or any payment, which may be construed as an agency commission, has been, or will be paid and that tender price will not include any such amount.

3.0 TENDER DOCUMENTS

3.1.1 CONTENTS OF TENDER DOCUMENTS

3.1.2 The Tenderer is expected to examine carefully all the contents of the tender documents as mentioned in Sub-clause 1.1 including instructions, conditions, forms, terms, Employer's requirements and take them fully into account before submitting his offer. Failure to comply with the requirements as detailed in these documents shall be at the Bidders own risk. Tenders which are not responsive to the requirements of the tender documents will be rejected.

3.2 CLARIFICATION ON TENDER DOCUMENTS

3.2.1 While all efforts have been made to avoid errors in the drafting of the tender documents, the Tenderer is advised to check the same carefully. No claim on account of any errors detected in the tender documents after submission of the tender shall be entertained.

3.2.2 A prospective Tenderer requiring any clarification of the tender documents may notify the Officer-in-charge in writing or by Tele-fax at the Officer–in-charge's mailing address indicated in Clause 1.2 of ITT. The Officer-in-charge will respond in writing to any request for clarification which he receives prior to dead line mentioned in Clause 1.1.2 of NIT. Written copies of the Officer–in-charge's response (including an explanation on the query but without identifying the source of the inquiry) will be sent to all prospective Bidders who have received the tender documents. Only written communications/clarifications can be considered as valid.

3.2.3 **A pre bid conference will be held on the date specified in Clause 1.1.2 of NIT.** 3.2.4 The intending bidders should use the opportunity in pre bid meeting to gather all necessary data required for preparation of their bids. The modifications if any and decisions taken during the pre bid meeting shall be final and it will form part of the RFP documents.

3.3 AMENDMENT TO TENDER DOCUMENTS

3.3.1 At any time prior to the deadline for the submission of tenders, TMC/HLL may, for any reason, whether at its own initiative or in response to a clarification or query raised by a prospective Tenderer, modify the tender documents by an amendment.

3.3.2 The said amendment in the form of an addendum will be sent to all prospective Bidders who have received the tender documents, on or prior to last date mentioned in Clause 1.1.2 of NIT. This communication will be in writing or by Tele-fax and the same shall be binding upon them. Prospective Bidders should promptly acknowledge receipt thereof by Tele-fax to the Officer-in-charge.

3.3.3 In order to afford prospective Bidders reasonable time for preparing their tenders after taking into account such amendments, TMC may, at his discretion, extend the deadline for the submission of tenders in accordance with Clause 1.1.2 of NIT.

4.0 PREPARATION OF TENDERS

4.1 BIDDERS' RESPONSIBILITY AND SITE VISIT

4.1.1 The Tenderer is solely responsible for the details of his bid and the preparation of bids. In no case shall TMC/HLL be responsible for any part of the tender documents submitted by him. Any Site information given in this tender document is for guidance only. The Tenderer is advised to visit and examine the Site of Works and its surroundings at his/their cost and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a Contract.

4.1.2 Irrespective of whether the Bidders have attended the pre bid conference or not, they shall be deemed to have inspected the Site and its surroundings beforehand and taken into account all relevant factors pertaining to the Site in the preparation and submission of the Tender.

4.1.3 The EPC developer shall be responsible for the design of the Works and for the accuracy of such Employer's and IBA's Requirements (including design criteria and calculations)

4.1.4 The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Employer's Requirements as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information. Any data or information received by the EPC developer, from the Employer or otherwise, shall not relieve the EPC developer from his responsibility for the design and execution of the Works.

4.2 DOCUMENTS COMPRISING THE TENDER

TECHNICAL PACKAGE – to be submitted for the Subject Work

4.2.1 **The technical package, clearly labeled as "TECHNICAL PACKAGE", has to be submitted in two parts,** Part-I shall consist of information of applicants and Part -II is the Technical proposal.

Part –I shall comprise the followings:

a. Covering letter for the Bid

b. Checklist for the enclosed documents in the format as appendix 1

c. Tender Security in original in a separate sealed and duly marked "Tender Security" envelope in the format attached as Form B,

d. Cost of tender document in a separate sealed envelope and duly marked "Cost of tender fee"

e. Income tax clearance certificate for the last five years

f. Attested Copy of Power of Attorney (in favour of the Authorised Signatory of the Tenderer) to submit tender,

g. Relevant Experience for the projects

h. Financial Data for the past five years

i. Net Working Capital in the form T-V

ii. Net cash flow in the Form T-V

iii. Annual Turnover from similar design and build projects in the form T-V

The Tenderer should validate the data provided as above using suitable documentary evidence such as client certificates, audited balance sheets, annual reports etc clearly giving the reference to the evidence in front of the relevant portion.

i. Technical and organizational capability

   i. Number of Technical staff proposed for this project in the Form T-III

   ii. Academic qualification of the staff in the Form T-III

   iii. Experience of the proposed staff in the Form T-III

4.2.2 In addition to above, following information shall also be furnished in Part-I of technical package:

(a) An organization chart with assignment of each key staff member (identified by name), duration & timing together with clear description of the responsibilities of each key staff member within the overall work programme. The minimum level of supervision and qualification/experience of Site-staff is given under Annexure – A.

(b) The name, background and professional experience of each key staff member to be assigned to the project, with particular reference to his experience of a nature similar to that of the proposed assignment. The majority of the key staff shall be regular members of the firm for at least six months (CV format in Form T-III).

4.2.3 The tenderer shall furnish details of agency/sub contractor proposed to be hired for any specialized Work as well as those available as on date in Part I of technical package.

4.2.4 Part –II shall comprise the followings:

(a) Tender documents as listed in Clause 1.2.6 of NIT

(b) Technical Proposal for Subject Work along with support facilities

The proposal should cover in detail the following:

i. Understanding and comprehension of the work involved.

ii. The general approach and methodology proposed for carrying out the services covered in the Scope of Work, including such detailed information as deemed relevant. Apart from above, EPC developer shall give details and numbers of equipment including their source, to be mobilized for the project with an assurance that equipment mobilized would be able to conduct work as per specifications in stipulated time schedule.

iii. Detailed work plan, detailed design documents mentioned in Clause 2.1.4 of Section I (NIT), master plan and design of the project containing the following

   a) Space Requirements

b) Service Requirements (Area Wise), Structural Systems etc.

c) Standards and specifications being followed in the design and for materials to be used in a consolidated tabular form

iv. List of vendors from whom the materials and equipment are planned to be procured in a consolidated tabular form

v. The details of the concept and technology used in the design.

vi. A program implementation schedule with broad list of activities, timelines and milestones (Hard and soft copy). A detailed overall work programme and a bar chart indicating the duration and timing of all major activities. Bar chart shall be made showing the activity to be performed for the project along with duration of each activity on a weekly basis.

vii. A detailed cash flow bar chart indicating the project expenses along with duration on a fortnightly basis.

viii. Proposed quality plan as per requirements of ISO: 9001:2008

4.2.5 No information relating to financial terms of services should be included in the Technical Proposal.

FINANCIAL PACKAGE - to be submitted for the Subject Work

4.2.6 The financial package, clearly labeled as " FINANCIAL PACKAGE" will contain the following:

i. Form of tender and Appendix thereof (Form A).

ii. Financial Bid of the Tenderer as per Form C.

4.2.7 The financial proposal should be separately completed and submitted in a separate sealed envelope in the Format prescribed in Form C. The final prices shall be entered in the Form of Tender. These prices should include all costs associated with the contract**.**

4.2.8 Documents to be submitted by the Tenderer under technical and financial packages have been described under the respective Clauses 4.2. This list of documents has been prepared mainly for the convenience of the Tenderer and any omission on the part of TMC/HLL shall not absolve the Tenderer of his responsibility of going through the various clauses in the Tender Documents including the specifications and to submit all the details specifically called for (or implied) in those clauses.

4.2.9 All documents issued for the purposes of tendering as described in Clause 1.1, and any amendments issued in accordance with Clause 3.3 shall be deemed as incorporated in the Tender.

4.3 TENDER PRICES

4.3.1 The Tenderer is required to quote for all the items as per tender documents.

4.3.1 **The Tenderer shall quote his price in Form-C (Format for Financial Bid). The total price quoted should be final and should be for undertaking the entire project in all respects as per the RFP document.**

4.3.2 Prices quoted by the Tenderer, will include all tax liabilities, statutory payments like PF, ESI, etc., applicable Labour Cess and the cost of insurance to this contract. There will be no variation in the Contract Price quoted by the Tenderer on any account **Any change in indirect taxes like WCT, service tax or any other taxes/ duties after the last date of receipt of tender will be reimbursed by the Employer on submission of proof of remittance. For change in direct taxes, no reimbursement will be made.**

4.3.3 The Tenderer shall keep the contents of his tender and rates quoted by him confidential.

4.3.4 The Tenderer shall utilize Indian labour, staff and materials to the maximum extent possible in execution of Works.

4.3.5 **TMC will enter into CMC (Comprehensive Maintenance Contract) for the period of 60 Months (after completion of defect liability period) with the supplier/vendor of any equipment supplied under this contract at the rates to be separately quoted by the EPC Developer. This CMC rate will not be considered for the evaluation of lowest bidder**.

4.4 COST OF TENDERING

4.4.1 The Tenderer shall bear all costs associated with the preparation and submission of his tender and TMC/HLL will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the tendering process.

4.5 LANGUAGE OF TENDER

All tender documents shall be in English.

4.6 CURRENCY OF THE TENDER

Tender prices shall be quoted in Indian Rupees only.

4.7 TENDER VALIDITY

4.7.1 The tender shall remain valid and open for acceptance for a period of 180 days from the date of opening of the tenders.

4.7.2 In exceptional circumstances, prior to expiry of the original tender validity period, TMC may request the Bidders for a specified extension in the period of validity. The request and the response thereto shall be made in writing or by Tele-fax. The Tenderer shall not be required or permitted to modify his tender but shall be required to extend the validity of his tender security correspondingly.

4.8 TENDER SECURITY

4.8.1 The Tenderer shall furnish, as tender security, an amount as mentioned in Clause 1.1.2 of NIT.

4.8.2 The tender security will be in the form of a Bank Guarantee from a Scheduled Commercial bank in India acceptable to the Employer. The format of the Bank Guarantee shall be generally in accordance with the sample form of tender security (Form B) included in this volume of tender documents. Other formats may be permitted subject to the prior approval of TMC/HLL. Bank guarantees shall be irrevocable and operative for a period not less than 30 days beyond the validity of the tender (i.e. 210 days from the last date of tender). The Tender Security shall be endorsed/pledged in favour of TMC and shall be submitted in a separate envelope super scribed "Tender security for *Construction and Setting up of Hadron Beam (Proton Therapy) & Support Facility for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai*".

4.8.3 Any tender not accompanied by an acceptable tender security will be summarily rejected by the TMC/HLL and shall be treated as non-responsive.

4.8.4 The tender securities of unsuccessful Bidders shall be discharged/returned by TMC/HLL as promptly as possible as but not later than 30 days after the expiration of the period of tender validity as defined in Clause 4.7.

4.8.5 The tender security of the successful Tenderer shall be returned upon the Tenderer executing the Contract Agreement and the required performance guarantee for performance, as mentioned in Clause 8.0.

4.8.6 The tender security shall be forfeited:

a. if a Tenderer withdraws his tender during the period of tender validity, or
b. if the Tenderer does not accept the correction of his tendered price in terms of Clause 6.5, or
c. in the case of a successful Tenderer, if he fails to :
    i. furnish the necessary performance guarantee for performance as per Clause 8.0 and/or
    ii. enter into the Contract within the time limit specified in Clause 7.4

4.8.7 No interest will be payable by TMC/HLL on the tender security amount cited above.

4.9 INCOME TAX CLEARANCE

The Tenderer shall provide income tax clearance certificate for the past five years in Part 1 of the technical bid.

4.10 POWER OF ATTORNEY

Power of Attorney duly notarized and on a stamp paper of an appropriate value, issued and signed by the member authorizing the person signing the tender documents to sign documents, make corrections/ modifications and interacting with TMC/HLL and acting as the contact person shall be submitted along with Part 1 of the technical bid.

4.11 FORMAT AND SIGNING OF TENDERS

4.11.1 The tender documents (technical package Part 1 and 2 and financial package) shall be stamped and signed on all pages by a person duly authorized to sign the tender documents. The Tenderer shall also submit a power of attorney authorizing the person signing the documents in accordance with Clause 4.10 of the Instruction to Bidders.

4.11.2 Entries to be filled in by the Tenderer shall be typed or written in indelible ink.

4.11.3 The complete tender shall be without alterations, overwriting, interlineations or erasures except those to accord with instructions issued by TMC/HLL, or as necessary to correct errors made by the Tenderer. The person or persons signing the tender shall initial all amendments/corrections.

4.11.4 All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be written below their signatures.

5 SUBMISSION OF TENDERS

5.1 SEALING AND MARKING OF TENDERS

5.1.1 The Tenderer shall follow the procedure as indicated below:

5.1.2 Each tender will be submitted in two sets one marked “Original” and the other marked “Copy” (Copy should be photocopy of ‘original’).

5.1.3 Each set containing the two packages, TECHNICAL PACKAGE and FINANCIAL PACKAGE shall be sealed in two separate envelopes clearly marked as “Original” and “Copy’. The two envelopes shall be wrapped in an outer envelope addressed to The Deputy Vice President (T), HLL Lifecare Limited, Infrastructure Development Division, “Adarsh”, TC.6/1718 (1), Vettamukku, Thirumala P.O, Thiruvananthapuram – 695 006 duly super scribing on top, tender number, name of work and time and last date for submission. The envelope should also bear the name and address of the Tenderer.

5.1.4 The contents of Technical Package and Financial Package shall be as detailed under Clause 4.2 herein.

5.1.5 No responsibility will be accepted by the TMC/HLL for the misplacement or premature opening of a tender, not sealed or marked as per aforesaid instructions.

5.2 SUBMISSION OF TENDERS

5.2.1 **Tenders should be submitted to:**

The Deputy Vice President (T),

HLL Lifecare Limited,

Infrastructure Development Division,

"Adarsh", T.C 6/1718(1), Vettamukku,

Thirumala PO, Thiruvananthapuram- 695 006

The last date for submission of completed tenders is given in Clause 1.1.2 of NIT. The TMC/HLL may, at their discretion, extend this date for the submission of tender by amending the Tender Documents in accordance with Clause 3.3, in which case all rights and obligations of the TMC/HLL and the Tenderer previously subject to the original date shall thereafter be subject to the new deadline as extended. If such nominated date for submission of tender is subsequently declared as a Public Holiday, the next official working day shall be deemed as the date for submission of tender.

5.2.2 Tenders shall be submitted by hand or through registered post or courier service at the address mentioned in Sub Clause 5.2.1. TMC/HLL shall not take any cognizance and shall not be responsible for delay/loss in transit or non-submission of the tender in time.

5.2.3 Tenders sent telegraphically or through other means of transmission (Tele-fax etc.), which cannot be delivered in a sealed envelope shall be treated as defective, invalid and shall stand rejected.

5.3 LATE TENDERS

Any tender received in Office of the **Deputy Vice President (T),** after the deadline prescribed for submission of tenders in Clause 1.1.2 of NIT herein will be returned unopened to the Tenderer.

6 TENDER OPENING AND EVALUATION

6.2 TENDER OPENING

6.1.1 The TMC/HLL will open the Tenders in the presence of Bidders or their representatives who choose to attend on date & time as mentioned as per Clause 1.1.2 of NIT in the office of The Deputy Vice President (T), HLL Lifecare Limited, Infrastructure Development Division, "Adarsh", T.C 6/1718(1), Vettamukku, Thirumala PO, Thiruvananthapuram- 695 006. If such nominated date for opening of Tender is subsequently declared as a Public Holiday, the next official working day shall be deemed as the date of opening of the tender. The Tender of any Tenderer who has not complied with one or more of the foregoing instructions may not be considered.

6.1.2 On opening of the main Tender envelopes, it will be checked if they contain Technical (Part-I & Part-II separately) and Financial Packages.

6.1.3 Technical Package – Part I of the Tender will thereafter be opened. They will be examined to see if they are complete, whether the requisite Tender security has been furnished, whether the documents are in order. If the documents do not meet the requirements of TMC the Tender Opening Authority will record a note accordingly and the said Tenderer's Technical Package - Part II and Financial Package will not be considered for further processing.

6.1.4 The Bidders name, the presence or absence of the requisite tender security and such other details as TMC or his authorized representative, at his discretion, may consider appropriate will be announced at the time of tender opening.

6.1.5 The sealed Technical Package – Part II of all responsive tenders will be opened on the same day thereafter.

6.1.6 The sealed financial packages of all responsive tenders will be opened on date and time to be fixed after the technical evaluation, when the lump sum prices quoted by the Bidders shall be read out.

6.2 PROCESS TO BE CONFIDENTIAL

6.2.1 Except the public opening of Tenders, information relating to the examination, clarification, evaluation and comparison of tenders and recommendations concerning the award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.

6.2.2 Any effort by a Tenderer to influence TMC/HLL in the process of examination, clarification, evaluation and comparison of tenders and in decisions concerning award of contract, may result in the rejection of the Tenderer's tender.

6.3 CLARIFICATION OF TENDERS

6.3.1 Technical evaluation of technical packages submitted by Bidders shall be undertaken based on details submitted in the technical package only. No clarification/additional information in this regard will be sought from Bidders. Tenderer shall not be required to submit their own, additional information or material subsequent to the date of submission and such material if submitted will be disregarded. It is therefore essential that all the details are submitted by Tenderer accurately and specifically in their technical package avoiding vague answers. However, TMC/HLL reserves the right to ask any clarification from Bidders for details submitted with technical package if it so desires during the technical evaluation.

6.3.2 To assist in the examination, evaluation and comparison of Financial package, TMC/HLL may ask Bidders individually for clarification of their tenders, including breakdowns of prices. The request for clarification and the response shall be in writing or by Tele-fax but no change in the price or

substance of the tender shall be sought, offered or permitted except as required to confirm correction of arithmetical errors discovered by the Officer-in-Charge during the evaluation of tenders in accordance with Clause 6.5 herein.

6.4 DETERMINATION OF RESPONSIVENESS

6.4.1 Prior to the detailed evaluation of tenders, TMC/HLL will determine whether each tender is responsive to the eligibility requirements (Technical Package I) and the employer's requirements (Technical Package II) of the tender documents.

6.4.2 For the purpose of this Clause, a responsive tender for opening of the Technical Package II, is one which has paid the application fees, is accompanied by the Tender Security, signed on all pages and meets the eligibility criteria as set out in Clause 2 above. Technical Package II shall be considered responsive if it conforms to the employer's requirements and all other terms, conditions and specifications of the tender documents without material deviation or reservation. "Deviation" may include exceptions, exclusions & qualifications. A material deviation or reservation is one which affects in any substantial way the scope, quality, performance or administration of the works to be undertaken by the Tenderer under the Contract, or which limits in any substantial way, TMC's rights or the Bidders obligations under the Contract as provided for in the Tender documents and / or is of an essential condition, the rectification of which would affect unfairly the competitive position of other Bidders presenting substantially responsive tenders at reasonable price.

6.4.3 If a tender is not substantially responsive to the requirements of the tender documents or if the construction methods proposed by the Tenderer are considered impracticable, it will be rejected by TMC, and will not subsequently be permitted to be made responsive by the Tenderer by correction or withdrawal of the non-conformity or infirmity. The decision of the TMC/HLL as to which of the tenders are not substantially responsive or have impractical / defective design or construction technology shall be final.

EVALUATION OF TENDER

6.4.4 (a) The Bidders should submit the details as per 4.2.1 and should meet the minimum requirements as per Part-I of technical package.

(b) HLL on behalf of TMC will, keeping in view the contents of Clause 6.4, carry out technical assessment of submitted technical proposals to determine that the Tenderer has a full comprehension of the work of the contract. In case the Tenderer's technical submittal is found non-complaint with the requirements of the project the same is liable to be rejected. This process is to assure that only technically acceptable proposals are considered for the work.

6.4.5 The evaluation of Financial proposals by TMC/HLL will take into account, in addition to the tender amounts, the following factors:

a. Arithmetical errors corrected by TMC/HLL in accordance with Clause 6.6

b. Such other factors of administrative nature as TMC/HLL may consider to have a potentially significant impact on contract execution, price and payments, including the effect of items or rates that are unbalanced or unrealistically priced.

6.4.6 Offers, deviations and other factors, which are in excess of the requirements of the tender documents or otherwise and will result in the accrual of unsolicited benefits to TMC, shall not be taken into account in tender evaluation.

6.4.7 Price adjustment provisions applicable during the period of execution of the contract shall not be taken into account in tender evaluation.

6.4.8 Evaluation of financial offer will be based on price quoted by the EPC developer. Any subsequent alteration in prices shall not be given any cognizance.

6.5 CORRECTION OF ERRORS

6.5.1 TMC/HLL for any arithmetical errors in computation and summation will check tenders determined to be technically acceptable during Financial evaluation. Errors will be corrected by the TMC/HLL as follows:

a. Where there is a discrepancy between amounts in figures and in words, the amount in words will govern

6.5.2 If a Tenderer does not accept the correction of errors as outlined above, his tender will be rejected and the tender security forfeited.

7 AWARD OF CONTRACT

7.1 AWARD CRITERIA

7.1.1 Subject to Clause 6.5, TMC/HLL will award, the Contract to the Tenderer, whose tender has been determined to be substantially responsive, complete and in accordance with the tender documents, and whose total evaluated price for undertaking the entire project detailed in Scope of work (clause 2.1 to 2.5 of NIT) and Employer's Requirements of RFP Document is the lowest.

7.1.2 If the financial bids of both parties are equal, then the bidders shall be asked to resubmit the financial bid.

7.2 EMPLOYER'S RIGHT TO ACCEPT ANY TENDER AND TO REJECT ANY OR ALL TENDERS

Notwithstanding Clause 7.1, TMC/HLL reserves the right to accept or reject any tender, and to annul the tender process and reject all tenders, at any time prior to award of Contract, or to divide

the Contract between/amongst Bidders without thereby incurring any liability to the affected Tenderer or Bidders or any obligations to inform the affected Tenderer or Bidders of the grounds for TMC''s action.

7.3 NOTIFICATION OF AWARD

7.3.1 Prior to the expiry of the period of tender validity prescribed by the TMC/HLL, HLL will notify the successful Tenderer by Tele-fax or e-mail, to be confirmed in writing by registered post/ by courier, that his tender has been accepted. This letter (hereinafter and in the Conditions of Contract called 'the Letter of Acceptance') shall name the sum which TMC will pay to the EPC developer in consideration of the execution, completion, maintenance and guarantee of the works by the EPC developer as prescribed by the Contract (hereinafter and in the conditions of Contract called 'the Contract Price'). The Letter of Acceptance will be sent to the successful tenderer. No correspondence will be entertained by TMC/HLL from the unsuccessful Bidders.

7.3.2 The Letter of Acceptance shall constitute a part of the contract.

7.3.3 Upon submission of Performance Security by the successful Tenderer as per clause 8.0, TMC/HLL will promptly notify the unsuccessful Bidders and discharge / return their tender securities.

7.4 SIGNING OF AGREEMENT

7.4.1 TMC/HLL shall prepare the Agreement in the Proforma (Form E) included in this Document, duly incorporating all the terms of agreement between the two parties. Within 30 days from the date of issue of the Letter of Acceptance the successful Tenderer will be required to execute the Contract agreement. The performance guarantee should be submitted immediately after issue of letter of acceptance but not later than 30 days of issue of letter of acceptance. One copy of the Agreement duly signed by TMC and the EPC developer through their authorized signatories will be supplied by TMC/HLL to the EPC developer.

7.4.2 Prior to signing of the Contract Agreement, the successful Tenderer shall submit Performance Security within a period of 30 days from the date of issue of the Letter of Acceptance:

8 PERFORMANCE SECURITY

8.1.1 The successful Tenderer shall furnish to TMC a security in the form of a bank guarantee for an amount of 10% of the total Contract Price, in accordance with Clause 4.2 of the General Conditions of Contract. The Bank Guarantee has to be from a Scheduled Commercial bank based in India and for this purpose the Form of Performance Security (Form-D) provided in this Volume shall be used. The Performance Security shall be furnished within the time limit specified in Sub-clause 7.4.2.

8.1.2 Failure of the successful Tenderer to lodge the required Performance Security shall constitute sufficient grounds for the annulment of the award of Contract and forfeiture of the tender security, in which event HLL/TMC may make the award to the next lowest evaluated Tenderer.

APPENDIX I

CHECK LIST OF DOCUMENTS TO BE SUBMITTED WITH THE TENDER

COMPILED FROM THE PROVISIONS IN THIS VOLUME

Sl. No.	Document	No. of sets to Be submitted	Reference to Clause No. of "Instructions to Bidders"	Page no.
TECHNICAL PACKAGE part 1				
1.0	Covering letter	(Original)	4.2	
2.0	Tender security (Form B) in separate sealed envelope	(Original & Copy)	4.8	
3.0	Income tax Clearance certificate	(Original)	4.9	
4.0	Power of attorney for individuals signing on behalf of Company/Firm	(Original & Copy)	4.10	
5.0	Financial Data- T-V & T-II	(Original & Copy)	4.2	
6.0	Technical and organizational Data – T-III	(Original & Copy)	4.2	
7.0	Organizational Chart	(Original & Copy)	4.2	
TECHNICAL PACKAGE part 2				
8.0	Tender documents	(Original)	4.2	
9.0	Technical Package Part- I & Part –II	(Original & Copy)	4.2	
FINANCIAL PACKAGE COMPRISING OF:				
10.0	Form of Tender and Appendix thereof (Form-A)	(Original & Copy)	4.2	
11.0	Format for Financial Bid (Form C)	(Original & Copy)	4.2	

INDEX ON

PROFORMA OF FORMS

1. **PROFORMA OF FORMS – GENERAL**

(Items (iv) & (v) applicable only for successful Bidders)

2. **PROFORMA OF FORMS – QUALIFICATION PARTICULARS**

FORM A

FORM OF TENDER

Note : i. The Appendix forms part of the Tender

ii. Bidders are required to fill up all the blank spaces in this form of Tender and Appendix.

Name of Work : _____(As mentioned under Clause 1.1.1 of NIT)

To,

The Deputy Vice President (T),
HLL Lifecare Limited,
Infrastructure Development Division,
"Adarsh", T.C 6/1718(1),
Vettamukku, Thirumala PO,
Thiruvananthapuram- 695 006

1. Having visited the Site and examined the General as well as Special conditions of contract, Employer's Requirements, Notice Inviting Tenders, Instructions to Bidders, Preliminary Drawings and Addenda for the execution of above named works, we the undersigned, offer to execute and complete such works and remedy defects therein in conformity with the said Conditions of Contract, Employer's Requirements, NIT, ITT and Addenda for the sum of _____ (Amount in figures and words) for Construction and Setting up of Hadron Beam (Proton Therapy) Facility for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai
2. We acknowledge that the Appendix forms an integral part of the Tender.
3. We undertake, if our Tender is accepted, to commence the works within one week of signing the Contract Agreement to commence and to complete the whole of the Works comprised in the Contract within **24 months** calculated from the date of issue of the Letter of Acceptance, as indicated in the Appendix.
4. If our Tender is accepted, we will furnish a Bank Guarantee for Performance as security for the due performance of the Contract. The amount and form of such guarantee or bond will be in accordance with **Clause 4.2** of the General Conditions of the Contract and as indicated in the Appendix.
5. We have independently considered the amount shown in **Clause 9.7** of the General Conditions of Contract as liquidated damages and Penalty in **Clause 25.0** of Special Conditions of Contract and agree that they represent a fair estimate of the damages likely to be suffered by you in the event of the work not being completed in time.

FORM A

6. We agree to abide by this Tender for a minimum period of 180 days from the last date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiry of that period or any extended period mutually agreed to.

7. We declare that the submission of this Tender confirms that no agent, middleman or any intermediary has been, or will be engaged to provide any services, or any other item of work related to the award and performance of this Contract. We further confirm and declare that no agency commission or any payment, which may be construed as an agency, commission has been, or will be, paid and that the tender price does not include any such amount. We acknowledge the right of TMC, if it finds to the contrary, to declare our Tender to be non-compliant and if the Contract has been awarded to declare the Contract null and void.

8. We understand that you are not bound to accept the lowest or any tender you may receive.

9. If our Tender is accepted we understand that we are to be held solely responsible for the due performance of the Contract.

Dated this……day of…….2016

Signature …….

Name……..…… in the capacity of ……..

duly authorized to sign Tenders for and on behalf of……..……

Address ……..……..

Witness – Signature …….

Name ……..

Address ……

Occupation ……

APPENDIX TO THE FORM OF TENDER			
i.	Amount of Bank Guarantee as Performance Security	4.2 of General Conditions	10 percent of the Total Contract Price in two parts of 5% each.
iii	Period for commencement of work from the date of signing of Contract Agreement		Date of issue of LOA or date of encumbrance free site handover by the employer whichever is later.
Iv	Time for completion from the date of issue of the Letter of Acceptance	24.0 of Special Conditions	24 months from the date of issue of LOA or date of encumbrance free site handover by the employer whichever is later
v.	Amount of liquidated damages in case of extension of completion date due to delays by the EPC developer	9.7 of General Conditions	0.50% of Contract value of works for each week or part thereof where the EPC developer is in default, subject to maximum of 10% of Contract value
vi.	Defects Liability Period from the date of issue of "Taking-over certificate"	12.0 of General Conditions	12 months
vii.	Period of warranty for equipment against faulty design and defective manufacture from the date of completion of period of maintenance.	6.4 of General conditions	
	Signature of authorized signatory on behalf of Tenderer		

Date …… Name …….

Place …….. ……. Address …….

NOTE:

1. 5% of total contract price against performance guarantee to be released after obtaining taking over certificate
2. Balance 5% is to be released after successful completion of DLP.

FORM B

PAGE 1 OF 2

FORM OF BANK GUARANTEE FOR TENDER SECURITY

(Ref: Clause 4.8 of "Instructions to Bidders")

1. KNOW ALL MEN by these presents that we …….... (Name of Bank) having our registered office at …… (Name of country) (hereinafter called "the Bank") are bound unto TATA Memorial Centre (hereinafter called "TMC") in the sum of **Rs. ____** for which payment will and truly to be made to the said TMC the Bank binds itself, its successors and assigns by these presents.

2. WHEREAS……(Name of Tenderer) (hereinafter called "the Tenderer") has submitted its tender dated _____ for (Name of the work as mentioned under Clause 1.1.1 of NIT) hereinafter called the tender.

   AND WHEREAS the Tenderer is required to furnish a Bank Guarantee for the sum of **Rs _____ (____**) as Tender Security against the Tenderer's offer as aforesaid.

   AND WHEREAS _____ (Name of Bank) have, at the request of the Tenderer, agreed to give this guarantee as hereinafter contained.

3. We further agree as follows:

   a. That TMC may without affecting this guarantee grant time or other indulgence to or negotiate further with the Tenderer in regard to the conditions contained in the said tender and thereby modify these conditions or add thereto any further conditions as may be mutually agreed upon between TMC and the Tenderer.

   b. That the guarantee hereinbefore contained shall not be affected by any change in the constitution of our Bank or in the constitution of the Tenderer.

   c. That any account settled between TMC and the Tenderer shall be conclusive evidence against us of the amount due hereunder and shall not be questioned by us.

   d. That this Guarantee commences from the date hereof and shall remain in force till _____ (date to be filled up) (up to 210 days from the last date of submission of tender).

   e. That the expression 'the Tenderer' and 'the Bank' herein used shall, unless such an interpretation is repugnant to the subject or context, include their respective successors and assigns.

4. THE CONDITIONS OF THIS OBLIGATION ARE**:**

a. if the Tenderer withdraws his Tender during the period of Tender validity specified in the Form of Tender, or

b. if the Tenderer does not accept the correction of his tender price in terms of Clause 6.6 of the "Instructions to Bidders".

c. if the Tenderer having been notified of the acceptance of his tender by TMC/HLL during the period of tender validity :

i. fails or refuses to furnish the Performance Security in accordance with Clause 8.0 of the "Instructions to Bidders" and/or

ii. fails or refuses to enter into a Contract within the time limit specified in Clause 7.5 of the "Instructions to Bidders".

We undertake to pay to TMC upto the above amount upon receipt of his first written demand, without TMC having to substantiate his demand provided that in his demand TMC will note that the amount claimed by him is due to him owing to the occurrence of any one or more of the conditions (a), (b), (c) mentioned above, specifying the occurred condition or conditions.

Signature of …….
Authorized Official of the Bank

Signature of the witness

…….

Name of the Witness

…….

Address of the Witness

…….

Name of Official ……..

Designation ……..

Stamp/Seal
of the Bank ……

FORM-C

FORMAT FOR FINANCIAL BID
(on the letter head of the Company)

Date:
To:

The Deputy Vice President (T)
HLL Lifecare Limited,
Infrastructure Development Division,
"Adarsh", T.C 6/1718(1), Vettamukku,
Thirumala PO, Thiruvananthapuram- 695 006.

Sub.: Selection of a 'Design and Build' EPC developer for Construction and *Setting up of Hadron Beam (Proton Therapy) & Support Facility for Tata Memorial Centre in Kharghar, Navi Mumbai*

Dear Sir / Madam:

(i) Being duly authorized to represent and act on behalf of ……., and having reviewed and fully understood all the requirements of bid submission provided vide the RFP document dated ……. pertaining to Construction and *Setting up of Hadron Beam (Proton Therapy) & Support Facility for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai*, we hereby provide our Financial Proposal for development and establishment of this Project on Turnkey Basis.

Total Construction cost of the entire project detailed in Scope of work including design, engineering, all services, fittings and fixtures making all buildings fully and functionally operative (clause 2.1 to 2.4 of NIT) and Employer's Requirements of RFP Document. (As per detailed breakup given in Page 2 of 2 Form C)	_____ Indian Rupees (in figures) _____ (in words)

(ii) We understand that the Total Bid Value will be considered for determining the lowest Bid and the contract will be based on the Total Cost of Installation.

(iii) We agree to be bound by this offer if our offer for this project is accepted.

For and on behalf of :
Signature :
Name of the Person :
Designation :

Instructions:

1. No conditions should be attached.
2. In case of difference between the words and figures, words would prevail.

(Should be given in a sealed envelope).

Break up of Cost of Design and Build proposal as per RFP document

S.N	Project Component	Cost in INR
1	Setting up of Hadron Beam (Proton Therapy) & Support Facility housing Cyclotron and Gantries and all necessary support service facilities	
2	Sub Station including Transformers, all external cabling, HT, LT panels, Automatic Power Factor correction panels, Bus trunking, rising main, earthing, lightning protection, UPS and DG sets as per design, Complete Fire Fighting system including wet risers, sprinklers, fire alarm system, HVAC systems, PA systems, Computer Network , Data Cables etc., complete PHE works (internal and external)	
2.(a)	Additional cost in case of electrical supply to be executed as per Option II	
3	Medical Gas system	
4	Cost of all external services (Roads, foot paths, storm water drains, RWH, Fire & Domestic underground sumps & water tanks with necessary pumps, STP, ETP, WTP, Horticulture & landscaping, Solar Water Heating System, Solar Panels for power generation, Elevators, CCTV, PA system, Online Data/Information Technology Systems including permanent telephone & internet lines, Signages, etc.)	
TOTAL COST		

FORM-D

FORM OF PERFORMANCE SECURITY (GUARANTEE) BY BANK

(Refer Clause 8.0 of "Instructions to Bidders")

1. This deed of Guarantee made this day of _____ between Bank of _____ (hereinafter called the "Bank") of the one part, and TATA MEMORIAL CENTRE (TMC), a Society registered under the Societies Registration Act, 1860, and fully funded by and under the administrative control of the Department of Atomic Energy, Government of India, having its registered office at Administration 4th floor, Dr. Ernest Marg, Parel, Mumbai 400 012) of the other part.
2. Whereas TATA MEMORIAL CENTRE (TMC), a Society registered under the Societies Registration Act, 1860, and fully funded by and under the administrative control of the Department of Atomic Energy, Government of India has awarded the contract for ---------- (Name of work as mentioned under Clause 1.1.1 of NIT) (hereinafter called the contract) to _____ (Name of the EPC developer) hereinafter called the EPC developer).

3. AND WHEREAS the EPC developer is bound by the said Contract to submit to TATA MEMORIAL CENTRE (TMC) a Performance Security for a total amount of Rs._____ (Amount in figures and words).
4. Now we the Undersigned _____ (Name of the Bank) being fully authorized to sign and to incur obligations for and on behalf of and in the name of _____ (Full name of Bank), hereby declare that the said Bank will guarantee TATA MEMORIAL CENTRE (TMC) the full amount of Rs._____ (Amount in figures and Words) as stated above.
5. After the EPC developer has signed the aforementioned Contract with TMC , the Bank is engaged to pay TMC, any amount up to and inclusive of the aforementioned full amount upon written order from TMC to indemnify TMC for any liability of damage resulting from any defects or shortcomings of the EPC developer or the debts he may have incurred to any parties involved in the Works under the Contract mentioned above, whether these defects or shortcomings or debts are actual or estimated or expected. The Bank will deliver the money required by TMC immediately on demand without delay without reference to the EPC developer and without the necessity of a previous notice or of judicial or administrative procedures and without it being necessary to prove to the Bank the liability or damages resulting from any defects or shortcomings or debts of the EPC developer. The Bank shall pay to TMC any money so demanded notwithstanding any dispute/disputes raised by the EPC developer in any suit or proceedings pending before any Court, Tribunal or Arbitrator/s relating thereto and the liability under this guarantee shall be absolute and unequivocal.
6. This Guarantee is valid till …….. (The initial period for which this Guarantee will be valid must be for at least 6-months (six months) longer than the anticipated expiry date of Defects Liability Period as stated in **Clause 4.2** of the "General Conditions of Contract".)

FORM D

7. At any time during the period in which this Guarantee is still valid, if HLL / TMC agrees to grant a time extension to the EPC developer or if the EPC developer fails to complete the Works within the time of completion as stated in the Contract, or fails to discharge himself of the liability or damages or debts as stated under Para 5, above, it is understood that the Bank will extend this Guarantee under the same conditions for the required time on demand by TMC and at the cost of the EPC developer.
8. The Guarantee hereinbefore contained shall not be affected by any change in the Constitution of the Bank or of the EPC developer.
9. The neglect or forbearance of TMC in enforcement of payment of any moneys, the payment whereof is intended to be hereby secured or the giving of time by HLL Lifecare Limited for the payment hereof shall in no way relieve the bank of their liability under this deed.
10. The expressions "TMC", "the Bank" and "the EPC developer" hereinbefore used shall include their respective successors and assigns.

In witness whereof I/We of the bank have signed and sealed this guarantee on the ---------- day of ---------- (Month) **2016** being herewith duly authorized.

For and on behalf of The Bank.

Signature of Authorized Bank official

Name : ……..

Designation : ……

Stamp/Seal of the Bank : ……..

Signed, sealed and delivered

for and on behalf of the

Bank by the above named _____ in the presence of :

Witness 1.

Signature …….

Name …….

Address …….

Witness 2.

Signature …….

Name ……..

Address ……..

FORM E

FORM OF CONTRACT AGREEMENT

(Refer Clause 7.0 of "Instructions to Bidders")

This Agreement is made at Mumbai on the _____day of _____ **2016** Between TATA MEMORIAL CENTRE, a Society registered under the Societies Registration Act, 1860, and fully funded by and under the administrative control of the Department of Atomic Energy, Government of India, having its registered office at Administration 4th floor, Dr. Ernest Marg, Parel, Mumbai 400 012 hereinafter called "Client" of the one part and _____ (Name and Address of EPC developer) hereinafter called "the EPC developer" of the other part..

Whereas TMC (Tata Memorial Centre, Mumbai) is desirous that certain Works should be executed, viz. ***Construction and setting up of Hadron Beam (Proton Therapy) & Support Facility for Tata Memorial Centre in TMC-ACTREC campus, Kharghar, Navi Mumbai,*** hereinafter called "the Works" and has accepted a Tender by the EPC developer for the execution and completion of such works (*** as well as guarantee of such works) and the remedying of defects therein. NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
   (a) Notice Inviting Tender (NIT)
   (b) Instructions to Bidders (ITT)(Including Annexures)
   (c) Special Conditions of Contract (SCC)
   (d) General Conditions of Contract (GCC)
   (e) Employer's requirements
   (f) Concept plans (finalized and approved by the Employer)
   (g) Interface Building Document (IBD) provided by Hadron Equipment manufacturer, IBA
   (h) Tender submitted by the EPC developer.
   (i) Programme Implementation Schedule
   (j) Form of Tender with Appendix
   (k) Letter of acceptance (LOA)
   (l) Addendums issued, if any including Minutes of Pre Bid meeting
3. In consideration of the payments to be made by Client to the EPC developer as hereinafter mentioned, the EPC developer hereby covenants with Client to execute and complete the works by **_____ and remedy any defects therein in conformity with the provisions of the Contract.

4. Client hereby covenants to pay the EPC developer in consideration of the execution and completion of the works and the remedying of defects therein, the Total Contract Price of **Rs _____ being the sum stated in the letter of acceptance subject to such additions thereto or deductions there from as may be made under the provisions of the Contract at the times and in the manner prescribed by the Contract.

5. OBLIGATION OF THE EPC DEVELOPER

The EPC developer shall ensure full compliance with tax laws of India with regard to this contract and shall be solely responsible for the same. The EPC developer shall submit copies of acknowledgements evidencing filing of returns every year and shall keep TMC/HLL fully indemnified against liability of tax, interest, penalty etc. of the EPC developer in respect thereof, which may arise.

IN WITNESS WHEREOF the parties hereto have caused their respective Common Seals to be hereunto affixed / (or have hereunto set their respective hands and seals) the day and year first above written.

For and on behalf of the EPC developer	For and on behalf of TATA MEMORIAL CENTRE
Signature of the authorized official	Signature of the authorized official
Name of the official	Name of the official
Stamp/Seal of the EPC developer	Stamp/Seal

SIGNED, SEALED AND DELIVERED

By the said	By the said
_____ Name	_____ Name
_____	_____
on behalf of the EPC developer in the presence of:	on behalf of TATA Memorial Centre in the presence of:
Witness _____	Witness _____
Name _____	Name _____
Address_____	Address_____

* To be made out by TMC/HLL at the time of finalisation of the Form of Agreement.

** Blanks to be filled by TMC/HLL at the time of finalisation of the Form of Agreement.

*** to be deleted if not applicable

FORM T-III
PAGE 1 OF 2

KEY PERSONNEL PROPOSED FOR THE PROJECT

(REFER CLAUSE 4.2)

SL. NO.	SECTOR	minimum number required	number of proposed personnel	education	proposed designation	total years of experience	relevant experience in years	details in annexure on page no.
1.	Project Manager	1						
2.	Construction Manager-civil**	1						
3.	Construction Manager-E&M** services	1						
4.	Structural Engineer*	1						
5.	Architect*	1						
6.	Procurement Specialist*	1						
7.	Quality Assurance Manager**	1						
8.	Safety Officer**	1						
9.	Site supervisor-Civil**	3						
10.	Site supervisor- E&M**	3						

NOTE :

1) * These personnel may not be posted at site, however their services should be available for the project whenever required by the project engineer/HLL.
2) ** These personnel are required only for the construction phase
3) A summary of the qualification and work experience of each key staff, to be attached.
4) The minimum level of supervision and qualification/experience of site-staff is given under annexure – a.
5) CVs to be submitted for all the proposed personnel in the format provided

FORM T-III
PAGE 2 OF 2

CVS OF KEY STAFF

NAME OF THE STAFF		
DESIGNATION		
NAME OF THE FIRM PRESENTLY EMPLOYED		
YEARS WITH THE FIRM		
PROPOSED POSITION		
DETAILS OF TASK ASSIGNED		
MAN- MONTHS BUDGETED FOR THE TASK ASSIGNED		
KEY QUALIFICATIONS		
EDUCATION		
EMPLOYMENT RECORD		
NAME OF THE FIRM	POSITION HELD	YEARS OF EMPLOYMENT

FORM T-IV

PAGE 1 OF 2

FINANCIAL DATA

(REFER CLAUSE 4.2)

TOTAL VALUE OF TURNKEY PROJECTS DONE DURING THE LAST FIVE FINANCIAL YEARS (FOR EACH MEMBER IN CASE OF GROUP):

S.NO.	DESCRIPTION	YEAR 2010-11 (RS.IN CRORE)	YEAR 2011-12 (RS.IN CRORE)	YEAR 2012-13 (RS.IN CRORE)	YEAR 2013-14 (RS.IN CRORE)	YEAR 2014-15 (RS.IN CRORE)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	TOTAL VALUE OF PROJECTS					

- ATTACH ATTESTED COPIES OF THE AUDITED FINANCIAL STATEMENTS OF THE LAST FIVE FINANCIAL YEARS AS ANNEXURES. FINANCIAL VALUES TO BE GIVEN IN CRORES OF RUPEES.

FORM T-IV

PAGE 2 OF 2

FINANCIAL DATA

(REFER CLAUSE 4.2)

LIST OF ALL ONGOING CONTRACTS

NAME OF THE APPLICANT (CONSTITUENT MEMBER IN CASE OF GROUP)	TOTAL NUMBER OF WORKS IN HAND	NUMBER OF CONTRACTS OF EACH TYPE			NUMBER FOR WHICH APPLICANT WENT IN FOR		NUMBER OF CONTRACTS IN WHICH DATE OF COMPLETION GIVEN IN THE ORIGINAL HAS ALREADY BURST	**TOTAL VALUE OF BALANCE WORKS YET TO BE DONE IN RUPEE EQUIVALENT IN CRORES		
		A. CONSTRUCTION ONLY	B. DESIGN & BUILD INSTALLATION	C. ON TURNKEY BASIS	ARBITRATION	LITIGATION		2015-15	2015-16	2016-17

APPLICANT (EACH MEMBER OF THE GROUP) SHOULD PROVIDE INFORMATION ON THEIR CURRENT COMMITMENTS OR ALL CONTRACTS THAT HAVE BEEN AWARDED OR FOR WHICH A LETTER OF INTENT OR ACCEPTANCE HAS BEEN RECEIVED OR FOR CONTRACTS APPROACHING COMPLETION BUT FOR WHICH A COMPLETION CERTIFICATE IS YET TO BE ISSUED.

** THIS FIGURE SHOULD ALSO INCLUDE THE YEAR-WISE BREAK-UP OF PART VALUE OF WORKS TO BE EXECUTED IN THESE THREE YEARS PERIOD EVEN IF COMPLETION OF SUCH WORKS SPILLS OVER BEYOND THESE THREE YEARS PERIOD.

FORM T-V

FINANCIAL DATA FOR ASSESSMENT OF NET WORTH ETC.

YEAR	2014-15	2013-14	2012-13	2011-12	2010-11
NET WORKING CAPITAL					
NET CASH FLOW					
ANNUAL TURNOVER					
PROFIT /LOSS					

ATTACH DOCUMENTARY EVIDENCE IN SUPPORT OF THE DATA CLEARLY MARKING THE RELEVANT PORTION.

FORM T-VI

PAGE 1 OF 1

PERFORMANCE REPORT OF WORKS (ON CLIENTS' LETTER HEAD)

1. NAME OF WORK/ PROJECT AND LOCATION
2. AGREEMENT NO.
3. CONTRACT VALUE
4. ESTIMATED COST
    A. CONSTRUCTION
    B. EQUIPMENT
5. TENDERED COST
    A. CONSTRUCTION
    B. EQUIPMENT
6. DATE OF START
7. DATE OF COMPLETION
    A. STIPULATED DATE OF COMPLETION
    B. ACTUAL DATE OF COMPLETION
8. AMOUNT OF COMPENSATION LEVIED FOR DELAYED COMPLETION IF ANY
9. PERFORMANCE REPORT
    A. QUALITY OF WORK VERY GOOD/ GOOD/ FAIR/ POOR
    B. FINANCIAL SOUNDNESS VERY GOOD/ GOOD/ FAIR/ POOR
    C. TECHNICAL PROFICIENCY VERY GOOD/ GOOD/ FAIR/ POOR
    D. RESOURCEFULNESS VERY GOOD/ GOOD/ FAIR/ POOR
    E. GENERAL BEHAVIOUR VERY GOOD/ GOOD/ FAIR/ POOR

DATE:

AUTHORISED SIGNATORY (WITH STAMP)

ANNEXURE –A

DESIRED SITE ORGANISATION STRUCTURE

MINIMUM LEVEL OF SUPERVISION AND QUALIFICATION/EXPERIENCE OF KEY STAFF IS AS FOLLOWS:

S.NO	DESIGNATION	QUALIFICATION	EXPERIENCE LEVEL
1.	PROJECT MANAGER (TEAM LEADER)	ENGINEERING/MANAGEMENT GRADUATE WITH KNOWLEDGE OF MS PROJECT/ PRIMAVERA	MINIMUM 5 YEARS AS PROJECT MANAGER OF SIMILAR WORKS WITH MIN TOTAL EXPERIENCE - 15 YRS.
2	CONSTRUCTION MANAGER	GRADUATE IN CIVIL / ELECTRICAL/ MECHANICAL ENGINEERING WITH KNOWLEDGE OF MS PROJECT/ PRIMAVERA	Minimum 5 years of experience as construction manager. & total experience of 10 years
3	QUALITY ASSURANCE (QA)- MANAGER	GRADUATE IN CIVIL ENGG. & POST GRADUATE DIPLOMA IN QUALITY ASSURANCE	Minimum 5 yrs. in qa (field) out of which one year as in-charge. min. total experience 10 yrs.
4.	SAFETY OFFICER	DEGREE IN ANY DISCIPLINE WITH A DIPLOMA IN SAFETY ENGINEERING/ OR A DEGREE IN SAFETY ENGINEERING	Minimum 5 yrs. in safety (field) out of which one year as in-charge. min. total experience 10 years.
5.	SITE SUPERVISOR CIVIL /ELECTRICAL / MECHANICAL	GRADUATION/DIPLOMA IN CONCERNED DISCIPLINES	Minimum site supervision exp. graduate – 2 years, diploma – 5 years
6	PROCUREMENT SPECIALIST	GRADUATE WITH PG DIPLOMA IN MANAGEMENT (PROCUREMENT)	Minimum 5 years of relevant experience
8	STRUCTURAL ENGINEER	POST GRADUATE IN STRUCTURAL ENGINEERING	Minimum 5 years in design of structure
9	ARCHITECT	PG IN ARCHITECTURE	Minimum 5 years

SECTION III

SPECIAL CONDITIONS OF CONTRACT

SL. NO.	REFERENCE TO GCC CLAUSE NO.	MODIFIED CLAUSE
1.	NAME OF THE WORK	Name of the work shall be as per clause 1.1.1 of NIT
2.	1.4 LAW AND LANGUAGE	The EPC developer shall keep a suitably qualified person at the site who is fluent in local language and is able to interact with local people. In addition to this, any document, which is in any language other than English, shall be translated to English and certified. The EPC developer shall familiarize himself with the local laws and administration of Navi Mumbai and comply by them.
3.	2.1 RIGHT OF ACCESS TO SITE	The employer shall give right of access of site to the EPC developer within 15 days of Letter of Acceptance.
		The EPC developer, after obtaining any necessary consent from any relevant authority, shall submit to the engineer, proposals showing the layout of pedestrian routes, lighting, signs, and guarding any road opening or traffic diversion which may be required in connection with the execution of the works and which the EPC developer intends to construct. any consent given by the engineer to such proposals shall not relieve the EPC developer of any obligation under the contract or absolve the EPC developer from any liability for or arising from such proposals or the implementation thereof.
4.	4.1 EPC DEVELOPER'S GENERAL OBLIGATIONS	The EPC developer's proposals for erection of all ancillary and temporary works shall be in conformity with the proposals submitted along with the tender and modifications thereto as approved by the engineer. The EPC developer shall submit drawings, supporting design calculations where called for by the engineer and other relevant details of all such works to the engineer for approval at least one month before he desires to commence such works. Approval by the engineer of any such proposal shall not relieve the EPC developer of his responsibility for the adequacy of such works. No extra payment will be made for complying with the provisions of this clause and the cost of such works shall be deemed to be included in the contract price.
		This submittal shall be made minimum one month before the works are to be carried out to give the engineer and the employer reasonable time to examine the drawings or other documents, to prepare comments and for any changes to be accommodated by the EPC developer.

		The installation shall be in conformity with the bye-laws, regulations and standards of the local authorities concerned in so far as these become applicable to the installation. But if these specifications and drawings call for a highest standard of materials and/ or workmanship than those required by any of the above regulations and standards then these specifications and drawings shall take precedence over the said regulations and standards. However, if the drawings or specifications require something which violates the bye-laws and regulations, then the bye-laws and regulations shall govern the requirement of this installation.
5.	4.2 SECURITY	The EPC developer shall submit a performance security equal to 10% of contract value within 30 days of issue of letter of acceptance The performance security should be submitted in the form of a bank guarantee from a scheduled commercial bank in India in the format supplied for bank guarantees in the contract.
		For specialized works like Anti-Termite Treatment, Water proofing Treatment, work has to be carried out through approved specialized agency that is a member of IPCA and shall give a 10 years guarantee to the employer. The EPC developer shall give a Bank Guarantee for ten years for the works specifically executed by them.
6.	4.5 COOPERATION WITH OTHER PERSONS AT SITE	The EPC developer shall work in close coordination with the Proton Therapy Equipment Vendor (PTEV), M/s.IBA's team and inform the IBA team through EPC Consultant regarding any of the criteria to be checked on the equipment which may have impact on the design.
7.	4.6 SETTING OUT	The EPC developer shall survey and fix the alignment, set out the buildings maintaining vertical & horizontal clearances and keeping in view important site references and obligatory locations in consultation with engineer. GTS bench mark, temporary bench marks and three control points on all straights & other details shall be handed over by the engineer. The EPC developer shall establish at his cost, at suitable points, additional reference lines and bench marks as may be necessary. the EPC developer shall remain responsible for the sufficiency and accuracy of all his benchmarks and reference lines. He shall take precautions to see that lines, points and bench marks fixed by the engineer are not disturbed by his work and shall make good any damage thereto.
8.	4.7 SAFETY PROCEDURES	The EPC developer shall not disturb the ongoing activities in the same campus / any other ongoing construction works in the same campus. He shall take care that his activities do not result in any kind of accidents, spread of any infection, etc in the campus. The EPC developer shall comply with all regulatory standards of work within the premises of a running hospital including EHS.

		The EPC developer shall provide a first aid base at his principal works area/ construction depot, suitable medical facilities for workmen's camps, suitable and sufficient first aid boxes at worksites for the EPC developer's workforce and his sub-EPC developers' workforce as further described in the employer's requirements. The EPC developer shall provide and maintain all necessary temporary fire protection and firefighting facilities on the site during the construction of the works in accordance with the statutory regulations and as required by the engineer. The EPC developer shall ensure that all gases, fuels and other dangerous materials and goods are stored and handled in a safe manner and in accordance with the statutory regulations and as required by the engineer. The obligations and requirements for safety and industrial health under this contract are entirely without prejudice to, and do not derogate from, the EPC developer's statutory obligations, with respect to safety and industrial health.
9.	4.9 Site Data	The responsibility of EPC developer under sub-clause 4.10 of General Conditions of Contract is full and final and no claim by the EPC developer for additional payment or extension of time shall be allowed on the ground of any misunderstanding or misapprehension by the EPC developer or that incorrect or insufficient information was given to the EPC developer or that he failed to obtain correct and sufficient information.
10.	4.10 SUFFICIENCY OF THE CONTRACT PRICE	The responsibility of EPC developer under sub-clause 4.10 of general conditions of contract is full and final and no claim by the EPC developer for additional payment or extension of time shall be allowed on the ground of any misunderstanding or misapprehension by the EPC developer or that incorrect or insufficient information was given to the EPC developer or that he failed to obtain correct and sufficient information.
11.	4.12 RIGHT OF WAY AND FACILITIES	The employer shall provide right of way to the EPC developer within its land for the purpose of executing the contract.
12.	4.13 AVOIDANCE OF INTERFERENCE	The EPC developer shall maintain a safe environment for patients, personnel and public. The EPC developer shall ensure that his employees do not leave the site at any time without the permission of the engineer. The EPC developer shall ensure that the vehicles, machines and equipment, which he uses, are safe and do not cause any harm to any personnel and should be non-polluting. They should strictly follow set paths thorough designated entry and exit points in the campus.

13.	4.13 AVOIDANCE OF INTERFERENCE QUIET OPERATION AND VIBRATION ISOLATION	All equipment shall operate under all conditions of load without any sound or vibration, which is objectionable and beyond the limits specified by the relevant laws. In case of rotating machinery sound or vibration noticeable outside the room in which it is installed or annoyingly noticeable inside its own room shall be considered objectionable. The EPC developer at his own expense shall correct such conditions.
		Existing roads and other public roads may be used by the EPC developer at his risk and cost to carry out construction activities, with prior approval of the competent authority. The EPC developer's heavy construction traffic or tracked equipment shall not travel on any public road or bridge, unless the EPC developer has made arrangements with the authority concerned and has obtained the approval of the engineer to such arrangements. the EPC developer shall include in his price the cost of strengthening any such public road or bridge if he considers it would be necessary The EPC developer shall repair any damage to the road or bear the cost thereof due to movement of EPC developer's plants and equipment, vehicles etc. to the specifications and satisfaction of road authorities as well as of engineer. The EPC developer shall plan transportation of construction materials to work site in accordance with traffic regulations enforced by local traffic authorities from time to time and in such a way that road accidents are avoided and minimum in convenience is caused. No claim whatsoever shall be entertained on this account. The transportation of certain equipment and materials and launching may not be possible during day and may have to be carried out within time schedule specified by traffic police.
14.	4.16 EPC DEVELOPER'S EQUIPMENT	For any imported equipment or part thereof offered by the EPC developer, he will have to make his own arrangements for import formalities and procurement of equipment without involving the employer in any way for any clearance certificates/ licenses/ assistances.
		The employer/EPC Consultant may assist (but is not obligated to) the EPC developer, where required, in obtaining clearance through the customs for constructional plant, materials and other things required for the works.
		The EPC developer shall obtain all permits / licenses and pay for any and all fees required for the inspection, approval and commissioning of their installation.
15.	4.17 PROTECTION OF ENVIRONMENT	The EPC developer shall not cut or destroy any tree in the campus to the maximum extent possible. In case any tree is to be cut, permission of tree cutting shall be obtained by EPC Consultant

		from the concerned statutory authorities but EPC Developer shall cut the approved trees and also plant required number of saplings or adhere to the requirements of the prevailing environmental laws which ever is more stringent. The EPC developer shall use all means to minimize the effluents from his construction work and transportation activity or any other activity in the course of the project.
16.	4.18 ELECTRICITY, WATER AND GAS	The EPC developer shall make his/their own arrangements for water and power supply required for the construction work and nothing extra will be paid for the same I) The EPC developer shall be allowed to install temporary wells in the site for drawing water for construction purposes only after he has got the permission of the statutory authorities and the engineer-in-charge in writing. No charges shall be recovered from the EPC developer on this account, but the EPC developer shall be required to provide necessary safety arrangements to avoid any accidents or damage to adjacent buildings, roads and service lines. II) The EPC developer shall make his own arrangement for temporary electric connection and shall make necessary payment for it direct to the concerned authority. On completion of the work he shall furnish a no dues certificate from the concerned authority failing which the claims/dues of the concerned authority shall be settled by the engineer-in-charge at the EPC developer's risk and cost.
17.	4.19 EMPLOYER'S EQUIPMENT	The employer shall supply no material, tools, plant and equipment. The EPC developer shall arrange all tools, plant, equipment as well as the required construction materials.
18.	4.21 SECURITY OF THE SITE	The EPC developer shall include in his quoted rate, barricading/ fencing of construction activity area. The barricades/fencing shall be as per statutory regulations or as per instructions of the engineer whichever is stringent. All materials, fabrication yards, stores, manpower are to be contained within the barricaded area. The EPC developer shall not be allowed to extend his activities beyond this area.
19.	4.22 EPC DEVELOPER'S OPERATIONS ON SITE	All construction debris shall be removed from site daily or as they accumulate. All surface and sub-soil drains at the site shall be maintained in a clean, sound and satisfactory state of performance.
20.	4.23 FOSSILS, DISCOVERIES AND ITEMS OF VALUE	The EPC developer must note that the project may involve some items of demolition. If during such works or during any works, the EPC developer finds any items of salvage value, which can be sold, he shall indicate the same in the monthly progress report submitted to the employer and sell it off only after the approval from the employer. The payments shall be adjusted accordingly as per the decision of the engineer.

21.	5.1 GENERAL DESIGN OBLIGATIONS	The EPC developer shall submit his preliminary design and make a walk through presentation to the employer within 21 days from the date of issue of letter of acceptance as mentioned in clause 1.3 of instructions to Bidders. If the engineer has reasonable cause for being dissatisfied with the EPC developer's drawings or documents the engineer shall, within a period of 21 days from the date of submittal, require the EPC developer in writing to make such amendments thereto as the engineer may consider necessary. The EPC developer shall make and be bound by such amendments at no additional expense to the employer and shall resubmit the amended drawings or documents for the engineer's approval for the execution of works within next 21 days. No extension of time or extra payment shall be given to the EPC developer to comply with the above.
		Should it be found at any time after notification of consent that the relevant drawings or documents do not comply with the contract or do not agree with drawings or documents in relation to which the engineer has previously notified his consent, the EPC developer shall, at his own expense, make such alterations or additions as, in the opinion of the engineer, are necessary to remedy such non-compliance or non-agreement and shall submit all such varied or amended drawings or documents for the consent of the engineer.
22.	5.2 EPC DEVELOPER'S DOCUMENTS	The EPC developer shall submit the following in addition to the documents stated in the contract, with his design: 1. Detailed drawings including the structural drawings, architectural drawings, machine foundations, component drawing etc. 2. Consolidated statement in a tabular form for the standards and specifications being followed in the design and for materials to be used 3. List of vendors from whom the materials are proposed to be procured 4. Tests required to be carried out in the contract 5. Outline safety plan for the site and an outline quality plan
		The EPC developer shall include in his design, in additions to space and operational needs, considerations of provisions for infection control, life safety, and protection of affected person during construction and the progress of the project as detailed out in employer's requirements.
		The EPC developer shall also include in his design provision of landscaping, parking and setting things back into the shape as the original as said in employer's requirements

		The EPC developer shall satisfy himself that the design data, in the case of submissions up to and including the proposed design, comply with the employer's requirements and is in accordance with, and incorporates the EPC developer's technical proposals. In the case of submissions subsequent to the proposed design, the design data shall be in accordance with employer's requirements and the accepted design.
23.	5.5 TRAINING	The EPC developer shall arrange training sessions for the employer's personnel for using the machinery and equipment especially the equipment which are of latest technology.
		The EPC developer shall submit to the engineer-in-charge a draft copy of comprehensive operating instructions maintenance schedule and log sheets for all systems and equipment included in this contract. this shall be supplementary to manufacturer's operating and maintenance manuals. upon approval of the draft, the EPC developer shall submit four (4) complete bound sets of printed operating instructions and maintenance manuals. The EPC developer shall also train the institute personnel, to operate the plant and carry out routine checks, during the period of installation and testing. Under special conditions, if, found necessary, the EPC developer shall also train the said personnel at no extra cost (for indigenous equipment only).
24.	7.2 RATES OF WAGES FOR LABOUR	The EPC developer must familiarize himself and comply with relevant labour laws like minimum wages act, 1948 and contract labour (regulation and abolition) act, 1970 etc. No extra payment whatsoever shall be made to the EPC developer to comply with the rules and laws.
25.	7.5 WORKING HOURS	The working hours shall be as per the statutory norms as then prevalent and allowed by the local authorities. The EPC developer shall strictly abide by the statutory working hours regulations. No works shall be carried out in the nights except as permitted by the Engineer under exceptional circumstances within allowable time period for construction as per the prevailing local norms. Lighting and fire protection: where night working is permitted by the engineer to facilitate the EPC developer's work operations, temporary lighting equipment as per approved layout shall be provided, installed, maintained for the duration of the contract and removed after completion of work by and at the expense of the EPC developer. No extra payment will be made to the EPC developer for the provision of temporary lighting and fire prevention measures.
26.	7.6 FACILITIES FOR STAFF AND LABOUR	The EPC developer shall provide at his own expense, all necessary accommodation and the welfare facilities (including medical facilities, periodical medical camps, drinking water and sanitation facilities, frequent fumigation of entire site, etc.) for his staff and labour. This includes good practices like provision of

		temporary crèche (Bal Mandir) where 50 or more women are employed at a time. The EPC developer at his cost shall maintain all accommodation in a clean and sanitary condition
		The EPC developer shall prepare and submit compliance reports of adherence to labour laws as and when desired by the engineer.
		SITE OFFICE FOR EMPLOYER'S PERSONNEL: The EPC developer at his own cost shall provide a fully furnished site office of area 150 Sqm (approx.) having, a sample room, A.C meeting room with projection facility, staff rooms along with toilets & pantry with office furniture, file storage facility, computers (4Nos.), Broad band (2 Nos.) and printers (2 Nos.) with their consumables, a telephone. Electricity & drinking water will be provided by the EPC developer free of cost.
27.	9.2 TIME FOR COMPLETION	Time for completion of the entire project is 24 months from the date of issue of letter of acceptance.
28.	9.3 PROGRAM	Activities in the initial works programme would be arranged as per the works break down structure (WBS) of the work developed by the EPC developer in consultation with and approved by the engineer. The EPC developer will prepare construction programme based on computerized CPM network using the precedence diagramming method within 30 days of award for approval as 'baseline programme' the base line program shall clearly reflect interface and access dates for other civil/ system-wide contracts. After the work has started, the EPC developer shall deliver in the first week of every month to the engineer an update of the construction programme showing changes, if any, in planning or progress scheduling and reflecting the progress of all the activities of the network and the project status as at the end of previous month. If the EPC developer falls behind the approved construction programme by more than one month, he shall, within fourteen days of the date of such information, submit for approval, a revision of the construction programme showing the proposed measures, including augmentation of plant, labour and material resources to complete the works on time. Whenever the EPC developer proposes to change the construction programme he shall immediately advise the engineer in writing and, if the engineer considers the change a major one, the EPC developer shall submit a revised programme for approval. DETAILED NETWORK PLAN (WORKS PROGRAMME) Detailed network plan shall be prepared by the EPC developer for each and every activity within the same time frame and in the same sequence as indicated in the baseline programme. Activity at this level shall not be more than 15 days duration, except for summary items like procurement/ mobilization etc.

		The EPC developer shall select pc-based broad planning and control software on which the two networks shall be implemented. Software selected shall be Microsoft project, latest version. if any other compatible software is used, approval of the engineer will be required. the EPC developer shall supply one original licensed copy of the software selected along with the baseline program network and detailed network plan free of cost and load it on the pc system of the engineer so that uniform monitoring of the project is done and any slippages are identified well in time and corrective action taken. The engineer's monitoring team will have access to all the data/information of the EPC developer, required for the assessment of the progress and monitoring. if necessary, the monitoring team will visit the vendor/EPC developer's works in order to assess the status of critical activities. The employer or the engineer will hold periodic project status review meetings. the EPC developer shall depute his engineers/managers at appropriate level as decided by the engineer to attend the review meetings. The EPC developer shall provide additional inputs whenever the PERT-CPM diagram indicates a possible slippage in the completion schedule. such additional inputs may require supplementing of equipment, personnel, work in excess of the normal work per day, and work in excess of the normal work per week or other resources. provisions under sub-clause 8.7 of general conditions of contract will be applicable in cases of delays due to EPC developer.
29	PENALTY	Should there be any delay in the achieving any milestone as per the 'baseline programme' referred to in the previous clause, the EPC developer shall be liable to pay penalty for the delay to an extent of 1.25% of the total cost of work per milestone to the Employer. This penalty shall be in addition to liquidated damages if any, which shall be incurred if the performance of the contract is delayed. This penalty shall not relieve the EPC developer from his obligation to complete the works or from any other of his obligations and liabilities under the contract. The EPC developer shall co-ordinate his programme to the extent feasible with the programmes of other EPC developers to be engaged at the site or in the vicinity of the site as furnished by the engineer so that the project can be completed in time as per the overall programme.
30	WORK PLAN	The EPC developer shall also submit with his program of works, a detailed work plan which states clearly the manner in which the EPC developer intends to carry out the work including the equipment proposed for executing the work and the place and

		time for use of heavy equipment.
31	10.0 TESTS ON COMPLETION	The EPC developer shall in addition to the tests instructed by the engineer, carry out the tests on completion for the equipment installed in the different departments of the facilities after substantial completion of the project as per the manuals.
32	10.1 EPC DEVELOPER'S OBLIGATIONS	Substantial completion: for the purpose of the contract, substantial completion of the project is achieved when all the construction work has been completed and all the medical/lab/library equipment have been procured and installed.
		On achieving substantial completion of the project, the EPC developer shall give notice to the engineer of achieving substantial completion and that the tests on completion may be carried out.
33	12.0 DEFECTS LIABILITY PERIOD	Defects liability period for the purpose of the contract shall be in accordance with clause 1.3 of instruction to tenders.
34.	14.3 VARIATIONS	The Employer retains the right to vary the detailed specifications of the equipments to be installed in the Hospital. The EPC developer shall be deemed to have considered the above fact while quoting the price of his equipments. No claims shall be entertained on the above basis. The EPC developer shall submit the list and detailed specifications for equipments to the engineer at least 60 days before the date indicated in the schedule of activities submitted and approved by the employer for the tendering process for procurement of equipments to begin and get it approved by the employer.
35.	POST PAYMENT AUDIT	The employer reserves to himself the right to carry out a post payment audit and/or technical examination of the works and the final payment including all supporting vouchers, etc., and to make a claim on the EPC developer for the refund of any excess amount paid to him, if as a result of such examination, any overpayment to him is discovered to have been made in respect of any work done or alleged to have been done by the EPC developer, under the contract. If any under payment is discovered, the employer shall pay the same to the EPC developer. Such payments or recoveries shall not carry any interest.
36.	15.0 CONTRACT PRICE AND PAYMENT	The contract price shall be a lump sum price mentioned in the letter of acceptance. The employer shall deduct income tax (TDS) at the then prevailing rates from all the payments including advances to be made to the EPC developer. TDS certificate will be issued by the employer for such deductions subsequently The EPC developer shall not be paid any charges towards any taxes or duties etc. Sales tax/VAT, service tax, building and other construction workers' welfare cess or any other tax or cess in

		respect of this contract shall be deemed to have been included in the contract price. The EPC developer must submit his income tax, sales tax, work contract tax, PAN number, PF, Service Tax, Contract labor license, ESIC, vat clearance, etc before the payment is released from the employer. He shall also submit copies of the expenditure sheet for the various expenses he has made towards the achievement of a milestone.
37	12.0 Maintenance during Defects Liability Period	a. Complaints : The EPC developer shall receive calls for any and all problems experienced in the operation of the system and Equipments under this contract, attend to these within 24 hours of receiving the complaints and shall take steps to immediately correct any deficiencies that may exist. b. Repairs : All equipment shall be immediately serviced and repaired based on the Employer's Requirements. Since the period of Mechanical Maintenance runs for one year concurrently with the defects liability period, all replacement part and labor shall be supplied promptly free-of-charge c. Preventive maintenance: The EPC developer shall carry out all preventive maintenance plans for the equipment and all other electromechanical installations under the Contract as per the standards of the industry and good engineering practices. The format shall be mutually agreed upon award of the contract.
38	15.0 Contract Price and Payment	The EPC developer must submit his income tax, VAT returns, PF & ESI payment challan, etc before the payment is released from the Employer. He shall also submit copies of the Expenditure sheet for the various expenses he has made towards the achievement of a milestone.
		The interim payments shall be released only on a pre-decided schedule of payments based on milestones and approved by the Engineer.
		The EPC developer is required to pay all taxes, duties etc for the Works and shall be deemed to have included the same in his Contract Price.

39	19.0 INSURANCE	Professional Indemnity Insurance Policy (PIIP) – The EPC developer shall maintain a Professional Indemnity Insurance Policy, for a sum equivalent to 25% of the cost of project with a nationalized insurance company or any other recognized insurance company by paying a requisite premium. The PIIP shall be taken at the beginning of the year and shall continue till one year after the project completion. All the insurance policies maintained by the EPC developer shall be primary and shall provide the employer a certificate from insurers acknowledging that all insurance policies maintained by the EPC developer with such insurer are primary and do not call into contribution of any other insurance that may be available to the employer. Comprehensive Insurance Policy: It shall be taken in the joint name of TMC, in respect of claims for personal injury to or the death of any persons under a contract of service or apprenticeship, with the consultant or such sub consultant as the case may be and arising out of and in the course of such persons employment.

SECTION IV
EMPLOYER'S REQUIREMENTS

1. Introduction to the project

Tata Memorial Centre, Mumbai, intends to **set up a Hadron Beam (Proton Therapy) and support facilities at TMC-ACTREC campus, Kharghar, Navi Mumbai** on a turnkey basis.

The project shall be carried out on 'Design and Build' basis, where the selected EPC Developer shall be responsible for the all aspects of the implementation of the project including the planning, design, obtaining all statutory approvals, construction and commissioning of the Facilities as well as the procurement, installation and commissioning of services in accordance with the indicative concept plans appended as Volume III and in strict compliance to the Interface Building Document (IBD) provided by IBA annexure-I to volume III of this RFP document and final approved plans by the employer and the Employer's Requirements stated herein.

The Project has an estimated total cost of approximately Rs**. 73.93 crores** excluding the cost of Medical / Proton Therapy equipment & loose furniture. This Proton Therapy equipment shall be procured by TMC and the successful bidder is expected to coordinate with the vendors selected by TMC for the service planning and installation of Proton Therapy equipment.

Construction cost includes civil, plumbing, heavy lifting and moving equipments like bridge cranes, etc. inside hadron therapy area and Elevators, STP/ ETP/ WTP/ RWH, Dedicated Under ground Water tank Additional FSI, electrical, fire detection & protection plan and waste management, communication and networking plan, Dedicated substation (H T / L T), HVAC, DG back-up, Solar Water Heating System, CCTV, Internal roads, , Lightning protection, Dedicated Earth System for all installations, Signages, Medical Gas piping, car parking and all external services including obtaining all statutory approvals like commencement certificate, occupancy certificate, power, water supply & Electric supply connection from concerned statutory authorities, etc.

The selected developer shall complete the EPC project in 24 months (including obtaining necessary approvals/ permits/ license from statutory authorities) and handing over the facilities to the authorities fully complete and functional, within this period. When completed the facilities should be world class, equipped with latest equipments.

2. Scope of Work

The overall scope of this contract is as follows

1. Design and construction of the Hadron Beam (Proton Therapy) Facility along with support facilities.

The requirements include all building services, both internal and external but exclude medical equipments, transportation and handling of proton therapy equipment and loose furniture.

This shall be designed and built on the basis of the details provided in the following documents.

A. RFP Volume III (Concept Plans of proposed facilities)
B. Annexure-I along with RFP Volume III (Interface Building Document (IBD) provided by IBA)
C. RFP Volume IV (Design Requirements and specifications for buildings & services)

The procurement, supply, installation, testing and commissioning of Medical/Proton Therapy Equipment shall be done by TMC. However, the successful bidder shall coordinate and provide all assistance for successful installation and commissioning of the equipment without any additional cost.

The activities required to be carried for completion of the Project include but not limited to:

i. Design development including preparation of detailed architectural design based on the indicative concept plans and Interface Building Document (IBD) appended herewith and the employer's requirements.
ii. The concepts plans shall be prepared and submitted suiting the employers requirements which shall finalized by the employer after discussions with the end users with or without any modifications.
iii. Getting all necessary approvals / permissions / permits / NOC of the statutory / local bodies and all governmental agencies.
iv. Ensure regulatory compliance (CVC, GFR, DAE, AERB, MoEF labour commissioner & other regulatory authorities) during the execution of the work
v. Detailed design engineering including architectural design and construction documents, structural engineering, electrical engineering, heating ventilation and air conditioning plans, medical gases system, communication and networking plan, Nurses' Call System, fire detection and protection System, waste management system, surveillance system etc.
vi. Proof checking of design/ drawings from IIT without any extra cost. The proof checking shall be done by HLL from IIT and the cost for the same has to be borne by the EPC developer.
vii. EPC developer shall ensure that the proposed development meets the prevailing design standards laid by NBC, AERB & such statutory bodies in India and as per the local town planning authorities etc.
viii. The design of Hadron facility should strictly consider all the standards (Indian and International) specified in the IBD provided by IBA. No deviation from the IBA requirement will be allowed
ix. EPC developer shall also ensure that all the statutory requirements/obligations are complied in planning, design and execution of the proposed development (NBC/ NABH/ CIDCO/

MMRDA/BMC/DAE/AERB/MoEF/GRIHA/MPCB etc). The statutory fess payable to the statutory bodies will be reimbursed by TMC on submission of necessary documentary proof.

x. Prepare master plan(s) for the proposed development and obtain regulatory approval(s) from the town planning authorities (such as Building planning, Traffic & Coordination, AERB, AAI, Fire Protection, MSEDCL (MSEB) etc. depts. of CIDCO and/or such authorities) for the same.

xi. Conduct botanical survey, identify the number of trees to be cut, if any. Only Tree Cutting Permission will be obtained by EPC Consultant from the regulatory authorities but all other necessary works like tree cutting replanting etc shall be done by EPC Developer.

xii. To prepare the Environmental Impact Assessment (EIA) report and obtain environmental clearance from MoEF or/and the State appraisal committees, Authorisation/NOC from MPCB etc as may required to take up the proposed development.

xiii. Site clearance before commencement of work like demolition of existing structures, diversion of existing underground utilities, clearing of vegetation & trees, laying of approach roads etc.

xiv. Care should be taken to ensure proper disconnection of any existing underground electrical power supply/cables, water supply and sanitary connection before commencement of excavation works. If any such item is encountered during excavation works, care should be taken not to disturb and reroute the same with the help of concerned authorities without disturbing the functioning of adjacent buildings within and near to the site.

xv. Also the foundations of any old structures at site if encountered during execution of works shall be removed by the EPC developer.

xvi. Repairs to existing compound wall/demolishing and reconstruction of compound wall/repair to compound wall and other necessary works any where in the identified plot..

xvii. Building construction and installation of all services and making all the building services fully and functionally operative.

xviii. Completion of Project as per the specified timelines

xix. Compliance with Environmental and Energy efficiency norms and obtaining at least 3 star GRIHA rating

xx. Procurement and installation of fittings and fixtures including internal and external signages. All fittings and fixtures inside the hadron treatment facility shall conform to exposure to radiation and approved by IBA.

xxi. All aspects of quality assurance, including testing of equipment and other components of the work to the satisfaction of TMC/HLL/IBA.

xxii. Project Management to ensure completion of the Project as per the specified timelines.

xxiii. Submission of the completion / 'as-built' drawings and other related documents, both a hard copy and the soft copy in Auto CAD and other software used for the purpose.

xxiv. Providing necessary Dedicated Electrical power and water for the newly constructed facilities including transformers (H T /Distribution), bore wells, sump, Dedicated Overhead & Underground water tanks, water treatment plant, sewage treatment plant, Rain water harvesting and providing hospital grade water supply for the Complex including purification/treatment plants.

xxv. Sewage and waste disposal including drains and provision for retention tank (neutralization tank) for catering to radioactive wastes.

xxvi. All aspects of Bio Medical Waste (Management & Handling) Rules 1998 and subsequent amendments if any issued by the Ministry of Environment and Forest should be addressed in the design.

xxvii. Providing DG sets capable of handling the emergency power requirements of the new facilities, Liquid Oxygen plant and Gas Manifold System, Air Compressor, Hadron treatment equipment (Proton Therapy Equipment), Suction Plant capable of catering to all the wards, operating theaters, Diagnostics Services, ICUs etc. (Liquid Oxygen plant has to be located outside the building.)

xxviii. Air-conditioning Plant along with accessories for catering to the entire new facilities along with appropriate filters to be used in ducts for air circulation in all areas.

xxix. Providing all required support for IBA (PTEV) during erection and installation of the Hadron equipment.

xxx. Obtaining NOC/Occupation certificate for the new facilities.

xxxi. Clearance of site before Handing over of the facilities after fulfilling all the obligations under "Employer's Requirement".

2.1 REQUIREMENTS OF VARIOUS FACILITIES AS PER INTERFACE BUILDING DOCUMENT PROVIDED BY IBA.

2.1.1 Proton Therapy Facility:

The architectural design of the proton therapy facility shall be based on a modular concept which in turn will be based on the Vendor requirements incorporating without changing the base allocation for technical areas needed for the proton therapy equipment Treatment rooms and other clinical areas according to the Interface Building Document (IBD) provided by IBA and the requirements of TMC. The vendor to be selected by TMC will support the Design Team with relevant information in the form of documents and drawings, and by participating in all design and construction meetings.

Proton therapy systems for medical tumor irradiation use particle accelerators such as cyclotrons as a powerful radiation source. These installations must therefore comply with AERB regulations for radiation protection, and the facility must have an operating license for the cyclotron. Numerous requirements may need to be fulfilled in order to obtain an operating license and construction permit. These may include, but *are* not limited to, the following:

- Construction details of radiation rooms
- Dimensions and shielding materials of walls and floors between radiation areas and sections of the building not restricted by radiation regulations
- Calculations of the expected radiation dose rates at representative points in the building
- Estimate of expected amounts of radioactive materials resulting from equipment operation
- Description of the planned radiation safety guidelines to be followed during equipment operation
- Installation of radiation monitoring systems
- Installation of personnel dosimetry measurement systems and registration of the results

Approval of radiation safety by local regulatory authorities is critical for an efficient construction process. The Proton Therapy Equipment vendor to be selected by TMC will support the EPC developer with relevant information in the form of documents and drawings for this purpose.

The cyclotron and gantry will be inserted through openings in the roof above the equipment. The equipment is lifted into place and positioned in the room by mobile telescope cranes located by the outside wall closest to the roof opening. The rigging openings for the cyclotron and gantries must remain covered by a temporary roof in order to protect equipment from weather and allow for multiple openings and closings. The rigging setup for each gantry will take approximately two weeks. The roof shall close with concrete beam that will allow to reopen the hatch in case of major problem. An insulating cover will be placed after IBA installation.

The EPC developer must provide internal cranes as indicated in the table below. These are only indicative and detailed specifications will be supplied by the selected vendor during the project implementation.

LOCATION	DESIGNATION	NUMBER	CAPACITY	COMMENT
Cyclotron	Cyclotron bridge crane	1	1 metric ton	

Beam line	I-beam with hoist	1	8 metric tons	Manual hoist along beam transport system; minimum hook height must be coordinated
Gantry room	Gantry bridge crane	1 per gantry room	12.5 metric tons	
Near workshop	Freight elevator	1	2.50 metric tons	

Table1. *Lifting equipment*

The beam transport system area requires a wall opening for inserting magnets and related beam transport and energy selection system equipment. The opening must have restricted access and should be thermally insulated.

In addition, the cyclotron maze must have a removable section as required by the equipment vendor, IBA, appointed by TMC.

In Non-radiation areas the Equipment will be inserted via normal doors, facade doors in the upper level, and elevators installed in the building. Doors or wall openings up to the full ceiling height must be provided in many areas for transport into the building. Door sills are problematic; they delay transport and must be avoided before heavy equipment is brought in the first time.

All double doors in the electrical rooms must have a clearance height of 244 cm (96 in) for operation and maintenance. The clearance height of the transport path to the electrical rooms must be optimized for the ceiling height of the technical rooms. A clearance height of 275 cm (108 in) is adequate for transport purposes. The entrance door from the outside to the workshop to the hall must have a clearance height of at least 244 cm (96 in) and a width of at least 226 cm (89 in).

The doors to the treatment control rooms and the main control room must have a clearance height of at least 220 cm (87 in) and 244 cm (96 in) respectively.

During the building design phase, the door and wall opening requirements will be adjusted together with the selected vendor in order to conform to standard dimensions.

Stability of the walls and floors.

The dipole magnets (including the energy selection system) and mobile shield blocks will be brought into the building through the entrance area on the ground level. No mobile shielding in the cyclotron room can be completed until all proton therapy equipment systems have been brought into the building. The transport of all local shielding into the cyclotron / energy selection system area must be coordinated with IBA, the hadron equipment Vendor. The free ceiling height in the entrance and energy selection system area may not be reduced by other installations by the EPC developer. All technical building equipment must be removable so that the system can be transported out of the building in the event of damage.

The floor in the cyclotron room and in the entire beam line area must be capable of bearing rolling loads of up to 13 metric tons to support magnets and mobile shielding elements.

Cyclotron room

The feet of the cyclotron must rest on steel floor plates that must be embedded into the floor slab and then cemented into place. The total weight of the cyclotron is 220T. The steel plate must be positioned exactly horizontally in position and angle.

The dipole magnets of the energy selection system and the beam transport system represent a load of approximately 8-13 metric tons (without local shielding) on the floor. The exact positioning of the feet is achieved with the help of steel components that adjust the feet to the finished floor.

Gantry room

The total weight of the gantry is 110T, so +/-30T on 4 locations. The floor of the gantry rooms (approximately 380 cm (150 in) below treatment floor level) must be capable of bearing loads of up to 50 kN/m^2 (1,050 lbs/ft^2) for maintenance work on the 135° magnet.

A load bearing capacity of up to 2 metric tons must be guaranteed for the area from the gantry maze to the entrance for transport.

Electrical rooms and control rooms

All electrical rooms must be equipped with computer room floors. On the upper level, the load bearing capacity must be 50 kN/m^2 (1,050 lbs/ft^2). All cabinets require frames, some cabinets' frames must support weights up to 5 metric tons.

Outside areas

Ground reinforcements to install mobile cranes of up to 800 metric tons for rigging of heavy components will be provided by the equipment vendor (IBA), near the outside walls of the respective equipment room and near the entrance to the workshop.

Cast-in elements

Several structural elements must be provided by the EPC Developer as per vendor requirements (as detailed in the annexure-I to Volume III – Interface Building Document (IBD) and embedded into concrete walls, floors and ceilings that will be used for maintenance and installation purposes. These include rails, installation connection plates, and steel plates that can bear loads of up to 13 metric tons.

Water pipes will be embedded in the concrete to provide cooling water in all electrical rooms, gantry rooms, the cyclotron pit, and the beam line area. The pipes must be encased in a vibration damping and thermal insulating material. Other media supply lines that are embedded in concrete (such as technical compressed air, room air supply, and exhaust, etc.) must be enclosed in vibration damping material.

Vibrations

Vibrations have a direct effect on the quality of a proton therapy system. For this reason, there are strict requirements for the quality of the individual structural components and especially for the interaction of the entire structure and the technical building equipment. Resonances of individual systems and amplification factors must be taken into account.

Potential sources of concern are nearby railroad tracks, subways, highways, and truck traffic.

Building settlement

After the installation and alignment of the proton therapy equipment, the differential settling of the building cannot exceed specific limits outlined for proper operation of the proton therapy equipment. The examination of the settling characteristics must begin during the construction of the building shell.

The differential settling over a length of 10 m (33 ft) must be < 0.2 mm (0.008 in)/year.

Shifts in the beam transport components resulting from differential settling lead to beam errors that cannot be tolerated when they exceed a certain magnitude. If the errors exceed these limits, the system must be realigned, which can lead to system downtime depending on the magnitude of the errors and the type of error, e.g., when the alignment' access points have to be opened to measure the local alignment marks.

It is the EPC DEVELOPER's responsibility to design the building according to the settlement requirements and to monitor the building settlement rate before proton therapy equipment is delivered.

Civil engineering tolerances.

There are special structural requirements referred to as necessary in the construction plans.

Walls, ceiling heights, and floor levels must be realized with a tolerance of ± 1 cm (1/2 ir with respect to a single reference point in the facility and also as mentioned in the IBD drawings on specific locations. The evenness of the floor in the cyclotron area must fulfill the requirements of DIN 18 202, whereby gradients can be included for drainage purposes. If no tolerances are indicated, DIN 18 202, Section 4 must be applied analogously.

Required rooms and building occupation

The rooms mentioned in Tables 2 and 3, and concept plans must be available for the installation of the equipment provided by IBA. Room dimensions are given in concept plans. Any other equipment that is installed in these rooms must be coordinated with IBA through EPC Consultant. Otherwise, it will be assumed that no electrical cabinets or other devices from companies involved in the project will be installed in these rooms.

ROOM DESCRIPTION	DIMENSIONS AND USE
Cyclotron area	Refer Concept Plans; please note pit and roof opening dimensions
Energy selection system and beam transport system	Refer Concept Plans & IBD
Main control room	Refer Concept Plans; approx. 25-30 m^2 (269-323 ft^2); control cabinets, control console, and measuring equipment
Fixed-beam rooms	Refer Concept Plans in IBD & IBD
• Gantry rooms	Refer Concept Plans & IBD
Treatment control room for each treatment room	Refer Concept Plans & IBD; approx. 15-20 m^2 (161-215 ft^2); control cabinets, control console, and measuring equipment
Cyclotron electrical room	Refer Concept Plans & IBD; cyclotron cabinets and RF-amplifier
Technical gases and cryogenics	Refer Concept Plans & IBD; nitrogen and oxygen supply, cryogenic compressors
Magnet power supply room	Refer Concept Plans& IBD

Diagnostic room	Refer Concept Plans & IBD
2 server rooms	Refer Concept Plans & IBD ; 10-15 m^2 (108-161 ft^2) each
Mechanical and electrical workshop	Refer Concept Plans & IBD; mechanical and electronics repairs
Spare parts storage	High value spare parts
Vacuum workshop	Refer Concept Plans & IBD, approx. 25 m^2 (269 ft^2); maintenance of activated parts, measuring equipment, and fine tools
Storage activated parts	Storage area for activated parts (30 m^2)
Maintenance offices	Permanent offices for Vendor maintenance support team; approx. 60 m^2 (646 ft^2)
Temporary space requirements: Vendor office space, conference room availability, changing rooms, sanitary installations, and storage	During installation and commissioning, patient, personnel or physician areas shall be used as office space
Treatment planning room	To be defined by the EPC DEVELOPER's architect / clinical advisor
NOTE: A single master key for all the PTEV rooms should be provided. (Refer 90.01 A of IBD)	

Table2. *List of rooms to be provided by the EPC DEVELOPER for proton therapy equipment*

ROOM DESCRIPTION	DIMENSIONS AND USE
2 offices	20 m^2 (215 ft^2) each; also container offices outside building
Conference room	Shared use with customer
Changing rooms/restrooms	For men and women
For 5 persons prior to RFE	For 20 persons after RFE

Table3. List of temporary rooms provided by the EPC DEVELOPER starting 6 months prior to RFE

ROOM DESCRIPTION	USE
Film development lab	For X-ray film development

QA equipment storage	For storage of QA equipment near the clinic use area
Immobilization couch storage	Immobilization couches for active patients, including disinfection and raw material stores

Table 4. Recommended rooms

The project schedule defines one milestone for start of installation and commissioning of the proton therapy equipment:

Some installations by IBA (PTEV), such as stands for magnets, floor plates, alignment markers, and cable pulling, can be performed before the building is ready to accept equipment. These tasks will be coordinated with IBA through EPC Consultant by the EPC DEVELOPER on a regular basis during civil works. For these tasks, the concrete must be set, and the facility must be dry and free of construction material. These tasks can be performed prior to floor and wall finishing, if necessary.

Building ready for equipment (RFE)

Prior to equipment installations, all surface finishes (walls, ceilings, and floors) must be completed. In most cases, this means dust-repellent surfaces and appropriate coating of the surfaces. All rooms and surfaces must be clean and dust-free. After equipment has been brought into the respective room, no more dust may be generated. If additional work that generates dust needs to be completed after this point by the EPC developer, then the work must be correctly scheduled, measures must be taken so that all equipment will be sufficiently protected at all times.

All costs incurred for the measures list above are the responsibility of the EPC developer.

Prior to RFE, all cranes must be installed and operational.

All building mechanical, electrical, and pumping systems must be installed and ready for operation within one month after RFE.

In the radiation protection area, the floor must be covered with smooth composite floor pavement and sealed with a polyurethane or epoxy layer. The floor must be smooth, free of pores and dust, water repellent, and have no visible irregularity. Floor and wall finishing must be resistant to abrasion and should be water washable. The sealing must also be completed in the cyclotron pit. Vertical surfaces and feed-through channels have less-stringent requirements.

The floors in the electrical rooms must be treated with a dust- and water-repellent coating. The coating must be sufficient to withstand installation of cable trays and double floors without degradation. An access floor (computer floor) must be installed in all electrical rooms.

The floors, walls, and ceilings in all rooms in which the proton therapy equipment is installed must be dust- and water-repellent.

The color white is recommended in order to allow contamination to be recognized more easily and to ensure better light conditions.

The project schedule determines the latest date for RFE. Delays in RFE are likely to cause overall project delays.

At RFE all building systems, such as HVAC, electrical supply, and cooling water, etc., must be fully operational.

Technical building systems

Electrical power requirements

The EPC DEVELOPER is responsible for the installation and provision of the low-voltage electrical power supply and emergency backup power units. Two possibilities exist: 400 VAC, 50 Hz or 480 VAC, 60 Hz.

Compliance with the power quality limits listed in the most recent edition of EN 61000-2-2 is required. If other sections of EN 61000 that are valid at the time of RFE have more stringent requirements, then the more stringent requirements from the other sections will apply.

Voltage and line frequency will be agreed upon during contract acceptance and be selected based on the locally available options.

Electrical consumption

- Typical power requirement during patient treatment: 500 kVA - 850 kVA
- Max. peak power requirement during power up the magnets: 1250kVA
- Generator for emergency power for IBA: 110 kVA
- UPS for IBA : 60 kVA
- Estimated annual energy consumption (proton therapy equipment only): 2.3 GWh

Cabling — wiring

All cable trays and conduits are provided by the EPC DEVELOPER, including those for Vendor equipment based on Vendor requirements. Cable trays and electrical conduits will pass through radiation shielding walls in such a manner that the function of the shielding wall is not reduced below permissible limits. Details on feed-throughs will be proposed by Vendor and evaluated by the EPC DEVELOPER in the EPC DEVELOPER's radiation shielding calculations.

Cable trays are categorized by electromagnetic emission and acceptance criteria. A maximum of five categories will be used ranging from 400 VAC (480 VAC) power distribution cables to sensitive diagnostic cables.

Cooling water requirements The EPC DEVELOPER must supply connections for three (3) consumer loops (primary loops), for a total maximum cooling load of 1100 kW.

1. "Magnets & Cyclotron": The cyclotron and beam line are supplied. The system must consist of individual circuits for each logical segment (gantry, BTS, cyclotron, fixed beam) and use the same heat exchanger. Magnets are supplied with deionized water and temperatures.

2.2 Support facilities for Hadron therapy:

The design of support facilities shall be based on the concept plan provided in Volume III. All the mentioned rooms/facilities in the concept plan should be considered in the design proposal.

2.3 Service Requirements:

The service requirements to be considered for the entire facilities but not limited to the following:

- **HVAC:** Central air conditioning and should also consider suitable filters for air circulation in the treatment facility (suitable for clean room specification)
- **ELECTRICAL:** requirement of dedicated sub station to be decided by the EPC developer based on the possibility of enhancing the existing power supply in the same campus.
- **DG:** 100% power back for the entire facilities
- **UPS SYSTEMS**
- **SOLAR WATER AND POWER**
- **WATER SUPPLY:**
  - Potable & non-potable water supply system
  - Bore well
  - Rain water harvesting
  - STP/ ETP / WTP

- MEDICAL GAS PIPING
- FIRE FIGHTING AND PROTECTION SYSTEM
- CCTV SYSTEMS (I P Based)
- EXTERNAL SITE DEVELOPMENT WORKS
- ADEQUATE LIFTS
- LIFTING SYSTEMS LIKE CRANES, etc. INSIDE HADRON THERAPY FACILITY

3. Generic Requirements

The intending tenderer should plan the buildings keeping in view the requirements of the National Building Code, IS10905 (Recommendations of basic requirements of General Hospital Buildings), IS 12433 (Basic requirement of Hospital Planning), guidelines of Medical Council of India for Speciality Hospital, AERB regulations and other related standards. Provisions of ISO Standards on Environment, Radiation, Health Protection and Safety should be integrated in the design. The design should also cater to all the standards and requirements as mentioned in IBD provided by IBA. The completed facility should be eco friendly and meet global standards and provide state of the art of technology for health care.

Some of the generic requirements common for all the segments of the project are as follows:

i. The Architectural finishes shall be of such quality that will ensure better hygienic conditions and should be corresponding to the IBD provided by IBA.

ii. The design of building shall ensure control of noise due to walking, movement of trolleys and banging of doors etc.

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 before being used for the works intended to.

v. All sanitary/ water supply fixture and fittings shall be of approved make confirming to IS specifications.

vi. There should be separate inlets for hot and cold water in all the buildings. The buildings should have sufficient number of water coolers and filters to cater to the needs of different users.

vii. The design should provide for dedicated underground & overhead water tank with necessary pumping arrangement for both portable and fire fighting requirements.

viii. The design should incorporate firefighting system with electrical/hydrants, sprinklers, fire extinguishers and fire alarm system in accordance with the rules and regulations of the local fire authority and that of the Tariff Advisory Committee (TAC) of the Insurance Association of India, as amended up to date.

ix. The design of HVAC system should incorporate suitable filters to main ambient air quality in hadron therapy areas. The refrigerants shall be as per approved norms and should confirm to all relevant Indian and International standards. The requirements mentioned in IBD provided by IBA should be strictly satisfied.

x. Lighting should confirm to IS 4347 Code of practice for Hospital Lighting. All electrical system, fixtures, fittings etc. should confirm to CPWD specifications, latest IS code, IBD document by IBA, etc.

xi. The planning should include landscaping and horticulture to increase the comfort conditions inside the building. The EPC developer shall create parking, approach roads and other requirements for the building.

xii. Provision should be made for internal and external signages, display boards, public address system in the required area.

xiii. Furnishings in all the room should be complete in all respects including, communication networking for Hospital Information Management System, telephone connection, power points, etc.

xiv. There should be 100% power backup with suitable redundancy factored.

xv. 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 standards13.140 and 13.160

xvi. All moving plant, machinery and apparatus be statically and dynamically balanced at manufactures work and certificate issued.

xvii. 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 and latest AERB regulations should be addressed in the provision for waste Management.

During execution of the contract, no part of the work shall be left uncovered and care should be taken for environmental protection. Also the works shall be carried out in a manner so that the dust particles, smoke etc does not enter the adjoining facilities.

4. General Design Requirements

The project shall be designed according to international best practices and constructed at par with the international standards and equipped with the internationally accepted latest equipment. **The Facility should incorporate Green features and should be minimum GRIHA certified for 3 Star Rating.**

The design should be fit for the purpose intended and there should be scope for further developments that may be planned in the future for the facility. The developer is encouraged to use innovative design components and latest technology for the purpose of the project.

Basic features that should be considered and incorporated in the design:

- Cultural responsiveness. The culture of patients/residents/staff/visitors shall be considered in the overall planning of the facility.

- Groups (stakeholders) affected by and integral to the design shall be included in the planning and implementation process.

- Sustainable Design

Sustainable design, construction, and maintenance practices to improve building performance shall be considered in the design.

The basic components of sustainable design desired are:

i. **Development**. Design to minimize negative environmental impacts associated with buildings and related site development.

ii. **Waste minimization**. Design to support the minimization of waste in construction and operation.

iii. **Water quality and conservation**. Evaluate potable water quality and conservation in all phases of facility development or renovation. Design for water conservation shall not adversely affect patient health, safety, or infection control.

iv. **Energy conservation**. Consider energy conservation in all phases of facility development or renovation. Proper planning and selection of mechanical and electrical systems, as well as efficient utilization of space and climatic characteristics, can significantly reduce overall energy demand and consumption. The quality of the health care facility environment must, however, be supportive of the occupants and function served. Design for energy conservation shall not adversely affect patient health, safety, or accepted personal comfort levels. Architectural elements that reduce energy consumption shall be considered part of facilities design.

v. **Indoor air quality**. The impact of building design and construction on indoor air quality shall be addressed. Minimize impact from both exterior and interior air-contamination sources.

vi. **Impact of selected building materials**. Address the environmental impacts associated with the life cycle of building materials.

- Light and views.

The design should maximize natural light, views, and access to the outdoors, as appropriate.

i. Access to natural light should be achieved without going into private spaces (i.e., staff should not have to enter a patient/resident room to have access to natural light). Examples include windows at the ends of corridors, skylights into deep areas of the building in highly trafficked areas, transoms, and door sidelights.

ii. Hospitals and long term care facilities should provide a garden or other controlled exterior space, accessible to building occupants.

iii. Location and organization of the building should respond to and prioritize unique natural views and other natural site features.

- Clarity of access (way-finding)

i. Entry points to the medical facility should be clearly defined from all major exterior circulation modes (roadways, bus stops, vehicular parking).

ii. Clearly visible and understandable signage and visual landmarks for orientation should be provided.

iii. Boundaries between public and private areas should be well marked, and clearly distinguished.

iv. A system of interior "landmarks" should be developed to aid occupants in cognitive understanding of destinations. These may include water features, major art, distinctive color, or decorative treatments at major decision points in the building. These features should attempt to involve tactile, auditory and language cues, as well as visual recognition.

- Control of environment

  i. Every effort should be made to allow individual control over as many elements of the environment as possible and reasonable, including but not limited to temperature, lighting, and privacy.

  ii. Lighting in patient and staff areas should allow for individual control and provide variety in lighting types and levels.

  iii. Building design should address individual control over the thermal environment, through carefully considered zoning of mechanical systems.

- Privacy/confidentiality

i. Private alcoves or rooms should be provided for all communication concerning personal information relative to patient illness, care plans, insurance and financial matters.

ii. Waiting areas for patients/patients on stretchers should be located in a private zone out of view from the public circulation areas.

iii. In support facilities grieving rooms and/or private alcoves in addition to family lounges should be provided to permit patients and families to communicate privately.

- Safety and security

I. Attention should be given to balancing readily accessible and visible external access points to the facility with the ability to control and secure all access points in the event of an emergency. Factors such as adequate exterior lighting in parking lots and entry points to the facility, and appropriate reception/security services are essential to ensuring a safe environment.

II. Since the strict control of access to a medical facility is neither possible nor appropriate, safety within the facility should also be addressed through the design of circulation paths and functional relationships.

III. Provisions for securing the personal belongings of staff, visitors, and patients/residents should be addressed.

IV. The physical environment shall be designed to support the overall safety and security policies and protocols of the institution. Safety and security monitoring, if provided, shall respect patient privacy / dignity.

- Finishes

i. In any design project, the selection of a color palette should be based upon many factors, including the building population, anticipated behavior in the space, time of encounter and level of stress. The color palette selected should be suitable and appropriate for the specific environment, taking into account the specific activities conducted in that environment.

ii. Finishes and color palettes should respond to the geographic location of the health care facility, taking into account climate and light, regional responses to color, and the cultural characteristics of the community served.

iii. The effect on patients/residents/staff/visitors of materials, colors, textures, and patterns shall be considered in the overall planning and design of the facility. Maintenance and performance shall be considered when selecting these items.

- Water features.

Open decorative water features such as fountains may represent a reservoir for opportunistic human pathogens; thus they are not recommended for installation within any enclosed spaces of health care environments.

The design should limit contact with the water by enclosing the water feature. The basin should be designed to be resistant to chemical corrosion with minimal droplet production. Exhaust ventilation should be provided directly above the water feature.

5. Documents to be submitted with design

The EPC developer shall submit with his design all the documents and the references used in the design. The EPC developer shall also submit desired number of copies of the following:

i. Detailed drawings including the structural drawings, architectural drawings, component drawing etc.

ii. Standards and specifications being followed in the design and for materials to be used in a consolidated tender form

iii. List of vendors from whom the materials are planned to be procured

iv. Tests to be carried out

v. Site safety plan which includes the following:

1. A statement of the EPC developer's policy, organization and arrangements for safety, health and welfare;
2. The name(s) and experience of person(s) within the EPC developer's proposed management who would be responsible for coordinating and monitoring the EPC developer's safety performance;
3. The number of safety staff who would be employed on the Works, their responsibilities, authority and line of communication with the proposed EPC developer's representative;
4. A statement of the EPC developer's policy and procedures for identifying and estimating hazards, and the measures for addressing the same;
5. List of safety hazards and health hazards anticipated for this Contract and sufficient information to demonstrate the EPC developer's proposals for achieving effective and efficient safety and health procedures;
6. Description of the training courses and emergency drills which would be provided by the EPC developer, with an outline of the syllabus to be followed;

7. Details of the safety equipment which would be provided by the EPC developer, including personal protective equipment;
8. Statement of the EPC developer's policy and procedures for ensuring that EPC developer's Equipment used on the Project Site are maintained in a safe condition and are operated in a safe manner;
9. Statement of the EPC developer's policy and procedures for ensuring that sub-EPC developers comply with the EPC developer's Safety Plan;
10. Statement of the EPC developer's disciplinary procedures with respect to safety related matters, and
11. Statement of the EPC developer's procedure for reporting and investigating accidents, dangerous occurrences or occupational illnesses.

vi. Quality plan as per ISO: 9001:2008

vii. Design data

viii. Requirements for any foundation, structure, plants or services etc which the EPC developer feels shall be accessed in order to proceed with the projects in accordance with the design.

The EPC developer shall submit to the Employer and the Engineer all Design Data, together with the relevant Design Certificates certified by the EPC developer. In the event that a re-submission of Design Data is required, such re-submission shall be made as soon as practicable after the receipt of the relevant statement of objections. All submissions of Design Data shall include 6 copies.

6. Hygiene requirement during construction-Infection Control

The EPC developer shall provide an Infection Control Risk Assessment (ICRA). An ICRA is a determination of the potential risk of transmission of various biological agents in the facility. Based on the ICRA, the EPC developer shall also provide necessary protection to be incorporated in the program and Infection Control Risk Mitigation Recommendations (ICRMR), which will describe the specific methods to be used and which will avoid transmission during the course of the construction. The EPC developer shall also provide monitoring of the effectiveness of the applied ICRMR during the course of the project.

A panel shall conduct the ICRA with expertise in infection control, risk management, facility design, construction and construction phasing, ventilation, safety, and epidemiology. The panel shall provide updated documentation of the risk assessment together with updated Mitigation Recommendations throughout planning, design, construction, and commissioning. The ICRA shall address, but not be limited to, the following:

- Design. Building design features shall be addressed when developing the ICRA.
    - Number, location, and type of airborne infection isolation and protective environment rooms.
    - Location(s) of special ventilation and filtration such as emergency department waiting and intake areas.
    - Air handling and ventilation needs in surgical services, airborne infection isolation and protective environment rooms, laboratories, local exhaust systems for hazardous agents, and other special areas.
    - Water systems to limit *Legionella* sp. and waterborne opportunistic pathogens.
    - Finishes and surfaces.

- Construction. Building and site areas anticipated to be affected by construction should be addressed when developing the ICRA.
    - The impact of disrupting essential services to patients and employees.
    - Determination of the specific hazards and protection levels for each.
    - Location of patients by susceptibility to infection and definition of risks to each.
    - Impact of potential outages or emergencies and protection of patients during planned or unplanned outages, movement of debris, traffic flow, cleanup, and testing and certification.
    - Assessment of external as well as internal construction activities.
    - Location of known hazards.

- Infection control risk mitigation recommendations. The ICRMR shall be prepared by the ICRA panel and shall address, but not be limited to, the following:
    - Patient placement and relocation.
    - Standards for barriers and other protective measures required to protect adjacent areas and susceptible patients from airborne contaminants.
    - Temporary provisions or phasing for construction or modification of heating, ventilating, air conditioning, and water supply systems.
    - Protection from demolition
    - Measures to be taken to train hospital staff, visitors, and construction personnel.

The EPC developer shall ensure that construction-related requirements of the ICRMR, as well as ICRA-generated design requirements, are incorporated into the project requirements.

The Engineer shall inspect the initial installation and provide continuous monitoring of the effectiveness of the infection control measures during the entire course of the project. This monitoring may be conducted by in-house infection control and safety staff or by independent outside consultants. In either instance, provisions for monitoring shall include written procedures for emergency suspension of work and protective measures indicating the responsibilities and limitations of each party (owner, designer, constructor, and monitor).

7. Maintenance and Training requirements for systems, machines and equipment

The EPC developer shall maintain all systems, machines and equipment during the defects liability period. The developer shall see to it that all the warranty and guaranty cards are properly filled and duly submitted to the Employer along with their maintenance manuals.

The EPC developer shall train the staff of the Employer for the new systems, machines and equipment procured for the hospital.

The EPC developer shall make arrangements for demonstrations before trial run and at the time of commissioning of the systems and equipment.

Operation and Maintenance Manual shall be supplied to the Employer for the new equipment and latest machinery.

These manuals shall contain in sufficient details, the procedures for operation and the maintenance schedule for equipment such as air conditioning etc.

8. Periodical Progress review

Periodical review of the progress of the project shall be carried out in every 21 days and at any time desired by the Employer. For this purpose the EPC developer shall prepare and submit the progress reports as stated in the Contract.

The EPC developer shall keep at site a latest copy of the following:

i. EPC developer's Documents

The EPC developer's Documents shall include but not limited to the technical documents as follows:

(a) Construction Drawings Detailed including any modifications etc.

(b) List of Codes, standards and specifications being followed.

(c) Documents required to satisfy all regulatory approvals,

(d) A complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed.(including all hidden fittings & fixtures pertaining to Plumbing , electrical and others etc)

(e) Any other document which the Engineer instructs from time to time

ii. Operation and Maintenance Manuals

iii. Records of EPC developer's Personnel, Labour and Equipment

iv. Charts and detailed descriptions of progress, including, each stage of design, procurement, manufacture, delivery to Site, construction, erection, testing, commissioning and trial operation;

v. Cash Flow Analysis of the past and estimate for the balance of the work against time on a fortnight basis.

vi. Photographs showing the status of manufacture and of progress on the Site;

vii. For the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:

(a) Commencement of manufacture,

(b) EPC developer's inspections,

(c) Tests, and

(d) Shipment and arrival at the Site;

viii. Copies of quality assurance documents, test results and certificates of Materials

ix. List of Variations, notices given under Sub-Clause 2.4 (Employer's Claims) and notices given under Sub-Clause 20.1 (EPC developer's Claims);

x. Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations;

9. Quality Control

The EPC developer must ensure that the works satisfy the quality standards as per international standards and to the satisfaction of the Employer. The EPC developer shall submit his quality plan in accordance with the above

The works, plant and materials shall be subject to tests from time to time as per best practices in the industry. Wherever mentioned in the Contract, the tests must be carried out at the EPC developer's expense.

The materials shall be procured from reputed vendors approved by the Engineer. The EPC developer must also supply samples from time to time to the Engineer for his approval.

The EPC developer shall also carry out the tests as and when required by the Engineer.

10. Tests after Completion

After completion of the project, the Employer/ EPC Consultant may carry out the tests after completion, which shall be carried out under normal operating conditions to assure that the systems perform well under normal operating conditions. These tests will include but not limited to:

i. Running of equipment and systems as a whole to a minimum of 15 days
ii. System specific tests and equipment specific tests
iii. Any other test which Employer/ EPC Consultant intends to carry out to check the stability and reliability of the system.

Any defects if pointed out in the tests after completion shall be rectified at the EPC developer's cost and within time as deemed reasonable by the Engineer.