Notice Inviting e-Tender

West Bengal Medical Services CorporationLimited
SwasthyaSathi
GN-29, Salt Lake, Sector-V
Kolkata-700091

Phone No (033) 40340307/320
E mail: procurement@wbmsc.gov.in

Supply and Commissioning of Different Types of Oncology Equipment in the Medical Colleges of The Government of West Bengal

(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT-820/2025 **Dated-24.09.2025**

1. West Bengal Medical Services Corporation Limited (WBMSCL) has been requested by the Government of West Bengal to procure on their behalf **Different Types of Oncology Equipment** for the Medical Colleges of the Govt. of West Bengal.

2. WBMSCL hereby invites bids from eligible and qualified bidders for the **Supply and Commissioning of Different Types of Oncology Equipment** as per Schedule of Requirement.

3. Intending bidders may download the tender document from the e-tender portal of Govt. of West Bengal at wbtenders.gov.in and the website of WBMSCL at www.wbmsc.gov.in. The submission of bids should be online only at wbtenders.gov.in. Earnest Money Deposit (EMD) to be paid offline by way of issuing Bid Security Bank Guarantee in the form given in Form - 5 issued in favour of 'West Bengal Medical Services Corporation Limited' from any scheduled commercial bank payable at Kolkata.

   Non statutory documents, Bid – A, Bid – B & Bid – C are to be submitted concurrently.

Sd/-
Managing Director

Table for Important Dates

Sl.	Items	Date(s)
1.	Date of uploading of N.I.T. Documents (online) / Date of Issue / Published on	25.09.2025
2.	Documents download start date (Online)	25.09.2025
3.	Date of **Pre Bid Meeting** with the intending bidders in the Conference Hall of **West Bengal Medical Services Corporation Limited**	10.10.2025 at 12:00 Noon onwards
4.	Bid submission start date (On line)	15.10.2025 at 15:00 PM
5.	**Bid submission closing (On line)** Bid submission includes: i) Non statutory documents to be submitted under My Documents (Each sub-category item should be in multiple page single PDF file) ii) BID – A (Should be in multiple page single PDF file) iii) BID – B (Should be in multiple page single PDF file) iv) BID – C (BOQ and price of consumables & spares etc.) **Detailed list of documents annexed at Section V Check-List Form** Non-statutory document (document uploaded i n My Documents), Bid – A & Bid – B constitute the Technical Bid and Bid – C is the Financial Bid. *Any wrong or misleading information provided by the bidder during submission of bids shall lead to summary cancellation of bid and may lead to blacklisting in WBMSCL for at least 3years.* **Each scanned documents should have an index page indicating the name of the documents enclosed with page number.**	31.10.2025 up to 05:00 PM
6.	Last date of submission of: **i)** Earnest Money Deposit (Copy of original Bank Guarantee issued in favour of WBMSCL) **ii)** Hard copies of the documents uploaded in e-tender during bid submission. **No BOQ to be submitted in hard copy**. N.B.: 1) All the above documents are to be submitted at the registered office of WBMSCL. **It is essential that all documents in hard copy are to be placed before the Bid Evaluation Committee and arranged in the same sequence as given in the Check List. All the documents should be appropriately flagged.**	03.11.2025 up to 05:00 PM
7.	Bid opening date for Technical Proposals **(Online)** (Bid A & B)	03.11.2025 after 05:00 PM
8.	Bidders to remain present at WBMSCL office, Kolkata for identification of the documents for the Technical Bid evaluation	To be notified later
9.	Submission of non-statutory wanting document (if any)	To be notified later
10.	Functional demonstration of the equipment	To be notified later
11.	Opening of Financial Bid	To be notified later

Section I: Instructions to Bidders

A. Important information at a glance

1. TenderPackage Details

Package No.	ITEM	QTY	Estimated Cost	Warranty	Comprehensive Maintenance Contract (CMC)
A	High Energy LINAC for Kolkata MCH	1	Rs. 30 Cr.	5 Years (Entire System)	5 Years
B	High Energy LINAC for North Bengal MCH	1	Rs. 35.244 Cr.		
C	CT Simulator (4D) for North Bengal MCH	1	Rs. 8.56		
D	HDR Brachytherapy for North Bengal MCH	1	Rs. 4.97 Cr.		

2.(a) Tender Fees : Exempted

2. (b) Earnest Money Deposit (EMD)

Package No.	ITEM	AMOUNT IN INR	INSTRUMENT
A	High Energy LINAC for Kolkata MCH	61,00,000	In the form of Bank Guarantee (BG) as per format given in Form 5
B	High Energy LINAC for North Bengal MCH	71,00,000	
C	CT Simulator (4D) for North Bengal MCH	18,00,000	
D	HDR Brachytherapy for North Bengal MCH	10,00,000	

3. Annual Turnover requirements:

The bidders should have minimum average annual turnover in the financial years 2021-2022, 2022-2023 and 2023-2024,as per the audited accounts of theirorganization as specified in the table below:

Package No.	ITEM	Average Annual Turnover in Crore Rs.
A	High Energy LINAC for Kolkata MCH	15
B	High Energy LINAC for North Bengal MCH	18
C	CT Simulator (4D) for North Bengal MCH	10
D	HDR Brachytherapy for North Bengal MCH	5.5

4(a) Time for Supplies& Commissioning:

Package No.	Time for Completion of supply and installation of ordered good(s) including Turnkey job (site preparation and interior works)from the date of opening of LC [for bidders in the category of Clause 4.(b).1(A) below)/ from the date of issuance of AOC (for bidders in the category of Clause 4.(b).1(B) and (C) below]	The commissioning of ordered good(s) shall be carried out by the supplier by providing adequate number of commissioning experts at each site along with the help of the users from the date of completion of installation
A	180 Days	60 Days
B	180 Days	60 Days
C	120 Days	45 Days
D	120 Days	45 Days

4 (b).1 Terms and Mode of Payment:

Payment Terms:

Payment shall be made through electronic transfer subject to recoveries, if any, by way of liquidated damages or any other charges as per terms and conditions of contract in the following manner, depending on the goods being imported or domestic goods or of foreign origin located within India.

(A)Payment for Imported Goodsagainst payment in United States Dollars (Package A-D):

Irrevocable and non – transferable 100% LC shall be opened, however, if the Supplier requests specifically to open confirmed LC, the extra charges would be borne by the Supplier. If LC is required to be extended and/or amended for reasons not attributable to the Purchaser/Consignee, the charges thereof shall be borne by the Supplier.
Quotes against the imported goods are to be filled in designated cells in the BOQ. The rate shall only be quoted in United States Dollars (USD) which will remain valid and unchanged for 2 (two) years. The amount in USD quoted by the bidders for the items would be converted into INR by applying the RBI Conversion rate applicable on the date 2(two) days ahead of the last date of submission of online bids for comparison of Financial Bids. Payment shall be made in USD as specified in the Contract in the following manner:

a) On Shipment:

(i) 70% payment of the unit price quoted at Column 5 of Form No. 8(a) at port / airport of lading will be released against furnishing of dispatch documents to the satisfaction of the Purchaser, i.e. WBMSCL and against submission of Performance Security in the form of an unconditional and irrevocable Bank Guarantee of 10% order value valid for a period of 62 months from the date of Award of Contract (AOC) which shall be submitted by the Selected Bidder within 10 days after receipt of intimation of opening of LC by the Purchaser.

The Selected Bidder shall submit the documents specified hereunder:

i. Four copies of Supplier's invoice showing contract number, Goods description, quantity, unit price and total amount;

ii. Original and four copies of the negotiable clean, on-board Bill of Lading/Airway bill, marked freight pre paid and four copies of non-negotiable Bill of Lading/Airway bill;

iii. Four copies of packing list identifying contents of each package;

iv. Insurance Certificate and documents also to be submitted for payment of Letter of Credit (LC) confirming that dispatch documents has already been sent to all concerned as per Contract within 24 hours;

v. Manufacturer's/Supplier's warranty declaration and warranty certificate;

vi. Inspection certificate issued by a recognized/ reputed agency like SGS, Lloyd, BEAURU VARITUS and TUV prior to dispatch;

vii. Manufacturer's own factory inspection report and Certificate of country of origin issued by Chamber of Commerce or counter signed by Chamber of Commerce;

viii. Pre-shipment alert via email to Purchaser and Consignee at their respective email ids at least 15 days prior to the scheduled delivery of the equipment at the doorstep of the Consignee

b) After Supply and Installation:

15% payment of the unit price quoted at Column 5 of Form No. 8(a) will be released after supply and satisfactory installation of the Goods and on submission of satisfactoryinstallation certificate issued by the user Department of the Medical College followed by a joint visit of WBMSCL, PWD & Medical College authority in the prescribed format given at Form-3a & 3b.

c) After Commissioning:

Balance 15% payment of the unit price quoted at Column 5 of Form No. 8(a) will be released after satisfactory commissioning and issuance of commissioning certificate by the user Department in the prescribed format given at Form-3.

d)Payment of customs duty:

The Supplier shall pay the applicable customs duty directly on behalf of the Purchaser to Customs or the Purchaser/ Consigneeshall provide Customs Duty Exemption Certificate (CDEC) to the Supplier on arrival of the Goods at the port of import and on submission of relevant documents. The Supplier shall employ one Clearing and Forwarding agencyfor clearing the Goods from the port of import and no commission will be paid by the Purchaser to the Clearing and Forwarding agency employed by the Supplier for the purpose. The charges of the Clearing and Forwarding agency will be paid by the Supplier.Customs duty, cess and Customs House Agent charges of the equipment will be reimbursed to Supplier after submission of the relevant documents to Purchaser as required for release of the same. Reimbursement of Customs duty, cess and Customs House Agent charges shall be carried out only atactuals, in INR and upon submission of the original documents to the Purchaser, towards proof of having paid such duties, charges and cess atactuals. If the Selected Bidder fails to supply the Goods (including any components of Goods) from the Country of Origin as specified in the Technical Bid, thePurchaser shall have the right to forthwith reject such Goods or such component of Goods and reimbursement of the Customs Duty, cess and/ or other charges on such Goods (or component of Goods) shall be refused by the Purchaser and no claims will be entertained by the Purchaser on this behalf. However, any charges or liquidated damages or penalties imposed by the Customs authority/ Customs House agent/ Clearing and Forwarding agency on the Selected Bidder for delayed lifting of the

Goods from the port of import shall not be borne by the Purchaser and any claim for reimbursement on such account shall be refused by the Purchaser.

While claiming reimbursement of duties, taxes etc. (like Customs duty and/or cess) from the Purchaser/Consignee, as and if permitted under the contract, the Supplier shall also certify that, in case it gets any refund out of such taxes and duties from the concerned authorities at a later date, the Supplier shall refund to the Purchaser/Consignee forthwith.

(B)Payment for Domestic Goods Or Goods of Foreign Origin Located WithinIndia/Goods to be imported and supplied against payment in Indian Rupees

Quotes against the domestic goods or goods of foreign origin, comprising of goods which will be required for running the imported items comprised in Packages A to D above are to be filled in designated cells in the BOQ. The rate shall only be quoted in Indian Rupees (INR) which will remain valid and unchanged for 2(two) years. The bidders should provide breakup of the aggregated cost of domestic goods or goods of foreign originin Form 8(b). Payment shall be made in INR as specified in the Contract in the following manner:

a) On Delivery:

70% (Seventy percent) payment of the unit price as quoted in **Column 5 of Form No. 8(b)**shall be paid on receipt of Goods in good condition will be released after Consignee Receipt Certificate is issued by the user Department in the prescribed format given at Form-3b and balance 30% (thirty) payment of the unit price as quoted in **Column 5 of Form No. 8(b)**will be released after Satisfactory Commissioning certificate issued by the user Department in the prescribed format given at Form-3 and upon the submission of the following documents:

i. Four copies of Supplier's invoice showing contract number, Goods description, quantity, unit price and total amount;

ii. Two copies of packing list identifying contents of each package;

iii. Inspection Certificate issued by the user Department, if applicable, as per the Contract.

(C) Payment terms for Manufacturer/ Indian Distributor

A. 80% of the Unit Price of the Equipment along with applicable GST shall be paid after delivery and furnishing of Consignee Receipt Certificate (CRC) as per **Format 3a**.
B. Remaining 20% of the Unit Price of the Equipment along with applicable GST shall be paid after successful installation, commissioning and initial end user training by the authorised service team of the supplier and furnishing of Satisfactory Installation Certificate (SIC) as per **Format 3b**. The SIC shall be signed by the facility / end user or issued after joint certification by authorised official(s) from WBMSCL and the facility/ end user.

Note:
Submissionof required PerformanceBankGuaranteeand signingofAgreement are mandatory for the processing of any Payment.
Unit Price of Equipment(s) includes value of goods, accessories & ancillaries, freight charges, installation, commissioning and end user training during the period of warranty and any other charges as applicable excluding GST. Applicable GST will be paid extra.

(D) Payment for Turnkey Work (site preparation including interiors):

Quotesfor the Turnkey workis to be filled in designated cells in the BOQ. The rate shall only be quoted in Indian Rupees (INR)which will remain valid and unchanged for 2 (two) years.Payment for Turnkey Work (site preparation including interiors) will be made to the Supplier in INR on completion of work and after installation, commissioning of the Goods and issue of final acceptance certificate by the Consignee, i.e., the Principal of the Medical College after joint visit by authorized official(s) from WBMSCL and the Medical College Authority.

(E)Payment for Comprehensive Maintenance Contract (CMC) Charges:

The Consignee, through the Principal of the Medical College will enter into CMC with the Supplier, which shall be confirmed by Purchaser after expiry of warranty at the rates as stipulated in the contract on receipt of bank guarantee for an amount equivalent to 10 % of the cost of the Goods as per contract valid till 2 months after expiry of entire CMC period (i.e. from Year 6 to Year 10, from the installation of the Goods), i.e. totalling 62 months. The CMC shall be awarded in INR by the concerned Hospital Authority after satisfactory completion of the contract period, i.e., after completion of Year 5 from the installation of the Goods and upon expiry of 5 years warranty, upon being duly certified by the Consignee. All bidders shall mandatorily quote CMC prices in INR in the BOQ for each year separately for the CMC services required to be rendered. The Selected Bidder shall enter into CMC after expiry of Warranty and CMC should include the following:

i. The equipment (including all other accessories, ancillaries and whole turnkey work as given in the technical specifications provided in Section-IV) required for the site preparation and interiors including UPS, UPS Battery, AC machines, false ceiling, fabrication (excluding civil works and furniture).

ii. The Selected Bidder must enter into the CMC with WBMSCL directly / third party as authorized by H&FW Dept/ WBMSCL. The Selected Bidder must accept the same CMC rate, if the CMC is offered by the third party/WBMSCL then no escalation, no extra cost will be provided. If the Selected Bidder fails to execute the CMC with WBMSCL or third party (as authorized by WBMSCL or H&FW Department), WBMSCL/ such third party may initiate legal action against the Selected Bidder. The Selected Bidder may be debarred to participate in any future tender.

iii. The execution of CMC of the equipment will be at the sole discretion of WBMSCL.

iv. As per tender terms and conditions, third party items should be included within the CMC rate.

The CMC shall provide for guaranteed levels of service parameters including but not limited to percentage uptime to be ensured; performance output levels to be ensured from the Goods, channel of registering service request, response time for resolving the request, channel for escalation of service request in case of delay or unsatisfactory resolution of request, monitoring of service levels etc. This would include but not be limited to provision of help lines, complaint registration and escalation procedures, response time, percentage of uptime and availability of equipment, non-degradation in performance levels after maintenance, maintenance of an inventory of common spares, use of genuine spares etc. The CMC shall also include penalties in the form of liquidated damages for unacceptable delays in responses and degradation in performance output of Goods, including provisions for terminations.

4.(b).2. The Supplier shall not claim any interest on payments under the Contract.

Payments to be made (in terms of price quoted in Form 8(b)for the Works contained therein, to be undertaken within 2 years from signing of the Contract and for CMC for Year6 to Year10 after expiry of 5 years warranty) in INR shall not be subject to further escalation / exchange variation during the Contract period and the CMC period.

4.(b).3. Where there is a statutory requirement for tax deduction at source, such deduction towards income tax and other tax as applicable will be made from the bills payable to the Supplier at rates as notified from time to time.

4.(b).4.Payment for Goods to be Imported from Abroad:

Irrevocable and non – transferable 100% LC (in USD) shall be opened. However, if the Supplier requests specifically to open confirmed LC, the extra charges would be borne by the Supplier. If LC is required to be extended and/or amended for reasons not attributable to the Purchaser/Consignee, the charges thereof shall be borne by the Supplier.

4.(b).5.Additional information and instruction on Duties and Taxes:

4.(b).5.1. Theprices quotedin per Forms 8(a), 8(b) & 8(c) will be taken inclusive of all duties and taxes and no claim for the same will be entertained later.

4.(b).5.2.Taxes:

If a Supplier asks for GST and any other tax to be paid extra, the rate and nature of taxes applicable should be shown separately. If any refund of tax is received at a later date, the Supplier must return the amount forth-with to the Purchaser.

4.(b).5.3.Imposition of new categories of Duties or Taxes:

In the event of any imposition of any new categories of taxes or duties, during the contract period, if such taxes or duties are paid by the Supplier, the same will be reimbursed by the Purchaser.

5.Performance Security (PS):

In the form of unconditional and irrevocable Bank Guarantee,to be submitted within 10 (ten) days after receipt of intimation of opening of LC by the Purchaser(for bidders in the category of Clause 4.(b).1(A) above) or, within 14 (fourteen) days from issuance of AOC(for bidders in the category of Clause 4.(b).1(B) or (C)above).

6. Who can bid:

(1) Manufacturing Company (2) Manufacturer's subsidiary in India (3) Manufacturer's sole Authorized Distributor / Business Partner, in case the manufacturing company does not have registered office/ commercial establishment in India. Bidders would only be eligible, if they agree to remain responsible for providing Comprehensive Maintenance Services (including all spares) for the entire useful life of the Goods after expiry of the Warranty Period.

7. Service Up time in Warranty & CMC:

96% up time Warranty of complete equipment and the entire set up on 24 (hrs) X 7 (days) X 365 (days) basis.
The response time to any fault should be not more than 12 hrs. Time for rectification should not be more than 24 hours.
Maximum Downtime allowed without penalty : 48 hours

Penalty per LINAC beyond 36 hours of non physical attendance: Rs. 50,000/- per 24 hours or part thereof. Penalty per LINAC for Downtime after 48hrs is Rs. 1,00,000/- per 24 hours cycle or part thereof. Penalty shall be paid to Medical College authority. However, if repairing of the machine requires replacement of Accelerating wave guide,Electron Gun, Target, RF driver, Klystron / Magnetron and any vacuum part, penalty will be charged at the rate of Rs 60,000/- per 24 hours or part thereof for down time after 72 hours.
Penalty per CT Simulator (4D) beyond 36hours of non physical attendance: Rs. 25,000/- per 24 hours or part thereof. Penalty per CT Simulator (4D) for Downtime after 48hrs is Rs. 30,000/- per 24 hours cycle or part thereof. Penalty shall be paid to Medical College authority.
Penalty per HDR Brachytherapy beyond 36hours of non physical attendance: Rs. 15,000/- per 24 hours or part thereof. Penalty per HDR Brachytherapy for Downtime after 48hrs is Rs. 20,000/- per 24 hours cycle or part thereof. Penalty shall be paid to Medical College authority.
Downtime should be calculated by the machine on a sui generis basis, or, the downtime should be able to be tracked and computed by the manufacturer from a remote location, which can be furnished to the Purchaser or the Consignee, on a case to case basis, free of cost.

8. Penalty for Delayed Delivery, Installation and Commissioning:

If the Supplier fails to deliver, install or commission any or all of the Goods or fails to perform the services within the time prescribed in the Contract, the Purchaser/Consignee shall, **without prejudice to other rights and remedies available to the Purchaser/Consignee under the Contract, for each day of delay in delivery, installation or commissioning of any or all of the Goods, as penalty, extend the warranty period for 3 (three) days until actual delivery or installation or commissioningsubject to a maximum of upto3 (three) months.**

9. Experience and Technical Capacity:

The manufacturer whose product is offered by the bidder must have commissioned **at least 3 (three) units of the** quoted modelof the equipment being supplied of which at least 1 (one) client/user should be in India which are functioning satisfactorily as on the date(s) of physical inspection.

Bidders shall furnish a copy of the Agreement/ MOU with the agency which shall undertake the Turnkey Work on behalf of the bidder and shall also furnish atleast 3 (three) certificates issued in favour of the agency demonstrating satisfactory completion of Turnkey Work in Government hospitals/ Govt. Medical Colleges / Private Medical Colleges having Govt. recognition or National Medical Commission, India,within the last 3 (three) financial years i.e. 2022-2023, 2023-2024 and 2024-2025.

The equipment (including all its components) supplied shall only be sourced from the Country of Origin which is cited in the Technical Bid by the bidder. Supply of equipment from another Country which is different from the Country of Origin as quoted in the Technical Bid may result in such shipment being refused and returned, which shall only be at the Supplier's risk and cost.

10. Imposition of restrictions on bidder as per Memorandum bearing West Bengal Finance Department Memo No. 202-F(Y) Dated 18.01.2021 read with F.No.6/18/2019-PPD dated 23.01.2020 of Ministry of Finance, Government of India

where has been clearly mentioned that, any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services(includingconsultancy services and non-consultancy services) or works (including sub-contracts andturnkey projects) only if the bidder is registered with the Competent Authority.

11. Note1: Warranty and CMC includes the equipment (including all accessories, ancillaries and whole turnkey work as given in the technical specifications given in Section-IV) required for the site preparation and interiorsincluding UPS, UPS Battery, AC machines, false ceiling, fabrication (excluding civil works and furniture).

Note2: Thebidders, who have downloaded the BiddingDocuments, shall be solely responsible for checking these websites for any amendment, addendaor corrigendaissued subsequently to the Bidding Documents and takes into consideration the same while preparing and submitting the bids.

Bids will be opened in the presence of bidders' representative who chooses to attend on the specified date and time. However, opening of bids will not be stopped for absence of any bidder or itsauthorised representative at the notified time.

Note 3: In the case of a bidder offering to supply Goods under the Contract that the bidder does not manufacture or otherwise produce, the bidder should be duly authorized by the manufacturer of the Goods who meets the criteria under

1.Above (all supporting documents / information as asked above for manufacturer shall be submitted with the bid) and

a) The manufacturer furnishes a legally enforceable authorization in the prescribed Form assuring full guarantee and warranty obligations as per GCC and SCC for the Goods offered; and

b) The bidder, as authorized by the manufacturer, must have supplied and provided after sales service of same model (only the equipment) in the Schedule of Requirements in any one of the institutions within India in the last five (5) years, which must be in satisfactory operation at least for one year on the date of bid opening.

Note 4: Service Centers:

Should have a service centre based at Kolkata and Siliguri with adequate service engineers based at the respective service centreswith all necessary spare parts. Service engineers should be present at the hospital/ medical college within 6 hours of raising of firstcall.

Note 5: In case extension required, Bank Guarantees are to be renewed prior to 30 days of their expiry.

12. General Instructions:

(a) Bidders are requested to study the tender document, terms & conditions carefully and inspect the sites before submitting their bids. Submission of tender shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications.

(b) Tender documents should be downloaded from the E-tender portal of Govt. of West Bengal at wbtenders.gov.in and the website of WBMSCL at www.wbmsc.gov.in. The submission of bids should only be through wbtenders.gov.in.

(c) Any wrong or misleading information provided by the bidder during submission of bids may lead to summarily cancellation of bid, blacklisting in WBMSCL for at least 3 years and forfeiture of EMD.

(d) All pages of the bid submitted must be signed and sequentially numbered by the bidder. All information in the offer must be in English. Information in any other language must be translated to English. Failure to comply with this may render the offer liable to be rejected. In the event of any discrepancy between the offer in a language other than English and its English translation, the English translation will prevail.

B. General

13. Scope of Bid

13.1. Thetypeofgoodsandrelatedservicestobepurchasedis:**Supply and Commissioning of different types of Oncology Equipment**in the Medical Colleges of the Govt. of West Bengal as per the Schedule of Requirements.

14. Source of Funds

14.1 Funds received from the **Department of Health and Family Welfare, Government of West Bengal**(**DoHFW**)**,** for the procurement.

15. Fraud and Corruption

15.1 It is WBMSCL's policy to require that bidders, suppliers and contractors and their subcontractors under WBMSCL contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, WBMSCL:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:
   (i) Bribery is the act of unduly offering, giving, receiving or soliciting anything of value to influence the process of procuring goods or services, or executing contracts;
   (ii) Extortion or coercion is the act of attempting to influence the process of procuring goods or services, or executing contracts by means of threat of injury to person, property or reputation;
   (iii) Fraud is the misrepresentation of information or facts for the purpose of influencing the process of procuring goods or services, or executing the contracts, to the detriment of WBMSCL or other participants;
   (iv) Collusion is the agreement between bidders designed to result in bids at artificial prices that are not competitive.

(b) Will reject a proposal to award a contract if it determines that a bidderrecommended for award has engaged in corrupt practices in competing for the contract in question;

(c) Will declare a bidderineligible, either indefinitely or for a stated period of time, to become a WBMSCL registered Vendor if it at any time determines that the bidderhas engaged in corrupt practices in competing for or in executing a WBMSCL contract;

(d) Will cancel or terminate a contract if it determines that a bidderhas engaged in corrupt practices in competing for or in executing a WBMSCL contract;

(e) Will normally require a WBMSCL registered Vendor to allow WBMSCL, or any person that WBMSCL may designate, to inspect or carry out audits of the Vendor's accounting records and financial statements in connection with the contract.

15.2. Any bidderparticipating in WBMSCL's procurement activities, shall facilitate to WBMSCL personnel upon first request, all documents, records and other elements needed byWBMSCL to investigate the allegations of misconduct by either the bidder or any other party to the procurement activities. The absence of such cooperation may be sufficient groundsfor the debarment of the bidder from WBMSCL vendor roster and may lead to suspension following review by WBMSCL Vendor Review Committee.

15.3. It is required that bidders, their subsidiaries, agents, intermediaries and principalscooperate with WBMSCL Internal Audit Group as well as with other investigationsauthorized by WBMSCL or by the Government of West Bengal or the Government of Indiaas and when required. Such cooperation shall include, but not be limited to, the following:access to all employees, representatives, agents and assignees of the bidder; as well asproduction of all documents requested, including financial records. Failure to fullycooperate with

investigations will be considered sufficient grounds to allow WBMSCL to repudiate and terminate the contract and to debar and remove the supplier fromWBMSCL's list of registered vendors.

16. Eligible Bidders

16.1. A bidder and all parties constituting the bidder may have the nationality of anycountry.

16.2 A bidder shall not have a conflict of interest. All bidders found to have conflict of interest shall be disqualified. Bidders may be considered to have a conflict of interest with one or more parties in this bidding process, if theyare or have been associated in the past, with a firm or any of its affiliates which have been engaged by WBMSCL to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the goods to be purchased under these Bidding Documents.

16.3. A bidder that is under a declaration of ineligibility by WBMSCL in accordance with Instructions to bidders at the date of award of contract, shall be disqualified.
Bidders shall not be eligible to submit a bid when at the time of bid submission:

- Suppliers are already suspended by WBMSCL; or,
- SuppliersaresuspendedbytheGovernmentofWestBengalorGovernment of Indiaor anyotherStateGovernmentorWBMSCL,
- SuppliershavebeendeclaredineligiblebyGovernment ofWest BengalorGovernmentof India oranyotherStateGovernmentorWBMSCL.

17. Eligible Goods and related services:

17.1 All the Goods and related services to be supplied under the Contract may have their origin in any country.

17.2 For purposes of this Clause, the term "origin" means the country where the Goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

C. Contents of Bidding Documents

18. Sections of Bidding Documents

18.1 The Bidding Documents consist of:

- Section I. Instructions to Bidders
- Section II. General Conditions of Contract (GCC)
- Section III. Special Conditions of Contract (SCC)
- Section IV. Schedule of Requirements
- Section V. Bidding Forms
- Section VI. Contract Forms

18.2 The bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid.

18.3 Bidders are cautioned to read the specifications carefully (see Section IV - Schedule of Requirements), as there may be special requirements. The technical specifications presented herein are not to be construed as defining a particular manufacturer's product. Bidders are encouraged to advise WBMSCL, if they disagree.

18.4 The specifications are the minimum requirements for the products. Products offered must meet or exceed requirements mentioned in technical specifications. The products shall conform in strength, quality and workmanship to the accepted standards of the relevant industry. Modifications of or additions to basic standard products of less size or capability to meet these requirements will not be acceptable.

19. Clarification of Bidding Documents:

19.1 A prospective bidder requiring any clarification of the Bidding Documents shall contact WBMSCL in writing atprocurement@wbmsc.gov.in

20. Amendment of Bidding Documents:

20.1 At any time prior to the deadline for submission of bids, WBMSCL may amend the BiddingDocuments by issuing addenda/ corrigendato be uploaded in the e-tender portal & website ofWBMSCL.

20.2 To give prospective bidders reasonable time in which to take an amendment into account in preparing their bids, WBMSCL may, at its discretion, extend the deadline for the submission of bids.

D. Preparation of Bids

21. Bidders are to prepare and submit the following:

i. Non statutory documents to be submitted under My Documents
ii. BID – A (Should be in multiple page single PDF file)
iii. BID – B (Should be in multiple page single PDF file)
iv. BID – C (BOQ and the Statement of Breakup of Taxes & Duties)

Details are given in "Submission and Opening of Bids"

22. Cost of Bidding:

The bidder shall bear all costs associated with the preparation and submission of its bid.

23. Language of Bid:

The bid, as well as all correspondence and documents relating to the bid exchanged by the bidder and WBMSCL, shall be written in the English language. Supporting documents and printed literature that are part of the bid, if submitted in any other language shall be permitted provided they are accompanied by an accurate translation of the relevant passages into English and duly authenticated.

24. Alternative Bids:

Alternative bids will not be accepted.

25. Bid Prices:

25.1 The prices in the BOQ shall conform to the requirements as specified in the tender.

25.2 The Incoterms shall be governed by the rules prescribed in the Incoterms 2020, published by The International Chamber of Commerce.

25.3 Prices quoted by the bidder shall be fixed during the bidder's performance of the Contract and not subject to variation on any account.

26. Currencies of Bid:

(i) The bidder shall quote the rate of the imported Goods in USD only.
(ii) Domestic Goods andCost of site Preparation including interiors in INR only.
(iii) Cost of year wise CMC charges in INR only.

27. Documents Establishing the Conformity of the Goods and Related Services:

ToestablishtheconformityofthegoodsandrelatedservicestotheBiddingDocuments, thebiddershallfurnishaspartofitsbidthedocumentary evidence thattheGoods conformto thetechnicalspecificationsandstandardsspecifiedinSectionIV,Scheduleof Requirements.

28. Documents Establishing the Qualifications of the Bidder:

AsperForm2:Check-ListofSectionVoftheBiddingDocuments.

29. Period of validity of Bids:

29.1 Bids shall remain valid for a period of **02 (Two)**years from date of opening of Financial Bid. A bid valid for a shorter period than specified in previous lines shall be rejected by WBMSCL as non responsive.

29.2 In exceptional circumstances, prior to the expiration of the bid validity period, WBMSCL may request bidder to extend the period of validity of their bids and EMD. In the event of the request for such extension beyond bid validity period, the bidder may or may not accept such request. In case, the bidder refuses to accept the request, the EMD of the bidder shall not be forfeited.

29.3 Bidders in the category of Clause 4.(b).1(A) above,may open the LC in a phased manner within the period of validity of bids as specified under clause no. 29.1.

30. Period of validity of the Bid Price:

The Bid Price shall remain valid for a period of **2 (two)** years from the date ofopening of the Financial Bid.

31. Earnest Money Deposit (EMD):

31.1 TheEMDshall be transferredofflineby way of BankGuaranteeinoriginalfromanyscheduled commercial bank payable at Kolkataasperthe format prescribed in Form5 inSectionV,infavourof"**WestBengal Medical Services Corporation Limited",GN-29, Swasthya Sathi,Sec-V,SaltLake, Kolkata-700091**fortheamountas providedinthetable in **2. (b) Payment Terms of Section I: Instructions to Bidders, under sub-section A. Important information at a glance**,and denominatedinINR. The bidders are required to obtain and provide separate bank guarantees to WBMSCL for the specific amounts stated for each package segregated on the basis of type of equipment and location of Medical College as per **2. (b) Payment Terms of Section I: Instructions to Bidders, under sub-section A. Important information at a glance**. Failure to do so, shall lead to automatic rejection of bid by WBMSCL and forfeiture of the EMD.

31.2 Any bid not accompanied by a substantially responsive EMD in accordance with Instructions to bidders shall be rejected by WBMSCL as non-responsive.

31.3 The EMD of unsuccessful bidders shall be returned as promptly as possible upon the SelectedBidder's furnishing of the Performance Security pursuant to Instructions to Bidders.

31.4 The EMD may be forfeited:

(a) if a bidder withdraws its bid during the period of bid validity specified by the bidder on the Bid Submission Form, except as provided in Instructions to Bidders; or

(b) if the SelectedBidder fails to:

(i) sign the Contract in accordance with Instructions to Bidders;

(ii) furnish a Performance Security in accordance with Instructions to Bidders ;

32. Signing of Bid – The bid should be digitally signed and uploaded on the E-tender portal.

33. Withdrawal, Substitution and Modification of Bids:

33.1 The bid once submitted cannot be withdrawn but prior to the deadline prescribed for submission of bids, abidder may substitute, or modify its bid after it has been submitted.

33.2 The objective of this bid is to ensure supply of best quality equipment at the most competitive price. If at any stage of the bidding, including at the stage of financial evaluation, it appears that the tendered rate is artificially hiked or is much lower compared to the prevailing market price and available rates of similar or identical composition with the government, WBMSCL reserves the right to rejectthe bids of such bidder and/ or cancel the entire bidding process.

34. Confidentiality:

Any effort by a bidder to influence WBMSCL in the examination, evaluation, comparison of the bids or contract award decisions may result in the rejection of its bid.

Notwithstanding the above, from the time of bid opening to the time of award of contract, if any bidder wishes to make a representation toWBMSCL on any matter related to the bidding process, it should do so in writing.

E. Submission and Opening of Bids

35. The following are to be submitted:

i) Non statutory documents to be submitted under My Documents

(Each sub-category item should be in multiple page single PDF file)

Guidelines for uploading documents in <u>My Documents</u>:

Sl. No.	Category Name	Sub-Category Name	Document Name
1	CERTIFICATES	CERTIFICATES	a) PAN Card b) GST Registration Certificate c) IEC Certificate d) AERB type approval Certificate
2	CREDENTIAL	CREDENTIAL	Performance Statement Form (For the period of last three calendar years ending December 2022) - Form 7 of Section V Should be supported with documentary evidence (copy of work orders along with proof of payment received / copy of work orders along with installation certificate) that the bidder hassupplied Medical equipment in Hospitals in India during the last 3 (three) Financial Years (FY). Certificate for carrying out Turnkey Work satisfactorily issued in favour of the agency engaged by the bidder for carrying out Turnkey Work. Certificates have to be provided for at least 3 (three) Turnkey Works which are to be issued by Government hospitals/ Govt. Medical Colleges/ Private Medical Colleges having Govt. recognition or of National Medical Commission, India,withinthe last 3 (three) Financial Years (FY) i.e. 2022-2023, 2023-2024 and 2024-2025. Agreement/ MOU between the bidder and the agency proposed to be engaged for carrying out the Turnkey Work.
3	DECLARATION	DECLARATION 1	Income Tax returns for assessment years 2022-2023, 2023-2024 and 2024-2025 (Financial years 2021-2022, 2022-2023 and 2023-2024).
		DECLARATION 2	Tender Form as per Form 1
5	EQUIPMENT	MACHINERIES 1	Manufacturer's Authorization (If applicable) as per Form 6A of Section V
		MACHINERIES 2	Satisfactory Performance Certificate from at least 3 (three) users of the quoted model in support of the satisfactory operation & at least 01 (One) for the quoted model in India.
		MACHINERIES 3	Spare parts and accessory manufacturers authorisation (If applicable) as per Form 6B of Section V

(ii)StatutoryDocuments:

(a)BID–A(Shouldbe in multiplepagesinglePDFfile)

- EarnestMoneyDeposit(EMD)in the form of Bank Guarantee (BG) should be submitted in Hard copy with the tender.
- DeclarationofthebidderonletterheadthatWeagreetosubmitacopyoftheTender Documents anditsAmendmentsandAddendatheretodulyinitialledbyusinall pageswithourseal/rubberstampaffixedthereto,intokenofacceptancethereof.

(b) BID–B(Shouldbein multiplepagesinglePDFfile)

1	Model of the equipment offered for (Self Declaration) with Brochure and Technical DataSheet.
2	Comparative Data Table of the technical specifications (Form No. 4 of Section V)
3	Confirmation from manufacturer of the offered equipment that all the facilities exist in its factory for inspection and testing and these will be made available to WBMSCL or its representative, if inspection is considered necessary.
4	**CE ("ConformitéEuropéene") (4 Digit Notified body)& US FDA approval Certificate of the offered model, as applicable (copy of the certificate submitted with the bid shall be either notarised or apostilled, notarised/ apostilled copy of certificate should be submitted in original) CE ("ConformitéEuropéene") Certificate should be from EU Notified Bodiesauthorized to conduct audits.**
5	Pre-requisites of installation [Power (KVA, Phase, Hz), Civil and any other requirement, if any]
6	Average Annual Turnover of the bidderduring the Financial Years 2021-2022, 2022-2023 and 2023-2024 (in INR) - to be certified by practising Chartered Accountant as per format given in Form 10 **of Section V**.
7	Form 11: Declaration of Quality Certification of Equipment(as applicable)
8	AERB type approval certificate of the offered model
9	Bidders shall furnish a copy of the Agreement/ MOU with the agency which shall undertake the Turnkey Work on behalf of the bidder and shall also furnish atleast 3 (three) certificates issued in favour of the agency demonstrating satisfactory completion of Turnkey Work in Government hospitals/ Govt. medical colleges/ Private Medical Colleges having Govt. recognition or of National Medical Commission, India, within the last 3 (three) financial years i.e. 2022-2023, 2023-2024 and 2024-2025.

Non-statutorydocument(documentuploadedinMyDocuments),Bid–A&Bid–Bconstitutethe TechnicalBid.

(c) BID – C:

Bid C shall contain Price Schedule / BOQ, Form 8 (a), Form 8 (b), Form 8(c), Form 9(a) and Form 9(b)

A. BOQ shall contain the financial quotes in respect of the following;

(a) Cost of equipment including warranty [High Energy LINAC, HDR Brachytherapy, CT Simulator (4D)] as applicable.
(b) Site wise cost for domestic goods or goods of foreign origin located within India or goods to be imported and supplied including site preparation and interior works to be

carried out on turnkey basis[High Energy LINAC, HDR Brachytherapy, CT Simulator (4D)] as applicable.

(c) Year wise CMC Charges of equipment [High Energy LINAC, HDR Brachytherapy, CT Simulator (4D)] as applicable.

Sl. No.	Item description [High Energy LINAC, HDR Brachytherapy, CT Simulator (4D)] as applicable.	Qty	Units	Basic price of the equipment excluding duties and taxes Figures to be entered by the bidder	Total Amount
1.0					
1.1	**Unit Price on CIP (Kolkata)** [i.e. value of the goods including all charges for export, carriage, insurance during loading, unloading and transportation, loading and unloading at port of export and import] **+ all other charges for unit** (i.e. charges for local transportation and storage, Extended Insurance, installation, commissioning, supervision, demonstration and training) for Imported Goods – **For LINAC** LINAC & Treatment Planning System (TPS) including Oncology Information System (OIS)- **For Brachytherapy & 4D C T Simulator** Imported Equipment as per **Column 5** of **Form8(a)**: PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM				
1.2	**Unit Price** (at Consignee's Site) [i.e. value of the goods including all charges for supply,storage, installation, commissioning, supervision, demonstration and training] exclusive of all taxes of Domestic Goods/Goods of Foreign Origin Located within India/Goods to be imported &site preparation and interior works to be carried out on turnkey basis against payment in Indian Rupees-as per **Column 5**of format given in Form 8(b): PRICE SCHEDULE FOR DOMESTIC GOODS OR GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA OR GOODS TO BE IMPORTED AND SUPPLIED AGAINST PAYMENT				
1.3	CMC Charges for Year1 after completion of 5 Years of Warranty-to be paid in INR[as per **Column 4(a)** of **Form 8(c)]**				
1.4	CMC Charges for Year2 after completion of 5 Years of Warranty-to be paid in INR[as per **Column 4(b)** of **Form 8(c)]**				
1.5	CMC Charges for Year3 after completion of 5 Years of Warranty-to be paid in INR[as per **Column 4(c)** of **Form 8(c)]**				
1.6	CMC Charges for Year4 after completion of 5 Years of Warranty-to be paid in INR[as per **Column 4(d)** of **Form 8(c)]**				
1.7	CMC Charges for Year5 after completion of 5 Years of Warranty-to be paid in INR[as per **Column 4(e)** of **Form 8(c)]**				

The BOQ shall be uploaded in .xls in the prescribed format.

B. **Form 8 (a)**: Price Schedule for the portion of the LINAC machines, CT Simulator (4D) and HDRBrachytherapy to be imported from Abroad and to be paid in Indian Rupees (INR).

C. **Form 8 (b):** Price Schedule for Domestic Goods or Goods of foreign origin located within India or goods to be imported &site preparation and interior works to be carried out on turnkey basis and against payment in Indian Rupees.

D. **Form 8(c):** Price Schedule for Comprehensive Maintenance Contract after warranty period-to be paid in Indian Rupees.

E. **Form 9(a):** Prices for Optional Items inUSD/INR. The prices will not be included inthe BOQ.

F. **Form 9(b):** Prices for Spares in USD/INR. The prices will also not be included in the BOQ.

Note:

Form 8 (a), Form 8 (b) and Form 8(c) should be converted in multiple page single PDF file and uploaded in the designated spaces under the Finance Cover / Bid C BOQ.

Form 9(a) and Form 9(b) should be uploaded in the designated spaces as Form 9(a) and Form 9(b) respectively under the Finance cover/ Bid C BOQ.

The bidders may also note that the quoted cost of Comprehensive Maintenance Contract (CMC) includes breakdown services, preventive maintenance including testing & calibration as per technical/ service /operational manual, labour and spares, after satisfactory completion of Warranty period for complete equipment along with all accessories and ancillaries as given in the specification of the equipment and the entire Turnkey. In addition, the Warranty and CMC shall and also include updating of all software & hardware including free of cost replacement of all computer hardware once in the 5 years Warranty and once in the 5 years CMC period and replacement of UPS battery as and when required by the user Department.

. The Selected Bidder shall ensure that all third party items quoted including the accessories, spare parts, ancillaries and consumables are present with the Selected Bidder throughout the Warranty Period. In the event, any third party items are not available with the Selected Bidder or is not available in the market at the time of AOC, the Selected Bidder shall inform WBMSCL/Consignee within 7 (seven) days from the date of AOC and use best efforts to ensure that the same are procured by them at the earliest.

The minimum number of preventive maintenance to be undertaken in addition to break down calls during Warranty and CMC period is noted in the table below,

Equipment	**Mandatory minimum preventive Maintenance Services (PMS) per year**		**Remarks**
	Warranty	**CMC**	
Linear Accelerator & Turnkey CT Simulator (4D) & Turnkey HDR Brachytherapy & Turnkey	5	5	1. Supplier/ authorized service provider must attend all breakdown calls during warranty/ CMC period 2. The Supplier should provide Preventive Maintenance Services (PMS) yearly / bi - yearly / quarterly in equal interval to fulfil the minimum number of mandatory PMS as noted in the previous column during warranty / CMC period. 3. The preventive maintenance includes testing & calibration as per AERB guidelines and technical / service operational manual, spares, all software updates and labour.

- Bidders shall quote only those products in the bid which are not obsolete in the market and has at least 10 years residual market life i.e. the offered product shall not be declared end-of-life by the Original Equipment Manufacturer (OEM) before this period.
- The Selected Bidder shall before the expiry of the last 2 years, before the offered product reaches end-of-life shall intimate WBMSCL/ Consignee as to the exact Scope of Work which will be involved in upgrading/ updating such products to meet the necessity of WBMSCL/ Consignee, the likely period for which the upgraded/ updated product can render service and the details of the upgrade/ update such products will require. The Selected Bidder shall ensure that all such upgrades/ updating is done by the Original Equipment Manufacturer or involves the components manufactured by the Original Equipment Manufacturer.
- The Selected Bidder has to provide full support including turnkey work, spare parts, consumables and third party items in the Warranty and CMC Period. If the Selected Bidder fails to provide the spare parts, then value of the spare parts, at actuals, will be deducted from the CMC Charges payable to the Selected Bidder.

If the Selected Bidderis found to havequotedfor the same make & model of equipment in the tender of any organization under Government of India/any state govt. within the last 5 financial yearsand is found to continue their CMC support more than 10 years after the installation, then the Selected Bidder has to extend the same service to WBMSCL.

N.B.

a) Any wrong or misleading information provided by the bidder during submission of bids may lead to summary cancellation of bid, blacklisting in WBMSCL for at least 3 years and forfeiture of EMD.
b) Each scanned documents should have an index page indicating the name of the documents enclosed with Page No.

F. Evaluation and Comparison of Bids

36. Tender Evaluation:

Non-statutory document (document uploaded in My Documents), **Bid – A**&**Bid – B** constituting the Technical Bid will be opened first and evaluatedin presence of intending bidders. Determination of bidders eligible for technical evaluation would be based on the following conditions:

i. Scrutiny of Form 1 (Tender Form) duly notarized - to proceed further for scrutiny of the checklist document.

ii. Scrutiny of documentary evidence as per Form 2: Check-list, Section V of BiddingDocuments submitted by the bidders - to decide on the eligibility of thebidder.

iii. Verification of the technical compliance of the offered equipment(s) with the technical specifications given at Section IV (Schedule of Requirements) of the BiddingDocuments. Bidders shall have to arrange for a physical inspection & working / functional demonstration of the offered equipment on the notified date, if felt required by the Bid EvaluationCommittee for the compliance verifications.

iv. The onsite functional demonstration of the equipment is purely at the discretion of the Technical Bid Evaluation Committee and its input shall be treated as only corroborative in nature and will not be a substitute for technical evaluation of the document submitted along with the bid. The decision of the Technical Committee in this regard will be final. Bidder has to comply with all parameters of the technical specifications except deviation(s) which will be considered minor and acceptable by the team of Experts to be engaged by WBMSCL to takeworking / functional demonstration of the offered equipment.

A bidder will be considered technically qualified if, the biddercomplies with i), ii)& iii) and qualify in iv) above.

Financial evaluation:

The Financial Bids of only those bidders who qualify in the Technical Bids will be opened.
Financial Bids (Bid - C) of the technically qualified Bidders would only be opened. Comparison of Financial Bids would be based on [(A) + (B) + (C)] as mentioned in "Submission and Opening of Bids" quoted bythe bidders. L1 bidder will be selected based on "quoted price in the BOQ (Excluding all taxes &duties) i.e. Bid C.

THE DECISION OF THE WBMSCL AUTHORITY WILL BE FINAL AND BINDING IN THIS MATTER.

37. Responsiveness of Bids:

37.1 WBMSCL's determination of a bid's responsiveness is to be based on the contents of the bid itself.

37.2 A substantially responsive bid is one that conforms to all the terms, conditions and specifications of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:

(a) Affects in any substantial way the scope, quality, or performance of the goods and related services specified in the Contract; or

(b) Limits in any substantial way, inconsistent with the Bidding Documents, **WBMSCL**'s rights or the bidder's obligations under the Contract; or

(c) If rectified would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

WBMSCL considers material deviation to include but not to be limited to the following situations:

(d) <u>During technical evaluation of bids (verification of formal criteria)</u>:

- Lack of proper bid securities in terms of change in the wording (not consistent with the prescribed format), amount or validity period.
- Absence of bid form, change in the wording (not consistent with the prescribed format) or lack of signature in the key portions of the bid form,
- The bidder does not accept important Contract conditions, i.e. related to Performance Security, Warranty, Force Majeure, Applicable Law, Delivery Schedule, Payment Terms, Limitation of Liability, etc.
- Specifications of the item quoted vary in one or more significant respect(s) from the minimum required technical specifications.

37.3 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by WBMSCL.

38. Examination of Terms and Conditions and Technical Evaluation:

38.1 WBMSCL shall examine the bid to confirm that it does not contain material deviation or reservation related to the conditions and requirements specified in the GCC of Section II, SCC of Section III and in the Schedule of Requirements of Section IV.

38.2 If, after the examination of the terms and conditions and the technical evaluation, WBMSCL determines that the bid is not substantially responsive in accordance with Instructions to Bidders, it shall reject the bid.

38.3 If any deviations to the technical specifications and standards specified in Section IV, Schedule of Requirements exist then the same has to be recorded by the bidder in Form 4 (Technical Specification Form) of Section V. If the deviations are not acceptable to WBMSCL, then the Bid Evaluation Committee shall reject the bid. The deviation statement shall only be submitted in the manner provided in Form 4 as a part of the Technical Bid and if any deviations are separately submitted by any separate letter, e-mail or any other means, before or after the opening of the Technical Bid, such deviations will not be considered and such deviations will be treated as having not been submitted.

38.4 Pursuant to the foregoing clause, any deviations stated and submitted by a bidder in the deviation statement in Form 4 of Section V shall be final. No further deviations after opening of the Technical Bid by any bidder shall be entertained or accepted by WBMSCL.

38.5 The bidder shall justify the present quotes based on previous purchase orders for similar goods either in India or globally. If the bidderprovides quotations for any new model or upgraded version of earlier model, they may mention the same in their Technical Bid.

38.6 The spare parts as selected by the Purchaser/Consignee to be purchased from the bidder, are subject to thecondition that such purchase of the spare parts shall not relieve the bidder of any contractual obligations including warranty obligations; and b) In case the production of the spare parts is discontinued: i) Sufficient advance notice shall be given to the Purchaser/Consignee before such discontinuation to provide adequatetime to the Purchaser/ Consignee to purchase the required spare parts etc., and ii) The bidder shall be responsiblefor undertaking the supply of any such spare part for the proper upkeep of the goods for a period of 10 years including the warranty and CMC periods. The bidder shall carry sufficient inventories to assure ex- stock supply of consumables and spares for the Goods so that the same are used during warranty andCMC period.

39. Domestic Preference:

Companies based and manufacturing in India shall not be a factor in bid evaluation.

40. Financial evaluation:

The Financial Bids of only those bidders who qualify in the Technical Bids will be opened.

41. WBMSCL's Right to Accept Any Bid and to Reject Any or All Bids:

WBMSCL reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to bidders.During the technical evaluation or financial evaluation of bids, no representations from any bidder with respect to suitability of other bidders will be entertained by WBMSCL or the Bid Evaluation Committee and the Bid Evaluation Committee, may in their discretion, reject or annul bids of such bidders whose representations may be considered detrimental to the conduct of bidding process.

During the technical evaluation or financial evaluation of bids, no representations from any bidder with respect to suitability of other bidders will be entertained by WBMSCL or the Bid Evaluation Committee and the Bid Evaluation Committee, may in their discretion, reject or annul bids of such bidders whose representations may be considered detrimental to the conduct of bidding process.

G. Award of Contract

42. Award Criteria:

42.1 In the event of award of contract, WBMSCL shall award the Contract to the bidder whose offer has been determined to be the lowest evaluated bid substantially responsive to the Bidding Documents, provided further that the bidder is determined to be qualified to perform the Contract satisfactorily.

42.2 Before the award of contract, WBMSCL may inspect the manufacturing facilities of the lowest evaluated responsive bidder to assess theircapability to successfully perform the Contract as per the terms and conditions specified in the NIT.

43. Publication of Award of Contract:

43.1 WBMSCL shall publish the AOC in thewebsitewww.wbtenders.gov.in.

44. Signing of Contract:

44.1 Prior to the expiry of the period of bid validity, WBMSCL shall issue AOC. The draft agreement will be sent to the SelectedBidder along with the AOC and Special Conditions ofContract, if any. No payment shall be made by WBMSCL to the Selected Bidder unless the agreement is signed by the Selected Bidder.

45. Performance Security:

45.1 Within 10 days of receipt of intimation of opening of LC by WBMSCL (for bidders in the category of Clause 4.(b).1(A) above) / within 14 days of issuance of AOC in favour of the Selected Bidder from WBMSCL, (for bidders in the category of Clause 4.(b).1(B) or (C)above)the SelectedBidder, shall furnish the Performance Security in full or in parts in the event of a staggered supply as decided by WBMSCL in accordance with the GCC, using for that purpose the Performance Security Form included in Section VI, Contract forms, or another Form acceptable to WBMSCL. WBMSCL shall promptly discharge the Bid Securities of the unsuccessful bidders pursuant to Instructions to Bidders.

45.2 Failure of the SelectedBidder to submit the above-mentioned Performance Security in full or in parts in the event of a staggered supply as decided by WBMSCL and sign the agreement within 21(twenty one)days of issue of AOC shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD.

Note: - *Working demonstration of all the offered Goods within India shall be required to be arranged by the bidder before the Bid Evaluation Committee for technical evaluation, as and when requested to do so by the Bid Evaluation Committee prior to the opening of the Financial Bids. The cost incurred for the visit of the members of Bid Evaluation Committee will be entirely borne by WBMSCL. Choosing of site for onsite physical demonstration from the list of installations submitted by a bidder / the institutes who have issued satisfactory certificate to the bidder shall be on the discretion of WBMSCL.*

46. Site handover

46.1 At the timeof issue of AOC, WBMSCL shall also request the Medical College Authority and other Departments of Government of West Bengal, to take necessary steps for getting the site ready for handover to the Selected Bidder for undertaking supply, installation, commissioning and turnkey works as may be required by the Selected Bidder. Once the said site is ready for handover to the Selected Bidder, WBMSCL shall intimate the Selected Bidder to direct its authorised representative to take handover of the site for undertaking necessary preliminary activities which shall enable the Selected Bidder to keep the site ready for functioning, as and when the equipment reaches the Consignee's location.Once the Selected Bidder has completed such preliminary activities and is of the opinion, that the site is ready for installation and commissioning of the equipment, it shall communicate the readiness of the site to WBMSCL, who shall only upon receiving of such

intimation of readiness of the site, take steps for opening of LC, if the Selected Bidder is supplying imported Goods.

46.2 Once the Selected Bidder takes handover of the site and the Goods reach the site, the safekeeping of the Goods will be the responsibility of the Medical College Authority.

46.3 Once the installation and commissioning of the Goods is carried out at the Site by the Selected Bidder, the Selected Bidder shall assist WBMSCL, or the user Department or the Medical College Authority to take necessary steps for application for AERB license on the date of commissioning.

Section II. General Conditions of Contract

In the event of an order and any dispute arising out of the same, the General Conditions of Contract will apply as under and all references to the General Conditions of Contract include (subject to all relevant approvals) a reference to these terms and conditions as amended, supplemented, substituted, novated or assigned from time to time. Each schedule and annexure referred to in these terms and conditions shall form part of these terms and conditions. The documents forming the supply contract shall be construed and interpreted so that, in the event there is any conflict or ambiguity between them, these terms and conditions shall prevail.

1. APPLICATION AND LEGAL STATUS OF THE PARTIES:

The General Conditions Of Contract incorporated in Section –II shall be applicable for the **Supply and Commissioning of Different Types of Oncology Equipment in the Medical Colleges** of the Government of West Bengal and to the extent the same are not superseded by the Special Conditions Of Contract prescribed under Section III, Section IV or Schedule of Requirements of this document.

WBMSCL and the SUPPLIERshall respectively be referred to as "FIRST PARTY" & "SECOND PARTY" hereunder and each party acknowledges and agrees that:

1.1 Nothing contained in or relating to the contract shall be construed as establishing or creating between the Parties the relationship of employer and employee or of principal and agent. The officials, representatives, employees, or subcontractors of each of the Parties shall not be considered in any respect as being the employees or agents of the other Party and each Party shall be solely responsible for all claims arising out of or relating to its engagement of such persons or entities.

2. DEFINITIONS:

2.1 Goods: Goods are hereinafter deemed to include, without limitation, such medicines, raw materials, components, intermediate products and products which the SECOND PARTY is required to supply pursuant to the Purchase Order or Special Conditions of this Contract to which these General Conditions are attached. Services are hereinafter deemed to include services ancillary to the supply of the Goods including, without limitation transportation and supply at the point of consignee and such other obligations as required under this Contract.

2.2 Trade Terms: Whenever an Incoterm is used in this Contract it shall be interpreted in accordance with the Incoterms 2020and as the same has been judicially interpreted in India.

3. CONTRACT PRICE:

Prices charged by the SECOND PARTY for the Goods supplied and the related services performed under the Contract shall not vary from the prices quoted by the SECOND PARTY in its bid, with the exception of any price adjustment authorized in writing by FIRST PARTY.

4. PACKAGING OF THE GOODS:

4.1 The SECOND PARTY shall package the Goods for delivery with the best materials that are adequate to safeguard the Goods while in transit and with all due care and according to the highest standards of export packaging for the type and quantities of the Goods. The Goods shall be packed and marked in a proper manner in accordance with the instructions stipulated in the Contract or, otherwise, as customarily done in the trade and in accordance

with any requirements imposed by applicable law or by the transporters and manufacturers of the Goods. The packing, in particular, shall mark the Contract or Purchase Order number and any other identification information provided by FIRST PARTY as well as such other information as is customary for the Goods in question. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt, precipitation and open storage. The SECOND PARTY shall have no right to any return of the packing materials.

5. TRANSPORTATION AND FREIGHT:

Unless otherwise specified in the Contract (including in INCOTERMS 2020) the SECOND PARTY shall be solely liable for making all transport arrangements and for payment of freight and insurance costs for the shipment and delivery of the Goods in accordance with the requirements of the Contract and as defined in table **4. (b) Payment Terms of Section I: Instructions to Bidders, under sub-section A. Important information at a glance.**The SECOND PARTY shall make arrangements for insuring the Goods against loss or damage incidental to transportation, delivery and storage at the site till installation and commissioning of the equipment at the site. The insurance cover shall be obtained by the SECOND PARTYat its own cost and in its own name and not in the name of the FIRST PARTY or the Consignee.In the event of breakages or loss of Goods during transit, the Goods will have to be replaced by the SECOND PARTY.Transportation, loading and unloading of the Goods from/ at the seaport/ airport/ Site of delivery shall be solely the responsibility of the SECOND PARTY and shall be carried out only by the men and agents of the SECOND PARTY and the SECOND PARTY shall not seek the assistance of the FIRST PARTY or the Medical College Authority for providing any labourers/ staff on a temporary basis for assisting the SECOND PARTY in the transportation, loading and unloading of the Goods.

6. DELIVERY OF GOODS:

The SECOND PARTY shall hand over or make available the Goods and the Consignees shall receive the Goods (as per detail annexed in Section IV), at the place for the delivery of the Goods and within the time for delivery of the Goods specified a**s per table 4 (a) Date of supplies & commissioning at Section I: Instructions to Bidders under sub-section A. Important information at a glance,** in the Contract. All manuals, instructions, displays and any other information relevant to the Goods shall be in the English language unless otherwise specified in the Contract. Unless specifically stated in the Contract (including in Trade Terms) the entire risk of loss, theft, damage to, or destruction of the Goods shall be borne as defined in **table 5. (b) Payment Terms of Section I: Instructions to Bidders, under sub-section A. Important information at a glance**.

7. INSPECTION OF THE GOODS:

7.1 All Goods may be subjected to inspection and testing by FIRST PARTY or its designated representatives at the FIRST PARTY's cost and expense at all times and places including the period of manufacture and in any event prior to final acceptance by FIRST PARTY.

7.2 Neither the carrying out of any inspections of the Goods nor any failure to undertake any such inspections shall relieve the SECOND PARTY of any of its warranties or the performance of any obligations under the Contract.

7.3 **For Goods supplied from within or outside India.**

a) For Goods supplied from within or outside India, FIRST PARTYretains the right to perform pre-shipment inspection at the manufacturer's premises and an independent quality control laboratory testing **at its own cost.**

b) The FIRST PARTYwill retain the right to perform further inspections and quality testing at any time till the satisfactory installation of Goods, as it deems fit, **at its own cost.**

7.4 Should any inspected or tested Goods fail to conform to the specifications, the FIRST PARTY shall reject them and the SECOND PARTYshall replace the rejected Goods free of cost to the FIRST PARTY, within a period of 30 (thirty) days of intimating such rejection.

8. ACCEPTANCE OF GOODS:

Under no circumstances shall FIRST PARTY be required to accept any Goods that do not conform to the specifications of or requirements of the Contract. FIRST PARTY may condition acceptance of the Goods upon the successful completion of acceptance tests, as may be specified in the Contract or otherwise agreed in writing by the Parties. In no case shall FIRST PARTY be obligated to accept any Goods unless and until FIRST PARTY has inspected the Goods following commissioning of the Goods in accordance with the requirements of the Contract. The Goods shall be deemed to be accepted only after FIRST PARTY provides written acceptance.

9. REJECTION OF GOODS:

Notwithstanding any other rights of, or remedies available to, FIRST PARTY under the Contract, in case any of the Goods is defective or otherwise does not conform to the specifications or other requirements of the Contract, FIRST PARTY may, at its sole option, reject or refuse to accept the Goods and the SECOND PARTY agrees promptly to replace the Goods with Goods of equal or better quality. Provided further that the FIRST PARTY shall reject the Goods or any components of the Goods sent by the SECOND PARTY, if the same does not arrive from the Country of Origin as stated by the SECOND PARTY in the BOQ.

10. TITLE:

Unless otherwise expressly provided in the Contract, title including the incidentals of the title and any legal or inchoate right and interest which may accrue in the said Goods shall pass from the SECOND PARTY to the FIRST PARTY upon delivery of the Goods and the acceptance of the same by the FIRST PARTY in accordance with the requirements of the Contract.

11. PERFORMANCE SECURITY:

11.1 Within 10 days of receipt of intimation of opening of LC by the FIRST PARTY (if the SECOND PARTYis in the category of Clause 4.(b).1(A) of the ITB) / Within 14 days of issuance of AOC in favour of the SECOND PARTY by the FIRST PARTY (if the SECOND PARTY is in the category of Clause 4.(b).1(B) or (C)of the ITB), the SECOND PARTY, shall furnish the Performance Security in full or in parts in the event of a staggered supply as decided by the FIRST PARTY**as per table 5, Performance Security (PS) at Section I: Instructions to Bidders under sub-section A. Important information at a glance** for an amount of 10% of the Contract Price (bid value)in full or in parts, valid up to 60 days after the date of completion of all contractual obligations, till the last date of warranty obligations.

11.2 Banks issuing Performance Securities must be acceptable to the FIRST PARTY, i.e. they have to be scheduled commercial banks having a branch in India.

11.3 Discharge of the Performance Security shall take place upon expiry of the Performance Security or the completion of all contractual liabilities of the SECOND PARTYas per clause 5, Performance Security (PS) at Section I:

Instructions to Bidders under sub-section A. Important information at a glance.

11.4 In the event of any amendment issued to the Contract, the SECOND PARTYshall, within 14 (fourteen) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary) rendering the same valid in all respects in terms of the Contract, as amended.

12. WARRANTIES:

12.1 **Goods Warranties:**

Without limitation of any other warranties stated in or arising under the Contract, the SECOND PARTY warrants and represents that:

12.1.1 The Goods, including all packaging and packing thereof, conform to the specifications of the Contract, are fit for the purposes for which such Goods are ordinarily used and for the purposes expressly made known in writing by FIRST PARTY to the SECOND PARTY and shall be of even quality, free from faults and defects in design, material, manufacture and workmanship under normal use in the conditions prevailing in the country of final destination;

12.1.2 If the SECOND PARTY is not the original manufacturer of the Goods, the SECOND PARTY shall provide FIRST PARTY with the benefit of all manufacturers' warranties in addition to any other warranties required to be provided hereunder;

12.1.3 The Goods are of the quality, quantity and description required by the Contract;

12.1.4 The Goods are free from any right of claim by any third-party and unencumbered by any title or other rights, including any liens or security interests and claims of infringement of any intellectual property rights, including, but not limited to, patents, copyright and trade secrets.

12.1.5 Unless otherwise indicated in the technical specifications, this warranty shall remain valid for 5(five) years after the Goods have been commissioned at the final destination indicated in the Contract subject to issue of certificate regarding date of commissioning issued by the consignee.

12.1.6 During the warranty, free comprehensive annual maintenance and repairs services including testing and calibration, labour and spares shall be provided by the SECOND PARTY during the period of warranty.

12.1.7 If the SECOND PARTY, having been notified, fails to remedy the defect(s) within the stipulated period, the FIRST PARTY may proceed to take such remedial action as may be necessary, at the SECOND PARTY's risk and expense and without prejudice to any other rights which the FIRST PARTY may have against the SECOND PARTY under the Contract.

12.1.8 The SECOND PARTY shall, at all times, indemnify and keep indemnified the FIRST PARTY, free of cost, against all claims which may arise in respect of Goods and services to be provided by the SECOND PARTY under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the FIRST PARTY, the FIRST PARTY shall notify the SECOND PARTY of the same and the SECOND PARTY shall, at theirown expenses take care of the same for settlement without any liability to the FIRST PARTY.

12.1.9 The SECOND PARTY shall be responsible and shall indemnify on account of any emission or radiation that may cause harm to the user of the supplied product.

12.1.10 The SECOND PARTY shall visit each installation site as recommended in the manufacturer's technical/ service operational manual, but **at least once in three months** during the warranty and Comprehensive Maintenance Contract (CMC) period for preventive maintenance.

12.1.11 The Goods shall be new and unused. The SECOND PARTY shall remain responsive to the needs of FIRST PARTY for any services that may be required in connection with any of the SECOND PARTY's warranties under the Contract. All warranties will remain fully valid following any delivery of the Goods and for a period of not less than five(5) years following acceptance of the Goods by the Consignee in accordance with the Contract. During any period in which the SECOND PARTY's warranties are effective, upon notice by FIRST PARTY that the Goods do not conform to the requirements of the Contract, the SECOND PARTY shall replace the defective Goods with Goods of the same or better quality or fully reimburse FIRST PARTY for the purchase price paid for the defective Goods; and if having been notified by any means, the SECOND PARTY fails to replace the defective Goods within 30 days, FIRST PARTY may proceed to take such remedial action as may be necessary, at the SECOND PARTY's risk and expense and without prejudice to any other rights which FIRST PARTY may have against the SECOND PARTY under the Contract. The reasonableness of the period of time granted for remedy is subject to the discretion of FIRST PARTY according to the circumstances of the Contract.

12.1.12 If the repair of the Goods or the components of the Goods requires the SECOND PARTY to take the Goods or the components of the Goods to any factory for repair, if the price of such Goods or components of such Goods is more than Rupees One Lakh, a bank guarantee of a suitable value may be required to be submitted by the SECOND PARTY to the FIRST PARTY securing such Goods or the components of the Goods, prior to taking such Goods or the components of the Goods for repair.

13. INDEMNIFICATION:

The SECOND PARTY shall indemnify, defend and hold the FIRST PARTY, the 'DoHFW and the Government agencies harmless against any or all proceedings, actions and third party claims arising out of a breach by the SECOND PARTY of any of its obligations under this agreement.

This indemnity shall be limited in respect of making harmless to the FIRST PARTY, the DoHFW and the Government agencies.

The SECOND PARTYshall indemnify the FIRST PARTY against all actions, suits, claims and demands brought or made against it, in respect of anything done or committed to be done by the SECOND PARTY in execution of or in connection with the work of this contract and against any loss or damage to the FIRST PARTY in consequence to any action or suit, or a legal proceeding, being brought against the SECOND PARTYfor anything done or committed to be done in the execution of this contract. The SECOND PARTYwill abide by the job safety measures prevalent in India and will free the FIRST PARTY from all demands or responsibilities arising from accidents or loss of life, on account of the SECOND PARTY's negligence and responsibility. The SECOND PARTYwill pay all indemnities arising from such incidents without any extra cost to FIRST PARTY and will not hold the FIRST PARTY responsible or obligated. The FIRST PARTY may at its discretion and entirely at the cost of the SECOND PARTYdefend such suit, either jointly with the SECOND PARTYor severely in case the latter chooses not to defend the case and /or proceeding.

14. PENALTY FOR DELAY IN DELIVERY, INSTALLATION AND COMMISSIONING:

Except under the circumstances of force majeure as described, if the SECOND PARTY fails to deliver, install or commission any or all of the Goods as per the time period prescribed under the Contract, FIRST PARTY may,

without prejudice to any or all its other remedies under the Contract, impose Penalty, as per **Table – 8Penalty for delayed delivery, installation and commissioning at Section I: Instructions to Bidders.**

15. BLACKLISTING:

Any manufacturer/ its subsidiary which has been black-listed by any Government Department/Agency in India during the last threeyears, would not be eligible to participate in the tender.

16. PENALTY FOR DEFAULT:

In case of failure by the SECOND PARTY to perform according to this Contact to keep Service Up time in Warranty & CMC of all of the Goods, the FIRST PARTYmay exercise one or several of the penal provisions **as per table – 7, Service Up time in Warranty & CMC at Section I: Instructions to Bidders under sub-section A. Important information at a glance.**

16.1 In addition to what has been stated above, the following sequence of penalties shall be imposed against offences mentioned against each:

Nature of offence	Penalty to be imposed
Any wrong or misleading information provided by the SECOND PARTY during submission of bids	a. Forfeiture of EMD b. May lead to blacklisting byFIRST PARTY for at least 3 years
Non execution of agreement within 21 days of issue of AOC	a. Forfeiture of EMD b. Blacklisting for 3 years byFIRST PARTY c. Blacklisting to be circulated to all procurement agencies throughout India
Supplying refurbished goods instead of new/ supplying Goods from a different Country of Origin from what has been stated in the Technical Bid	a. Termination of Contract. b. Blacklisting byFIRST PARTY for 3 years. c. Blacklisting to be circulated to all procurement agencies throughout India. d. Forfeiture of the Performance Security. e. Lodging FIR.
Breach of Agreement	a. Termination of Contract. b. Blacklisting byFIRST PARTY for 3 years. c. Blacklisting to be circulated to all procurement agencies throughout India. d. Forfeiture of the Performance Security. e. Lodging FIR.

17. SITE INSPECTION AND PREPARATION

17.1 SECOND PARTY shall inspect the Site at their own cost and expense before bidding. No representations by the SECOND PARTY regarding any major variations concerning the planning or layout of the Site shall be entertained by the FIRST PARTY after the pre-bid meeting. The decision as to what constitutes a major variation or a minor variation shall be at the sole discretion of the FIRST PARTY which shall be valid and binding upon the SECOND PARTY.

17.2 Prior to carrying out site preparation, the SECOND PARTY shall seek approval of the FIRST PARTY with regards to the exact Works to be carried out by the FIRST PARTY for site preparation including all third party items to be used/ supplied and specifications for carrying out such Works like specifications of furniture being used, makes/ brands of tiles being used etc. Only upon receipt of specific approval from the FIRST PARTY with regards to the timing of Works, and specifications of individual items, the SECOND PARTY shall take steps for site preparation.

18. TERMINATION FOR CONVENIENCE:

18.1. The FIRST PARTY may, upon notice to the SECOND PARTY, terminate this Contract, in whole or in part, at any time for its convenience. The notice of termination shall state that termination is for the FIRST PARTY's convenience, the extent to which performance of the SECOND PARTY under the Contract is terminated and the date upon which such termination becomes effective.

18.2. In the event of Termination for Convenience, no payment shall be due from the FIRST PARTY to the SECOND PARTY except for Goods satisfactorily delivered and for the cost of such necessary work as the FIRST PARTY may request the SECOND PARTY to complete.

19. TERMINATION FOR DEFAULT:

19.1 The FIRST PARTY, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the SECOND PARTY, may terminate the Contract, in whole or in part if:

19.1.1 The SECOND PARTY fails to deliver any or all of the Goods within the period specified in the Contract:

19.1.2 The SECOND PARTY fails to perform any other obligation under the Contract;

19.1.3 The SECOND PARTY, in the judgment of the FIRST PARTY, has engaged in fraud and corruption, in competing for or in executing the present Contract;

19.1.4 The SECOND PARTY attempts to offer any direct or indirect benefit arising from or related to the performance of the Contract or the award there of to any representative, official, employee or other agent of the FIRST PARTY or any organization under the control of Health & Family Welfare Department, Government of West Bengal;

19.1.5 The SECOND PARTY is adjudged bankrupt, or is liquidated, or becomes insolvent, applies for moratorium or stay on any payment or repayment obligations, or applies to be declared insolvent;

19.1.6 The FIRST PARTY reasonably determines that the SECOND PARTY has become subject to a materially adverse change in its financial condition that threatens to endanger or otherwise substantially affect the ability of the SECOND PARTY to perform any of its obligations under the Contract.

19.1.7 Non-compliance of all statutory norms and applicable laws relating to the said contract will entitle the FIRST PARTY to terminate the contract.

19.2 Upon occurrence of one or more of the events specified above, the FIRST PARTY shall follow the procedure of issuing notice or show cause specifying the time frame and on being not satisfied with the explanation, be entitled to terminate the Contract immediately. The decision of the FIRST PARTY shall be final and binding on the SECOND PARTY.

20. CONSEQUENCES OF TERMINATION:

20.1. In the event of any termination of the Contract, upon receipt of notice of termination by the FIRST PARTY, the SECOND PARTY shall, except as may be directed by the FIRST PARTY in the notice of termination or otherwise in writing:

20.1.1 Take immediate steps to bring to a close in a prompt and orderly manner the performance of any obligations under the Contract, including, but not limited to, fulfilling any outstanding orders for Goods under the Contract and in doing so, reduce expenses to a minimum;

20.1.2 Place no further orders for Goods or other materials, except as the FIRST PARTY and the SECOND PARTY agree in writing are necessary to fulfil any

outstanding order or to complete any portion of the Contract that has not been terminated;

20.1.3 Transfer title and deliver to the FIRST PARTY any Goods remaining to be delivered as stipulated in the notice of termination; and

20.1.4 Take any other action that may be necessary or that the FIRST PARTY may direct in writing, for the protection and preservation of any property, whether tangible or intangible, related to the Contract that is in the possession of the SECOND PARTY and in which the FIRST PARTY has or may be reasonably expected to acquire an interest.

20.2. In the event of any termination of the Contract, the FIRST PARTY shall not be liable to pay the SECOND PARTY except for those Goods delivered to the FIRST PARTY in accordance with the requirements of the Contract, but only if such Goods were ordered, requested or otherwise provided prior to the SECOND PARTY's receipt of notice of termination from the FIRST PARTY.

21. CONFIDENTIALITY:

21.1 The FIRST PARTY and the SECOND PARTY, their respectiveagents, employees, sub-contractors and servants shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto, in connection with the Contract, whether such information has been furnished prior to, during or following competition or termination of the contract. Notwithstanding the above, the SECOND PARTY may furnish to its sub-contractor such documents, data and other information it received from the FIRST PARTY to the extent required for the sub-contractor to perform its work under the contract, in which event the SECOND PARTY shall obtain from such sub-contractor an undertaking of confidentiality similar to that imposed on the SECOND PARTY.

21.2 The FIRST PARTY shall not use such documents, data and other information received from the SECOND PARTY for any purpose unrelated to the contract. Similarly, the SECOND PARTY shall not use such documents, data and other information received from the FIRST PARTY for any purpose other than the performance of the contract.

21.3 The obligation of a party under the two foregoing paragraphs shall not apply to information that:

21.3.1 Now or hereafter enters the public domains through no fault of that party;

21.3.2 Can be proven to have been possessed by that party at time of disclosure and which was not previously obtained, directly, from the other party, or

21.3.3 Otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

22. FORCE MAJEURE:

22.1 Force majeure as used herein means any unforeseeable and irresistible act of nature, any act of war (whether declared or not), invasion, revolution insurrection, flood earthquake or any other acts of a similar nature or force, provided that such acts arise from causes beyond the control and without the fault or negligence of the SECOND PARTY. The SECOND PARTY acknowledges and agrees that, with respect to any obligation under the contract that the SECOND PARTY must perform any delays or failure to perform such obligation arising from or relating to harsh conditions within such areas shall not, in and of itself, constitute Force majeure under the contract. Further the SECOND PARTY acknowledges and agrees that scarcity of raw materials, power cut, workers unrest (even if wide spread) will not constitute force majeure under the contract.

22.2 In the event of and as soon as possible after the occurrence of any cause constituting Force majeure, the SECOND PARTY shall give notice and full particulars in writing to the FIRST PARTY, of such occurrence or cause if the SECOND PARTY is thereby rendered unable, wholly or in part to perform its obligations and meet its responsibilities under the contract. The SECOND PARTY shall also notify the FIRST PARTY of any other changes in condition or the occurrence of any event which interferes or threatens to interfere with its performance of the contract. Not more than fifteen (15) days following the provision of such notice Force majeure or other changes in conditions or occurrence, the SECOND PARTY shall also submit a statement to the FIRST PARTY of estimated expenditure that will likely be incurred for the duration of the change in condition or the event. On receipt of notice or notices required hereunder, the FIRST PARTY shall take such action as it considers, in its sole discretion, to be appropriate or necessary in the circumstances, including the granting to the SECOND PARTY of a reasonable extension of time in which to perform any obligations under the contract.

22.3 If an event of force majeure exists and the SECOND PARTY fails, within seven (7) days of such event to give notice in writing to the FIRST PARTY and if the SECOND PARTY is rendered permanently unable, wholly, or in part, by reason of force majeure to perform its obligations and meet its responsibilities under the Contract, the FIRST PARTY shall have the right to suspend or terminate the contract on the same terms and conditions except that the period of notice shall be seven (7) days. In any case, the FIRST PARTY shall be entitled to consider the SECOND PARTY permanently unable to perform its obligations under the contract in the case of the SECOND PARTY's suffering any period of suspension in excess of ninety (90) days.

22.4 In the event of force majeure the benefit accrued to the FIRST PARTY in terms of title and any accrued right thereof including all inchoate rights shall remain with the FIRST PARTY and the SECOND PARTY shall not have any claim with the same.

23. SOURCE OF INSTRUCTIONS:

The SECOND PARTY shall neither seek nor accept instructions from any authority external to the FIRST PARTY in connection with the performance of its obligations under the Contract. Should any authority external to the FIRST PARTY seek to impose any instructions on the SECOND PARTY regarding the SECOND PARTY's performance under the Contract, the SECOND PARTY shall promptly notify and shall provide all reasonable assistance required by FIRST PARTY. The SECOND PARTY shall not take any action in respect of its performance of the Contract or otherwise related to its obligations under the contract that may adversely affect the interests of the FIRST PARTY and the SECOND PARTY shall perform its obligations under the Contract with the fullest regard to the interests of the FIRST PARTY.

24. BENEFITS, CORRUPTION AND FRAUD:

24.1 The SECOND PARTY warrants that it has not and shall not offer any direct or indirect benefit arising from or related to the performance of the contract or the award thereof to any representative, officials, employee, or other agent of the FIRST PARTY or any official of the Health & Family Welfare Department, Government of West Bengal or any organization engaged in the procurement process whether during the period the contract is in process or before or after

the contract is over. The SECOND PARTY acknowledges and agrees that any beach of this provision is a breach of an essential term of the contract as specified.

24.2 Corruption means the offering, giving, receiving or soliciting of, directly or indirectly, anything of value to influence the action of the FIRST PARTY, representative, official, employee or agent of FIRST PARTY or any official of the Health & Family Welfare Department, Government of West Bengal or any organization engaged in the selection process or in the execution of the contract.

24.3 Fraud means a misrepresentation or omission of facts in order to influence the selection process or the execution of the contract.

25. USE OF NAME OR OFFICIAL SEAL OF FIRST PARTY:

The SECOND PARTY shall not advertise or otherwise make public for purpose of commercial advantage or goodwill that it has a contractual relationship with the FIRST PARTY, nor shall the SECOND PARTY, in any manner whatsoever use the name or official seal of the FIRST PARTY, or any abbreviation of the name of the FIRST PARTY or Health & Family Welfare Department, Government of West Bengal in connection with its business or otherwise without the written permission of the FIRST PARTY.

26. ASSIGNMENT:

26.1 The SECOND PARTY shall not, except after obtaining the prior written approval of the FIRST PARTY, assign, transfer, pledge, or make any other disposition of this contract or any part hereof or of any of the SECOND PARTY's right or obligations hereunder, except with the prior written authorization of the FIRST PARTY. The SECOND PARTY may assign or otherwise transfer the contract to the surviving entity resulting from a reorganization of the Party's operations.

26.2 Prior to the written approval of the FIRST PARTY, the SECOND PARTY shall promptly notify the FIRST PARTY of such assignment at the earliest opportunity subject to the assignee or transferee agrees in writing to be bound by all of the terms and conditions of the contract and such writing is promptly provided to the FIRST PARTY following the assignment or transfer and the FIRST PARTY finds that the SECOND PARTY has the financial and technical capacity as laid down in the tender document to carry out the assignment provided that:

26.2.1 Such reorganization is not the result of any bankruptcy, receivership or other similar proceedings; and

26.2.2 Such reorganization arises from sale, merger, or acquisition of all or substantially all of the SECOND PARTY's assets or ownership interest; and

26.2.3 Such reorganization is not taking place with any of the SECOND PARTY who had participated in the Tender or who will be deemed to have conflict of interest as defined in the tender documents process for the same tender.

26.3 However, should the SECOND PARTY become insolvent or should control of the SECOND PARTY change by virtue of insolvency, the FIRST PARTY may, without prejudice to any other right or remedy, terminate this contract.

27. AMICABLE SETTLEMENT:

When a dispute arises under this agreement, the parties shall make all reasonable efforts to resolve through good faith negotiation, failing which they

will attempt at dispute resolution with the intervention of the Principal Secretary, the DoHFW, GoWB

28. **ARBITRATION:**

28.1 Except for a dispute in connection with termination in which respect the decision of the FIRST PARTY shall be final, any dispute between the parties arising out of or relating to this agreement which cannot be resolved through good faith or negotiation shall be settled byarbitration, in terms of the provisions of the Arbitration and Conciliation Act, 1996(no.26 of 1996). The arbitration shall be held at Kolkata onlyand shall be settled by a sole arbitrator to be appointed as per the provisions of the Arbitration and Conciliation Act, 1996. The award of the arbitrator shall be binding on both the parties.

28.2 Pending the submission of and / or decision on a dispute, difference or claim, or until the arbitral award is published, the SECOND PARTY shall continue to perform all of their obligations under this agreement without prejudice to a final adjustment in accordance with such award.

29. **GOVERNING LAW**:

The governing law in case of any dispute between the parties, shall be the laws of India.

30. **QUALITY OF EQUIPMENT:**

The equipment should have compliance with CE (European Conformity)/ US FDA standards & safety. In case the name of the offered model is not under the scope of the certification, the SECOND PARTY will submit a declaration in the format given in FORM 11: Declaration of Quality Certification of Equipment.

Section III. Special Conditions of Contract

The following Special Conditions of Contract (hereinafter referred to as SCC) shall supplement the General Conditions of Contract(hereinafter referred to as GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in the first column.		
SCC -1	GCC - 6	**Delivery of Goods shall be made by the SECOND PARTY in accordance with the Schedule of Requirement** However, the FIRST PARTY may swap facilities between phases and/or substitute any facility by a new one if deemed necessary. **The details of shipping and/or other documents, as applicable under I or II, to be furnished by the SECOND PARTY are:** I. **For Goods supplied from abroad** : (A) Upon shipment, within 24 hours the SECOND PARTY shall notify the Purchaser in writing the full details of the shipment including Contract number, description of the Goods, quantity, date and port of shipment, mode of shipment, estimated dates of arrival at the port of entry and the place of destination. In the event of Goods sent by airfreight, the SECOND PARTY shall notify the Purchaser within a minimum of forty-eight (48) hours ahead of dispatch, the name of the carrier, the flight number, the expected date and time of arrival, the Master airway-bill and the House airway- bill numbers. The SECOND PARTY shall first fax the above details and then send to the Purchaser, by courier, documents comprising of the following: (i) Commercial invoice, indicating the **West Bengal Medical Services Corporation Limited** as the Purchaser on behalf of the DoHFW*;* the Contract number, Goods description, quantity, unit price and total amount. Invoices must be signed in original and stamped, or sealed with the SECOND PARTY'sstamp/seal; (ii) Original and four copies of negotiable, clean, on-board through bill of lading marked "freight prepaid" and indicating the **West Bengal Medical Services Corporation Limited** as the Purchaser on behalf of the DoHFWand notify Consignees as stated in the Contract, with delivery through to final destination as per the Schedule of Requirements and non-negotiable bill of lading, or railway consignment note, road consignment note, truck or air waybill, or multimodal transport document, marked "freight prepaid" and showing delivery through to final destination as per the Schedule of Requirements; (iii) Packing list identifying contents of each package; (iv) Insurance Certificateand documents also to be submitted for payment of Letter of Credit (LC) confirming that dispatch documents has

		already been sent to all concerned as per Contract within 24 hours; (v) Manufacturer's Warranty Certificate and warranty declaration covering all items supplied; (vi) Manufacturer's own factory inspection report and Certificate of country of origin issued by Chamber of Commerce or counter signed by Chamber of Commerce; (vii) Inspection certificate issued by a recognized/ reputed agency like SGS, Lloyd, BEAURU VARITUS and TUV prior to dispatch; (viii) Manufacturer will submit a pre-shipment alert via email to Purchaser & Consignee at their respective email ids at least 15 days prior to the scheduled delivery of the equipment at the doorstep of the Consignee; The above documents shall be received by the 'Purchaser' at least 15 days before arrival of Goods at the port or place of arrival and, if not received, the SECOND PARTY will be responsible for any consequent expenses. **II. For Goods from within India** (A) Upon the delivery of the Goods, the SECOND PARTY shall notify the Purchaser in writing and deliver to the Purchaser documents comprising of the following: (i) Four copies of commercial invoice, indicating the **West Bengal Medical Services Corporation Limited** as the Purchaser on behalf of the DoHFW, the Contract number, loan number, Goods' description, quantity, unit price and total amount. Invoices must be signed in original and stamped or sealed with the SECOND PARTY'sstamp/seal; (ii) Railway consignment note, road consignment note, truck or airway bill, or multimodal transport document showing the Purchaser as the **West Bengal Medical Services Corporation Limited** on behalf of the **West Bengal Medical Services Corporation Limited** and delivery through to final destination as stated in the Contract; (iii) Acknowledgement of receipt of Goods by the Consignees, i.e. Consignment Receipt Certificate (CRC); (iv) Two copies of packing list identifying contents of each package; (v) Manufacturer's or SECOND PARTY's Warranty certificate covering all items supplied; (vi) Manufacturer will submit a pre-shipment alert via email to Purchaser &Consignee at their respective email ids at least 15

		days prior to the scheduled delivery of the equipment at the door step of the consignee. (vii) Inspection Certificate issued by the user Department, if applicable.
SCC-2		**The Comprehensive Maintenance Contract(Including Spare parts)** (i) The Consignees/ Government of West Bengal / Operation & Maintenance (O&M) Partner of the Medical College Authority, may, at theirown and sole discretion enter into aComprehensive Maintenance Contract (CMC) with the SECOND PARTY, three months prior to the completion of Warranty Period, at the price quoted by the SECOND PARTY for carrying out CMC, for a period as specified in the tender after the expiry of the Warranty Period provided that this service shall not relieve the SECOND PARTY of any warranty obligations under this Contract. Wherever the technical specifications lay down a different period of CMC, this latter period shall prevail. The CMC will commence from the date of expiry of Warranty Period. The CMC includes preventive maintenance including testing & calibration as per technical/service/operational manual, labour and spares. (ii) The CMC includes repairs of entire system, preventive maintenance, testing & calibration, labour and spares and all software updates and upgrades. (iii) The CMC and Repair charges (after Warranty Period) shall be paid quarterly in four equal instalments. (iv) Details of CMC requirements or otherwise, as spelt out in the technical specifications, will prevail over those given in this section.
SCC - 3		The Selected Bidder shall be required to undertake supplies of quantity as per schedule of requirement in phases spread over a period of 24(twenty four) months from the date of opening of the Financial Bid.

Section IV. Schedule of Requirements

Contents

1. **Facilitywisescopeofworkinbrief**

Sl. No.	Nameofthe Facility	Description	Qty	Otherrequirementsand works
1	**Kolkata MCH**	**High Energy LINAC**	1	Interior work as per drawing & specifications
2	**North Bengal MCH**	**High Energy LINAC**	1	Interior work as per drawing & specifications
		CT Simulator (4D)	1	Interior work as per drawing & specifications
		HDR Brachytherapy	1	Interior works as per drawing & specifications.

TECHNICAL SPECIFICATION

High Energy Linear Accelerator (LINAC)

The Medical Linear Accelerator with Multi-leaf collimator capable of producing following energy photons:

- 6, 10 & 15 MV (Flattened)
- 6 & 10 MV (FFF)
- Electronbeamsofatleast5energiesbetween4-18MeVorabove.Latestmodel&technology should be offered. Year of Type approval of AERB should bementioned.
- The Medical Linear Accelerator should be capable of delivering
- Three dimensional conformaltherapy.
- Intensity ModulatedRadiotherapy.
- Image Guided Radiotherapy with facilities for management of respiratorymotion
- Real-time patient positionmanagement.
- StereotacticbodyRadiationTherapy(SBRT)
- VolumetricIntensityModulatedArctherapy.
- Kilo voltage X-ray Cone Beam CT(CBCT).
- Electronic Portal Imaging Device(EPID).
- Flattening Filter Free (FFF) mode with high doserate.
- Volumetric Modulated Arc Therapy Delivery System(VMAT)
- Electron beamenergieswith total skin irradiation(TSET)
- Allitems(mandatory&optional)quotedshouldbeclinicallyoperational.

The model should be of latest technology and must comply with Atomic Energy Regulatory Board(AERB)Guidelines and must be AERB TYPE APPROVED. The machine should be a **FDA, CE, IEC, AERB** approved product.

A. **MACHINE PARAMETERS:**

1. **RF Power Source:** High efficiency Klystron / Magnetron (specify) with **5 years full replacement warranty** on full RFchain.
2. **TheAcceleratorWaveGuide:**Acompactstanding/travellingtypewaveguideshouldbeprovidedfor optimum use of RF power source. The wave guide should have **at least 5 years full replacement warranty.**
3. **Electron Gun:** Specify whether the electron gun is sealed or unsealed. The electron gun shall be demountable or filament change option from the accelerator to minimize cost and down time in case of gun problem. The Electron gun shall have **5 years full replacementwarranty**.
4. **BendingMagnetSystem:**Abendingmagnetof270degreeoranyotherdegreemorethan90degbased technologyequallyorbetterwithelectronenergyspreadwithin±3%mustbeprovided.90degbe

nding magnet systems will not be accepted. Precautions shall be made in the selection of materials in the bendingmagnetsystemtoreducetheneutronproductionabovephotonuclearthresholds.

B. **PHOTON BEAMCHARACTERISTICS:**

1. **Photon Beam Energy:** The Linear accelerator shall be capable of producing three clinically useful photonbeamswithenergies6MV,10MVand15MV.Thebeamcharacteristicsfora10cmx10cmfieldat 100 cm TSD should be asfollows.

Nominal energy	Dmax (cm)	% DD at 10 cm
6 MV	1.5 ± 0.2	67.1 ± 2.0 %
10 MV	2.25 ±0.2	73.0 ± 2.0 %
15 MV	3.0 ± 0.2	76.5 ± 2.0 %

2. **Dose Rate and Beam Stability:** The minimum dose rate for 10 cm x 10 cm field size at the depth of maximum build up at a TSD of 100 cm should not be less than 500 MU/min for all the three flattened photon beams, should not be less than 1000 MU/min for 6 MV FFF beam, not less than 2000 MU/min for 10 MV FFF beam. Specify whether the dose rate variability is in steps or continuous. Specify whether thedoseratevariabilityisinstepsorcontinuous.**Higherdoseratewillbehighlypreferable.**

   Beam stability should be achieved within minimum time to ensure dynamic applications. Specify the beam stability time in milliseconds.

3. **FieldSize:**Thefieldsizeisdefinedasthedistancealongtheradialandtransverseaxesbetween the points of 50% density on an x-ray film taken at 100 cm TSD with minimum build-up. The digital display, light field size and mechanical display should be accurate to within ± 2 mm for all field sizes and comply AERBrequirements.

   The accelerator shall provide a continuously variable rectangular, unclipped field size from 1 x 1 cm^2 to 35x35cm2at100cmSSD.Themaximumclippedfieldsizeshouldbeequalorexceed40x40cm^2at100 cm SSD. Clipped corners are unacceptable for field smaller than 35x35cm^2

   Radiation field penumbra:

   The width between the 20% and the 80% isodose lines measured for 10x10 cm at depth of 10 cm at 100 cm SSD should be less than 10 mm for all the given photon energies and comply AERB requirements.

   Lower penumbra will be preferred.

4. **Beam Flatness:** Field Flatness Specification : Variation of x-ray intensity relative to the central axis shall be ± 3% at 100 cm SSD and 10 cm depth over the central 80% of the field for the longitudinal, transverse and diagonal axes of all field sizes from 10x10 cm to 40x40 cm. Stability of the flatness with gantry rotation at 0 deg. 90 deg. 180 deg. and 270 deg. at 10 cm depth on x, y and diagonal axis for all field sizes from 10x10 cm to 40x40 cm should

not be more than ± 3%.The flatness criteria applied to beam profile at D max should show peripheral horns not exceeding 105% of the central axis dose. The parameter should comply with AERB limits.

5. **Beam Symmetry:** The maximum percent difference of average doses shall not exceed ±2% for the longitudinal and transverse halves of the field at 100 cm TSD and 10 cm depth, at gantry angles 0, 90, 180, 270 degrees. Field sizes shall be specified at 10 cm x 10 cm and 40 cm x 40 cm. Average dose is defined as the arithmetic average of minimum and maximum doses within the central 80% of the field for both axes. The parameter should comply with AERBlimit.

6. **Quality Index:**

The ratio of ionizations measured at 20 cm and 10 cm depth for a field size 10x10 cm at the detector level and with constant detector source distance = 100 cm should be as givenbelow:-

Sl. No.	Photon beam energy (MU)	Quality Index (QI)
1	6 MV	Specify
2	10 MV	Specify
3	15 MV	Specify

7. **Photon Beam EnergyStability:**

The quality index of a photon beam should not vary with time by more than ± 1%. The bend magnet system shall be provided with energy defining apertures such that the nominal energy of the electron beam existing from the bend magnet shall be within ± 3% of the nominal energy selected at control console for both photons andelectrons.

8. **Radiation Leakage: Minimum and maximum dose rate**

X-rayleakage:Theairkermarateduetoleakageradiation(excludingneutron)atanypointoutsidethe maximum useful beam, but inside a plane circular area of radius 2 m centered around and perpendicular to central axis at normal treatment distance should not exceed 0.2% of the air kerma rateatthesamedistance.ParametershouldcomplywithAERBlimits.

Thekermarateofleakageradiation(excludingneutrons)at1mfromthepathoftheelectronsbetween their origin and the target or electron window shall not exceed 0.5% of air kerma rate on the central axisofthebeamatnormaltreatmentdistance.ParametershouldcomplywithAERBlimits.

Lower leakage will be preferred.

Collimator transmission: The movable collimators shall not permit transmission of radiation exceeding

0.5 % of the central axis dose at Dmax measured in air for both photon energies.

For radiation fields of any size, the average air Kerma rate due to transmission through the beam

limitingjaws,includingMLCjaws,shallnotexceed0.75%ofthemaximumKermarateonthecentral axisatNTDina10cmx10cmfield.Lowertransmissionwillbepreferred.

Neutron Leakage: The neutron dose rate should not exceed 0.1% of photon dose rate at isocentre within a radius of 1m.

In addition to meeting above specifications for radiation leakage, the LINAC should also meet all the mandatory safety and radiation leakage regulations as specified by the AERB, for a medical linear accelerator.Incaseofanytypeofradiationleakage(e.g.Photon,Neutronsetc)outsideofLINACroom door,necessaryarrangementsshallbedonebythevendortominimizethecontamination(radiationat door)to a safe limit as specified byAERB.

9. **Photon ARC Therapy:** Bi-directional (CW, CCW) arc therapy should be included with automatic calculationofdoseperdegreebasedondoserateselectedandtheArcangleset.Specifywhetherthe dose rate variation mode is continuous or not. Higher dose rate and higher gantry speed will be preferred.

c. **ELECTRON BEAMCHARACTERISTICS:**

1. Electron Beam Energy: Minimum **5** electron energies between **4– 18 MeV** to be specified. Energy shall be specified as the most probable energy (Ep) of the electron energy spectrum at 100 cm from the accelerator exit window. **Higher dose rate will bepreferred.**

2. **Doserate:**Themaximumdoserateatisocentreforeachelectronenergyshouldbe600MU/minormore. Specify whether the dose rate variability is in steps or continuous. **Higher dose rate will be highly preferable.**

3. **FieldSize:**Theelectronbeamsizeisdefinedbytheinsidedimensionsoftheelectronbeamapplicators projected geometrically to a plane surface at 100 cm SSD. Specify the number of applicators to be supplied with minimum size of - 6 x 6 cm2 or less, maximum – 20 x 20 cm^2 or more. There shall be an arc applicator provided for electron arc treatment. It shall be possible to visualize both the field defining light and the optical distance indicator with an electron applicator in place. Higher field size will bepreferred.

4. **Beam Flatness:Maximum percent** variation of the electron intensity at 100 cm SSD at Dmax shall not exceed±5%(withintheovercentral80%ofthelongitudinalandtransverseaxesrelativetocentral axis) for all field sizes for all electron energies. Lower limits are preferable. The parameter should comply with AERBlimits.

5. **Beam Symmetry:** The maximum percent variation in the average electron intensity to the longitudinal and transverse halves of the electron field at Dmax for a 10x10 cm and 25x25 cm field at 100 cm SSD shall not exceed ± 2% at gantry angles of 0, 90,180, and 270 degrees. The average electron intensity is theaverage of the maximum and minimum points

within the central 80% of the field for each of the axes. The parameter should comply withAERB.

6. **X-ray contamination:** The X-ray contamination of the electron beam shall be less than 5% of the maximum dose for all availableenergy.

7. **ElectronArcTherapy:**ElectronArctherapywithnecessaryapplicatorsshallbeprovided,ifavai lable.The clockwise and anticlockwise gantry rotation must be possible for arc therapy. The MU/Deg must automatically be computed for a defined arc and calculated total MUs. – must be provided, if available with thesystem.

D. **MECHANICAL FEATURESPECIFICATIONS:**

1. **Treatment mode:** Normal:
   TSD/TAD Rotation: CW/CCW
   Arc: CW / CCW
   Dose rate: MU/min & MU/deg
2. **Isocentre:** Target to Axis Distance should be 100 ± 0.2 cm. The isocenter should lie within a sphere of diameter ≤2mm.
3. **Gantry:**

- **Rotation:**Theacceleratorgantryshallbecapableofrotationequaltoorgreaterthan360degrees.
- **Readout:** Digital & / or mechanical readout is required indicating gantry angle position, should be provided in the treatment room and at the control console. Readout accuracy shall be ± 0.5deg.
- **Controls:** Can be operated both from hand pendant and control console. Two hand pendants should be provided.
- **OpticalDistance Indicator(ODI):**ODIshould read between75 -130 cm or morewithatolerance of±1.5 mm.
- **Optical field light system** for both photons and electrons must be provided. The coincidence between the optical field and radiation field shall lie within 2mm.

4. **Collimator:** Rotation ± 165° (with a variation of the mechanical and radiation isocenter during rotation of less than ± 1.0 mm throughout) at mid position, however full ± 180° rotation preferable. Control - Hand pendent and control – console, Readout accuracy - ± 0.5°, Collimator Rotation Isocentre 2 mm diameter Sphere.
5. Asymmetric Collimator: Asymmetric collimation shall be provided.Specifythetravelrangesandover travel ranges of thejaws.
6. **Dosimeters:**

Photon Ionization Chamber

A transmission ionization chamber shall be used for the photon mode. The chamber shall incorporate completely separate collection electrodes consisting of two plates for dose monitoring and a quadrant plate for field symmetry.

Electron Ionization Chamber

A transmission ionization chamber shall be used for the electron mode. The chamber shallincorporate two independent channels capable of monitoring both dose and symmetry. Symmetry monitoring shall consist of a quadrantsystem.

Dual Channels

The dosimetry system shall utilize two completely independent channels for monitoring accumulated dose (i.e., a primary and a redundant channel). A dose rate channel and a channel for monitoring differential field symmetry shall be provided. The redundant channel will terminate an exposure of no morethanaspecifiedMUhigherthanthemachinesetting.Thesystemshallalsoprovideabackup timer withaminimumsignificanttimesettingof0.01minute.Thebackuptimeshallbeautomaticallycalc ulated andsetatauserspecifiedvalueabovetheexpecteddurationofthetreatment. Specifythedoseratevariationattheisocenterforeachphoton/electronenergy.Thetimeaverag eddose rateshouldbeconstant(flatness)withminimumvariation.SpecifytheTimeAveragedDoseFlatn ess.

7. **Monitor Chamber**

The dose monitoring chambers shall be sealed/ unsealed and shall operate independent of ambient temperatureandpressure.Thedosimetryelectronicsshallincorporatecircuitrytopermitinterr ogation of the accumulated dose, dose rate, and symmetry channels prior to each patient treatment. This interrogate function shall check cable continuity, electrical calibration and interlock trip levels before each treatment. All dosimetry and patient safety- related interlocks must be sensed and controlledby hardware.Primarysoftwaresensingandcontrolofsafety-relatedinterlocksisnotacceptable.

The dosimeters shall be reproducible to within + 1% or 1 monitor unit, whichever is greater, at any fixed gantry angle from 0 to 360 degrees.

The linearity of the dosimeters shall be +1 % or 1 monitor unit, whichever is greater, for accumulated doses between 50 and 999 monitor units. Specify the linearity tolerance for less than 10 MU in view of IMRT.

Backup Counter

The integral dose shall be retained on a counter, which indicates the monitor units delivered to that time with the unexpected loss of power or malfunction of the accelerator or dose measuring systems.Thedoseshallberetainedforatleast20minutesafterpowerinterruption.

Dose Rate

The reproducibility of the dosimeters shall be + 1 % or 1 monitor unit, whichever is greater, at a fixed dose rate. With variations in the dose rate from minimum to maximum, the reproducibility of the dosimeters shall be +2%.

8. **Couch:**

- A modern, versatile extended range robotic couch top made of new generation homogenous true carbonfibrewith6degreesoffreedomandindexedimmobilizationmovementsshallbeprovide d.This will comprise a fully robotic patient positioning system with capability to correct misalignments of the patient remotely not only along the traditional transversal axes, but also for roll, pitch and yaw/isocentric rotations around Y, X and Z axes.
- TheTabletopshallcomplywiththedeflectionrequirementofIECnorm.
- IEC scale convention shall beprovided.
- Specify the range of motions of the treatment couch including in X, Y, Z axis as well as Pitch, Roll and Yaw / iso centric rotation. The maximum height of the couch shall be at least 40 cm above the isocenter. The lowest couch position shall be at least 73 cm above the finished floor. Motions (except couch top rotation) shall be both manual and variable-speed

motor driven. Specify which motions can be performed simultaneously. Lateral and Longitudinal couch displacement shall not exceed 1mm under braked condition.

Specification	Minimum Required	
Vertical	±	95 cm
Lateral	±	23-25 cm
Longitudinal	±	100 cm
Turntable Rotation	±	90 degree

- Patient support panels in the carbon fibre couch top shall be provided to facilitate the large posterior treatments at extended distances without moving the patient. Specify the combined dimensions of the patient support panels in thecouch.
- It should have auto correction facility in at least X, Y & Z directions for accurate positioning for IMRT, IGRT &SRS/SRT.
- The couch must be capable of carrying a load of 180 kg ormore.
- Emergencydowndrive (with battery / manual)shallbeprovidedtoremovethepatientincaseofpower failure.
- To simplify mechanical motion control and expedite patient set-up, the motorized mechanical motion control system of the accelerator shall be computerized such that gantry rotation, collimator rotation, collimator jaw settings, and treatment couch vertical, lateral, and longitudinal and turntable rotation about isocenter can be operated with the hand-heldpendants.
- **Two hand pendants** shall be provided for operating the machine and thetable.

  Thehandpendantmusthavethecontrolofgantryrotation,collimatorrotation,collimatorjawsettings, treatment couch motions (vertical lateral, longitudinal and turntable rotation around isocentre and roomlightcontrol).Iftwooperatorsareinthetreatmentroom,bothpendantsshallbecapableofbeing used simultaneously. To prevent possible malfunctioning, when hand pendant is in operation, the computersystemmustpreventconflictingsignalsfrombeingsenttothesamemechanicaldevice.

  To prevent possible damage to mechanical device motors when both pendants are being used, the computersystemshallpreventconflictingcommandsfrombeingsenttothesamemechanicaldevice (e.g.,simultaneouscouchupandcouchdowncommandscannotbeissued).Thehandpendantsshall eachhaveahardwiredmotion-enableswitchwhichmustbedepressedtoactivatethesemotions.
- Convenient digital scales in metric units shall be incorporated on the couch or on an in-roommonitor whichwillallowtheoperatortochecktheorientationofthecouchheightandcouchanglewithrespect to thegantry.
- Couch positions (except couch top rotation) shall also be displayed at the control console. Accuracy of the scales for vertical, lateral and, longitudinal motions shall be within ± 1mm.
- Machine space: Details about the physical dimensions and weights of the machine and its

accessories including control console is to beprovided.

9. **Accessories:**

- **<u>Wedges</u>:**
- ADynamic/motorisedwedgeshallbeprovidedthatcanproduceaneffectofanywedgeangleup to60 deg.
- **Stationary** – 15, 30, 45& 60 degree wedges for all IN, OUT, RIGHT, LEFT. Specify the maximum field sizes covered, ifavailable.
- **Mechanical front pointer:** A mechanical front pointer **and/or LASER** shall be provided to locate the isocenter of the machine to within ± 2 mm. This accuracy shall apply to any orientation of the machine. A range finder shall be provided to locate the target to surface distance on the patient to within ± 5 mm.
- **Accessory mount** – **shadow block tray assembly** for holding shielding blocks shall be supplied. The distanceofthebottomofthetrayfromtheisocentertobespecified.Adetachableblockholderishighly preferabletoaccommodate2trayssimultaneouslyforwedgesandblocktrays.Thespacingabovethe blocking tray should be specified. The size of the blocking trays should be larger than the maximum fieldsizeatthelowerposition.Specifytractionandsizeoftheblockingtrays.
- **Universal clamps to beprovided.**
- **CCTV/camera:**Twonumbers– onewideangle&oneremotecontrolwithremotezoom&focusfacility for control room with Colour monitors should beprovided.
- **In-room LCD monitor:Two** such shall be provided. **All screens** associated with equipment must be flat panel and not less than 19inches.
- Apatientcommunicationsystemwithlateststandardmodelshallbesupplied.
- **Laser alignment system:** Total 04 (four) Lasers precisely adjustable vertically and horizontally by remote control should be provided whose beams shall intersect at the isocenter. The diameter of the sphere of intersection of the laser beams as shown on a phantom located at isocenter shall be less than 1 mm. The system should have 0.5 mm line thickness at isocenter for patient alignment and setup. The levelness (tolerance: 1 mm) and plumb (tolerance: 0.3°) using a level (horizontal & vertical lasers) or a plumb (vertical lasers) will be preferable. In addition a sagittal line laser shall be provided which should pass through the mechanicalisocenter.
- **Blue/green color laser will be preferable. All provided Lasers must comply with the respective codeof IEC safety of Laser products and comply with AERB norms.**
- Anarmboardwhichmaybeattachedtothesiderailsofthetreatmentcouchforuseinbreastset-ups shall beprovided.
- A mechanism to support the patient's hands shall beprovided.
- Mechanism to immobilize the patient shall beprovided.
- **Spare Parts Kit and RequiredTools**
- A spare parts kit consisting of assorted printed circuit boards, relays, lamps and a container of dielectric gas shall be provided. Specify inventory. Include a spare pendant control module as part of theinventory.Standardsparepartsshouldbeprovidedwiththemachine.

- **Data Link to Field Service via Modem**
- The vendor shall provide a computer link to connect the accelerator to the Field Service facility for efficient off-site analysis of pertinent files, ifavailable.
- Field IlluminatingLight

- A field illuminating system should be provided for both photon and electron modes. The edge of the defining light field should coincide to within ± 2 mm of the 50% iso density line on an x-ray film taken with minimum build-up for any field size at one meter and any angulation of the gantry or collimator system.
- **TSDIndicator**
- An optical distance indicator which indicates the SSD to at least ± 4 mm over the 80 to 150 cm range shall be provided. Accuracy at 100 cm shall be ± 1 mm. A mechanical indicator which indicates the SSD to within ± 2 mm maximum error over the range 90 to 110 cm should beprovided.
- Theaccessoryrailsbesidethepatientsupportpanelsshallberemovable,allowingtreatmentan dport film images without interference from therails.
- UPS system
- An on-line UPS system with the appropriate power rating with voltage regulation and spike protection to operate the entire LINAC system for uninterrupted treatment delivery (including TPS, server etc.) for 15 min or more shall be supplied. The UPS system should work on a three phase 400-440 V/50 HzPower.
- A resettable over current breaker shallalso be fitted for protection. Details about the physical dimensions and space required for the UPS system to be specified.
- **Chillersystem**
- The vendor should provide a fully automatic water chiller system for sufficient cooling of the linear accelerator. The chiller system must be imported / export quality with backup compressor and fully compatible with the machine as per specifications of the manufacturer. The chiller system shall incorporateautomaticback-upfacilities,remotecontrolandalarmpanelwithwarningfacilities.
- Detailsaboutthephysicaldimensionsandspacerequiredforthechillertobespecified.
- The maintenance of the CCTV system (Zoom & wide angle with separate display), UPS including electrical components thereof and the chiller will be seamlessly provided by the vendor for a period of 5 years under the terms of on-sitewarranty.
- The supply of all components of CCTV, UPS and chiller systems as and when required shall be provided by the vendor for a period of 5 years under the terms of on-sitewarranty.
- Astandardpatientcallingsystem(asperconcerneddepartmentalrequirement)shallbesupplied.

10. **ControlFeatures:**

- **Console**

A computerized standard control console shall be located outside the treatment room. This console shall provide controls that must be activated in order for the accelerator to become operational in any of its various modes of operation and also provide displays of accelerator parameters. The following shall be present:

a) PowerOff:Turnsoffallelectricalpower,includingpowertothecomputer,exceptforthatpowerne eded to maintain the accelerator in a "Stand By"condition.
b) Power On: Turns on electric power to theaccelerator.
c) Total Dose: Sets the desired total dose for patient'streatment.
d) Time: Sets time for patient's treatment. Time shall be used as a back-up in case of failure of total dose interlock. Backup time shall be calculated automatically with provision for manualreset.
e) MU/Degrees: Sets the desired MU/degree for rotational therapy. MU/degree shall be calculated automatically with provision for manualreset.
f) Mode Selection: Selects x-rays or electrons fortreatment.

g) X-ray Energy: Selects photon beamenergy.
h) Electron Energy: Selects electron beamenergy.
i) Radiation On: Turns on accelerator and radiation isproduced.
j) Interrupt: Immediately stopstreatment.
k) Complete: Indicates that desired dose has been delivered. In addition, the operator should be alerted if radiation terminates for any reason other than reaching the set integrated dose. In such cases, the dose remaining to be given shall beindicated.
l) Arc Therapy: Enables the accelerator to perform arctherapy.
m) Wedge: Requires that the presence, identification and orientation of a wedge must be confirmed atthe controlconsole.
n) Port Film: Opens jaws completely or partially, as selected by the operator, and limits the amount of radiationtobedelivered.Thisshallbeoperationalinboththephotonandelectronmodesbutallow only the production of low energy photons. Once the port film has been completed, it should be possible to return the collimators to their original settingautomatically.
o) WhentheLINACcontrolsystemdeterminesaplantrajectory,itcommandseveryelementoftreatment delivery (treatment beam, system motion and image acquisition) in rhythm with the system's heartbeat of preferably 10 ms for achieving the imaging, couch, gantry and collimator movements and treatment beam.
p) SpecialProcedures:Prohibitsaccidentalselectionofproceduressuchaselectronarcsorhighdoserate electronirradiationbyprovidingan"extrastep"inselectionprocedure.Describethemechanism used.
q) Accelerator parameter checks: It shall be possible to monitor different accelerator parameters via an oscilloscope at or near the controlconsole.

- **Control ConsoleMonitors**

Thefollowingstandardmonitorsanddisplaysshouldbeavailableatthecontrolconsole,andwithhe exception of a back-up dose counter, it should be possible continuously to visually observe the value beingregisteredonthesecountersanddisplaysfromthepositionoftheoperator.

a) DoseRateIndicator:Indicatesthedoserateatmaximumbuildupfora10x10cmfieldat100cmTSD.
b) Dose Counters: Two counters which count integral dose detected by each of the twodosimeters.
c) Mechanical Total Dose Counter: In case of power failure, a means of preserving the total dose delivered to the patient under treatment when the power fails for an indefinite time period should beprovided.
d) Total Time Counter: Counts total treatment time in 0.01 minute increments up to 9.99minutes.
e) Angle: Indicates position of gantry in degrees with precision of ± 0.5degrees.
f) Symmetry: Indicates beam symmetry in both majoraxes.

- **Control ConsoleAdjustments**

It should be possible to adjust the following parameters at or near the control console:
a) DoseRate:Permitsthechangeofradiationoutputoftheunit.
b) System Calibration andServicing

A separate mode of operation shall be provided which is used to monitor accelerator parameters and facilitate adjustments to those parameters. While in this mode of operation, the operator shall be able to accomplish the following from the control console:
(i) Monitor machine parameters including both input and outputsignals.
(ii) Display interlock status, and over rideinterlocks.
(iii) Adjust equipmenttiming.
(iv) Perform computerdiagnostics.

(v) Control all mechanical motions from the console, either by automatically moving multiple mechanical devicessimultaneouslytopresetpositionsorbymovingindividualdevicesmanually.
(vi) Select dose to appropriate monitorunits.
(vii) Select time to appropriate number ofminutes.
(viii) Operate the machine for at least two hours without stopping for the purpose of dosimetry measurements.
(ix) Calibrate mechanical motionscales.
(x) Selectively turn off various accelerator servosystems.
(xi) Operatethesystemcalibrationandservicingmoderemotelywithinthetreatmentroomusingth ehand pendants. W hen leaving this mode of operation, all overridden interlocks shall automatically be re- enabled to ensure patient and operator safety. This mode of operation shall be interlocked against unauthorizeduse.

c) EventLogging
Duringclinicaloperation,theacceleratorshallrecordrelevantequipmentparametersforlaterre viewin the event of abnormal machineconditions.

d) Gantry Angle and Collimator Size: Permits changes in the gantry angle and collimation field size. Automatic setting of field size should also bepermitted.

e) Accelerator ParameterChecks
The following accelerator parameters should be monitored at or near the control console. A separate BNCconnectorshouldbeprovidedsuchthateachofthefollowingvoltagewaveformscanbemon itored via anoscilloscope:
(i) Reflected RFpulse
(ii) Klystron / Magnetroncurrent
(iii) Gun current
(iv) Chargecurrent
(v) Pulse forming networkvolts

N.B. : This will be in the scope of service engineer.

In addition, a connector for a multi meter should be provided at or near the control console with an appropriate switch such at that one of the following voltages can be displayed:

(i) Gun current
(ii) Pulse forming networkvoltage
(iii) Electron gun heatervoltage
(iv) Power tube heatervoltage
(v) Power tubefrequency
(vi) Chargingcurrent
(vii) Vacuum pumpcurrent
(viii) Dosimetry System

There shall be a separate, completely independent indicator of the accumulated dose and dose rate at the control console. It should be possible to set accumulated dose and dose rate. The system shall warn the operator if the set dose exceeds a preset maximum value. This value shall be determined by the user.

In addition, a safety timer shall be incorporated to prevent irradiation from the accelerator after a fixed period of time, which shall be calculated automatically or determined by the operator. To preventpossible overexposureduetoamalfunctionoftheionizationchambers,aninterlocksystemshallbeincorpor atedto prevent the operation of the accelerator should there be a fault with the ion

chambers. The status of all dosimetry interlocks and integrity of ion chambers shall be checked immediately prior to initiation of each treatment. The nature of the interlock system shall be such that a positive indication of the malfunction of theionizationchambersshallbevisibleatthecontrolconsole.Inaddition,failureoftheaccumulated dose indicator or a portion of the system controlling this indicator shall prevent operation of the accelerator but shall retain the last recorded accumulated doseindication.

In addition, separate control console/s, where specifically warranted, for other add-ons such as for specific IMRT, IGRT (including respiratory motion control, gating, tracking etc.), kV CBCT and matching/correction with DRRs and/or planning CTs, SRS, SRT, SBRT etc. to be provided with all necessary hardware and software solutions required.

11. Interlocks and Indicators and SafetyFeatures

- Dose RateInterlock

  The accelerator should be disabled when the dose rate is not within stipulated value.

- Emergency Off Switches

  Provision for connecting emergency off switches into the interlock chain shall be provided to allow immediate disabling of the accelerator in case of an emergency. There should be at least one emergencyOffswitchontheconsoleandfouronthetreatmentunit(atleastseveninsidethetreatment roomincludingthemachine).DescribethelocationofallemergencyOffswitches.

- Wedge FilterInterlocks

  The presence, identification, and orientation of the particular wedge filter in use shall be indicated on the control console and be interlocked against use during electron therapy.

- DosimeterInterlocks

  The normal treatment delivery will be designed to terminate upon a prescribed given dose at 100 cm TSD for a 10 x 10 cm field at the depth of maximum dose. In addition, a timer shall be used as a safety device to terminate treatment in the case of failure of the integrated dose meters. The timer should indicate the treatment time in units of tenths and hundredths of minutes and be accurate to within ± 0.1 minutes. The backup treatment time shall be automaticallycalculated.

- DoorInterlock

  The treatment room door and appropriate accelerator cabinet doors shall be closed before the accelerator can produce radiation.

- Rotational TherapyInterlock

  To perform a rotational therapy treatment, the arc therapy mode shall be selected on the control console. In addition, there shall be an interlock to interrupt treatment if the dose rate per degree is too high or too low as perspecifications.

- Port FilmInterlock

  This interlock shall allow partial or complete opening of the collimators from the control console and limit the total dose delivered. It shall also automatically allow radiographs to be taken with the low energy photon beam for either photon or electron modes.

- Electron ModeSelection

The presence and identification of the particular electron applicator in use shall be indicated on the control console and be interlocked against use in photon therapy (except for port films). This interlock should be in addition to a separate interlock which is required for electron mode selection.

- Electron CollimatorInterlock

  This interlock should prevent accelerator turn-on in the electron mode if the electron scattering foils and the dosimeter are not in the correct position.

- Key SwitchInterlock

  This interlock should be controlled by a separate key, which must be in the "on" position before it is possible to turn the accelerator on.

- VacuumInterlock

  Thisinterlockshouldpreventhighvoltagefrombeingturnedonifthevacuumintheacceleratorgu ideis not lowenough.

- PressureInterlock

  Thisinterlockshouldpreventhighvoltagefrombeingturnedonifthedielectricgasorcoolingwat er pressure is too high or toolow.

- ModulatorInterlock

  Thisinterlockshouldpreventhighvoltagefrombeingturnedonifthereisafaultconditioninthehig h voltage power supply ormodulator.

- Warm UpInterlock

  Thisinterlockshouldpreventhighvoltagefrombeingturnedonduringthewarmupperiodwhe n electric power has been turnedon.

- RF Interlock

  Inthephotonmodeofoperation,theacceleratorshouldbeinterlockedsuchthatnoRFpowerc anbe appliedtotheacceleratorunlessthephotonbeamconverterisaccuratelyandcorrectlypositio nedto prevent the electron beam from being directed toward thepatient.

- CollisionProtection

  Theacceleratorshouldincludeprotectiondevicesdesignedtominimizeinjuryresultingfromcolli sionof an electron applicator with the patient. Describe thesedevices.

- SymmetryInterlock

  Asymmetryinterlockisrequiredwhichshallterminateanexposureiftheratioofthemaximumdos eoff axisinairattwosymmetricpointsexceedstherange0.98–1.02.Thevendorshallldemonstratethatthis interlock operates asspecified.

- Excess Dose per PulseInterlock

  Thisinterlockshouldterminateirradiationifthedosimetrysystemdetectsanexcessdosefromasingle electron gunpulse.

- High VoltageProtection

  Interlock systems should be provided to afford maximum protection for personnel against high voltage

hazards.Unshieldedhighvoltagecontactsshouldbeprominentlyandappropriatelylabeled.Inaddition,a manual grounding system should be made available in the modulator enclosure and near other high voltagesources.

- Last man out (LMO) switch with fullinstallation.
- Doorlight(Red,Yellow,GreenLEDpanelfortheLINAC bunkerdoors).Lightshouldbeas pertheAERB safety code forRadiotherapy.

12. **MULTI-LEAFCOLLIMATOR:**

The MLC system shall have at least 120 leaves (60 pairs or more MLC) with following features: N.B : The bidder should specify the number of leaves .

a) Leaves shall have independentdrives.
b) Leafwidthatisocentreshallbe≤5mmforcentralleavesand≤10mmforlateralleaves.
c) Maximum leaf retracting and extending position – to bespecified.
d) The over travel distance of the MLC to bespecified.
e) Leaf height & material and peak transmission – to bespecified.
f) Transmission through leaves should meet AERB guidelines.
g) Interleaf leakage limits should meet AERBguidelines.
h) Leaf end position and side position accuracy and reproducibility – to bespecified.
i) The minimum & maximum leaf speed. (The bidder should specify minimum & maximum value)
j) The carriage speed – to bespecified.
k) PenumbraforallsquarefieldswithorwithoutMLC–to bespecified.
l) Should be capable of performing multiple static fields and dynamic multi-leaf collimation, IMRT & Arc IMRTtreatment.
m) ThereshouldbefacilitytotreatpatientsconventionallyusingblockswithoutMLC.
n) Should be integrated with planning system, CT simulator (4D), RFA and/or MRI via planningsystem
o) The MLC workstation must have user interface, can open or close desired patient file, can load treatment plan, graphical beams eye view of the MLC leaf and collimator jaw position as well as 3-D transparentimageofthesurfacecontour,bodyorgansandgrosstumorvolume,clinicaltargetvolume andplanningtargetvolumeasplannedinthetreatmentplanningsystem.
p) Maximum static field size and maximum static aperture field size: at least 30x30cm2
q) Maximum IMRT field size to bespecified.

13. **IMRT TREATMENTDELIVERY:**

The LINAC should be capable of performing **Step & Shoot and Sliding Window MLC delivery**

and all necessary planning system, software and algorithm should beoffered.

(Details given in section titled 3-D TREATMENT PLANNING SYSTEM WITH MULTIPLE WORKSTATIONS below).

14. PORTAL IMAGINGSOLUTIONS:

- The electronic portal image system shall be based on Amorphous Silicon Flat Panel Detector Based Technology.
- ShouldbeabletotakeimagesatanygantryanglewithvariableX-Y movements.Shouldhavemotorized Robotics Arm with remote control from console without entering the machine room.
- The size of the flat panel shall be at least 30 cm x 30 cm with a resolution of not less than 1024 x 768 pixels.
- NecessaryhardwareandsoftwarewithlicensestobeprovidedforimagingforIMRTQAtocheckthe machine fluence of the planned treatment and auto -verification with planning fluence shall be provided.
- Mention the size and pixel density of thedetector.
- Mention the full active viewingarea.
- Mention the number of bits used in detectordigitizer.
- Mention the minimum detector dose to acquire a full fieldimage.
- Minimumtimeafteracquisitionrequiredtodisplayimageshallbeaslessaspossible.
- Mention the image acquisition rate perframe.
- Mention range of lateral and longitudinalmovement.
- Mention type of read out provided for movement and itslocation.
- There should be a collision detection/avoidance system (specifydetail).
- Specify beam energy at which system can be used
- Dose rate for portal image acquisition to bespecified
- Minimum and maximum settable exposure to bespecified
- Contrast resolution to bespecified
- Necessary QA tools for EPID to beprovided
- Imager alignment to mechanical isocentre to bespecified
- **Facilities for Portal dosimetry and dosimetry for FFFmode.**

15. Image Guided Radiotherapy (IGRT)System

A dedicated KV imager with solutions for IGRT including kv CBCT is to be provided. The kv imager performance specifications, imager travel range, image acquisition rate detector (made of amorphous silicon) specifications, typical radiographic image specifications are to be specified. The specifications for kv CBCT image acquisitions and reconstruction are to be specified. The optical imager specifications are also to be mentioned. All of the abov e specifications should be AERB/IEC/FDAcompliant.

Higherfieldofview,higherspatialresolution,low contrastdetectability,loworgandose,loweracquisition time.

16. Respiratory Gating:

All accessories needed for the Respiratory gating and correction in 6DoF and monitoring of tumour motions should be included along with the IGRT package. The proposed system should aid in faster positioning of patients with a live video feed enabling the users to switch between different camera angles to ensure accurate positioning.

Respiratory Gating should be installed in the Linear Accelerator room and in the 4D CT Simulator Room. The Respiratory gating system should be quick and easy for day-to-day use. It should have seamless integration with thefollowing:

- LinearAccelerator
- Treatment PlanningSystem
- Record & Verify System
- RPM/ ABC should be offered by the bidder and should supply 2 sets of RPM/ABC (one at CT end and other at LINAC end) with all necessary consumables / disposables.
- The bidder should supply surface guided RT comprehensive motion management package with latest hardware and software (with company certification) for LINAC room (3 camera pod, camera should have 1 to 4 MP or more resolution with stereo type vision / structured light) to support intrafraction imaging and non-coplanar tracking.
- The system should have 6 DOF beam hold and 6 DOF couch control (at least 3 no. of Govt. / Private installation in the Teaching Institution recognized by NMC in India)
- The proposed system should aid in patient positioning with the live video feed.

TheRespiratoryGatingsystemshouldberealtimeandshouldbeabletoaccuratelytrackthetumors othat maximumdosetotumorisdeliveredduringthetreatment.Accurategatingshouldbepossibleinthe4 DCT Simulator and with the Linear Accelerator for gatedtreatments.

The Respiratory Gating system should be able to provide retrospectively and prospectively gatedimaging studies. The Respiratory Gating system should track the patient breathing pattern within the specific thresholdthatdeterminestheneathetreatmentbeamwillbegatedonandoffinall6DoF.

The gating system should support 4D CT for the CT scanner installed in the department. Adequate and appropriate software along with the necessary high-end hardware must be supplied. 5 years warranty + 5 Years CMC (total 10 years) with onsite support, software and hardware up gradation if any during this period. Free in house training for Physicists, Oncologists and Technologists should beprovided.

TREATMENT PLANNING SYSTEMS FOR LINAC MACHINE WITH WORKSTATIONS

Advanced approved latest 3-dimensional treatment planning system (TPS) for the machine that should be capable of planning for conventional radiotherapy, 3D Conformal Radiotherapy (3DCRT), Intensity Modulated Radiotherapy (IMRT), Volumetric Modulated Arc Therapy (VMAT), IGRT, 4D Planning including solutions integrating respiratory motion), SRS, SRT, FFF planning and SBRT with both forward and inverse planning with adaptability for future up gradation shall be supplied. Any software update within 5 years warranty + 5 Years CMC (total 10 years) of procurement should be incorporated free of cost by the vendor. Virtual simulation software should be part of the planning system. The system should have an integrated patient data base that is accessible to all radiotherapy applications present in the division through planning and contouring workstation. It should work on client server architecture. The server should not be counted as a planning system. The planning system offered should be latest version available with thecompany.

Single TPS solution for all kind of planning facility 3DCRT, IMRT, VMAT, SRS & SRT with localizers is preferable

Recommended single unified integrated for OIS & TPS.

- **Hardware**

Latest window based workstation with latest hardware (Processor speed, hard disk memory, RAM, video card, hard drive, tape drive, CD RW, DVD reader writer, modem, keyboard and mouse)at the time of purchase should be supplied. The TPS and its workstations should have 20"or more flat panel monitors.TWO(Atleast1A3printer)advanced colourlaserprinterwithnetworkconnectivity shallbe provided.Newcartridgesfortheprinterstobeprovidedasandwhenrequiredforaperiodoffiveyears i.e. till the completion of warranty period and bidder should ensure undisrupted service. The bidder shouldmentionthepriceofthecartridgeasperthepresCribedformatgivenintheForm9(b).A3 ScannerofhighqualityfordataacquisitionfromplainX-rays,CT/MRIfilmsshouldbeprovided. AppropriatebatteryandUPSforsmoothrunningoftheTPStobeprovidedwithfacilityforreplacement of batteries as and when required for a period of5years.

No of workstations to be provided: Six (6) With

capability of planning: Three (3)

With capability of contouring: Three (3)

- **Planning and contouring software**
- Should have the followingspecifications:
  - Virtual fluoroscopy Isocentre placement from AP and lateral DRR's, auto computation of isocentre from target volume should be possible. Editing of origin placement in the reference slice and computation of isocentre with reference to origin. Should calculate each phase of treatment plan independently and as a composite plan. Should plan for the followingcombination:

    Photon-Photon

    Photon-Electron: All energy combinations

    Electron-electron: all energy combinations
  - Dose and marker point definition. Export of isocentre coordinates with reference to origin to laser control system. The system should support multi laser marking software. Provide pre-defined structuretemplatesthatcanbeusedforalltypeoftreatment.Mustbeabletoadd/subtractpredefined organsand/orpartsoforgansfordefiningareasofinterest.TooltomatchMRI,CTandPETimage using reference point should be available. Mutual matching algorithms must be available to auto match images using different modalities. It should be possible to

display the calculated dose on sagittal, coronal and arbitrary planes and on MR, PET and fusion images. Should be fully integrated with the recordandverifysystem.Shouldsupportadditionofbolusofdifferentthickness.

- Volume definition should be possible using Volume Segmentation using threshold, Free hand contour tracing, Contourediting,3D anisotropic marginsetc.
- Volume delineation should be possible with Free hand contour tracking or Advanced volume segmentation using threshold in 2D or 3D or with predefined shapes. Various contour editing tools to modify the contour at any plane should bepossible.
- ContouringoptionsinAxial,Sagittal,andCoronalorinanyobliqueplanesmustbeavailable.
- It should be possible to do manual, semi-automated, fully automated contouring/segmentation in the images.
- The software should have facility for automated uniform or non-uniform margins. For example it shouldbepossibletoexpandtheclinicaltargetvolume(CTV)threedimensionsbysamemagnitudeor by different magnitudes to define the planning target will be considered as not meeting the requirements.
- Itshouldbepossibletocopyoneorgantoanotherwithmargin;addmarginsonasingleslice,arrange of slices or allslices.
- It should also be possible to interactively edit the contours with user choice of segments to reject or accept.
- Interpolate algorithm should be available to provide inter active, shape based interpolation– i.e. after contouring only in selected slices, the algorithm should automatically interpolate the closely fitting contoursinotherslices.Interpolatedcontoursmaybeedited:acceptedorrejected.
- The DRR/BEV image should display the machine diagram to allow real-time checking of machine and patientgeometry.
- Auto-outlining with Non-UniformMargins.
- Facilitytocontouroncoronalandsagittalandonanyarbitraryplanes.

Per institute planning system should have Three (3) numbers of independent 3D-CRT and IMRT licenses and VMAT licence which can work separately, individually and simultaneously for all planning modalities, optimizations and calculation algorithms.

- **All Planning workstations must be equipped with individual licenses for planning including 3DCRT, IMRT andVMAT.**
- **6numbers of independent contouring licenses which can work separately, individually and simultaneouslyforalltypeofradiotherapycontouringshouldbeprovidedbythevendor.**

➢ **Image FusionSoftware**

- This should include auto matic and interactive image registration and fusion of CT with MR/PET/SPECT images for treatment planning.
- Thisshouldincluderealtimeimagereformattingandfullyautomatedimagealignment.
- 3DFusiondisplaywithdelineationoftargetinthefusedimageshouldbeavailable.
- Highly preferable: Deformable registrationfacility.

➢ **NetworkingSystem**

Latest version of networking software with standard server to be provided and installed for local area networking compatible with the TPS, Machine, treatment console, CT Simulator (4D) & MRI (if any). Preference will be given to minimum 64 bit digital networking system. Full network connectivity between the LINAC, the oncology information and treatment record & verify system, workstations on either location, all imaging treatment planning and treatment delivery system on both locations must beestablished.Provisionmustbeavailableforaddingmoreworkstations.Storagemediaforarchiving andexportthroughEthernetandTCP/IPformatmustbeprovided.

- The TPS should be of the latest & able to network with LINACs, CT Simulator (4D), HDR Brachytherapy machine.

➢ **ImagingTools**

DRRfeatures

Interactive DRR calculation mode must be available Automatic window width/level selection for DRR. DRR should be interactively updated when the isocenter position is modified should be possible to highlight or suppress different density regions in the DRR Printing of DRR images should be possible. The DRR generation methods should include normal summed, MIP and volume rendered (for soft tissue/bone weightedDRR).
DRR presets should be user defined Macro function to save a series of frequently used steps should be available.
SpecifyDRRimageenhancementtoolstoimproveDRRimagequalityReconstructionofDRRsshould bereal-timeorsub-seconddirectprintingofDRRonlaserfilmshouldbepossible.
Real-time displays of DRR as beam parameters are changed.
It should be possible to transfer DRR and BEV images to EPID of Linear Accelerator. Depth Control in oblique projections must be possible
Cross-hair display on DRR to provide scale information.

➢ **IMRT**

Support for coplanar and non-coplanar beam arrangements and synchronous IMRT optimization with delivery by both Sliding window and static step and shoot should be available. QA data generation tools per beam and per plan. Support for multiple MLC vendors. IMRT QA tools. Ability to run IMRT plans on phantoms to create digital composite files for film comparison. Dose QA export to IMRT plan verification software. Intensity map BEV display. Offered IMRT module can have MLC segmentation settings as Minimum number of monitor units per segment, Maximum number of MLC segments per plan, Minimum open area per segment and Minimum number of open leaf pairs persegment.

Should have full integration with IGRT planning and delivery - should be able to send DRR of desired gantry orientation to IGRT system for comparison with KV/MV radiographic image to determine patient shift. It should also be able to send CT images to IGRT system to compare with reference CT images. Should be able to import Cone beam CT images from Treatment machine and compute dose on the imported images to evaluate dose to critical structures of the patient during treatment. If IMRT is delivered as a boost dose after delivery of partial treatment by conventional, 3D-CRT plan, then it must be possible to incorporate the delivered plan to optimize the IMRT treatment plan. It shall include IGRT softwarealso.

Advanced library based intuitive fast and planning solution should be provided.

A method for estimating Dose Volume Histograms (DVHs) based on patient geometry (structure set) and previous knowledge contained in a set of existing patientcases.

- **DICOM Import andExport**

  All required licenses for latest DICOM version and DICOMRT import and export through network between various imaging and treatment systems which are available or to be procured in future (CT,MRI, PET and Simulator) must be provided. In addition to latest DICOM version and DICOM RT the vendor shall also provide DVD based connectivity. The system should be able to acquire and display on-board 2D and 3D volume images of the patient immediately prior to treatment. The network provided should be able to transfer images to (from) EPID/CBCT from (to) TPS and simulator and additional workstations.

- **CalculationAlgorithm**

- TPS should include the following algorithms:

1. Electron beam: Monte Carlo

2. Photon beam: CC/AAA and MC /Type C (deterministic linear Boltzman transport equation)IMRT and VMAT

3. Portal dose calculation algorithm

4. Photon optimization for IMRT and VMAT

- The TPS should have MCO feature / GPU based MCO with trade off exploration

Configuration of Treatment Parameters

Beam Data entry via keyboard, digitizer, and water phantom. Should accept data from standard Dosimetry systems. Generation beam parameters: Gantry/ collimator/ table conventions/ single and dual asymmetric jaw limits/PDD/OAR/TAR/TPR/BSF/Phantom scatter correction factor/wedges/ blocks. Should accept physical/motorized or dynamic wedge parameters. Multi-window overlay of measured vs. generated depth dose and profiles and multiple tray factor definition for eachtreatment machine should beprovided.

- **Utilities**

The following facilities should be available: Template plan storage/ recall including graphics layout. Single/dual asymmetric jaws. Manual divergent blocking. Automatic blocking with margin. MLC planning. Automatic MLC shaping with changes in machine parameters. Enhanced dynamic wedge. Virtual wedge, motorized wedges. Arbitrary weight point location. Relative dose, absolute dose or MU weighting. Bolus. 3D Room's eye view with real time rotation of wire frame, solid and transparent structures and dose clouds. Transverse, sagittal, coronal and oblique views with/ without CT. BEV with variable content display. Export of DRR in DICOM secondary capture format. Real time display of doses on sagittal, coronal and arbitrary planes. Global hot spot display. MU/time calculation for both photons and electrons.Dose profile generator. DVH: differential and cumulative with Multiplancomparison.

VOLUMETRIC MODULATED ARC THERAPY:

All the planning systems should have support volumetric modulated arc therapy treatments, deliveringcomparableorbetterdosedistributionasIMRT.VMATDeliveryforasinglelinearaccelerator with the capability to simultaneously modulate aperture shape, dose rate, and gantry speed continuouslythrough360degreesofgantryrotation,duringanarcbeamdelivery.Whencoupledwith VMAT Planning and a VMAT - compatible information system, the TPS should have the capability to generate IMRT-quality or better dose distributions in a single, optimized arc deliverable by the accelerators.

FEATURES

- Latest version of Inverse Planning software for VMAT with option for SRS/SRT/SBRT should be offered
- Simultaneous modulation of MLC aperture shape, beam dose rate, and gantry rotation speed during beamdelivery
- Radiationbeamiscontinuouslyandsmoothlymodulatedfordoserate
- ProvidesIMRT-qualitydosedistributionsinasinglearc/multiplearcdeliveryinminimumpossible time.
- Should be capable to generate superior plans while limiting leakage, scatter and integral dose to the OARs
- Seamless connection with compliant R&Vsystems
- Should be Capable to perform Single and multiple arc capable Non-coplanar arcs for support of stereotactic radiotherapy andSBRT
- Gated VMAT ispreferable
- Infractional imaging should be available forSBRT.

SRS, SRT AND SBRT SOLUTIONS:

Necessary hardware and software solutions (including image acquisition, fusion, segmentation, planning, evaluation, record and verification) for Frame based/ Frameless SRS, SRT and SBRT using same MLC to be provided by the vendor, specifications of which are to be mentioned and those should be US FDA, CE, AERB compliant. IGRT

planning and delivery solutions for the same to be provided and specified. Necessary QA tools (hardware and software) to be provided andspecified.

ONCOLOGY INFORMATION SYSTEM / TREATMENT RECORD AND VERIFY SYSTEM:

- Patient record & verify system for two workstations per LINACs.
- Transfer all parameters from TPS, Simulator to Accelerator for automatic treatment setup & delivery shall bedone.
- Transfer of portal imaging system data forcomparison.
- Transfer & execution of MLC position parameters for normal treatment & IMRT treatment including step &shoot&dynamicslidingwindowtechniquesfromtreatmentplanningsystemshouldbeprovided.
- Should be networked with existing network system and all required interfaces should be provided for all features such as IMRT, VMAT, IGRT, SRS andSRT.
- TheLINACshouldhavethefeatureofultrafastfirstautomaticmorningQAcheckinminutesforth epositional accuracy of gantry, collimator, MLC and jaws and beam constancy with clear pass/ fail criteria.

IMAGE GUIDED RADIOTHERAPY (IGRT):

The vendor shall quote an IGRT verification system including solutions for management of respiratory motion that should be FDA/CE approved and should be in clinical use inrenowned centers worldwide.

The system shall be based on Cone beam CT imaging. For image guidance, either the digitally reconstructed radiograph from the planning system or a 2D image or a 3D cone beam CT image set will be kept as the reference image and the appropriate image set acquired on the subsequent treatment days will be compared against this referencestandard.

The couch top should shift at all 6 directions (x, y, z, roll, pitch, yaw / iso centric shift)for IGRT required for matchingthe patient'spositionwiththereferenceimagesetwhichwillthenbecomputedbytheimageguidanceso ftware provided.

Thesoftwareshallthendrivethecouchautomaticallytothedesiredposition.Thesoftwareshalloffer both automatic and manual matchingmodes.

It shall also be possible to do matching based on implanted marker seeds.

It shall be possible to use the cone beam CT images acquired by the LINAC for routine treatment planning and the accuracy should be within ± 2% of the dose calculated using the conventional CTimages.

Itshallbepossibletoacquiresuchimageguidedverificationsandadjustmentsofpatient'spositiond ailyor onselecteddaysduringthecourseoftreatment.Allsuchdatashallbeautomaticallystoredinthedat abase.

Alldataandimagetransfershallbefully DICOM-RTcompliant.FullDICOM-RTcompliancewithallimport/ export licenses shall beprovided.

Vendor should also provide DICOM-RT licenses for the existing planning systems with the LINAC.

KVandMVImagerspecificationsshouldbeasperUSFDA,CE,AERBguidelinesanddetailstobementi

oned.

Facilities for offline review (matching of images & shift calculation) should beprovided.

4D advanced IGRT software including software for 4D motion management and management of respiratory motion should be provided.

There should be imaging during the beam on to facilitate intra fraction motion review (IMR).

VIRTUAL SIMULATION SOFTWARE:

Virtual Simulation Software with moving lasers compatible to CT Scan machine in this institute shall be provided. An indexed flat CT table top for IMRT planning imaging purpose shall be provided for the purpose. The Vendor shall ensure easy integration of the Radiotherapy CT Simulator software for acquisition, virtual simulation and image transport with the TPS and machine.

Backup Facility

Sufficientbackupfacilityforstorageofallinformationrelatedtoimaging,planningandtreatmentofp atient for 10 yearswithNASDrive(minimum20 / 12 X 2 TBusablespace)withRAIDfacility.

The model or version of both the LINAC machines must be on Digital Platform and of latest version.

DOSIMETRY AND QA EQUIPMENTS

DOSIMETRY & QA EQUIPMENTS AS PER THE FOLLOWING SPECIFICATIONS

Sl. No.	Specification	Remarks	Qty. needed per institute
1	**RADIATION THERAPY BEAM ANALYZER**		**1 set**
	Require a full-fledged three dimensional Water Phantom & Dosimetry System and therapy beam analyser for performing Off-axis profiles, PDD, point dose measurement, beam symmetry tuning, Dose rate constancy check, vector scan and TG51 lead foil measurement for low and high energy Photon and electrons. All the measurements should be computer controlled and user friendly. All components comply with national and international regulations and safety rules. All components of the system and all available options are controlled by the same software that runs under Microsoft Windows. The system should suitable to measure pulsed radiation with fluctuation dose rate. The parent company should have direct service staffs in India, for smooth and efficient troubleshooting. The product should be robust and reliable and the parent company should have atleast 50 installed and working water phantom systems in India.	A robust and reliable 3D water phantom along with accessories are required for the fast commissioning of the linear accelerator (3D radiation field analyzer)	
a)	**Water phantom**		**1 set**
	The scanning volume should be large enough to scan and should not be less than 48x48X40 cm. It should be square in shape and the system should come with suitable thickness to the avoid bending of the tank's walls by water	A rectangular/square scanning volume make sure that the water phantom measurement	

	pressure and water absorption of the acrylic material. The reproducibility of a position should be ±0.1 mm throughout the whole phantom. The positioning tool should be there to allow easy and exact positioning of the chamber's geometrical centre in the central beam and at the water surface. Apart from this the exact position of the chamber in the radiation beam should be possible via software/Pendant. The positioning speed should be adjustable upto 50mm/s. The acceleration of the step movement should also be changed as and when required. The zero point, reference point and limit of the different detector units should be stored separately in the control unit /Pendant. The control pendant should display the actual position of the chamber position at any given measuring time. The system should be capable of performing fast continuous mode / step by step mode. Availability of both the mode will be preferred.	correlates with the field of view of the LINAC, which is also square/rectangular. A higher reproducibility makes sure that the repeated measurements give the same value and a faster scanning helps in faster data collection and hence faster commissioning	
b)	**Ionisation Chamber for RFA**		**1 Set**
	2 nos of 0.13cc or 0.125 cc ion chambers, along with detector adapters and 2 nos of 5m cables should be provided	2 nos of 0.13cc or 0.125 cc chambers are needed for scanning and reference purpose.	
c)	**Water reservoir**		**1 set**
	The water reservoir should be atleast 180 litres to store the water and can be pump and drain to the water phantom as quick as possible. The water Reservoir must be able to hold the entire weight of the water without any change. The weight of the whole assembly can be puss or pull though the wheel with polyethylene or equivalent. The lifting carriage should come with the technology that keeps the height absolutely accurate. The Lifting carriage and Water Reservoir should be separate /integrated for easy movements, must be imported and directly from the suppliers. The water reservoir should have a safety circuit that avoids the dry pump running. Automatic Lifting facility should be quoted mandatorily. Provision for leveling water phantom manually / automatically should be provided.	Imported table and reservoir make sures that the accuracy and robustness is not compromised, even in the accessories division	
d)	**Control Unit**		**1 set**
	A separate control unit for controlling the movement of the detector in any three directions should be possible. The control unit should permanently store zero point, reference point and limit points for water phantom. It should have a time constant of minimum 20ms and the leakage current should be less than 200fA.		
e)	**Control Laptop**		**1 set**
	The latest version of W indows , Professional laptop (with higher version processor, 8GB RAM, 1TB hard disk, 2GB Nvidia graphics card) should have all the latest feature with color FULL HD monitor and with printer/plotter (color) . The system should be upgradable.	A powerful computer ensures that the system software run smoothly	
f)	**The Software**		**1 set**
	Fully workflow oriented acquisition and analysis software to increase efficiency and to reduce the commissioning and QA time of the LINAC should be provided with the following minimum properties:	An User friendly and comprehensive software to compliment the powerful water phantom.	
	-Many data exchange with IMRT software system		
	-Support of all international and industry protocols		
	-Licenses for installation of acquisition and analysis software on up to five workstations Common settings:		
	-Complete settings in one window		
	-Visibility of connected controller and electrometer		
	Queue Set-Up:		
	-Highlights discrepancies prior to measurement		
	-Queues pre-defined though flexible; measurements are prepared based on RTPS Requirements		
	-Queue filtering and sorting base for grouping scans and optimization queues functions for modify, extend and exchange queues		
	-Import of RFQ files (queue files)		

	Data Acquisition: -1D, 2D and 3D data views -Online display of measurements and online data analysis of each scan controller panel. -Central axis check facility -Adaptive scan optimization facility -Output factor table Data Analysis: -Electron depth-curves/profiles photon depth-curves/profiles TPR/TMR -Isodose / Array calculation mathematics: add, multiply, subtract and divide curves data modification tools, e.g. rescale, move, mirror RTPS: -Generation of measurements queue data transfer plug-in module for new RTPS update Archiving / Printing: -Appropriate data archiving customized print templates creation and export of tables		
g)	**Administrative Data**		**1 set**
	Comprehensive documentation of the measured data by automatic saving of the used measuring environment should simplify the interpretation of data even a long time. The used measuring routine data can be reused either unchanged or with some of the parameter changed. Data can be printed and plotted in numerical and graphical form on all printers and plotters that are supported by windows. The administrative data can be changed after saving the measuring data. All measuring data should furnished automatically with their administrative information and comprehensive filter function allows the easily selection of specific data. The necessary software to network the 3D TBA system with the existing 3D TPS in the department of Radiotherapy must be offered.		
h)	**Data Analysis**		**1 set**
	Various normalization should possible viz. normalization to maximum for depth dose curves, normalization to maximum or center for profiles and normalization to maximum, enter, position and value for isodose lines. Homogeneity and symmetry should be calculated automatically and various national and international protocols can be selected. Depth dose curves can be analyses according to AERB protocols.		
2	**ARRAY DETECTOR for IMRT& Rotational IMRT**		**1 set**
	The device must be based on ion chamber matrix / diode with more than 1000 detectors, having the facility to use with dedicated phantom with 3D dosimetry system having facility for measurements of IMRT/ VMAT/Rapid-Arc and should be calibrated for FFF applications at high dose rate. The device should come with a physical device to calculate the gantry angles for VMAT/Rapid Arc plans. The chamber must be a vented plane-parallel square shaped ion chambers with center to center spacing less (per institution) than 8mm. It should be able to use for the dose verification of IMRT beams and routine quality control of high energy photon and electron beams by using the software. The device should include a temperature and pressure sensor to perform an automated correction of the chamber signal (optional). The software should allow for the Registration of measured vs planned data, Complete IMRT verification of measured vs. planned TPS data incl. 1D profiles, 2D isodose maps, DVH, automated verification such as sum, (absolute difference, correlation, multiplication, DTA (distance to agreement) calculation, Gamma analysis, including threshold and gamma angle Histograms (for data sets and results) Region (ROI) of interest analysis Time based analysis (tables) e.g. start-up License for complete DICOM for: Import of planned 2D and 3D data from all TPS supporting DICOM RT and RTOG formats Import of EPID data via DICOM Interface to DICOM compatible scanners (e.g. Kodak CR, Agfa) via import of DICOM CR files	Ion chamber based detector array make sures that most accurate IMRT and Rotational IMRT QA is done. 1000+ detectors ensure that the spacial resolution of the array is superior and hence no information is lost. If the sampling time is less, this ensures that the data collection by the detector is very fast. So be best detector will have lower spacial resolution along with lower sampling time!	
	The parent company should have direct service staffs in India, for smooth and efficient troubleshooting. The product	This make sure that the department gets a	

	should be robust and reliable and the parent company should have atleast 10 installed and working IMRT QA systems in India.	reliable and robust Rotational IMRT QA device, supported by the principal company from India	
	Pin point chamber should be provided for small field IMRT QA		1 set
3	**Machine QA and Daily QA**		**1 set**
	A Daily Independent QA device with minimum of 12 ionisation detectors which can perform constancy checks on LINACs to check homogeneity, symmetry, central dose, wedge angle needs to be supplied with option to analyse the data according to all the International and Linear accelerator vendor protocol. The device should be capable of printing the daily data for selective period, selective energy, field size and any other filter options. There should be options to print the trend analysis in graphical format, along with the summary for the chosen period. It is also desirable to print the analysis of the daily data for the selected period. The actual measurements of the chambers should also be pintable in table format. The Daily QA should be offered for available all features including FFF compensators blocks. The device should be a wireless & should have a built-in LCD Screen displaying all the measured values. The device should have a capability to store upto 8000 number of measurements. The device should trigger the next measurement automatically. Dedicated software should be provided for data documentation and trend analysis. The device should be capable of correcting for temperature and pressure variation The device should also have the feature to be operable through software. Software License should be at least for five systems.	Advanced LINAC QA solution needed for the daily / weekly LINAC check	
4	**Absolute Dosimetry and Detectors**		**2 Sets** Quantities needed for 02 set per institute
	A reference class electrometer with TNC connector, with a sampling time of minimum 20ms should be provided. 2 farmer chamber 0.65cc or 0.6 cc, 0.4cc parallel plate chamber and 18m long triax cables with TNC connectors should be provided. Adequate build-up caps for (6MV, 10 MV and 15MV) farmer chamber should be also provided. All chambers supplied should be water-proof and should have TNC/M type connection. (per institute irrespective of no. of LINACS)	Reference class electrometer helps in cross calibration of chambers and TNC connector makes sure that the electrometer can work with any TNC chamber	
	The following items should be included in the absolute dosimetry package - imported RW 3 slab phantom of 30x30cm with adapter plates for pin point chamber, FC and PPC, imported fluke/ Ludlum survey meter, a local D10/20 phantom, an imported at least 25 cm variable depth (manual)30x30x30 phantom with chamber insert for FC and PPC, digital calibrated thermometer and barometer.	Essential items needed for	1 set of slab phantom per machine.
5	**SRS/SRT QA**		**1 set**
	The following items should be quoted for SRS/SRT QA:		All the stated inserts shall be a homogeneous cubic insert with automatic locking mechanism and
			must have same material and density as that of base phantom. They should also contain cylindrical CT markers so that the isocentre position can be easily and acurately defined and the dose value at the isocentre can be extracted. A homogenous plug shall also be supplied

			wherever applicable to fill into detector cavity to avoid artifacts caused by the inserted detector while planning CT of those inserts combined with base phantom. A corresponding detector holder wherever applicable that can be screwed in to the insert must be supplied for the exact positioning of the detector in the centre of the insert.
	1. Reference diode detector diode detect or along with Stereotactic	Mandatory package for SRS/SRT QA	
	2. Photon and Electron field detector	Necessary package for SRS/SRT QA	
	3. Dedicated array detector for SRS & SRT QA / Software solution for SRS & SRT QA. The array should be ionization based with minimum 2.5mm resolution. The array should be able to be placed in the rotational phantom to get the Volume dose for SRS/ SRT treatment	Theseitemsensurethat theSRS/SRTQAdoneis of highquality	
	4.A technologically advanced and fast phantom with powerful and ready-to-use application-specific inserts are required. The system set up and operation should be simple with unrivalled flexibility to add and combine inserts as and when needed. All components should be designed and manufactured with sub-millimeter precision. It must support SRS, SBRT. It should have CT markers on the base phantom to coincide with all inserts for enhanced visibility. A phantom should be made of polystyrene material with octahedral symmetry and Polyhedron design having physical density of at least 1.05 g/cm³. The phantom must be usable with various inserts for end – to – end testing, patient plan verification, and additional tests for LINAC QA in a clinical environment. It should have an integrated and compatible solution with application-oriented inserts and appropriate detectors.	Base Phantom for SRS/SRTQA	
	5. The insert shall have capability to check 2D/3D coincidence of MV & kV Isocentre with MV Imaging system (EPID–2D) and kV CBCT (3D) system, respectively using minimum four Tissue-equivalent bone structures for enhanced visibility. It should also have the capability of daily checks of IGRT and SGRT positioning accuracy, including remote controlled couches as recommended by AAPM TG-179 and TG-142. It should have a high-density radiopaque ceramic spherical ball having dia of less than 9 mm to perform Winston-Lutz testing 3D iso – centre verification. There should be a software module to determine 3 D isocentre deviation.	LINAC QA insert	
	6. This insert when combined with base phantom must enable a comprehensive end-to-end testing and patient QA of stereotactic treatments (SRS, SBRT, SRT) as recommended in major QA protocols and guidelines, including AAPMTG-101 and tissue-equivalent materials (brain, lung and bone) for enhanced CT visibility and additionally the insert should be compatible for accurate verification of the CT/MRI image fusion algorithm of the treatment planning system. A detector boreholein thecentre of the same insert is required for Patient-specific single-point dose measurements with different detector types. The insert must be compatible with patient positioning systems and patient masks for accurate set up.	System QA insert	

	7. The insert should be usable in measurement based patient specific plan verification including non co planar treatments with different detector types. This insert must allow fast point - dose verification of treatment plans of any gantry angle.	Detector insert for patient QA	
	8. The insert should be usable in measurement based patient specific plan verification including non coplanar treatments with high resolution radio chromic films for high precision radiotherapy and SBRT /SRS treatment plans. This insert must allow 2 dimensional dose verification of treatment plans of any gantry angle without repositioning. The patient QA insert for radio chromic film shall allow the use of minimum 14 cm x 9cm sized radio chromic film. The design of the insert when combined base phantom shall permit the film to be positioned at different planes. It shall also contain cylindrical CT markers so that the isocentre position can be easily and accurately defined. Any accessory which will be useful to mark the film relative to the CT markers in the phantom or film perforation shall be supplied.	Film insert for patient QA	
	9. An insert should be available to perform the quality assurance of irradiation of multiple metastasis with one Isocentre or non-iso-centric treatment / irradiation techniques, with or without couch rotation. It shall also embed at least three bone equivalent cylinders enabling compatibility with IGRT systems and to provide contrast for positioning using kV imaging systems. Necessary homogenous plug shall also be supplied to fill into detector cavity to avoid artifacts caused by the inserted detector while planning CT of the insert combined with base phantom.	Optional insert for Multiple Metastasis applications	
	10. A phantom should be supplied and be compatible to do QA for SRS / SRT QA The Phantom in combination with all above said inserts shall be used in conjunction with 6D couch treatment techniques. The Phantom should be visible for all in-built LINAC Imaging system i.e., MV Image, DRR Image, kV Planar and kV CBCT. All components shall be designed and manufactured with submillimetre precision. This phantom when combined with Insert for Multiple metastasis applications shall enable realistic treatment planning of brain metastases. The head phantom shall be of polystyrene material having physical density of at least 1.05 g/cm^3.	Optional phantom for SRS/SRT with Head shells	
6.	IN-VIVO DOSIMETRY		1 set
	Mobile MOSFET: For routine, IMRT vivo dosimetry, a set of ten (10) MOSFET with associated Remote dose verification software, wall mounted Bluetooth wireless trans receiver, reader, software and final dose reporting system.	For the Patient dose verification purpose	
7.	Warranty & Service Facilities		
	Five years warranty and additional 5 years CMC on all products should be provided. Factory trained Application specialist should be available in India to look after the installation and maintenance of the systems.	Make sure to provide the best support always	
	All radiation measuring detectors and instruments which needs periodic calibration (Ion chambers, pocket dosimeters, survey meters, GAMMA zone Monitors etc.) should be calibrated periodically as per AERB norms within the period of warranty and CMC by vendor companies.		
8.	Additional item to be included		
	1) 5 boxes of 8x10 inches & 2 boxes of 14x17 inches Gafchromic film for QA purpose		1 set
	2) Imported Specific phantom for image Verification		
	3) Digital pocket dosimeter with online real-time Bluetooth connectivity with android mobile – 02 number		
	4) A3 Flat bed film scanner with necessary software for dosimetry analysis		
	5) Iso-alignment device for verification of the iso-centre QA and light field congruence QA verification system.		
	6) Dedicated phantom for IMRT (both homogeneous and incorporating in-homogeneities mimicking actual patient anatomy like lung etc) for all steps from imaging to dose		

	verification and SRS (including capabilities of imaging, image fusion, absolute, relative and point-dose dosimetry measurements at isocenter and at exact positions off isocenter. This should allow for a seamless evaluation of dose as well as geometric accuracy, including CBCT and MV/kV alignment.		1 Set
	7)DigitalRadiationSurveyMeter:Fluke/Ludlums/equivalent. Reading in Sievertand Sievert/Hour. – 2 per institution		

MISCELLANEOUS

- Internet broad band speed connectivity and Local Telephone facility should be provided and maintained by the Medical College Authority only
- One LCD Projector with a projection screen and smart board technology of latest make tobe provided.
- Five books of most recent edition on IMRT, IGRT and Radiotherapy and Medical Physics along with onlineaccesstoanyintensiveplanning/QA/deliveryresourceforacademicusetobeprovided.
- Intercom system as per departmental requirement must beprovided.

MOULD ROOM ACCESSORIES TO BE SUPPLIED WITH LINEAR ACCELERATOR:

Mould room accessories consisting the following items should be provided,

1. Vac. Lock System - Nylon re-enforced blue urethane materials with one suitable vacuum pump for the system (Complete set).	
Item	**Qty.**
Breast & Thorax	6
Hip & Pelvic	10
Whole Body	6
Paediatric Vac. Lock	10
2. Electron block cutter system with accessories	1 sets
3. Various sizes holders to accommodate electron cut out of available electron applicators, cadmium free low melting alloy (25 Kg)	30 pcs.
4. Immobilization Devices (Following Mould Room equipments are to be provided) All the products should be imported, if available and all immobilization devices must have certified dosimetric property for different energy. **All immobilization system must be with suitable storage cabinet.**	
All in one board True carbon fiber . (per institution) It shall be One for All, Immobilization devices having a total solution to treat Paediatric to Adult in supine and prone and capable of treating Head, Head & Neck, Breast, Thorax. Abdomen, Pelvic and Extremities The Offered All IN One Base Plate shall be of a Long Board Minimum Length 160 cm and thickness 2cms	~~4 sets~~3 sets
360 deg rotational base plate for TBI	2 sets
True Carbon fibre Breast Board for supine patient with different angulation, arm support, wrist support with grip hole ,bottom stop with hip position adjustment(Compatible with 80 cm bore aperture of CT scan)	~~4 sets~~2 sets
Head Rest (Set of 3 size)-Should be very low density foam	Each 4 sets
Paediatrics Head Rest(Set of 2 size)-Should be very low density foam	Each 4 sets
Carbon fibre tilting Head & Neck base plate	2 sets
Prone head rest adult and pediatric (per institution) -Should be very low density foam	4 nos.for adult and 4

	nos for Paediatric
Foot rests & knee rest	Each 4 sets
Breast callipers (digital)	2 sets
Multipurpose support cushions of various shapes	4 sets
Immobilization straps for various sites	4 sets
Separation meter - Should be made up of light metal with accurate scales	2 nos.
Shoulder retractor for head and neck patients	4 nos.
Digital water bath for thermoplastic precuts	2 no.

Allthethermoplasticsheetsmusthaveclamp-basedfittingwiththebaseplatesandthebaseplatesshould havethefittingforbothclampsbasedaswellaspushpintypesfittings.

Heat gun	2 nos.
Gel Bolus sheets 30 cm x 30 cm of thickness 0.5 cm	30 pcs per LINAC
Gel Bolus sheets 30 cm x 30 cm of thickness 1 cm	20 pcs
Styrofoam cutter for electron	2 no.
Alloy Melter	2 no.
Low/medium m elt shielding alloy (cadmium free)	25 kg
Styrofoam blocks 12”x12”x3”	1 set
Styrofoam blocks 12”x12”x1”	1 set
Body caliper	2 nos
Curved stainless steel caliper	2 nos.
Tissue compensator	1 sets
Rectal marker	2 nos.
CT markers (2mm dia)	500 nos.
Wax bolus	50 box
Indexer bar for LINAC couch top carbon fibre to fit variety of base plates. (per institution)	4 sets
Tungsten eye shields set consist of three sizes, for paediatric and adult patients	1 set each
5. Customized Thermoplastic Immobilization precuts best quality (for two Years)	
Head & neck 4 clamp	250 pcs/ per year for 5 years in phased manner.
Head 3 clamp	200 pcs / per year for 5 years in phased manner
Pelvis (supine) 4 clamp	50 pcs / per year for 5 years in phased manner
Head & neck 5 clamp	50 pcs/ / per year for 5 years in phased manner
Pelvis (supine) 6 clamps	50 nos/ / per year for 5 years in phased manner
Paediatric Head 3 clamp	30 pcs/ / per year for 5 years in phased manner
Tattoo ink	10 bottles
Treatment Brassieres(for breast irradiation)	20 pcs
Thorax Abdomen- Arm rest – low	4 nos.
Knee & leg positioning cushion- low	4 nos.
Tegaderm	75 pieces
Adjustable arm support and Grip pole- Complete system-Should compatible with all	4 nos.

in one board	
Side Panels for Vacuum cushions (set of 4)	4 nos.
Leg separator Low	4 nos.
Block 20mm Carbon Fiber	4 nos.
Wedge 3 different angle- True Carbon fiber	Each 3 sets
Pressure belt for SBRT with manual pump	1 set
SRT/SRS Starter Kit Including Frame, carbon fiber Base plate, Storage Base, 10 no of SRT/SRS Thermoplastic Mask	1 set

Customized Thermoplastic Immobilization precuts should be provided as and when required by the concerned department and after installation of LINACs.

To install the Mould room facilities the demarcated area is to be prepared to make a room for Mould room facility. An indexed stable flat top couch of good make along with fixed sagital LASER in-tune and aligned with the sagital LASER of the CT simulator and treatment room should be provided at the ceiling of the mouldroom.

GENERAL CONDITIONS AND REQUIREMENTS:

- LifespanofLINACmachinesshouldbeminimumof10years.Thebiddersshouldprovideallnecessary spareparts&servicesforsatisfactoryfunctioningoftheequipmentfortheperiod.
- Noconditionalwarrantywillbeacceptable.
- ThecostoftheCMCshallbequotedinIndianRupees.Alltheitemsoftheentiresystem,beitwarranty orCMCperiodwillbesuppliedfromreputedmanufacturersabroadandnotfromIndia.

  In the above specifications wherever the word 'shall' is mentioned, it is taken in the meaning that the required feature/facility/procedure specification/standard is mandatory. All claims regarding meeting of the specifications shall be duly supported by appropriate, latest technical catalogues/brochures fromthemanufacturer.Simplystatingthattheequipmentmeetsthespecificationsisnotsufficientand any such quotations will be summarily rejected. Computer printed documents or laser printouts will notbeacceptedastechnicalcatalogues/brochures.DuringthewarrantyandCMCperiod,allsoftware upgradation/sofanyandallofthemachineandalliedsystemsshallbeprovidedfreeofcost.

- Thevendorshallsubmitacompliancestatementpointwiseinregardtothespecificationsaskedforin the tender. It will be responsibility of the vendor to go through all the tender requirements carefully andaccordinglyaddresseachandeverypointabouttheircompliance.Thecompliancestatementshall preferablybemadeinanExcelworksheet.Thesoftandhardcopyofthecompliancestatementshallbe provided.Theyesornostatementmentionedinthecompliancestatementshallnotbecontradictedin the tenderdocument.
- The vendor shall supply all the items required for running the entire Linear Accelerator system (including all parts consumables and non-consumables, imported or local). This assurance will remain valid for the entire life of the Linear Accelerator system. This

assurance includes supply of all the parts required for proper functioning of the entire unit even if those have not been mentioned in the tender specifications advertised and the supply order / agreement contract. The Company shall carry out all the regulatory clearance required for installation, commissioning proper clinical use of the entire Linear Accelerator till the time the machine is functioning. The company shall coordinate the preparedness of the site for housing the Linear Accelerator and the shipment and delivery of the system to the Hospital complex so that the machine does not remain idle. The insurance up to the date of commissioning for the entire system will be company responsibility. The company shall not request the Hospital to purchase any items for 10 years from the date of commissioning which includes five years warranty and subsequent five years as CMC. The payment with regard to CMC will be made to the company by the Hospital at the end of every year of successful maintenance which will be certified by the user. The company will supply all the quality assurance tools/gadgets required for the smooth functioning of the machine for entire life of the machine. The company shall supply all the items required for remote diagnosis and servicing. The company shall provide networking with the existing systems of the Hospital like TPS and the future purchase of any equipment in consultation with the vendor concerned (The cost of license from the respective vendors of the above equipment available in the department will bequoted).

- The custom duty/cost of insurance etc. for procuring the machine for the commissioning and any subsequent spare part /accessory etc. will be paid by the company at least for the entire 5 years of warranty and 5 years ofCMC.
- TheIMRT,IGRTLINACsystemshallbeFDA/CEapprovedandtypeapprovedfromtheregulatorybody AERB,Mumbai.**Yearofmanufacturingoftheunitandaveragelifeoftheunitmustbementioned**.The suppliers shall bear all responsibilities and expenditures relating to transportation, custom clearance, loading, unloading, insurance of the equipment till commissioning, pre-commissioning approval of AERBandhandingoverthemachinetothehospitalauthority.
- The acceptance/performance tests will be done as per AERB protocols and any deviation from their tolerance limit shall not be accepted.
- The LINAC system will be installed in the building (as per Layout plan approved byAERB).
- The vendor must depute an expert to acquire the requisite AERB data at the site duringcommissioning.

  Vendor shall inspect the site and assess according to the need of the specific machine which will be supplied. Any masonry, electrical or other work, if it is not done required for installation including finishing of treatment room and control area walls, floors etc. or any minor alteration / adjustments of the same will be completed by the vendor on a turnkey basis.
- **Allfurniturerequiredforthecontrolarea,TreatmentPlanningsystemsroom,Contouringroom,Mould room, work stations, Physicist rooms, treatment rooms and patient waiting areas are also tobe**

  supplied by the vendor. Those must be of modern and reputed make in keeping with design and functioning of the entire area.
- Vendor shall quote their optional items separately as described in the specifications. Optional or additionalitemsnotincludedintheessentialitemsofthetender,ifavailablemayalsobequotedb

ythe firms as optional features, separately with individual prices. These may include advanced features/special features/advanced clinical applications etc. However, if the Hospital wants to purchase anyone of the optional items in future, the prices can be taken as frozen until the expiry of warrantyperiod.(Thetechnicalandpricebidsofsuchitemsshallbequotedseparatelyitemwise and not with the mainequipment).

- **Last Man out Switch to be installed in LINAC Bunker by the vendor as per guidelines ofAERB.**
- **Door light (Red, Yellow, Green LED panel) for all the installed machines; lights should be as per the AERB safety code forRadiotherapy.**
- **OnegoodqualityRadiationsurveymeter.(Fluke/LudlumsreadinginSv,Sv/hr)**
- Sulfer Hexa-fluride (SF6) gas cylinder to be supplied throughout the warranty period and same to be included in CMCthereafter.
- **Vendor should add the necessary dosimetry equipments& accessories which they feel to be essential for their offered machine but not mentioned in thisdocument.**

CT SIMULATOR (4D)

CT Simulator is a latest wide bore 4D multi slice CT scanner with a virtual simulation workstation and moving external laser system.

1. MANDATORY REQUIREMENTS

1.1. ThequotedmodelshouldhaveBIS/ISO/USFDA/CE(European) / CDSCO / AERBapproval.

1.2. In addition, the quoted model should be NOC/type approved by AERB and should be the latest model available with the vendor. The related certificate & documents should be enclosed with the technicalbid.

2. GENERAL REQUIREMENTS

2.1. The quoted model should be a dedicated CT-Simulator which is required for the Radiotherapy Department for conventional, 3-D CRT, IMRT and VMAT planning. The CT-Simulator should be able to use for most accurate simulation, placement of treatment fields and marking of radiation field portals on patients' skin for radiation therapy of cancer.

2.2. The quoted model should be the latest, state-of-the-artmodel.

2.3. The CT scanner should be a spiral, 16 slice or more multi-detector slip ring technology incorporating latest technology available in themarket.

2.4. The simulator software should be user-friendly and should be easy, error-free and should have total compatibility between scanner and simulator workstation. If third-party software is supplied, it will be the sole responsibility of the vendor supplying the CT-Simulator to run the software seamlessly for the entire periods of comprehensive warranty and comprehensive maintenance contract.

2.5. The system should be networked to the existing 3-D Treatment Planning Systems, Brachytherapy Systems and High Energy Linear Accelerators in the department for DICOM RT Import and export and this will be entirely and direct responsibility of the CT-Simulator Vendor Co-ordination should be done by the turnkey supplier with the existing Radiotherapy Systems in the department. Compatibility should be complete in all respects.

3. CT-SCANNERSPECIFICATION

3.1. GENERAL:The quoted modelshould be awhole body spiral,16-slice perrotationormore CT(multi-detector) with flat carbon fibre indexed table top for Radiotherapy Treatment Planning and Simulation of 4D- pulmonary CT scanacquisition.

3.2. GANTRY

3.2.1. GantryaperturesshouldbeadequateenoughtoplanalltypesofRTplanningwithpatientsintheiractual treatmentposition.Hencelargerapertureofmorethanorequalto80cmwillbedesirable.

3.2.2. ScanFieldofViewshouldbe50cmormore.ExtendedFieldofViewshouldbepreferableequaltobore size.

3.2.3. Metal-free Scannable range should be at least 150cm.

3.2.4. Gantry must have internal laser-positioning lights with a positioning accuracy of ± 1 mm orbetter.

3.3. X-RAYGENERATOR

3.3.1. Highfrequencyx-raygeneratorwithpowerratingofatleast80kWormore.

3.4.X-RAYTUBE

3.4.1. The x-ray tube should have anode heat storage capacity of 8 MHU ormore.
3.4.2. Theanodepeakheatdissipationrateshouldbe1500KHU/minormore.
3.4.3.X-ray tube should have dual focal spot. The bidder should specify the size of the focal spots.
3.4.4. ThereshouldbeatleasttwokVSettingsormoreavailableoverarangeof80kVto140kV.
3.4.5. The mA range must be from 20 mA to 600 mA or better, with step size of 10 mA orlesser.

3.5.DETECTORSYSTEM

3.5.1. The detector system should have a high-performance and low-noise 16 rows of detectors or more with high data density, active response data acquisitionsystem.
3.5.2. The detectors should be solidstate.
3.5.3. The detector system should be free from repeated calibrations.
3.5.4. The detector should have minimum 16 rows of physical detectors.

3.6.PATIENTCOUCH

3.6.1. The couch top material must be indexed carbon fibre having horizontal moving range of 150 cm ormore.
3.6.2. Thetableshouldbeuniversallyflat/Carbonfibreflattabletop.
3.6.3. ThetableshouldbecompatiblewiththetablesofquotedHighEnergyLinearAccelerator.
3.6.4. The table should have a patient positioning index system on carbon fibre tabletop. 2 Index rods have to be supplied for positioning of Immobilization base-plates (Head & Neck, Abdomen and Pelvis and Knee at Rest) for Radiotherapy PatientSimulation.
3.6.5. The table should be able to bear weight up to 180 kg or more and the tabletop sagging should be as per IECguidelines.
3.6.6. The table should have a metal free range of about 150 cm and should have a scan able horizontal range of 150cm.
3.6.7. The horizontal accuracy should be ±1 mm orless.
3.6.8. ItshouldbepossibletomovethetabletopfromtheGantry/controlconsole.
3.6.9. The table should have auto-homefacility.

3.7.CONTROL CONSOLE

3.7.1. Itshouldhave19”ormoredisplaymonitorfordisplayof1280x1024matrixormore.
3.7.2. All functions viz., scanning, image reconstruction, film documentation, MPR, CT maximum intensity projection, 3D with SSD etc., should be possible from the main console and / or workstation.
3.7.3. Imagestorageof1TBoratleast2,50,000imagesof512x512matrixesuncompressedorbettershouldbe provided. The latest configuration may bequoted.
3.7.4. LatestfastDVDR/RWfacilityforarchivingmustbeavailable.
3.7.5. The image reconstruction time should be less than 1.5 second from anymode.

3.8.CT-SCANNINGPARAMETERS

3.8.1. The slice thickness should be user-selectable from 0.625 mm to 10 mm orlesser.
3.8.2. kV range: 80 or lesser to 140kV.
3.8.3. mArange:20to600mAinincrementof10mAorlesserincrementorlargerrange.
3.8.4. Scantimeforfull360-degreerotationshouldbe0.5secondorless.
3.8.5. Scanfieldviewshouldbe60cmormore.

3.8.6. Displayfieldofviewshouldbe70cmormore.
3.8.7. Intra-Plan delay of 5 seconds or less should bepossible.
3.8.8. Retrospectivereconstructionshouldbepossibleonrawdatafileswithchangeinparametersuchas FOV.
3.8.9. The following scanning modes should bepossible:

- Scannogram
- Axial
- Spiral

3.8.10. ItmustbepossibletoobtainthescanogramforAPorPAorleft-to-rightorright-to-leftdirections.
3.8.11. Theaccuracyofsliceprescriptionfromscanogramshouldbe0.5mmorbetter.
3.8.12. Thescanogramlengthshouldbemorethan1500mmlongand500mmwide.
3.8.13. Reference scan should be possible on an arbitrary slice within the proposed treatmentvolume.

3.9.IMAGEQUALITY

3.9.1. The reconstruction matrix must be 512x512 orhigher.
3.9.2. Thereconstructiontimeshouldbeaslessaspossible.Specifythereconstructiontime.
3.9.3. Simultaneous scanning and reconstruction should be possible. It should be possible todo:
3.9.4. Simultaneous scanning & routing analysis
3.9.5. Simultaneous scanning & archiving and/or hard copying, and
3.9.6. Simultaneous scanning and transfer to the second console / workstation.
3.9.7. The system must have automatic mA control software that automatically adjusts mA for patient size; adjust mA along the z-axis, modulates mA during rotation.
3.9.8. High contrast Spatial Resolution: It should be 15 Ip/cm or more for a slice of 10 mm thickness. Clearly specific the phantom used, scan time, mA, filter for image reconstruction, scan field. Low contrast detectability 5 mm or less with 10 mm slice thickness on CATPHAN phantom.
3.9.9. The CT number accuracy must be better than ± 4 HU for water and ± 10 HU for air.
3.9.10. All necessary phantoms to check the spatial resolution of the scanner should be provided.
3.9.11. Spiral parameters: Different selection of pitch should be possible, from 0.5 to 1.5.

3.10. COMPUTER SYSTEM OFCT-SCANNER

3.10.1. Averyhigh-endmaincomputersystem,latestavailableinthemarketmustbeprovided.
3.10.2. RAM size must be at least 32 GB orhigher.
3.10.3. Theremustbetwomonitorsintheconsoleandtheymustbe19–inchorhigherdisplays.Oneofthese willbeusedforacquisitionandotherwillbeusedforreviewandprocessing.
3.10.4. Theharddiskcapacityofthemaincomputersystemmustbeatleast700GB(solidstate)ormore.
3.10.5. In the hard disk meant for image storage, the number of uncompressed 512x512 images that can be storedshouldbeatleast2,50,000ormore/1TB.ThemaximumpossibleharddiskCapacitymustbeprovided.
3.10.6. For archiving, DVD writer should be provided. The images should be able to convert to JPEG/MEPG to be recorded onto recordable CD andDVD.
3.10.7. TheCTsimulatorsystemshouldbefullyDICOMRTcompliant.TheDICOMshouldsupportthefollowing:

3.10.7.1. DICOM 3.0 Storage class as auser.
3.10.7.2. DICOM 3.0 Storage class as aprovider.
3.10.7.3. DICOM 3.0Send/Receive.
3.10.7.4. DICOM 3.0 Query/Retrieve service class as auser.
3.10.7.5. DICOM 3.0 Query/Retrieve service class: aprovider.
3.10.7.6. DICOM compliance statement must beprovided.

3.10.8. A bidirectional speaker communication must be provided between the operator and thepatient.

3.11. STANDARDSOFTWARES

3.11.1. Complete scanning and evaluationsoftware.
3.11.2. 3-D surface shaded and 3-D volumerendering.
3.11.3. Quantitative CT measurement tools should beprovided.
3.11.4. 3-Dsmallvolumeanalysissoftwareforsolitarynodulesisdesirable.
3.11.5. MetalArtifactReductionfeatureshouldbeprovidedtoreducemetalartifacts.
3.11.6. Interface and essential software for four-dimensional pulmonary CT scan for both amplitude and phase- bin CT data acquisitions to reconstruct the MIP (Maximum Intensity Projection), MinIP (Minimum Intensity Projection) and AIP (Average Intensity Projection) CT Image datasets should be provided. Retrospective four- dimensional CT scan acquisition options should also beavailable.

4. MOVING LASERSYSTEM

4.1. The CT simulator should have at least three green lasers for marking field reference points and field isocentres- twolaterallaserstationsandonesagittallaserstation.TwoleftandrightlateralLaserstations, guardedwithoutersteelmeshtoavoidthemovementofLaserStationsbyroutineCTSimulatorusersa nd

each lateral laser station consists of a horizontal and a vertical laser source. One sagittal Laser station consists of a sagittal and vertical laser source. The wavelength of these Lasers should be ~520±30 nm. The positional accuracy should be within ± 0.5 mm and the width of the laser should be within 1 mm.

4.2. In addition to the above moving lasers the CT scanner should have conventional in-built lasers for positioning the patient.

5. CT SIMULATION PLANNINGSYSTEM

5.1. GENERAL

i. The workstation/console computer should have advanced CT simulation tools for radiation therapy treatment planning compatible with theLINAC.

ii. Theworkstation/consolecomputershouldbeabletoprovidecompletevolumedefinitionandgeometric beam placement forradiotherapy.

iii. The CT simulation should generate digitally reconstructed radiographs (DRRs) in a true volumetric environment.

iv. It should have complete compatibility and error-free DICOM networking with a CT scanner computer, TPSandexistingLinearAccelerators.AlllicensesrequiredforDICOM3andDICOMRT(RTPlan,RTStructure, RT Dose) import and export to other Treatment planning systems (including Third Party) should be permanent and included in theoffer.

v. Vendors should provide the DICOM connectivity of CT Simulator to be connected with the existing MOSAIQ and ARIA Oncology Information Systemsoftwares.

6. HARDWARE

5.2.1. Hardware specification should be mentionedclearly.
5.2.2. Display should be Medical Grade 2 Mega pixel higher display monitor with a high resolution.
5.2.3. NetworkingwithTPS:AllthesoftwarewithessentiallicencesrequiredshouldbeincludedComplete DICOM-RT export/import license should beavailable.

5.3. SOFTWARE FOR SIMULATION ANDCONTOURING

5.3.1.1. Console/WorkstationshouldbeabletoImportofCT,MR,PET,PETCTImagesandotherimagestaken at or outside the Department of Radiotherapy &Oncology.

5.3.1.2. It should automatically create 3D image from the supplied axial images and should make the body structure though auto segmentation.

5.3.1.3. On the monitor screen it should be possible to view DICOM in multiple slices viewports at least 16 images or more.

5.3.1.4. The standard screen layout should consist of one main view port and three sub-view ports for frequent usage of other images, quick manipulation of images or for displaying reference views, while the main view port is used for high resolution display.

5.3.1.5. Image manipulation such as changing window width and window level, hot keys activated, automated study archive, deletion, screen layout changes, disk space display, archiving, and graphic overlays such as annotation.

5.3.1.6. It should be possible to simulate all kinds of teletherapy machines in the simulation workstation. It should conform to IEC and other international standards for linear accelerator conventions.

5.3.1.7. It should be possible to visualize interactively reference views in axial, coronal, sagittal, isocenter image planes in any oblique directions with overlay of beams on DRRs.

5.3.1.8. DRR must provide a fully divergent beam's eye view of 512 x 512 matrix.

5.3.1.9. The DRR/BEV should display the machine diagram to allow real time checking of machine and patient geometry.

5.3.1.10. Facility for multimodality fusions to accept data from other DICOM compatible and DICOM supporting modalities like MRI/CT/PET/SPECT and should be able to fuse them.

5.4. CONTOURINGSOFTWARE

5.4.1. Contouring tools for 3D auto margin and 3D variablemargin.

5.4.2. Automatically/manually create margins in all six directions. Both positive and negative uniform and non-uniformmarginsshouldbepossibleandindividualexpansionsshouldbepossibleinalldimensions.

5.4.3. Edit/Drawallcontours,contournames,CTdensitiesandcolourforeachstructure.Facilityforselection ofcolourforDVHdisplayisavailableshouldbespecified.

5.4.4. Continuous trace, point to point and auto contour via CTthreshold.

5.4.5. Contouronprimaryimage(CT)orsecondarystudyimages(MRI/PET)afterimagefusion.Alsoshould be feasible to contour on fused images like MRI, PET Images acquired with localizing frames send after image registration in othersystems.

5.4.6. Outline tumor volumes and critical structures on transverse planes with visualization in any 3 axes including real time 3Dvisualization.

5.4.7. Contour interpolationfacility.

5.4.8. Asymmetric stretch and resize facility should beavailable.

5.4.9. Rapid copy to superior and inferiorslices.

5.4.10. Advanced editing tools like facility to give negative margins, crop structures with arbitrary margins, remove structures extending outside or inside other structures; wall extraction from a solid structure with positiveornegativemargin,auto-segmentationbasedonCTnumbersandlimitingcontoursbytheVolumeof Interest tool should beprovided.

5.4.11. Itshouldbepossibletoadd/subtract/joinoneormorecontoursofdrawnstructures.

5.4.12. Itshouldhavethecapabilityforinterpolationofcontiguousandnon-contiguouscontoursbetweenone or more image planes. It should be able to copy and extend the contours in arbitrary lengths along the cranio-caudaldirection.
5.4.13. Facility for rigid image registration should be available. The result of registration of such type should be editable and exportable. The system should be capable of registering arbitrary images like CT, MRI, PET, PET-CT.

5.5. 3-D VIEW AND VOLUME RENDERINGCAPABILITIES

5.5.1. Post-processing features like Volume Rendering, Real-time multi-axial volume reconstruction, 3-D surface rendering, color 3-D should beavailable.
5.5.2. It should allow complete 3-D volume to be defined including complex 3-D volumes, user selectable multi-imageviews,reformattedsagittal,coronalfateandobliqueimagesetc.
5.5.3. DICOM-RT structure set with import/export of data should be possible. The DICOM compliance statement should beprovided.

5.6. DRRFEATURES

5.6.1. ThevirtualsimulationsoftwareshouldhavethecapabilitytodisplayrealtimeDigitallyReconstructed Radiographs.
5.6.2. ItshouldbepossibletohaveadjustableWindowandLengthfordisplayofDRR.
5.6.3. VariouspresetDRRmodesshouldbeavailablespeciallytodisplaythebone,aircavityandlung.
5.6.4. The DRR generation method should include normal sum, Maximum Intensity Projection (MIP) 3D image dataset.
5.6.5. ThesystemshouldhavetheCapabilitytodisplaytheBeamsEyeViewinvariousorientations.There shouldbefacilityforrealtimerotationofwireframe,solidandtransparentstructures.
5.6.6. Real time display of DRR as beam parameters arechanged.

5.7. DEPTHCONTROL

5.7.1. The system should support depth control mode creating a DRR from slab of 3-D mode, perpendicular to beamaxis.
5.7.2. DRR must be calculated over a user definedthickness.
5.7.3. Depth control in oblique projections must bepossible.
5.7.4. Cross-hair display on DRR to Provide scale information should beavailable.

5.8. DOCUMENTATION &ARCHIVING

5.8.1. Laser colour printer A4 size, latest model should be provided.

5.9. MEASUREMENTPACKAGE

5.9.1. Thesoftwareshouldprovidethedensityvalue(inHounsfieldUnit)ofaparticularpointonanimage.It should compute distance along straight lines and curved lines, angle between the lines, and radius of curvature forcurves.
5.9.2. For specific region of interest (ROI) the area, minimum and maximum voxel values, mean and standard distribution and a density histogram should be available.
5.9.3. The software should be able to calculate the volume of a displayed 3-D object.

5.10. IMAGEMANIPULATION

5.10.1. Differentkindsofimagemanipulationfeaturesshouldbeavailablelikemultiplanarreconstructio nand curvedreformatting.
5.10.2. 3-D reconstruction with no waiting forreprocessing.

7. ENVIRONMENTAL FACTORS

6.1. Complete installation shouldinclude:

i. Room planning, designing and modification of the existing site as per AERB guidelines and approval taken bydepartment.

ii. Air conditioning and monitoring of temperature and dehumidifier for maintaining the relative humidity andairchanges(tospecifynumberperhour)tobeinstalledbythevendor.

iii. The unit shall be capable of being stored continuously in ambient temperature of 0 to 50 degree Celsius and relative humidity of 15 to70%.

iv. The unit shall be capable operating in ambient temperature of 20 to 30 degree Celsius and relative humidity of less than70%.

6.2. The unitshallmetIEC-60601-1-2:2001(orequivalentBIS)GeneralRequirementsofSafety for ElectromagneticCompatibilityorshouldcomplywith89/366/EEC;EMC-directive.

8. POWER SUPPLY AND AIRCONDITIONER

a. Should work on three phase 200 to 220 volts/50 HertzPower.

b. OnineUPSofsuitableratingshouldbesuppliedforthepowerbackupofthecompletesysteminclu ding gantry,computersystemandroomlightswithatleast30minutesbackuptime.

c. Reset-tableovercurrentbreakershallbefittedforprotection.

d. The vendor should procure, install and maintain the air conditioning and humidity control systems as neededfortheperfectfunctioningoftheEquipmentanditssubsystemsfortheentirewarrantyand CMC period.

e. Completedetailsofsuchunitsmustbefurnished.

f. After completion of the warranty period of 5 years the actual supplier of the Air Condition system must enter into a comprehensive maintenance contract for all those units for 5 years. All the consumable items for the maintenance of Air Conditioning, UPS, should be included in this CMC quotation. The details and rates for the same which should be supplied by the third party should be quotedseparately.

9. ACCESSORIES &DOCUMENTS

8.1. AcompleteUser/Technical/MaintenancemanualtobesuppliedinEnglish(Softcopy&Hardcopy)

8.2. Certificate of calibration and inspection fromfactory.

8.3. All necessary phantoms (as mentioned under 8.6) and QA systems/ tools/ gadgets required for commissioning and validation tests for clinical implementation of above systems should be provided.

8.4. Latest Dell laptops of Intel I-7 processor with 32 GB ram and 1 TB hard disk with 1TBexternalHDDforbackup,softwarefor reading CT images (DICOM) analysisandCompatible DVD writer.

8.5. Focalspottesttoolwithanalysissoftwareetc.

8.6. Image calibration/High and Low Contrast, Spatial Resolution, Slice Thickness, CT No. uniformity and Dosimetry QA phantoms [CAT phantoms (604 or 504), LASER phantoms] /check devices, ion-chamber based dosimeter with electrometer for patient dosemeasurement.

8.7. Set of Aluminium filters for HVLmeasurements.

8.8. kVp and Timer meters of x-ray tube. mA meter for x-ray tube currentmeasurement.

8.9. AluminiumStepWedgeforSensitometrycurvemeasurement.

8.10. ContrastInjector:Alatesthighqualityautomaticdual(double)headCTcontrastpressureinjectorwith auto refill system should be provided with the system. 250 number disposable syringes compatible with contrastinjector.Tobesuppliedinphasedmannerover5years. Further requirement should be supplied on demand.

8.11. Temperature management and relative humidity management as per maintenance specifications of

the concerned 4D CT simulator machine should be done by 4D CT simulator vendor company for the 4D CT simulator as well as control console. (Sufficient AC machines with 100% backup and dehumidifiers should be mentioned separately in turnkey for thispurpose).

8.12. All furniture, cabinet, table, desk, chairs for CT room and control console – no. to be included inturnkey.

8.13. The dehumidifier system for keeping the humidity of the CT simulator room within the vendor specific ranges.

8.14. Themainmachineandallthethirdpartyitemsshouldbeinstalledwithin180daysafterthedateofletter ofcreditopeningorAERBsitedrawingapprovalwhicheverislater.

8.15. Duringthewarrantyperiodthevendorshouldprovideaserviceuptimeguaranteeof95%.Theminimum period of downtime more than or equal to 60 minutes will be counted in the annual downtime hours calculation.Downtimewillincludeanyandallthetimeinwhichthemachinewasnotfunctionalduetoother accessorysystemslikeAC,UPSsystemandallinternalhardware,workstation,softwareornetworkrelated issue.

8.16. Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/Para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not beconsidered.

8.17. QA Test for CT Machine (once in two years as per AERB requirement) for 10 years after installation should be conducted by vendor Company.

HDR Brachytherapy

A. General Specification

1. The systemshould be highdose rate Remote Afterloading Ir-192Brachytherapy systemcapable ofIntra cavitary, Intraluminal, Interstitial, surface mouldBrachytherapy.
2. The offered model whose hardware &software up gradation done in the year 2018 orafter.
3. The HDR system should be microprocessor based with PCcontrol.
4. The HDR system must be from a well establishedcompany with a documented history ofreliability.
5. TheHDRmachineshouldbeincomplianceofallAERBspecifiedsafetyregulationandAERBtypeapproved.
6. The HDR system manufacturer should have an ISO 9001 and FDAapproval.
7. TheHDRsystemmusthavea“check”cablethatautomaticallychecksthe operationofthecompletes y s t e m prior to Treatment. The check cable must also be possible to use as a “Dummy” source to allow simulation of particular sourceLocations.
8. The system should be in use in renowned centers in India. The tender offer must be accompanied with letters of reference from at least 3 (three) existing users of the offered product. At least 1 (one) reference should be from user inIndia.
9. The vendor should provide warranty for at least 5 years and CAMC for at least subsequent 5 years. The vendor should provide service and all necessary part for at least 10 years from the dateof installation.
10. The room for installation of the HDR Brachytherapy system has already been constructed as per AERB approval. If any modification work is required depending on the model is to be done by the Supplier as per AERBrecommendation.

11. AlltheAERBspecifiedRadiationsafetyfeaturesinthecontrolunitandintheroomshouldbeavailable.

B. Detailed Specification: TreatmentUnit–HDR

1. Treatment unit should be on wheels for easy mobility withinthe room.
2. Separate stepper motors to control the dummy check cable and sourcecable.
3. Maximum air kerma rate at 1 meter and on the surface of the after loader treatment unit should not exceed AERB specifiedlimit.
4. ThemaximumsourceholdingcapacitywithoutexceedingAERBspecifiedairkermarateatadistance1 meterfromthesurfaceoftheafterloaderandonthesurfaceofafterloadershouldbespecified.
5. Multichannelindexerwithaminimumofphysical30channelshavinganautomatic/opticalverificati on of channel number and applicatorconnection.
6. The source must be retractable in the event of an emergency/power failure by followingmethods:
   i) By an independent DCMotor
   ii) Manual source retraction through handcrank.
7. UPS back up for at least 30 min should be provided separately for HDR Brachytherapy Machine, control unit and in the TPS. A detailed circuit for checking the battery condition should beprovided
8. Nominal wire speed should bespecified.
9. Unit should have Catheter end check for enhancedsafety
10. A Safe must to be contain the source which complies with AERB and international safety regulations to holdsourcewithminimum10Ci(370GBq)forIr-192.Theactivityofthesourcestobesuppliedshould be mentioned.

C. RADIATION SOURCE AND TRANSFERMECHANISM:

1. Thesourcemustbeasingle,HighDoseRateIridium-192Source.
2. The source cable connection must be tested to withstand minimum 5,000 transfers per source. The source transfer guarantee must be high to ensure optimal usage of each individualsource.
3. Treatment curvature of the source cable should bementioned.
4. A package of five radioactive sources (for Ir 192) for an appropriate time period (around 3 years) depending on the source transfer guarantee specified by the manufacturer must be provided. The price of the sources should be mentionedseparately.
5. The sources should be supplied as and when required/requisition by the userdepartment.
6. Insurance and freight cost, the custom clearance and transport cost, and all other cost related to the import and delivery to the department of the new/unused sources; and export/disposal of the used sourcesfromthedepartmentmustalsobeincludedintheorderforallthesourcestobeprocured.
7. The logistic arrangement for import and delivery to the department of new/unused sources; and the export/disposaloftheusedsourcefromthedepartmentshouldbearrangedbythevendor.
8. The source transfer guarantee and uninterrupted functioning of each source should be ensured for minimum6(Six)MonthsforIr-192source.
9. The dimension of the source to bespecified.

D. ControlUnit:

1. Stand alone and independent PC based control unit with colour monitor, keyboard, mouse, printer (for hardcopy) built in audio card, network card and a backupmedia.

2. Control unit should have a graphical user interface and should contain an extensive reporting facility.
3. Control Unit software should run on Windowsapplication.
4. Control Unit should have a self-testingfeature.
5. Control unit must keep track of patient's fractionatedtreatment.
6. Access must be limited to authorized users with Passwordprotection.
7. Thetreatmenttimesmustbeautomaticallycorrectedforthedecayofthesource.
8. The no of dwell positions for the source in each channel should bementioned.
9. Display window should show dwell time and dwellposition.
10. Display of Total reference air Kerma and dose should beavailable.
11. The control unit shouldcontain:

i) An inbuilt protection circuit to prevent treatment without proper applicator connection and proper indexerlocking.
ii) Minimum 1 TB internal / external Hard drive should be provided along with a backup option to an internal/external storagedeviceof1TBormore.
iii) Availability of a built-in log book and event recording in Control unit should bespecified.

E. Brachytherapy Treatment PlanningSystem

i) Hardware

1. The hardware should be of high end graphics workstation with latest high resolution scanner and multicolour networkPrinter.
2. The software should be latest and up-datable for at least 10yrs.
3. Latest version of DICOM facility for Import/export from all existing CT/MR/PET/PACS/C-ARM/ultrasound should be available. The HDR Brachytherapy system and all imaging machines available should be integrated with the network for import/export of image/structure.
4. Twoseparateworkstationstobeprovidedforcontouringandtreatmentplanningwithallrelevantlicenses.

ii) SOFTWARE:

1. The Brachytherapy treatment Planning software should 3D and be able to perform all kinds of 2D/3D planning, isodose plotting and display of patient files, beam data acquisitionetc.

2. It should support treatment modalities including intracavitary, interstitial, intraluminal and surface mouldtechniques.

3. Allthereconstructiontechniquelike:OrthogonalSemiorthogonalwithreconstructionboxVariableangle Isocentricmust beavailable.

4. Dose Calculation should be based on TG43 (Mandatory). Automatic placement of Basal Dose Points for Paris Technique(optional).

5. Different Optimization techniques like Dose point Optimization on distance and volume. Geometrical Optimization on distance and volume, Graphical Optimization with local and global control should be available.

6. Fast and accurate dose calculation considering radial dose function, anisotropy function and geometric function should bethere.

7. Rapid reconstruction of catheter using tracking algorithm and indication of corresponding lines onthe images should bepresent.

8. Extremelyaccurateanddwelltimeoptimizationanddosecalculationmustbeavailable.

9. Wide range of dose volume histogram methods, Point dose option. Different planes view must be available.

10. Catheter/applicator reconstruction in 3D space for 3D image imported from simulator, CT scanner, MRI scanner &Ultrasound scanner should beavailable.

11. Reconstruction of 3DS models of anatomical structures, based on 3D data set from simulator, CT, MRI and Ultrasoundscanner.

12. Catheter/applicatorreconstructionin3Dspacefrom:orthogonalfilm,semiorthogonalfilmstereoshift films using zigreconstruction.

13. CT and MR fusion features should beavailable

F. Standard applicator set to provided. For detail ANNEXURE Iattached.

G. TheFollowing Quality assurance tools and other equipment to beprovided:

1. One G.M based Survey meter for Brachytherapy Installation (Reputedbrand).

2. Source position checkdevice

3. One Electrometer with well type chamber (Reputed brand) with connecting cable of at least 20 meter length.

4. The source holder for dosimetry (for well type chamber) should be machine and source dimension specific.

5. One Gamma zone monitor for Brachytherapy installation (ReputedBrand).

6. One mercury thermometer and aneroidbarometer.

7. One PC with scanner and printer with latestconfiguration.

8. One packet (25 pieces) of Gafchromic film for Brachytherapy auto radiograph

9. Contamination monitor: 1 no (ReputedBrand).

10. CC TV camera with monitor: 3nos

11. LMO Switch: 1no

12. Radiation Signage:2nos

13. Radiation warning Lights:2nos

14. New sliding door along with interlock for treatment room (with maintenance) Require Door/Glass Door of Brachytherapy room and control console and Minor OT room should beprovided.

15. Core Cutting: 1 no between treatment room and Console, for cableconnecting

16. Brachytherapy machine with console.

17. Networking Cable from Brachytherapy treatment room to CT simulator room to be provided by the supplier(approximatedistance5-10m)withRJ45socket–3nosandonenetworkingswitchtobeprovided bySupplier.

18. Emergency light-4nos.

ANNEXURE I

Brachytherapy Applicator Requirements

A. INTRACAVITARY

1. SegmentedCylinderApplicatorSetCTCompatibleandMRCompatibility:Conditional
2. Single channel- all sizes (3 each)
3. Multiple channel- all sizes 2 sets of Cylinder–Diameter– 2 cm, 2.5 cm and 3 cm
4. Fletcher-style Applicator Set – DefinedGeometry
5. Alltandemangles,allovoiddiameters(2each)-3
6. Fletcher–INTRAUTERINETANDEM–Anteflexionangulation15º,30º,45ºB/LOVOID–Full&Half.
7. CT/MRI Fletcher-Suit- Applicator Set, Flexible Geometry CT Compatible and MR Compatibility: Conditional All tandem angles, all ovoid diameters (2each)
8. Fletcher–INTRAUTERINETANDEM–Anteflexionangulation15º,30º,45ºB/LOVOID–Full&Half.
9. Manchester-style or equivalent Applicator Set–Flexible Geometry -2 sets
10. Fletcher – INTRA UTERINE TANDEM – Anteflexion angulation 15º, 30º, 45º, 60 º (any three) B/L OVOID– Full & Half.
11. Ring & Tandem Applicator Set CT Compatible/MR Compatibility:Conditional
12. All angles (2each)
13. Fetcher– INTRA UTERINE TANDEM – Anteflexion angulation 15º, 30º, 45º, 60 º (any three) WITH DIFFERENT RING DIAMETERS.

B. Advanced ICRT+ISRT set (combined interstitial plus intracavitary applicator with ring and tandem interstitial needle application.) – MR Compatible- (2)

C. INTRALUMINAL

1. Esophagus Bougie Set CT Compatible(2)
2. Centering Intraluminal Applicator Set CT Compatible(1)

D. INTERSTITIAL

1. Perineal Implant TemplateSet

a. MUPIT or equivalent Template Set- (2) + Needles (CT or MR Compatible)-(2 sets)

b. Syed Neblett template / equivalent template set (2) + needles-(2sets)

2. BreastImplantTemplateSetCTCompatible(anyone)-2 I.SQUARE

or

II. TRIANGLE

3. Prostate - i. MUPIT set + needles (CT and MRCompatible)

4. ISRT Needles (CT & MR compatible) as available- Long- 100 pcs

Medium - 100 pcs Short-100 pcs

5. PlasticCatheters-Singleended-500nos.(3yrlifespan)Doubleended-500nos.(3yrlifespan)

The Scope of Work for Turnkey–for RCC Building of Medical College and Hospital, Kolkata (High Energy LINAC)

The AERB approved drawings of the LINAC building is attached herewith.

The following works are to be carried out in a systematic manner to ensure proper readiness of the site:

1. Completion of wall finishing.

2. Installation of false ceiling.

3. Provision of cable ducts for electrical wiring above the RCC floor.

4. Filling of the unfinished floor areas.

5. Execution of floor finishing works.

6. Providing the Lead Line door at the machine room.

8. Careful removal and subsequent refitting of the front wooden glazed partition for machine entry.

8. Carefull removal and refitting the wooden platforms which are present at Ground floor and upper basement level for machine entry.

8. Construction of suitable staging to facilitate the safe lowering of the high-end machines.

9. Preparation of a temporary platform at floor level for safe unloading of the machines.

1. **While preparing the plan, the following aspects have to beaddressed by the bidders**

i) Easymovementofthepatientstretchers/trolleysthroughcorridorsanddoors.

j) Adequate Radiation shield is as per AERB norms, ifnecessary.

k) Construction/modificationworkincludingconstructionofbrickwallifany,plastering,flooringasperthe approved plan and equipment lay outplan.

l) Construction of renovation/modification demolition, exaction, filling work including construction of full or half brick wall if required, plastering, flooring as per the approved plan and equipment layout plan. Necessary openings/ niches/ cut-outs, wherever required as per drawings and asked for by WBMSCL, shallbeprovidedbythecontractorwithoutanyextracost.

m) MakingsurfacegoodforfloormodificationforinstallingtheLINAC.

n) Platform for unloading and ifnecessary.

o) Cable tray, trench & channel–necessary trenches, cable tray and channels at requiredlocations.

p) Anti-termite treatment and pest controls should be done in and around the facility once in a year. Basements and ground floor willbemaderodent/pestproof.

q) Core cutting in the ceiling of LINAC console room for electrical mains cable if require. (dimension: approx. 6 inch of 4no's)

r) The intending bidders are to calculate the cost of necessary turnkey job (site preparation, interior works, furniture and office accessories) based on the area as demarcated in the site wise drawings attached with the tenderdocument.

2. **Specification ofmaterials**

a) Flooring:

Granite- 2400 x 800 mm or bigger good quality heavy duty hard Granites of 18 mm thick

b) Walls:

Premier Tiles- 800 x 800 mm mirror polished premier quality double charged joint less vitrified tiles

c) FalseCeiling:

False ceiling with sky light at LINAC room, control room, lobby and patient preparation area, (all rooms in lower and upper basement)

PLUMBING WORK

1. AllnecessaryplumbingworktoinstallLINACandChillerpipingworkshouldbedonebyvendor

ELECTRICAL WORK:

The supplier shall be required to specify the total load requirements for the LINAC centre including the load of air conditioning, room lighting and for the accessories if any. The supply line will be provided by the Institute up to one point within the LINAC centre. Few lights in each room shall be connected to the UPS to provide emergency lighting.

(i) The electrical work shall include thefollowing:

Wiring – Wiring with colour code for all types of points and plugs etc.All interior electrical wiring – with main distribution panel board, necessary vertical TPN MCB DBs to control MCCBs, TPN MCB DBs and SPN MCB DB if any necessary. Every point should be wired with both neutral and phase and earth separately from the copper link bar of phase, neutral and earth. Copper link Bar should be housed into the switch board on 1.1 KV grade insulators. There should not be any joint in between of any two terminals of all the installations. The 3wires system shall be of copper wire (minimum 1.5 Sq-mm) of different capacity as per the load and should be of renowned make as listedbelow.

a) Alltheinternalwiringincludingthatoftelephone,LAN,DICOM &PACSetc.willbe ofconcealedvariety.

b) Earthing: Double earthling with copper plate for the LINAC and all accessories should be as per ISOrule

c) Switches light and power points should be of modular type and of standard make as listedbelow.

d) General lights – LED Lights of 400LUX

e) Sky Light should be in the ceiling of LINAC room. All wires used must be FRLS (Fire Retardant with low smoke) type only

2. **AIRCONDITIONING**:The LINAC bunker (426 m^3), corridors of the upper basement (351 m^3)and lower basements (400 m^3), UPS room (40 m^3)needtobeair-conditioned.AC system should be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation

on the equipment. The Air conditioning system should be designed with standby provision to function 24 x 7.The outdoor units of AC should have grill coverings to prevent theft anddamage.

Dehumidifier: Two of 40 liter/day per LINAC bunker, one for TPS cum server room and ONE for console should be provided. Total 4 Dehumidifiers. (Capacity 40 liters/day)

3. **Environmentspecifications:**
   a) Humidity range: Relative humidity 60% and 80% in all areas except equipment room which shall be as per requirement of theequipment.
   b) Temperature ranges: 22 +/- 2° C in all areas throughout the year, except equipment room which shall be as per requirement of theequipment.
   c) Air conditioning load: The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of thesupplier.

4. **Painting**:

Twocoatplasticemulsionpaintovertwocoatsofwallputtyincludingprimerinallareaexcept LINACroom.
LINACroomwalls-Highqualityhighdensityvitrifiedtilescladonthesidewallsuptofalseceiling.

FURNITURE AND OTHER OFFICE ACCESSORIES FOR PATIENT BENEFIT:

2nd LINAC of MEDICAL COLLEGE AND HOSPITAL, KOLKATA at basement of RCC building			
Sl. No.	**Rooms**	**Required facilities**	**Remarks**
1.	LINAC room (Lower basement)	• Customizedcupboardsforstoringimmobilizationdevices/machine accessories/Daily QA equipments – at least 60'(W)x6'(H)x3'(D) in parts. • Patientchangingareawithchair,fulllengthcurtains,mirror,small rack /drawer for keeping belongingspatient. • Table withdrawers-5'(W)x3'(D) • Trolly for carrying dosimetrydevices. • Skylighting.	Inside LINAC room
2.	LINAC console room (Lower basement)	• Longtailoredmadetable20'(W)x3'(D)withdrawersforinstalling 4-6 computers and printersetc. • Executive revolving chair with fullbackrest–4 • Executive revolving chair with halfbackrest–4 • Customizedwallcabinetofatleast20'(W)x4'(H)x3'(D)withlockand key facility – 2such • Steelalmirah/wallcabinetof standardsize6'(H)x2'(D)withlockandkey–2 • X-rayviewerwithdigitalbacklight4plates-1 • Dustbin–4	ForoperatingLINAC from controlconsole area

3.	TPS room	• Customized table tops along three sides of the room with a depth of 2.5' for installing 8-9 computers, 2 printers etc. • Executive revolving chair with full backrest–6 • Executive revolving chair with halfbackrest–6 • Customized wall cabinet along 2sides of the room with a depth of 2'with lock and key facility • Steel almirah/cabinet of standard size 6'(H)x2'(D) with lock and key –3 • X-Ray viewer with digital backlight (4plates)–1 • Dustbin–2 • CPU trolleys/UPS trolleys as needed • Polycarbonate based suitcase with wheels (Air cabin luggage size) -2 such for ion chamber calibration purpose.	Treatment planning Stations Room for LINAC.
Sl. No.	**Rooms**	**Required facilities**	**Remarks**
4.	Contouring Room (Lower Basement – Presently designated as TPS room in plan layout)	• Customized table tops along three sides of the room for contouring workstations with a depth of 2.5' with drawers. • Executive revolving chair with full backrest–6 • Executive revolving chair with halfbackrest–6 • Customized wall cabinet of at least 40'(W)x5'(H)x2'(D) with lock and key facility • X-Ray viewer with digital backlight (4plates)–2 • Dustbin–2 • CPU trolleys/UPS trolleys as needed • Steel almirah / cabinet of standard size 6'(H)x2'(D) with lock and key – 3	Doctor's Contouring Station room
5.	Mould Room – (Lower basement as it is in the plan lay out)	• Tablewithdrawers–5'(W)x3'(D)–2 • One standard table for patient mould preparation. • 4 bed mats. • Smoke Exhaust System. • Executiverevolvingchairwithfullbackrest–2 • Executiverevolvingchairwithhalfbackrest–4 • Customizedwallcabinetofatleast20'(W)x4'(H)x3'(D) with lock and key facility • Steel almirah / cabinet of standardsize6'(H)x2'(D)with lock and key–2 • Dustbin –2	Necessary plumbing work to be done.
6.	QA accessories room - (Lower basement as it is in the plan lay out)	• Table with drawers–5'(W)x3'(D)–2 • Executive revolving chair with full backrest–2 • Executive revolving chair with half backrest–4 • Customized wall cabinet of at least 20'(W)x4'(H)x3'(D) with lock and key facility • Steel almirah / cabinet of standard size 6'(H)x2'(D)with lock and key–2 • Dustbin –2	
6.	Physicist cum RSO room (Seating arrangement	• Table with drawers – 5'(W)x3'(D) –4 • ComputerTable-4 • Executive revolving chair with full backrest–4 • Executive revolving chair with half backrest–8 • Customized wall cabinet of at least 5'(W)x4'(H)x3'(D) with lock and key facility-4 • Steel almirah / cabinet of standardsize6'(H)x2'(D)with lock and	

	with 4 separate office cubicles for minimum 4 Physicists cum RSO)	key–4 • Dustbin–4 • Desktop Computer system with latest configuration for e- LORA and other official work along with A4 scanner, LASER Printer (wifi enabled) and UPS.–4 such • One Dell Precision 5470 workstation with highest configurations, preloaded with all licenses, latest operating system, antivirus, essential office applications and software with minimum 3 years warranty and supports - for Dosimetric data evaluation and software QA, research simulation. • Office cubicles by wooden and glass separation with doors covering area 6200 mm x 4725.	Office room accessories for Medical Physicist cum radiation safety officers.
7.	Doctors Room – 3 (At upper basement)	• Tablewithdrawers–5'(W)x3'(D)– 2 • Executive revolving chair with fullbackrest–2 • Executive revolving chair with half back rest – 2 • Patient'sexaminationtable-2 • Steel almirah / cabinet of standard size 6'(H)x2'(D) with lock and key–1 • Desktop Computer with latest configuration for official work along with A4 scanner, LASER Printer (wifi enabled) and UPS. - 1 • X-Ray viewer with digital backlight(4plates) • Dustbin-2	3 set for 3 Doctors room for patient examination and prescription, record keeping, other office works related to treatment etc.
8.	Technologist 's room – (At upper basement presently designated as Physicist room in lay out plan)	• Table with drawers – 5'(W)x3'(D) –4 • ComputerTable-1 • Steel almirah / cabinet of standard size 6'(H)x2'(D) with lock and key -2 • Executive revolving chair with half backrest–10 • Dustbin–2	
10	Patient's waiting Area (Lower basement – Walls around Lift lobby and space below upper half of staircase)	Sitting arrangement for sixty patients. Steel chairs – 30. (3 seater)	
11	LED Smart TV 55" (With cable connection)	1 unit	Patient waiting area/Lobby
12	Cartridge (black and color) for Printers associated with TPS and Control	2 nos. cartridges to be installed at the time of installation out of 10 nos. of cartridge and rest of the 8 nos. of cartridges to be supplied as and when required basis, by the end user within a span of 10 years.	TPS room and Control Console of LINAC

	Computer of LINAC. Copier and Scanner.		
13	Trolley with facility for oxygen cylinder Attachment	2	Patient Transportation
14	Wheel Chair	4	Patient Transportation
15	Vacuum Cleaner	2	For cleaning LINAC, TPS rooms etc.
16	Shoe Shelf (capacity - 25pairs)	4	Outside LINAC room Outside waiting area
	Slipper	100 pairs and disposable shoe cover (500)	
17	Door Mat	20 size minimum (3 ft x 2 ft)	Outside waiting area & outside LINAC room
18	Microphone system (Two way)	2 units	LINAC room for calling patients
19	Dehumidifier	Two/three per LINAC covering up to console area should be provided as per machine specific requirement after proper pint calculation for room volume and relative Humidity level.	Humidity control for LINAC
20	Smart Projector / smart board	1 unit	For onsite training and teaching purpose.
21	Public address system with back ground music facility	1 unit	

FIRE SAFETY MEASURE:

1. A fire alarm system of reputed make with smoke/heat detectors, indicator panels, call boxes, electronic sirens and wiring will beinstalled.

2. Supplying,Installing adequate numbers ofDrychemicalpowertype fire extinguisher of 6kgscapacity,with initial filling in brand new cylinder with power coated finish, fitted with Gun metal union, high pressure CO2 gascartridge,dischargehose,wallmountingbracketetc.

MISCELLANEOUS:

1. Cabling of Network (LAN) connectivity and required branded switches for networking the LINAC, TPS, CT simulator, Brachytherapy and any other work station used within thesite.
2. Broadband connection with static IP for REMOTE SERVICE of LINAC system Land line based Broad Band internet connection will be procured by the Hospital Authority & the bill for the broadband should be paid by thesupplier.
3. One Computer Trolley should be provided at site by thesupplier.
4. Radiation related Signage to be provided as perrequirement.
5. Inter com system having at least 60 channels should beprovided.
6. 1 no of Digital camera to upload patient photo into R&Vsystem.
7. Required De-Ionized water supply over period of 10 years when ever require for LINACmaintenance.
8. The outdoor unit of all AC should have grill coverage to prevent the theft anddamage.
9. The chiller unit should have grill and asbestos coverage to prevent damage and theft. It should have lock and keyfacility.
10. Contamination Monitor – 1 no (Fluke/Ludlum/Equivalent).

Universal network booster

11. Background sound systems for LINAC 2 units
12. TPS room power and data point : extra 10 power and data points need to be provided by vendor

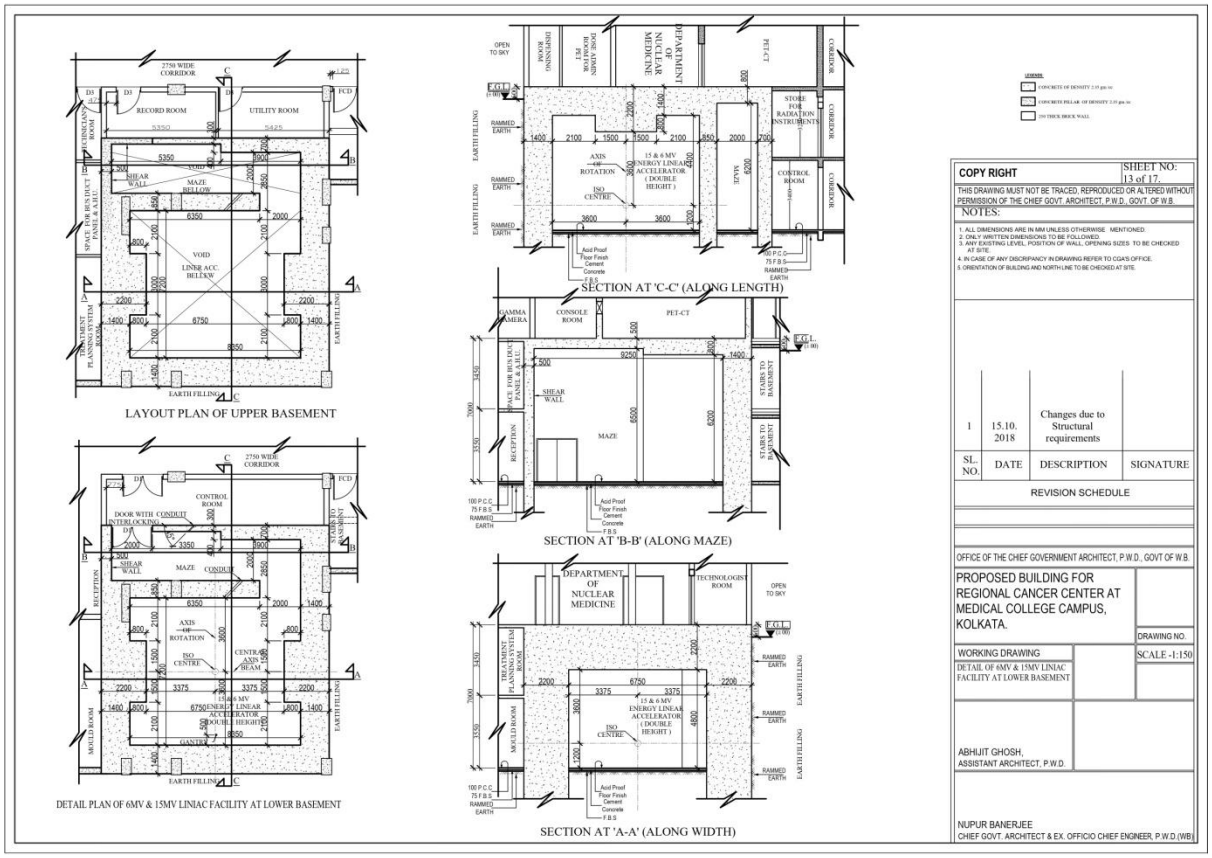
LIST OF ITEMS AND SUGGESTED MANUFACTURERS/BRANDS		
Sl. No.	**ITEMS**	**PREFERRED MAKES**
A	**CIVIL**	
	Granite	Thar Marble/GCL India Pvt. Ltd.
1	**TILES**	Kajaria/Johnson/, Restile
2	**PAINT**	Dulux/AsianPaints/Nerolac
3	**PLUMBING**	Kohler/Jaguar/Grohe/Roca
4	**SANITARYITEMS**	CERA/Hindware/Parryware
B	**ELECTRICAL**	
1	**CABLES**	Finolex/Havells/V-Guar
2	**SWITCHES**	Legrand/L&T/Crabtree
3	**DISTRIBUTION BOX, MCB**	Legrand/L&T/Siemens
4	**LIGHT FITTINGS- (LED light)**	Philips/Crompton/Wipro.
C	**AIR CONDINTIONING (Copper Condensing unit)**	Mistubishi/Hitachi/Daikin/Carrier
D	**FURNITURE**	Godrej/Hermen Miller/Featherlite/Damro
E	**SKYLIGHT**	Reputed company

a) Supply of furniture like desk, chairs, shelves, lockeretc.

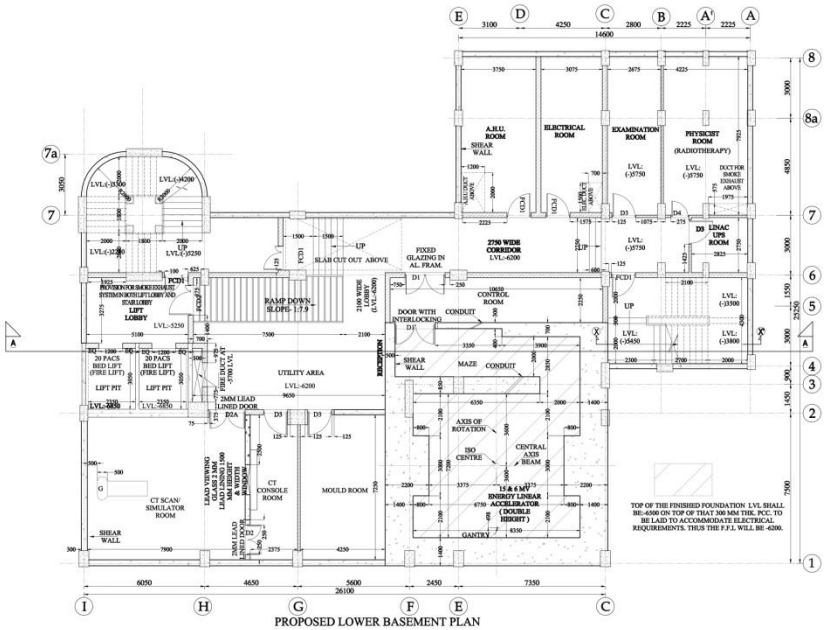
b) SupplyofPatientstretcherandotherfurniture/accessoriestomaketheLINACfunctional.

AERB Approved Drawing

Bunker Section



Lower Basement Plan



PROPOSED LOWER BASEMENT PLAN

This drawing supersedes CGA's previous drawing no.

COPY RIGHT

SHEET NO. 2 of 12

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE MENTIONED.
2. ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
3. ANY EXISTING LEVEL, POSITION OF WALL, OPENING SIZES TO BE CHECKED AT SITE.
4. IN CASE OF ANY DISCRIPANCY IN DRAWING REFER TO CGA'S OFFICE.
5. ORIENTATION OF BUILDING AND NORTH LINE TO BE CHECKED AT SITE.

DOOR - WINDOW SCHEDULE

WINDOWS				DOOR		
MARKED	WIDTH	HEIGHT	SILL	MARKED	WIDTH	HEIGHT
W1	1800	1500	900	D1	2000	2400
W2	1500	1500	900	D2	1500	2400
W3	900	1500	900	D2A	1800	2400
W4	600	1200	1200	D3	1200	2400
SW	1500	1800	600	D4	900	2400
				D5	750	2100
				LVD	1200	2400
				LVD2	1800	2400
				ROLLING	800	2700

SL. NO.	DATE	DESCRIPTION	SIGN
1.	25/01/2022	INTERNAL LAYOUT CHANGE AS PER THE LETTER OF PRINCIPAL, MCH, (NO:MCH/152/2021),DATED 07/12/2021.	

REVISION SCHEDULE

OFFICE OF THE CHIEF GOVERNMENT ARCHITECT, P.W.D., GOVT OF W.B.

PROPOSED BUILDING FOR REGIONAL CANCER CENTER AT MEDICAL COLLEGE CAMPUS, KOLKATA.

DRAWING NO.

WORKING DRAWING

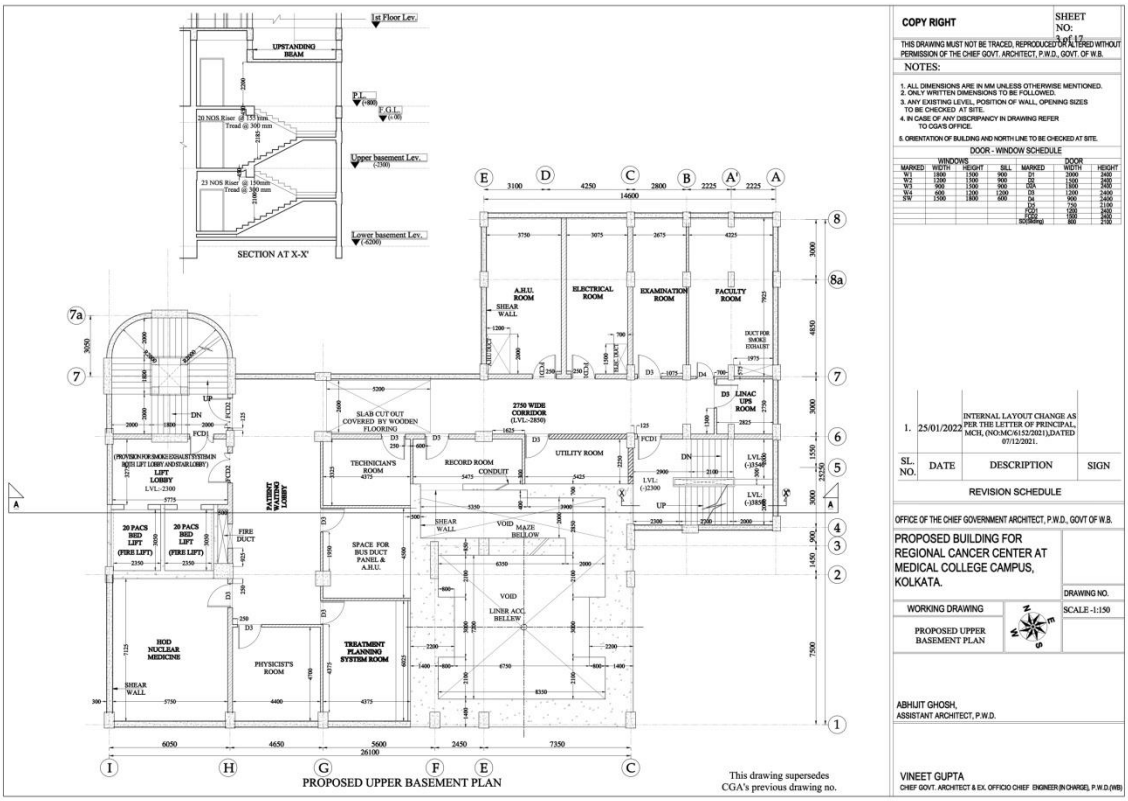
SCALE -1:150

PROPOSED LOWER BASEMENT PLAN

ABHIJIT GHOSH,
ASSISTANT ARCHITECT, P.W.D.

VINEET GUPTA
CHIEF GOVT. ARCHITECT & EX. OFFICIO CHIEF ENGINEER (IN CHARGE), P.W.D.(WB)

Upper Basement Plan



TheScopeofWorkforTurnkey–forNorth Bengal Medical College and Hospital (HighEnergyLINAC)

GENERAL

1. Theprospectivebiddersshallinspectthepropos edsiteforHIGHENERGYLINAC(2No)b unkerat NORTH BENGAL MEDICAL COLLEGE AND HOSPITAL, DARJEELING.Tenderer'sareadvisedtoacquaintthemselveswithaccessto site, location of work, and any other matter relating to availability and carriage of construction materials.Theconcreteshelloftheb unker(2LINACROOM)isunderconstruction.Theturn keywork shallincludeallothersitepreparationworkrequiredtheinstallationandfunctioningofHIGH ENERGY

LINACattheproposedsite.Thebiddersarerequiredtosubmittheplanfortheﬁ HIGHENERGY LINAC Centreonaturnkeybasis.Thebiddersshallsubmit3Dviewoftheinteriorworktobeundertakenfor approval ofWBMSCL.

Along with interior works as specified in details, the scope of work on Turnkey shall also include the following,

a) AftercompletingthecivilworkbyPWD(AsLINACbunkerisunderconstruction),theremaining work will be for thevendor.

b) Electrical, Plumbing, Furnishing, Air Conditioning, Fire FightingWorks

c) Necessary**heavy duty ply-wood (19mm) covered with good quality mat-finished water-proof sunmica**(at entrance of LINAC treatment room and at the entry of the control console room).

d) The entire complex will be made rodent/pestproof.

e) Temperature management (Sufficient AC machines with 100% back up) and relative humidity (Sufficient Dehumidifier) management as per maintenance specifications of the concerned LINAC MachineshouldbedonebyLINACvendorcompanyfortheLINACroomaswellasconsoleareaa.

f) All further core cutting needed through walls and ceilings other than existing should be done by vendor.

g) The outdoor unit of AC should have grill coverage with lock and key facility to prevent theft and damage.Thewaterdrainagestorageandpumpingmanagementsystemfortheﬁ ACunits shouldbe arranged byVendor.

h) The chiller system, if placed outside of the building, the vendor should make necessary arrangements like shades above, grill around with lock and key facility for the same to ensure physical safety andsecurity.

i) Vacuum Cleaner

The AERB approved drawings of the LINAC building is attached herewith.

2. **While preparing the plan, the following aspects have to beaddressed,**

a) Easymovementofthepatientstretchers/trolleysthroughcorridorsanddoors

b) Adequate Radiation Shielding as per AERB norms, ifnecessary

c) Supply of furniture like desk, chairs, shelves, lockeretc.

d) SupplyofPatientstretchersandotherfurniture/accessoriestomaketheﬁ LINACfunctional.

3. The intending bidders are to calculate the cost of necessary turnkey job (site

preparation, interior works,andFurnitureandofficeaccessories)basedontheareaasdemarcatedinthesitewisedrawings attached with the tenderdocument.

a) Construction / modification work including construction of brick wall (if any), plastering, flooring as pertheapprovedplanandequipmentlayoutplan.

b) Construction of renovation / modification demolition, exaction, filling work including construction of fullorhalfbrickwallifrequired,plastering,flooringaspertheapprovedplanandequipmentlayout plan. Necessary openings/ niches/ cut-outs, wherever required as per drawings and asked for by WBMSCL,shallbeprovidedbythecontractorwithoutanyextracost.

c) MakingsurfacegoodforfloormodificationforinstallingtheLINAC.

d) Platform for unloading ifnecessary.

e) Cable tray, trench & channel – necessary trenches, cable tray and channels at requiredlocations.

f) Anti-termitetreatmentandpestcontrolshouldbedoneinandaroundthefacilityonceinayear. The entire complex will be made rodent/pestproof.

g) Core cutting in the ceiling of LINAC console room for electrical mains cable if required. (Dimension: approx. 6 inches of 4no's).

h) Necessary waterproofing of LINAC bunkers before installation of LINAC machines to be done by vendors.

4. **Specification ofMaterials:**

a) **Flooring:**

Granite-

2400x800mmorbiggergoodqualityheavydutyhardGranitesof18mmthick

Walls:

Premier Tiles- 800 x 800 mm mirror polished premier quality double charged joint less vitrified tiles

b) **FalseCeiling:**Mineralfiber/ Metal board withpowdercoatedGIgridatLINACroom,controlconsole room.

5. **PLUMBINGWORK**

All necessary plumbing work to install LINAC and Chiller piping work should be done by vendor.

6. **ELECTRICAL WORK**

1) The supplier should be required to specify the total load requirements for LINAC including the load of air conditioning, room lighting and for the accessories, if any.

The supply line will be provided by the Institute up to one point within the LINAC centre. Few lights in each room shall be connected to the UPS to provide emergencylighting.

2) The electrical work shall include thefollowing:

Wiring – Wiring with color code for all types of points and plugs etc. All interior electrical wiring – with main distribution panel board, necessary vertical TPNMCBDBs to control MCCBs, TPNMCBDBs and SPNMCBDB if any necessary. Every point should be wired with both neutral and phase and earth separately from the copper link bar of phase, neutral and earth. Copper link Bar should be housed into the switch board on 1.1 KV grade insulators. There should not be any joint in between of any two terminals of all the installations. The 3 wires system shall be of copper wire (minimum 1.5 Sq-mm) of different capacity as per the load and should be of renowned make as listedbelow.

All the internal wiring including that of telephone, LAN, DICOM & PACS etc. will be of concealed variety.

a) **Earthing**: Double earthing with copper plate for the LINAC and all accessories should be as per ISO rule.

b) Switches light and power points should be of modular type and of standard make as listedbelow.

c) General lights – LED Lights of 400LUX.

d) SkyLightshouldbeinthe false-ceilingofLINACrooms preferably Galaxy view.AllwiresusedmustbeFRLS(FireRetardantwith low smoke) typeonly.

7. **AIRCONDITIONING:**

Allrooms(LINACRoomalongwithControlConsoleRoom)needtobeair-conditioned.Ductablecentral AC for LINAC room should be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation on the equipment. The Air conditioningsystemshouldbedesignedwithstandbyprovisiontofunction24x7.Theoutdoorunitsof ACshouldhavegrillcoveringstopreventtheftanddamage.

Requirement of AC Machine:

Sites	**No of AC machine required**
Two LINAC Bunker (LINAC 1 & LINAC 2) and Two Console room(LINAC 1 & LINAC 2) (ground floor)	Vendor should be provided according to machine requirement
UPS Room for LINAC (Ground Floor)	Vendor should be provided according to machine requirement
LINAC TPS Room (Ground Floor)	1.5 T X 3 nos
One Brachytherapy bunker and one Brachy console room (Ground floor)	Vendor should be provided according to machine requirement
Brachy UPS Room (Ground Floor)	Vendor should be provided according to machine requirement
Brachy TPS(Ground Floor)	1.5T x 2 nos

Brachytheapy Minor OT	2 T X 2 nos
One CT Simulator room and one CT console room	Vendor should be provided according to machine requirement
UPS room for CT	Vendor should be provided according to machine requirement
RSO room(Ground floor)	1.5 T X 2 nos
Medical Physicist (Ground Floor)-2 rooms	1.5 T X 2 nos per room
Radiation Oncologist(Ground Floor)-2 rooms (Ground floor)	1.5 T X 2 nos per room
Technician Room(Radiotherapy)(ground floor)- 2 rooms	1.5 T X 2 nos per room
Contouring Room(Ground Floor)	2 T X 2 no
Preparation/recovery room (Ground floor)	2 T X 2 nos
Tumor Board Room(Ground Floor)	2 T X 3nos
Nurse's Rest Room besideTumor Board Room(Ground Floor)	1.5 T X 2 nos
Comment: For all bunkers (LINAC+Brachy+CT simulator) and whole Radiotherapy Facility centralized AC preferably provided instead of individual ACs	

8. **ENVIRONMENTSPECIFICATIONS:**

a) **Humidityrange:**Relativehumidity60%and80%inallareasexceptequipmentroomwhichshallbeas per requirement of theequipment.

b) **Temperature ranges:** 22 +/- 2° C in all areas throughout the year, except equipment room which shall be as per requirement of theequipment.

c) **Airconditioningload:**Theheatloadcalculationsandmaintainingthedesiredtemperatureand humidity shall be the responsibility of thesupplier.

9. **PAINTING:**

TwocoatplasticemulsionpaintovertwocoatsofwallputtyincludingprimerinallareaexceptLINAC room. LINAC room walls- High quality high density vitrified tiles clad on the side walls up to false ceiling.

FURNITURE REQUIREMENT (FOR FUNCTIONING OF LINAC AND PATIENT BENEFIT): LINAC

NORTH BENGAL MEDICAL COLLEGE AND HOSPITAL			
Sl. No.	**Rooms**	**Required facilities**	**Remarks**

01	TPS room(Ground floor) x 2	a. Customizedtabletopsalongthreeside softhe room with a depth of 2.5’ with drawers for installing 8-9 computers, 2 printersetc. b. Executiverevolvingchairwithfullback rest– 6 c. Executiverevolvingchairwithhalfbac krest– 6 d. Customized wall cabinet along 2 sides of the room with at least 30’(W) x 3’(H) x 2’ (D) with lock and keyfacility. e. Steelalmirah/cabinetofstanda rdsize 6’(H)x2’(D)withlockandkey–3 f. X-Ray viewer with digital backlight (4 plates) – 1 g. Dustbin – 2 h. CPU trolleys/ UPS trolleys as needed i.Polycarbonatebasedsuitcasewithwhe els(Air cabinluggagesize)forionchambercalibr ation purposes -2 such	Physicist’s Treatment planning Stations Room for
02	Contouring Station Room(Ground Floor) x 1	a. Longtailor-madetabletopsalong3sidesof the room for installing 4-5 workstations witha depth of 2.5’ withdrawers. b. Executiverevolvingchairwithfullback rest– 4 c. Executiverevolvingchairwithhalfbac krest– 6 d. Customized wall cabinet along two side of the room of approx. 20’ (W) x 3’(H) x 2’(D) with lock and keyfacility e. X-Rayviewerwithdigitalbacklight(4plates) – 2 f. Dustbin –2	Doctor’s Contouring Station room

		g. CPU trolleys/ UPS trolleys asneeded h. Steel almirah / cabinet of standard size 6'(H)x2'(D) with lock and key –1	
03	Mould Room (Ground floor) x1	a. Table with drawers – 5'(W)x3'(D)–2 b. Onestandardtableforpatient mould preparation. c. Executiverevolvingchairwithhalfbackrest– 6 d. Customized wall cabinet of at least 20'(W)x4'(H)x3'(D)withlockandkeyfacility e. Steelalmirah/cabinetofstandardsize 6'(H)x2'(D)withlockandkey–2 f. Dustbin –3 g. 4 bedmats h. Smoke exhaustsystem. i. OneWashbasinwithlargesink j. j.One Equipment Table	Necessary plumbing and Carpenting works to be done.
04	Inside LINAC room -2 LINAC bunkers(ground floor)	a. Customized cupboards for storing immobilization devices / machine accessories/DailyQAequipments– atleast 60'(W)x6'(H)x3'(D) inparts. b. Patientchangingareawithchair,fulllength curtains,mirror,smallrack/drawerforkeeping belongings ofpatient.	ForboththeLINAC rooms -2LINAC rooms- (2 sets)

		c. Table with drawers -5’(W)x3’(D) d. Trolly for carrying dosimetrydevices. e. Skylighting-tree branches	
05	LINAC console-2 (two) no of consoles(ground floor)	a. Long tailored made table 20’ (W) x 3’ (D) for keeping LINAC console workstations, printers etc b. Executiverevolvingchairwithfullback rest– 2 c. Executiverevolvingchairwithhalfback rest– 6 d. Customized wall cabinet of at least 20’(W)x3’(H)x3’(D)withlockandkeyfacility e. Steel almirah / cabinet of standard size 6’(H)x2’(D) with lock andkey f. Dustbin – 4	ForboththeLINAC console (2sets)
06	Medical Physicists(PRSO) room x 2 (Seating arrangement with 4 separate office cubicles for 2 rooms to accommodate minimum 8 Physicists)(Ground Floor)	a. Table with drawers – 5’(W)x3’(D) – 8 b. Computer Table-8 c. Executiverevolvingchairwithfullback rest– 8 d. Executiverevolvingchairwithhalfback rest– 8 e. Customized wall cabinet of at least 6’(W)x4’(H)x3’(D)withlockandkeyfacility-8 f. cabinetofstandardsize 6’(H)x2’(D)withlockandkey–8 g. Dustbin –8 h. DesktopComputerwithlatestconfiguration fore-LORAandotherofficialworkalongwith	Office room accessories for Physicist cum Radiation Safety Officers’ rooms The specifications of the desktop mentioned in point number “h” are given below: 1. 16GB RAM ddr4 Seagate 2. 1TBinternal HDD seagate 3. 512 gb Seagate ssd 4. Windows11 OS 5. Activated MS Office with

		A4scanner,LASERPrinterandUPS.–8 i. One Dell Precision 5470 workstation with highest configurations,preloadedwithalllicenses, operatingsystem, antivirus, essential office applications and software with minimum3yearswarrantyandsupports-forDosimetricdata evaluationandsoftwareQA,researchsimulation. j. Office cubicles by wooden and glass separation with as per space available – 4 nos per room	latest version 6. Inteli710thgeneration processor 7. Windows11 OS 8. Activated MS Office with latest version 9. Inteli710thgeneration processor 10. 2GB radeonGraphics card
07	RSO room(ground floor)	i. Table with drawers – 5'(W)x3'(D) –1 j. Computer Table-1 k. Executiverevolvingchairwithfullbackrest– 1 l. Executiverevolvingchairwithhalfbackrest– 3 m. Customized wall cabinet of at least 6'(W)x4'(H)x3'(D)withlockandkeyfacility-2 n. cabinetofstandardsize 6'(H)x2'(D)withlockandkey–1 o. Dustbin –1 p. DesktopComputerwithlatestconfiguration fore-LORAandotherofficialworkalongwith A4scanner,LASERPrinterandUPS.–1 q. One Dell Precision 5470 workstation with highest configurations,preloadedwithalllicenses,operatingsystem, antivirus, essential office applications and software with minimum3yearswarrantyandsupports-forDosimetricdata evaluationandsoftwareQA,researchsimulation.	The specifications of the desktop mentioned in point number "h" are given below: 4. 16GB RAM ddr4 Seagate 5. 1TBinternal HDD seagate 6. 512 gb Seagate ssd 10. Windows11 OS 11. Activated MS Office with latest version 12. Inteli710thgeneration processor 13. Windows11 OS 14. Activated MS Office with latest version 15. Inteli710thgeneration processor 10. 2GB radeonGraphics card

08	Radiation Oncologist Room (ground floor)x 2 Nos	r. Table with drawers – 5'(W)x3'(D) –1 per room s. Computer Table-1 per room t. Executiverevolvingchairwithfullbackrest– 1 per room u. Executiverevolvingchairwithhalfbackrest– 2 per room v. Customized wall cabinet of at least 6'(W)x4'(H)x3'(D)withlockandkeyfacility-2 per room w.cabinetofstandardsize 6'(H)x2'(D)withlockandkey–1 per room x. Dustbin –1 y. DesktopComputerwithlatestconfiguration forofficialworkalongwith A4scanner,LASERPrinterandUPS.–1 per room	The specifications of the desktop mentioned in point number "h" are given below: 7. 16GB RAM ddr4 Seagate 8. 1TBinternal HDD seagate 9. 512 gb Seagate ssd 16. Windows11 OS 17. Activated MS Office with latest version 18. Inteli710thgeneration processor 19. Windows11 OS 20. Activated MS Office with latest version 21. Inteli710thgeneration processor 10. 2GB radeonGraphics card

09	Radiotherapy OPD (1st floor) x 6 nos	a. Table with drawers – 5'(W)x3'(D) –1 per room b. Executiverevolvingchairwithfullback rest– 1 per room c. Executiverevolvingchairwithhalfback rest– 2 per room d. Patient'sexaminationtablewithsteptool -1 per room e. Steel almirah / cabinet of standard size 6'(H)x2'(D) with lock and key –1 per room f. X-Rayviewerwithdigitalbacklight(4plates) - 1 per room g. Dustbin-1 per room	Radiotherapy OPD
10	Technician(RTT)room(Ground Floor) x 2 nos	a. Table with drawers – 5'(W)x3'(D) –2 per room b. Executive revolving chair with half backrest – 6 per room c. Steelalmirah/cabinetofstandardsize 6'(H)x2'(D)withlockandkey–2 per room d. Computer Table- 1per room e. DesktopComputerwithlatestconfiguration forofficialworkalongwith A4scanner,LASERPrinterandUPS.–1 per room e. Dustbin –1 per room	Radiotherapy technologist handling LINAC, Brachy, CT sim
11	Dosimetry/Physics accessories Room(Ground floor)	a. Table with drawers – 5'(W)x3'(D) –2 p b. Executiverevolvingchairwithfullback rest– 2 c. Executiverevolvingchairwithhalfback rest– 4 d. CustomizedCabinet/SteelAlmirahof standard size with lock and key-4	
12	Nurse's Station (Ground Floor) x 3 nos	a. Table with drawers – 5'(W)x3'(D) –2 per room b. Executiverevolvingchairwithhalfback rest– 4 per room c. SteelAlmirah/Cabinetwithlockandkey-3 per room d. Computer Table- 1per room	

		e. DesktopComputerwithlatestconfiguration forofficialworkalongwith A4scanner,LASERPrinterandUPS.–1 per room f. dustbin-1 per room	
13	Patient's waiting Area	Sitting arrangement for Forty Patients.	3 seater Steel chair
14	LED TV 48"	1 Unit	Patient waiting area
	(16hrsX7days)		
15	Cartridge (black and colour) for Printers associated with TPS and Control Computer of LINAC	2 nos. cartridges to be installed at the time of installation out of 10 nos. of cartridge and rest of the 8 nos. of cartridges to be supplied as and when required basis, by the end user within a span of 10 years.	TPS room and Control Console of LINAC
16	Trolleywithfacility for oxygencylinder Attachment	5	Patient Transportation
17	Wheel Chair	5	Patient Transportation
18	Vacuum Cleaner	2	For cleaning LINAC, TPS rooms etc
19	ShoeShelf(25 pairs)	4	Outside LINAC room, & Outside waiting area
20	Door Mat	30	Outside waiting area & outside LINAC room
21	Patient calling system	4 unit	For LINAC1, LINAC2, HDR Brachy, CT sim
22	Dehumidifier	2 units	25 litres capacity per day for LINAC
23	Smart Projector – Interactive smart board with short throw projector bundle.	2 unit	For onsite training and teaching purpose.

FIRE SAFETY MEASURE:

1. A fire alarm system of reputed make with smoke / heat detectors, indicator panels, call boxes, electronicsirensandwiringwillbeinstalled.Audiocallbellsystemwithintercom&remotelocking
/unlocking facility to be provided at the main door of the complex.

2. Supplying, Installing adequate number of Dry chemical power type fire extinguisher of 6 kg capacity as per fire safety norms, with initial filling in brand new cylinder with power coated finish, fitted with Gun metalunion,highpressureCO2gascartridge,dischargehose,wallmountingbracketetc.

MISCELLANEOUS:

1. **Cabling of Network (LAN)** connectivity and required branded switches for networking the LINAC, TPS, CT simulator, Brachytherapy and any other workstation used within thesite.

2. **Broadbandconnection**withstaticIPforREMOTESERVICEofLINAC/Brachy/CT-SimsystemLandlinebasedBroad Band internet connection will be procured by the Hospital Authority & the bill for the broadband should be paid by thesupplier.

3. **One Computer Trolley** should be provided at site by thesupplier.

4. **Radiationrelated Symbol and Signage**tobeprovidedasperrequirement.

5. **Intercom system** having at least 60 channels should beprovided.

6. 3 no of Digital camera for LINAC1, LINAC2 to upload patient photo into R&Vsystem.

7. Required **De-Ionized water** supply over period of 10 years whenever require for LINACmaintenance.

8. Required **Ionization Chamber and Dosimeter calibration** over period of 10 years whenever required for the LINAC dosimetricmeasurement.

9. **The outdoor unit of all AC should have grill coverage to prevent theft anddamage.**

10. **The chiller unit should have grill and asbestos coverage to prevent damage and theft. It should have lock and keyfacility.**

11. Required five Water Purifier (two for Patient and other three for hospital Staffs) with 5 years periodic maintenancewarranty.

12. Universal network booster

13. Background sound systems for LINAC /Brachy/CT-Sim/TPS- 4 units

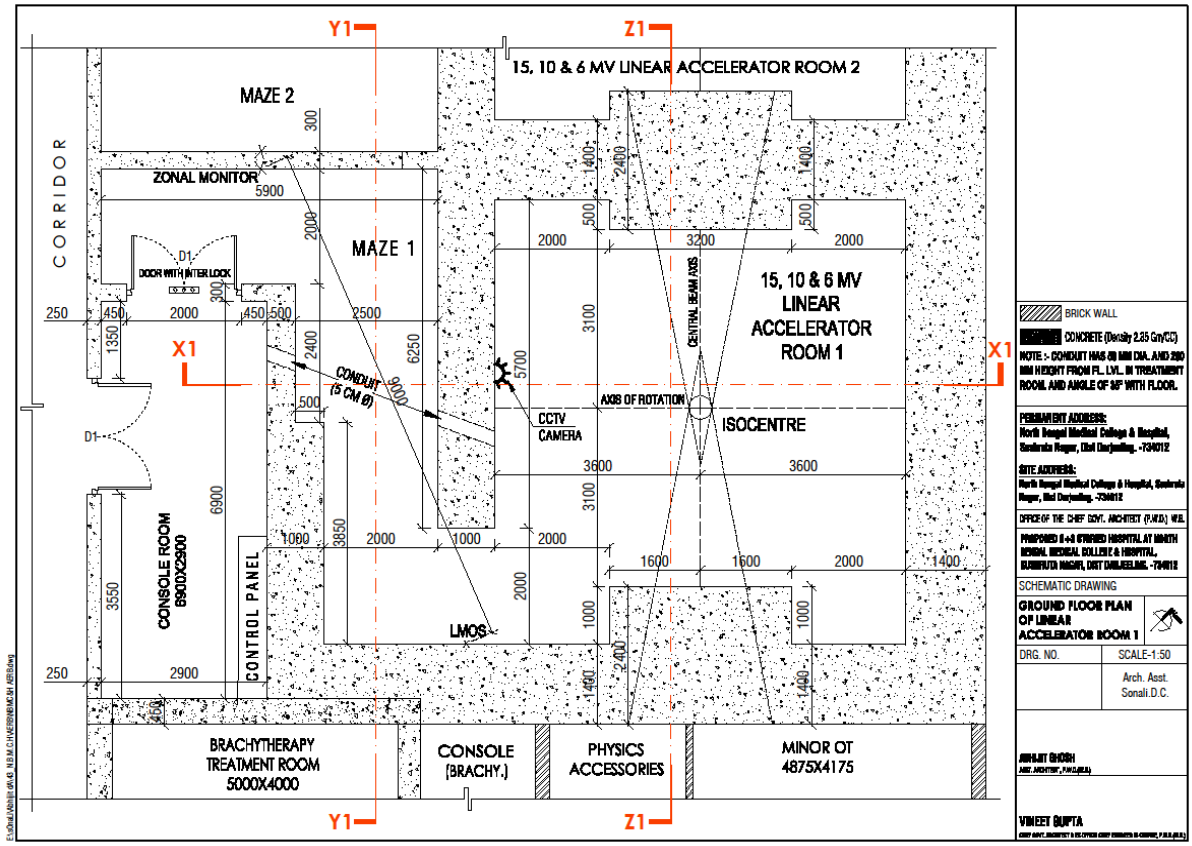
14. **TPS room power and data point : extra 10 power and data points need to be provided by vendor**

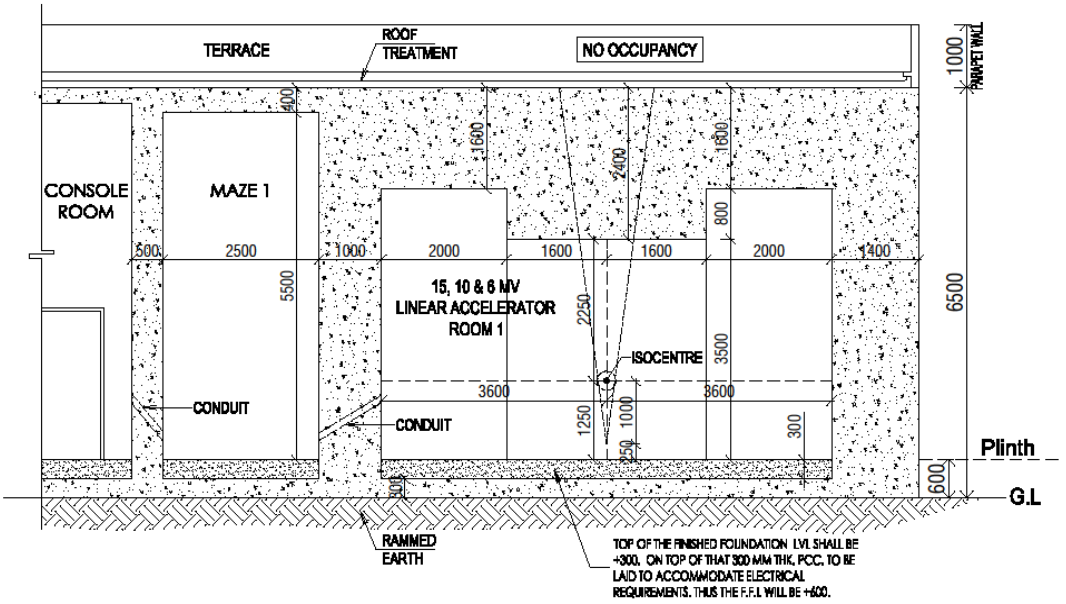
LIST OF ITEMS AND SUGGESTED MANUFACTURERS/BRANDS		
Sl. No.	**ITEMS**	**PREFERRED MAKES**
A	**CIVIL**	
	Granite	Thar Marble/GCL India Pvt. Ltd.
1	**TILES**	Kajaria, Johnson, Restile
2	**PAINT**	Dulux, Asian Paints, Nerolac

3	**PLUMBING**	Kohler, Jaguar, Grohe, Roca
4	**SANITARY ITEMS**	CERA, Hindware, Parryware
B	**ELECTRICAL**	
1	**CABLES**	Finolex, Havells, V-Guard
2	**SWITCHES**	Legrand, L&T, Crabtree
3	**DISTRIBUTION BOX, MCB**	Legrand, L&T, Siemens
4	**LIGHTFITTINGS - (LED light)**	Philips, Crompton, Wipro.
C	**AIR CONDINTIONING (Copper Condensing unit)**	Mistubishi, Hitachi, Daikin, Carrier
D	**FURNITURE**	Godrej, Hermen Miller, Featherlite, Damro
E	**SKYLIGHT**	Reputed company

Site-layout Drawing – CCH, North Bengal Medical College and Hospital

1. LINAC-1 (AERB layout)





SECTION X1-X1 OF LINAC - 1

(ALL DIMENSIONS IN MM)

BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS 25 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM AND ANGLE OF 35° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.

PROPOSED G+3 STORIED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

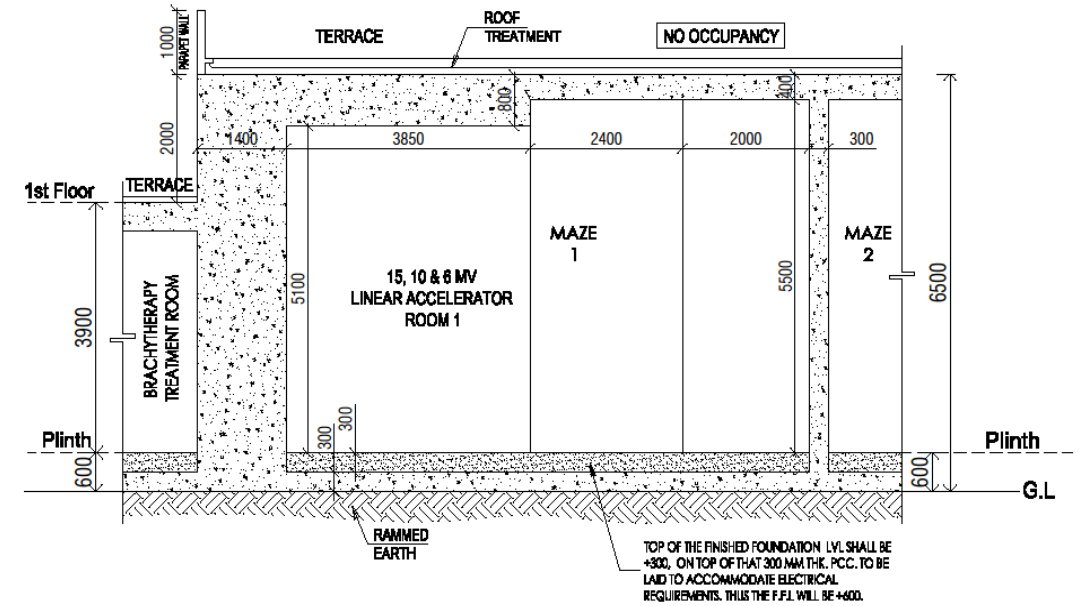
SCHEMATIC DRAWING

SECTION X1-X1 OF LINEAR ACCELERATOR ROOM 1

DRG. NO.	SCALE-1:50
	Arch. Asst. Sonali.D.C.

ABHIJIT GHOSH
ARCHITECT, P.W.D.(B&R)

VINEET GUPTA
CHIEF ARCHITECT & EX-OFFICIO CHIEF ENGINEER (E-CUM-M), P.W.D.(B&R)



SECTION Y1-Y1 OF LINAC - 1

(ALL DIMENSIONS IN MM)

BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS 25 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM AND ANGLE OF 35° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.

PROPOSED G+3 STORIED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

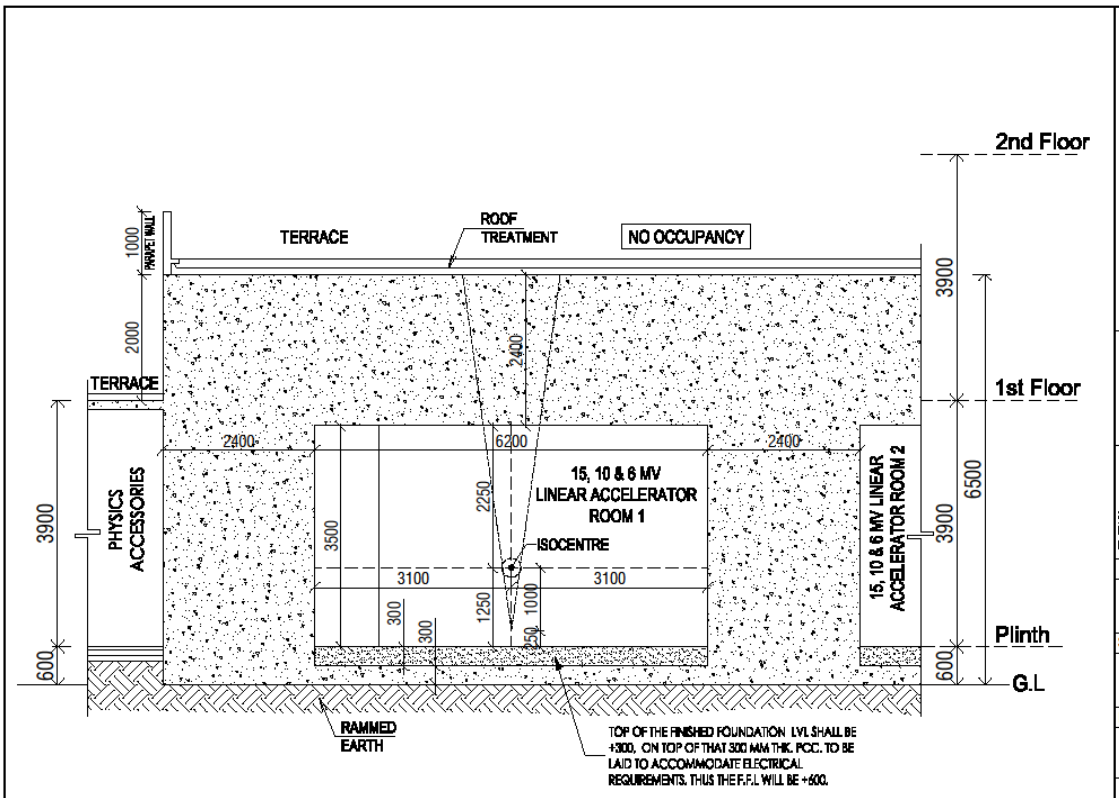
SCHEMATIC DRAWING

SECTION Y1-Y1 OF LINEAR ACCELERATOR ROOM 1

DRG. NO.	SCALE-1:50
	Arch. Asst. Sonali.D.C.

ABHIJIT GHOSH
ARCHITECT, P.W.D.(B&R)

VINEET GUPTA
CHIEF ARCHITECT & EX-OFFICIO CHIEF ENGINEER (E-CUM-M), P.W.D.(B&R)



SECTION Z1-Z1 OF LINAC - 1

(A L L D I M E N S I O N S I N M M)

BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS (8 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM. AND ANGLE OF 45° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.

PROPOSED G+3 STAFFED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

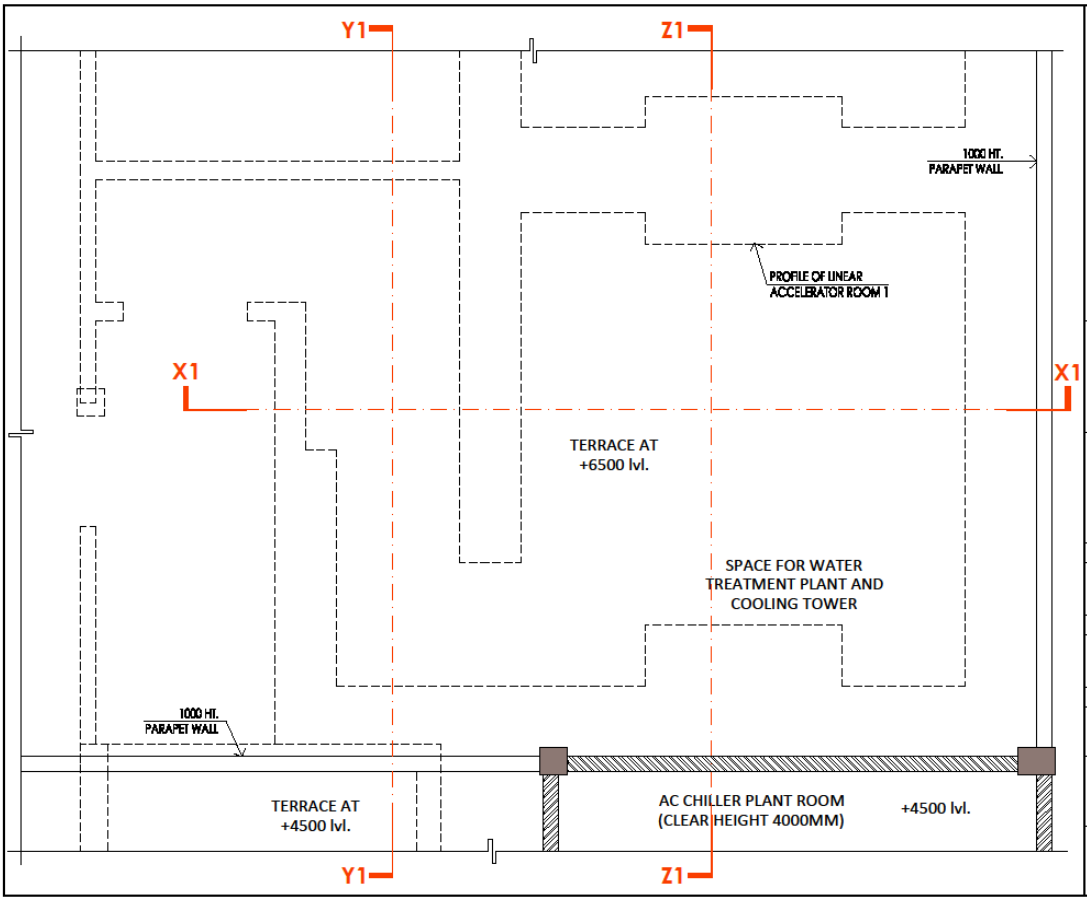
SCHEMATIC DRAWING

SECTION Z1-Z1 OF LINEAR ACCELERATOR ROOM 1

DRG. NO.	SCALE-1:50
	Arch. Asst. Sonali.D.C.

ABHIJIT GHOSH
ASST. ARCHITECT, P.W.D.(B.E.S.)

VINEET GUPTA
CHIEF GOVT. ARCHITECT & EX-OFFICIO CHIEF ENGINEER-II (ADDNL. P.S.S.(B.E.S.))



BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS (8 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM. AND ANGLE OF 45° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.

PROPOSED G+3 STAFFED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

SCHEMATIC DRAWING

ROOF PLAN OF LINEAR ACCELERATOR ROOM 1

DRG. NO.	SCALE-1:50
	Arch. Asst. Sonali.D.C.

ABHIJIT GHOSH
ASST. ARCHITECT, P.W.D.(B.E.S.)

VINEET GUPTA
CHIEF GOVT. ARCHITECT & EX-OFFICIO CHIEF ENGINEER-II (ADDNL. P.S.S.(B.E.S.))

TheScope of WorkforTurnkey–forNorth Bengal Medical College and Hospital(4DCTSimulator)

GENERAL

1. The prospective bidders shall inspect the proposed site for 4D CT SIMULATOR bunker at North Bengal Medical College & Hospital, Darjeeling. Tenderer's are advised to acquaint themselveswith access to site, location of work, and any other matter relating to availability and carriage of construction materials. The concrete shell of the Bunker (4D CT Simulator) isunderconstruction. The turnkey work shall include all other site preparation work required for the installationandfunctioningof4DCTSIMULATORattheproposedsite.Thebiddersshallsubmit 3Dviewoftheinteriorworktobeundertakenforapproval ofWBMSCL.

Along with interior works as specified in details, the scope of work on Turnkey shall also include the following,

a) AftercompletingthePWDcivilwork(As4DCTSIMULATORbunkerisunderconstruct ion), theremainingworkwillbecompletedforthevendor.

b) Temperature management (Sufficient AC machines with 100% back up) and relative humidity (Sufficient Dehumidifier) management as per maintenance specificationsoftheconcernedCTMachineshouldbedonebyvendorfortheCTroo m as well as consolearea.

C) All further core cutting needed through walls and ceilings other than existing should be done by vendor.

d)TheoutdoorunitofACshouldhavegrillcoveragewithlockandkeyfacilitytopreventthef t anddamage.ThewaterdrainagestorageandpumpingmanagementsystemfortheACu nits should be arranged byVendor.

The AERB approved drawings of the 4D CT SIMULATOR building is attached herewith.

2. **While preparing the plan, the following aspects have to beaddressed**,

a) Easy movement of the patient stretchers/trolleys through corridors anddoors

b) Adequate Radiation Shielding as per AERB norms, ifnecessary

c) Supply of furniture like desk, chairs, shelves, locker etc. as mentioned in the **SerialNo-11**.

d) Supply of Patient stretchers and other furniture/accessories to make the 4DCTSIMULATOR functional.

3. The intending bidders are to calculate the cost of necessary turnkey job (site preparation, interior works, and Furniture and office accessories) based on the area as demarcated in the site wise drawings attached with the tender document.

a) Construction / modification work including construction of brick wall (if any), plastering, flooring as per the approved plan and equipment layoutplan.

b) Construction of renovation / modification demolition, exaction, filling work including construction of full or half brick wall if required, plastering, flooring as per the approved plan and equipment layout plan. Necessary openings/ niches/ cut-outs, wherever required as per drawings and asked for by WBMSCL, shall be provided by the contractor without any extracost.

c) Making surface good for floor modification for installing the 4D CTSIMULATOR.

d) Platform for unloading and ifnecessary.

e) Cable tray, trench & channel – necessary trenches, cable tray and channels at requiredlocations.

f) Anti-termite treatment and pest control should be done in and around the 4D CT facility once in a year.

g) Core cutting in the ceiling of CT SIMULATOR console room for electrical mains cable ifrequired.

4. **Specification of Materials:**

a) **Floor**: Floor (except of CT room) should be of premier quality double charged joint less vitrified mirror polished tiles. Granite floor for CTroom.

b) **Ceiling**: Ceiling should be of Mineral fiber board with aluminum grid. 2/3 coats of distemper on trueceiling.

c) **Wall**: Walls should be of premier quality double charged joint less vitrified mirror polished tiles up to false ceiling. Wall specification should be as per AERBnorms.

d) **Door**: (One Patient entry door and one console to CT room entry door)

i) **CT Scan room**: Both door should be Double leaf door lined with 2.0 mm lead equivalence so that radiation level outside the door should be within permissible limit as per AERB norms.

ii) **Main Entry to the unit**: First quality seasoned shagoon wooden door of minimum 40 mm thick double leaf of width 1500 mm with 150 mm X 150 mm vision panel, viewing window, plastic kicking plate fixed with headless screw, high gloss wax polish. The door should be fitted with proper locking arrangement, door closure, handle and stopper. Wooden frame from 125 mm x 100 mm of good quality

Shal / Shagoon woodenblock.

iii) **Other**: Good quality Flush Door with / viewingwindow

e) **Paint**: 2 coats synthetic enamel paints over 2 coats primer over wall putty (ifrequired).

f) **Viewing Window**: 2ft x 4ft of 2 mm lead equivalence leadglass.

5. **Air-conditioningmachine:**

The total carpet area mentioned has to be properly air-conditioned @ 750 cu ft. for one ton. In the CT Scan additional AC to be considered depending on the heat dissipation by the machines. Split / Ductable Split type AC machines having appropriate rating to bring down and maintain room temperature to be 20° ± 2° celsius.

There should be sufficient number of the AC machines to run the service round the clock (i.e. 100 % backup). The service should be uninterrupted in case of breakdown of any of the AC machine(s).

A/C ducting to be prepare, if required. Humidifier and Dehumidifier should be provided to maintain the humidity level at 40 - 60 % at Gantry room and in other area(s), if technically required.

6. High quality room lighting (LED up to 400 LUX ofilluminance)

7. Necessary power supply points for the followings should be provided in addition to standard power supplypoints:

a. Vac. LockSystem
b. Digital water bath for thermoplastic precuts
c. Heatgun

8. The bidders to submit drawing layout plan of the interior. At least 15 -20 patient holding positions has to be mentioned in the drawing layout plan. Sufficient furniture to be supplied for the consoleroom.

9. **WiringSystem:**

a) Light, Fan, 5 Amp Plug: 3 X 1.5 sq. mm copper conductor FRLS wire should beprovided.
b) Power Plug (15 Amp): 2 X 2.5 + 1 X 1.5 sq. mm copper conductor FRLS wire should beprovided.
c) Split/ Ductable AC wiring: 2 X 4 + 1 X 2.5 sq. mm / suitable gauge copper conductor FRLSwire should beprovided.

Earthing: Two nos. Copper plate earthing as per PWD schedule

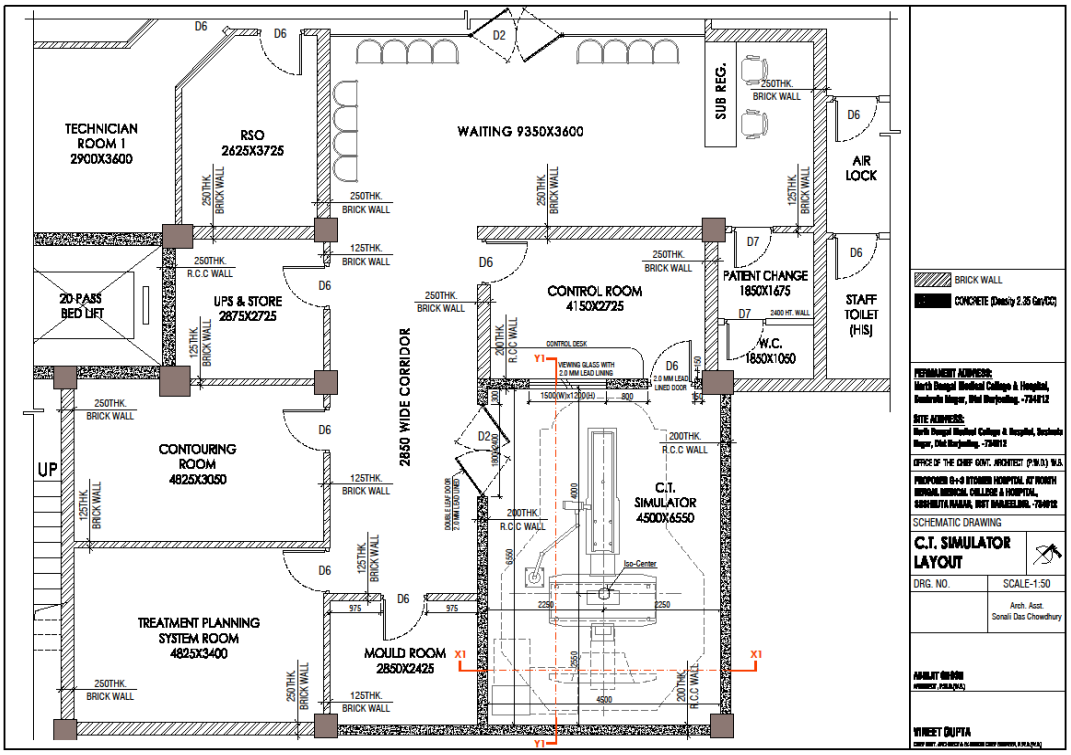
10. **Furniture item to besupplied:**

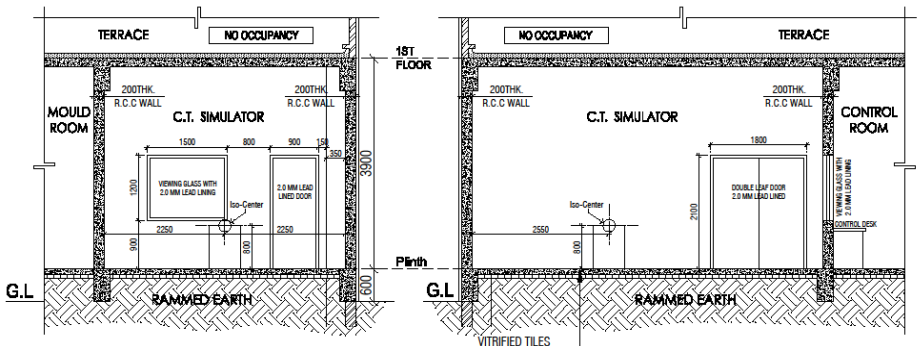
Racks and platforms for keeping mould room accessories should be provided.

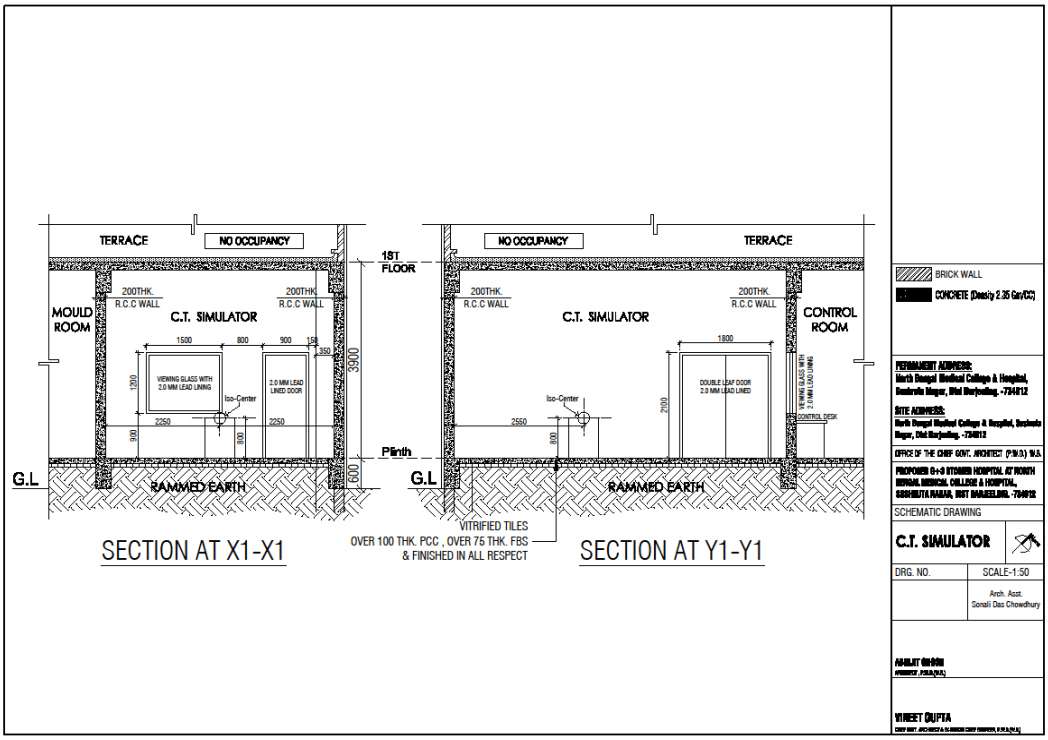
i) Executive revolving chair with arm rest: 6 Nos. (Godrej / Featherlite orequivalent)
ii) Storage Cupboard: 3 Nos. high quality customized Wallmounted
iii) Shoe Rack: 1 No
iv) Corner Table: 2 Nos. (Godrej / Featherlite orequivalent)
v) Change room withMirror
vi) 2 Kg Fire extinguisher cylinder: 4Nos.
vii) Console Table fromOEM
viii) Workstation table 1200 x 600 mm: 1 No. (Godrej / Featherlite orequivalent)
ix) Emergency Crash Cart in the CT room for storage of emergency medicines, medical equipment, true cut biopsy needles etc. – (Godrej /Janak)
x) LED view box for fourfilms
xi) Patient trolley with mattress side rails, oxygen cylinder and fluid stand attachment: 2 Nos.
xii) Dehumidifier - 22 Liters: 2 Nos.
xiii) Patient waiting chair 3-seater: - 3Nos.
xiv) One flat top table forpatient.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS/BRANDS		
Sl. No.	**ITEMS**	**PREFERRED MAKES**
A	**CIVIL**	
	Granite	TharMarble/GCLIndiaPvt.Ltd.
1	**TILES**	Kajaria, Johnson, Restile
2	**PAINT**	Dulux, AsianPaints, Nerolac
3	**PLUMBING**	Kohler, Jaguar, Grohe, Roca
4	**SANITARY ITEMS**	CERA, Hindware, Parryware
B	**ELECTRICAL**	
1	**CABLES**	Finolex, Havells, V-Guard
2	**SWITCHES**	Legrand, L&T, Crabtree
3	**DISTRIBUTION BOX, MCB**	Legrand, L&T, Siemens
4	**LIGHT FITTINGS-(LED Light)**	Philips, Crompton, Wipro.
C	**AIR CONDINTIONING(Copper Condensing unit)**	Mistubishi,Hitachi,Daikin,Carrier
D	**FURNITURE**	Godrej,HermenMiller,Featherlite,Damro
E	**SKYLIGHT**	Reputed company

CT-Simulator (4D) (AERB layout)


TECHNICIAN ROOM 1 2900X3600
RSO 2625X3725
WAITING 9350X3600
SUB REG.
AIR LOCK
PATIENT CHANGE 1850X1675
STAFF TOILET (HIS)
W.C. 1850X1050
CONTROL ROOM 4150X2725
UPS & STORE 2875X2725
20-PASS BED LIFT
2850 WIDE CORRIDOR
CONTOURING ROOM 4825X3050
TREATMENT PLANNING SYSTEM ROOM 4825X3400
MOULD ROOM 2850X2425
C.T. SIMULATOR 4500X6550
UP
250THK. BRICK WALL
125THK. BRICK WALL
250THK. R.C.C WALL
200THK. R.C.C WALL
D6
D7
D2
X1
Y1
BRICK WALL
CONCRETE (Density 2.35 Gm/CC)
PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.
PROPOSED G+3 STOREY HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012
SCHEMATIC DRAWING
C.T. SIMULATOR LAYOUT
DRG. NO.
SCALE-1:50
Arch. Asst. Sonali Das Chowdhury
ANJIT GHOSH
VINEET GUPTA


TERRACE
NO OCCUPANCY
MOULD ROOM
C.T. SIMULATOR
CONTROL ROOM
1ST FLOOR
Plinth
G.L
RAMMED EARTH
200THK. R.C.C WALL
VIEWING GLASS WITH 2.0 MM LEAD LINING
2.0 MM LEAD LINED DOOR
DOUBLE LEAF DOOR 2.0 MM LEAD LINED
Iso-Center
CONTROL DESK
VITRIFIED TILES OVER 100 THK. PCC , OVER 75 THK. FBS & FINISHED IN ALL RESPECT
SECTION AT X1-X1
SECTION AT Y1-Y1
BRICK WALL
CONCRETE (Density 2.35 Gm/CC)
PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.
PROPOSED G+3 STOREY HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012
SCHEMATIC DRAWING
C.T. SIMULATOR
DRG. NO.
SCALE-1:50
Arch. Asst. Sonali Das Chowdhury
ANJIT GHOSH
VINEET GUPTA



TheScopeofWorkforTurnkey–forNorth Bengal Medical College and Hospital (BrachytherapyUnit)

GENERAL

The prospective bidders shall inspect the proposed site for BRACHYTHERAPY bunker at North Bengal Medical College & Hospital, Darjeeling. Tenderers are advised to acquaint themselves with access to site, location of work and any other matter relating to availability and carriage of constructionmaterials.TheconstructionoftheconcreteshelloftheBunker(BRACHYTHERAPY ROOM) is under construction. The turnkey work shall include all other site preparation work requiredforinstallationandfunctioningoftheBRACHYTHERAPYattheproposedsites. The selected bidder shall submit 3D view of the interior work to be under taken for approval of WBMSCL.

Along with interior works as specified in details, the scope of work for Turnkey shall also include the following,

a) After completing the PWD civil work (As BRACHYTHERAPY bunker is underconstruction),
the remaining work will be completed for the vendor.

b) Electrical,Plumbing,Furnishing,Air-conditioning,Firefightingworks,Skylight.

c) NecessaryHeavyDutywoodendooratthetreatmentroomandaluminumpanelglas

sdoor attheentryofthecontrolconsoletobeprovidedatBRACHYTHERAPYsuchthatradiation level within the limit as per AERBProtocol.

d) Temperaturemanagement(SufficientACmachineswith100%backup)andrelative humidity (Sufficient Dehumidifier) management as per maintenance specifications of the concerned BRACHYTHERAPY Machine should be done by BRACHYTHERAPY Vendor Company for the BRACHYroomaswellasconsolearea.

e) Audio visual devices with high resolution camera with viewing monitor and with dualspeaker for patient communication duringtreatment.

The drawings of the proposed BRACHYTHERAPY building layout are attached herewith.

While preparing the plan, the following aspects have to be addressed,

1. Easymovementofthepatientstretchers/trolleysthroughcorridorsanddoors.
2. Adequate Radiation shielding as per AERB norms, ifnecessary.
3. Supplyoffurniturelikedesk,chairs,shelves,locker,etc.
4. SupplyofPatientstretcherandotherfurniture/accessoriestomaketheBRACHYTHERAPY functional.
5. Log book, CPU Trolly, 1 meter metal scale, scientific calculator, Graph Papers, Gap Chromic Film for brachytherapy dosimetryetc.
6. Theintendingbiddersaretocalculatethecostofnecessary Turnkeyjob(sitepreparation and interior works) based on the area as demarcated in the site wise drawings attached with the tenderdocument.

CIVIL WORK:

1. Construction / modification work including construction of brick wall if any, plastering, flooringaspertheapprovedplanandequipmentlayoutplan.
2. Construction of renovation/modification demolition, exaction, filling working including construction of full or half brick wall if required, plastering, flooring as per the approvedplan and equipment layoutplan.
3. Necessaryopenings/niches/cut-outs,whereverrequiredasperdrawingsandaskedforby WBMSCL,shallbeprovidedbythecontractorwithoutanyextracost.
4. MakingsurfacegoodforfloormodificationforinstallingtheBRACHYTHERAPY.
5. PlatformforunloadingandshiftingtheBRACHYTHERAPYifnecessary.
6. Cable tray, trench & channel–necessary trenches, cable tray and channels at requiredlocations.
7. **Anti-termitetreatmentandpestcontrol**shouldbedoneinandaroundthefacilityonceina year.Theentirecomplexwillbemaderodent/pestproof.

Specification of materials

a) Flooring:

Enhancement of thickness of floor as per AERB layout should be constructed by vendor considering cablepit.
Granite - 2400x800 mm or bigger good quality heavy duty hard Granites of 18mm thick

b) Walls:

Premier Tiles- 800x800 mm mirror polished premier quality double charged joint less vitrified tiles

c) **FalseCeiling:**MineralfibreboardwithpowdercoatedGIgridatBRACHYTHERAPYroom, controlroom.

PLUMBING WORK

All necessary plumbing work to install Brachytherapy. Chiller piping work should be done by vendor.

ELECTRICALWORK:

ThesuppliershallberequiredtospecifythetotalloadrequirementsfortheBRACHYTHERAPY bunker and console including the load of air conditioning, room lighting and for the accessories if any. The supply line will be provided by the Institute up to one point withinthe BRACHYTHERAPYcentre.FewlightsineachroomshallbeconnectedtotheUPStoprovide emergencylighting.

The electrical work shall include the following:

a) **Wiring**–Wiring with colour code for all types of points and plugs etc. All interior electrical wiring – with main distribution panel board, necessary vertical TPNMCBDBs to control MCCBs,TPNMCBDBsandSPNMCBDBifanynecessary.Everypointshouldbewiredwith bothneutralandphaseandearthseparatelyfromthecopperlinkbarofphase,neutralandearth.CopperlinkBarshouldbehousedintotheswitchboardon1.1KVgradeinsulators. Thereshouldnotbeanyjointinbetweenofanytwoterminalsofalltheinstallations.The3wiressystemshallbeofcopperwire(minimum1.5Sq.-mm)ofdifferentcapacityasperthe loadandshouldbeofrenownedmakeaslistedbelow.

All the internal wiring including that of telephone, LAN, DICOM & PACS etc. will be of concealedvariety.Theinternetbroadbandconnectionatasinglepointwillbeprovidedby hospital.Thedistributionofinternetwillbecarriedoutbyvendoronly.

b) **Earthing**:DoubleearthlingwithcopperplatefortheBRACHYTHERAPYandallaccessories should be as per ISOrule

c) Switcheslightandpowerpointsshouldbeofmodulartypeandofstandardmakeaslisted below.

Generallights–LEDLightsof400LUX(BRACHYTHERAPYRoomalongwithControl-Console room)

d) SkyLightshouldbeintheceilingofBRACHYTHERAPYroom.AllwiresusedmustbeFRLS (Fire Retardant with lows make) typeonly

e) **AIR CONDITIONING:**Allrooms(BRACHYTHERAPYRoomalongwithControl-

Consoleroom) need to be air-conditioned. Ductable central AC for BRACHYTHERAPY room andcontrol room and should be used according to room requirement and suitability. Humidity control shouldbeprovidedtoeffectivelyeliminatemoisturecondensationontheequipment.TheAir conditioning system should be designed with standby provision to function 24x7. The outdoorunitsofACshouldhavegrillcoveringstopreventtheftanddamage.

f) **Dehumidifier:**22litterperdayoneno.atBRACHYTHERAPYshouldbeprovided.

g) **Environmentspecifications**:(BRACHYTHERAPYRoomalongwithControl-Consoleroom)

h) Humidityrange:Relativehumidity60%and80%inallareasexceptequipmentroom which shallbeasperrequirementoftheequipment.

i) **Temperature ranges**: 22+/-2°Cin all areas through out the year, except equipment room whichshallbeasperrequirementoftheequipment.

j) **Airconditioningload**:Theheatloadcalculationsandmaintainingthedesiredtemperature andhumidityshallbetheresponsibilityofthesupplier.

k) **Painting:**(BRACHYTHERAPYroomalongwithControlConsole)Twocoatplastic emulsion paintovertwocoatsofwallputtyincludingprimerinallareaofBRACHYTHERAPYroomand control consoleroom.

FURNITURE AND OTHER ACCESSORIES REQUIREMENT:

I) BRACHYTHERAPY with Control -ConsoleRoom

Furniture Requirement:		
01	HDR Brachytherapy console	Long L shaped tail or made table for HDR control console Executive revolving chair with half backrest – 8 Customized L Shaped wall cabinet of at least 20’(W)x4’(H)x3’(D) with lock and key facility Patient treatment Bed - 1 Steel almirah / cabinet of standard size 6’(H)x2’(D) with lock and key – 2 Dustbin – 2
02	Brachytherapy Procedure Room	Wooden cabinet with glass door 2m. (H) x 1m. (W) x 1m. (D)
03	Brachytherapy Minor OT	Table – 1, Chair – 2, OT Table – 1, OT Stool – 4, Steel Cabinet – 2, Dustbin - 2
04	Trolley with facility for oxygen cylinder attachment	01 (For Patient transportation)
05	Wheel Chair	05
06	Shoe Shelf/ Rack for Brachytherapy, TPS	02
07	Microphone	01 unit for Patient Calling

08	Cartridge for Printers associated with TPS and Control Computer of BRACHY and Control console computer	2 nos. cartridges to be installed at the time of installation out of 10 nos. of cartridge and rest of the 8 nos. of cartridges to be supplied as and when required basis, by the end user within a span of 10 years.
09	Dustbin	05

FIRE SAFETY MEASURE:

1) A fire alarm system of reputed make with smoke / heat detectors, indicator panels, callboxes,electronicsirensandwiringwillbeinstalled.Audiocallbellsystemwithinterco m& remotelocking/unlockingfacilitytobeprovidedatthemaindoorofthecomplex.

2) Supplying, Installing adequate number of Dry chemical power type fire extinguisher of 6 kg capacity as per fire safety norms,withinitialfillinginbrandnewcylinderwithpowercoated finish, fitted with Gun metal union, high pressure CO2 gas cartridge, discharge hose,wall mounting bracketetc.

MISCELLANEOUS:

a) Cabling of Network (LAN): connectivity and required branded switches for networking the BRACHYTHERAPY, TPS and any other workstation used within thesite.

b) The internet broadband connection at a single point will be provided by hospital. The distribution of internet will be carried out by vendor only and one router should be provided for machine maintenance and engineerservice.

c) Broadband connection with static IP for REMOTE SERVICE of BRACHYTHERAPY.

d) One Laptop with standard specification for **Brachy QA as per AERBProtocol**.

e) External HDD'S for Brachy patient backup.

f) Radiation related Signage to be provided as perrequirement.

g) Intercom system should beprovided.

h) The out door unit of all AC should have grill coverage to prevent theft anddamage.

i) Necessary power supply plug point should be provided at BRACHYTHERAPY machine room, BRACHYTHERAPY control consoleroom.

j) Patient change area with full length curtain, small rack/drawer for keepingbelongings.

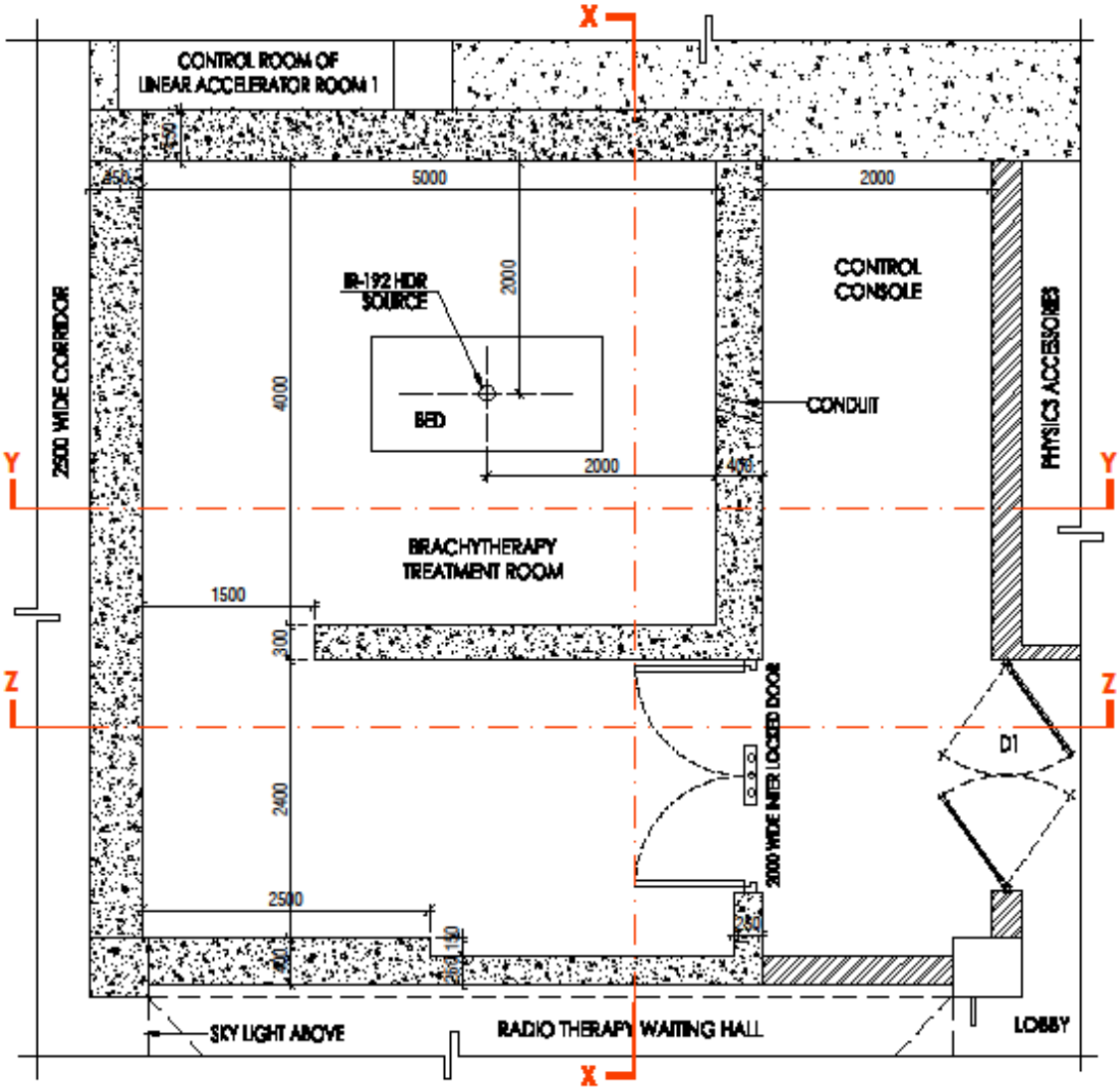
k) The vendor shall supply an Ultrasound system with transrectal and transvaginal probes, and stepper assembly integrated with HDR TPS for real-time image-guided brachytherapy.

l) The vendor shall set up a Minor OT facility within the Brachytherapy suite, equipped with OT table, patient monitoring, anesthesia workstation, oxygen supply, and sterilization equipment.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS/BRANDS		
Sl. No.	**ITEMS**	**PREFERRED MAKES**
A	**CIVIL**	
	Granite	Thar Marble/GCL India Pvt. Ltd.
1	**TILES**	Kajaria, Johnson, Restile
2	**PAINT**	Dulux, Asian Paints, Nerolac
3	**PLUMBING**	Kohler, Jaguar, Grohe, Roca

4	**SANITARY ITEMS**	CERA, Hindware, Parryware
B	**ELECTRICAL**	
1	**CABLES**	Finolex, Havells, V-Guar
2	**SWITCHES**	Legrand, L&T, Crabtree
3	**DISTRIBUTION BOX, MCB**	Legrand, L&T, Siemens
4	**LIGHT FITTINGS-(LED light)**	Philips, Crompton, Wipro.
C	**AIR CONDINTIONING (Copper Condensing unit)**	Mistubishi, Hitachi, Daikin, Carrier
D	**FURNITURE**	Godrej, Hermen Miller, Featherlite, Damro
E	**SKYLIGHT**	Reputed company

HDR Brachytherapy (AERB layout)



BRACHYTHERAPY ROOM PLAN

SCALE 1:50

NOTE : ALL DIMENSIONS ARE IN MM.

BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS 50 MM DIA. AND 200 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM AND ANGLE OF 30° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.), W.B.

PROPOSED G+3 INTENSIVE HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

SCHEMATIC DRAWING

BRACHYTHERAPY UNIT LAYOUT

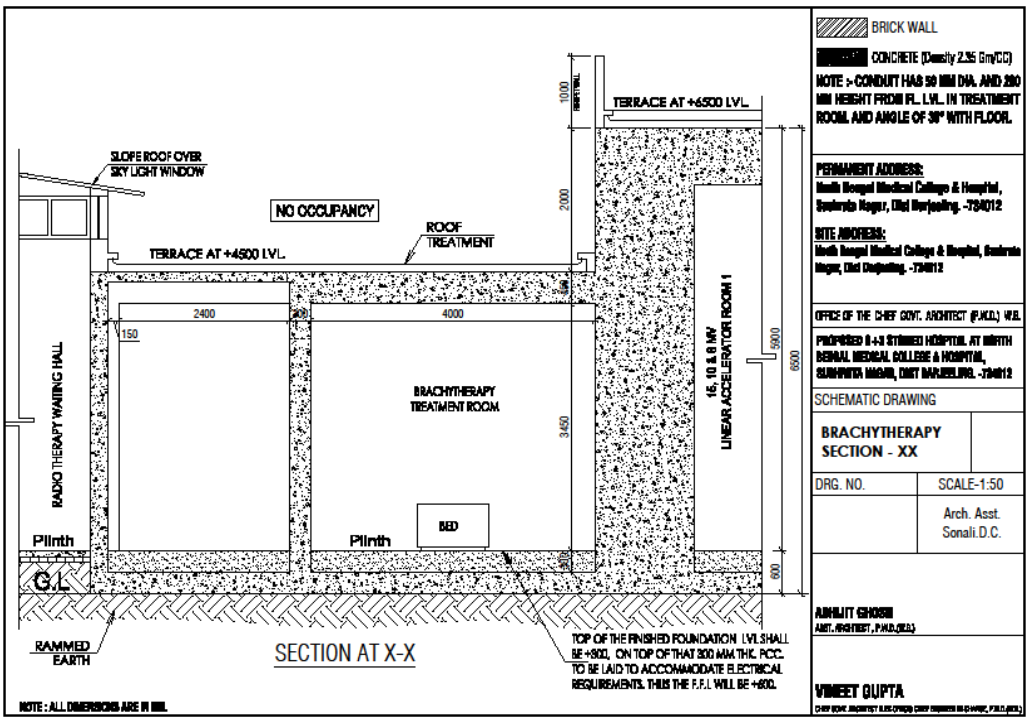
DRG. NO.

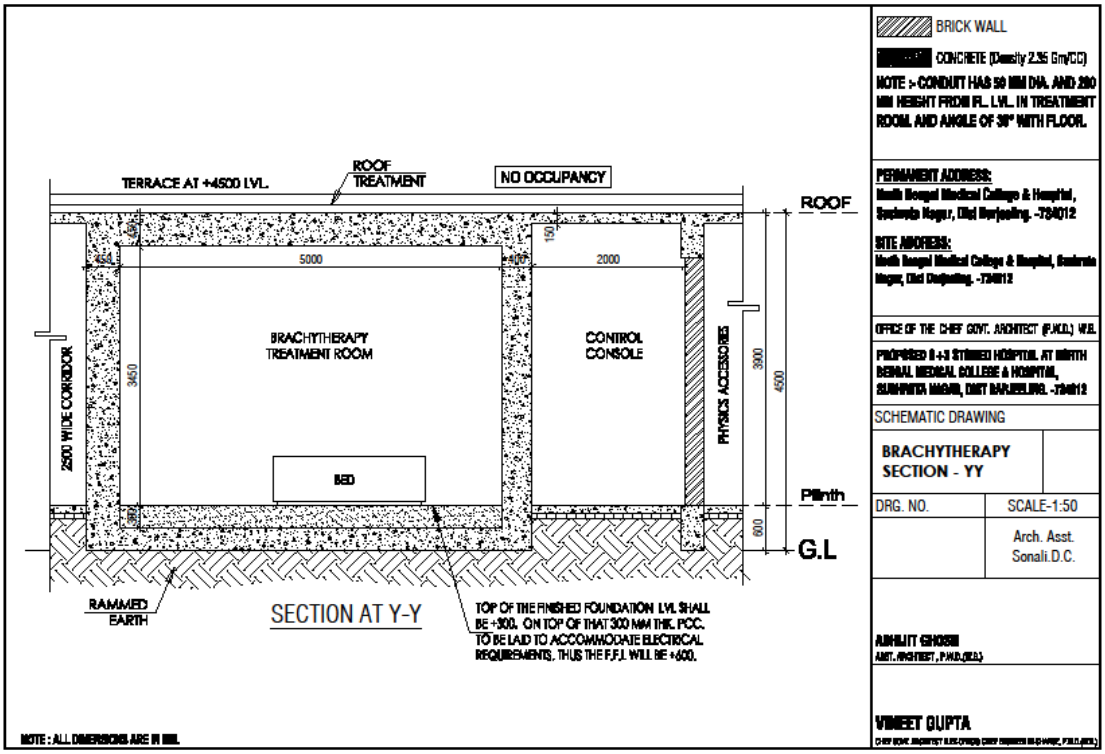
SCALE-1:50

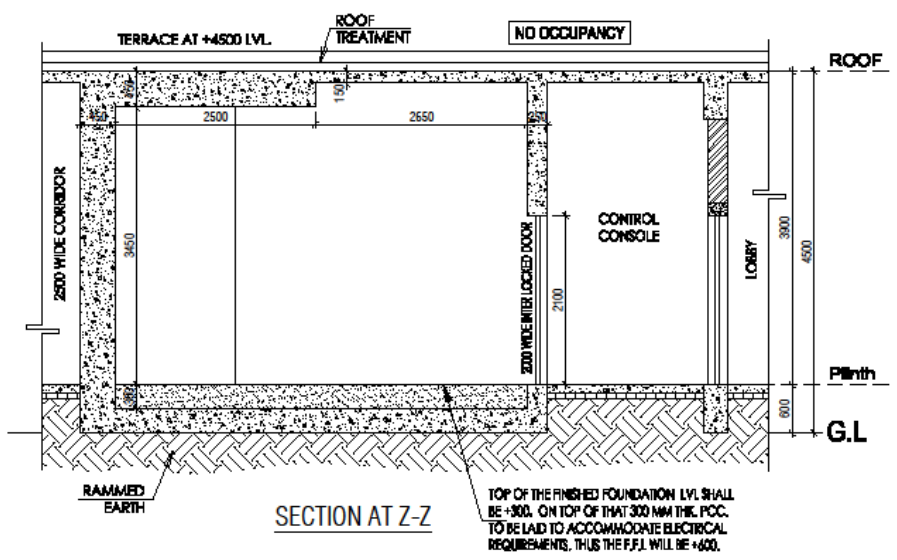
Arch. Asst. Sonali.D.C.

ABHIJIT GHOSH
ASST. ARCHITECT, P.W.D.(W.B.)

VINEET GUPTA


SLOPE ROOF OVER SKY LIGHT WINDOW
NO OCCUPANCY
ROOF TREATMENT
TERRACE AT +4500 LVL.
TERRACE AT +6500 LVL.
1000
2000
2400
150
4000
5900
6000
3450
600
RADIO THERAPY WAITING HALL
BRACHYTHERAPY TREATMENT ROOM
15, 10 & 6 MV LINEAR ACCELERATOR ROOM 1
BED
Plinth
Plinth
G.L
RAMMED EARTH
SECTION AT X-X
TOP OF THE FINISHED FOUNDATION LVL SHALL BE +900, ON TOP OF THAT 300 MM THK. PCC. TO BE LAID TO ACCOMMODATE ELECTRICAL REQUIREMENTS. THUS THE F.F.L WILL BE +600.
NOTE : ALL DIMENSIONS ARE IN MM.
BRICK WALL
CONCRETE (Density 2.35 Gm/CC)
NOTE :- CONDUIT HAS 50 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM. AND ANGLE OF 30° WITH FLOOR.
PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.
PROPOSED G+3 STORIED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012
SCHEMATIC DRAWING
BRACHYTHERAPY SECTION - XX
DRG. NO.
SCALE-1:50
Arch. Asst. Sonali.D.C.
ANIRUJIT GHOSH
ASST. ARCHITECT, P.W.D.(W.B.)
VINEET GUPTA


TERRACE AT +4500 LVL.
ROOF TREATMENT
NO OCCUPANCY
ROOF
150
5000
2000
2500 WIDE CORRIDOR
BRACHYTHERAPY TREATMENT ROOM
CONTROL CONSOLE
PHYSICS ACCESSORIES
3450
3900
4500
600
BED
Plinth
G.L
RAMMED EARTH
SECTION AT Y-Y
TOP OF THE FINISHED FOUNDATION LVL SHALL BE +300, ON TOP OF THAT 300 MM THK. PCC. TO BE LAID TO ACCOMMODATE ELECTRICAL REQUIREMENTS. THUS THE F.F.L WILL BE +600.
NOTE : ALL DIMENSIONS ARE IN MM.
BRICK WALL
CONCRETE (Density 2.35 Gm/CC)
NOTE :- CONDUIT HAS 50 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM. AND ANGLE OF 30° WITH FLOOR.
PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012
OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.
PROPOSED G+3 STORIED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012
SCHEMATIC DRAWING
BRACHYTHERAPY SECTION - YY
DRG. NO.
SCALE-1:50
Arch. Asst. Sonali.D.C.
ANIRUJIT GHOSH
ASST. ARCHITECT, P.W.D.(W.B.)
VINEET GUPTA



SECTION AT Z-Z

BRICK WALL

CONCRETE (Density 2.35 Gm/CC)

NOTE :- CONDUIT HAS 50 MM DIA. AND 250 MM HEIGHT FROM FL. LVL. IN TREATMENT ROOM AND ANGLE OF 30° WITH FLOOR.

PERMANENT ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

SITE ADDRESS:
North Bengal Medical College & Hospital, Sushruta Nagar, Dist Darjeeling. -734012

OFFICE OF THE CHIEF GOVT. ARCHITECT (P.W.D.) W.B.

PROPOSED G+3 STOREED HOSPITAL AT NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, SUSHRUTA NAGAR, DIST DARJEELING. -734012

SCHEMATIC DRAWING

BRACHYTHERAPY SECTION - ZZ

DRG. NO.	SCALE-1:50
	Arch. Asst. Sonali.D.C.

AMRIJIT GHOSH
ASST. ARCHITECT, P.W.D.(B.E.A.)

VINEET GUPTA

3. STANDARD REQUIREMENTS

The following requirements with regard to inspection, quality, packing, warranty, maintenance andrelated services shall commonly apply to all the Goods in all the Schedules:

i. QUALITY CERTIFICATION

Wherever appearing in the BiddingDocuments, the “CE certificate” shall be read as:
“CE mark for conformitéeuropéenne, (French for "European conformity").

ii. WARRANTY

Unless specified otherwise, warranty shall always be for a period of five (5) years from the date of acceptance by the Consignee after commissioning of the Goods. During warranty, cost and responsibility of the transport/shifting of the equipment, in case so required for repair, etc, shall be entirely borne by theSupplier, without any liability on the Consignee. In case of such shifting of equipment, alternative working equipment shall be first made available to the Consignee to avoid any disruption in the clinical work.

iii. MAINTENANCE

a. CMC shall be as per the specification after the expiry of warranty, unless specified otherwise. During CMC, cost and responsibility of the transport/shifting of the equipment, in case so required for repair, etc, shall be entirely borne by the Supplier, without any liability on the Consignee. In case of such shifting of equipment, alternative working equipment shall be first made available to the Consignee to avoid any disruption in the clinical work.

b. Subject to (b) above, CMC services shall be provided at the site of the equipment, within the prescribed response time.

4. LIST OF RELATED SERVICES

I. Incidental Services

The SelectedBiddermay be required to provide any or all of the following services, including additionalservices, if any, specified in SCC:

(a) Performance or supervision of the assembly, installation and/or start-up of the suppliedequipments

(b) Furnishing of tools required for assembly and/or maintenance of the supplied Goods along with each equipment

(c) Furnishing of detailed operations and maintenance manual for each appropriate unit ofsupplied equipment at the time of delivery

(d) The Selected Bidder shall be required to give an undertaking that suitable trained serviceengineers shall be posted at three places of West Bengal for providing prompt, effective andpreventive maintenance during the period of warranty as defined as well as CMC period.

(e) The Comprehensive Maintenance Contract (Including Spare Parts)

(i) The Purchaser/ Consignees/ Government of West Bengal, may, at theirown and sole discretionenter into aComprehensive Maintenance Contract (CMC) with the Supplier at thecontracted price.

(ii) The Supplier shall visit each site as recommended in the manufacturer’stechnical/ service operational manual, but at least once in three months during theCMC period for preventive maintenance.

(f) Training of the Purchaser's/Consignee's personnel, on-site, in assembly, start-up, operation, maintenanceand/or repair of the supplied Goods. This must be carried out at the time of commissioning ofthe Goods.

(g) Necessary support from the Original Equipment Manufacturer or the Selected Bidder, as may be required for obtaining Clinical License from AERB exclusively for LINAC.

II. Availability of Spare parts

Suppliers shall ensure the availability of spare parts for 15 (Fifteen) years from the date of commissioning. Inventory of the Spare partsshall be required to be maintained by the Supplier for 15(Fifteen) years from the date of commissioning.

III. Training

- **LINAC (including Patient Immobilization Device, if required)**

The Selected Bidder shall arrange for training at an appropriate facility for at least 3 Medical Physicists and 2 Radiation Oncologists from the Hospital/ Medical College where machine isto be installed for at least 3 weeks for LINAC(Offsite Training at specialized training centrein India) by trained personnel for the seamless functioning of the entire system.

In addition to that, the Selected Bidder should provide all necessary on-site training at the Hospital/ Medical College for Radiation Oncologists, Medical Physicists and Radiotherapy Technologists of the Hospital/ Medical College for a period of not less than 2 weeks by trained personnel for the seamless functioning of the entire system.

The Selected Bidder must depute the expert to acquire the requisite AERB data at the site of installation from the procurement to installation.

- **Brachytherapy**

The Selected Bidder shall arrange for training at an appropriate facility for at least 3 Medical Physicists and 2 Radiation Oncologists and 1 Radiotherapy Technologist from the Hospital/ Medical College where machine to be installed for at least 1 week for on-site and 1 week for off-site (within India) for Brachytherapy by trained personnel for the seamless functioning of the entire system.

The Selected Bidder must depute the expert to acquire the requisite AERB data at the site of installation from the procurement to installation.

- **Dosimetry**

All necessary training for Dosimetry /QA system for the Medical Physicists(onsite) by trained personnel for the seamless functioning of the entire system.

The Selected Bidder must depute the expert to acquire the requisite AERB data at the site of installation from the procurement to installation.

- **4D CT simulator.**

The Selected Bidder shall arrange for training at an appropriate facility for at least 3 Medical Physicists and 2 Radiation Oncologists and 4 Radiotherapy Technologists from the Hospital/ Medical College where machine is to be installed for at least 1 week for on-site and 1 week for off-site (within India) for 4DCT by trained personnel for the seamless functioning of the entire system.

The Selected Bidder must depute the expert to acquire the requisite AERB data at the site of installation from the procurement to installation.

All necessary trainingarrangement should be provided by the Selected Bidder.

5. Inspections and Tests

a) The Supplier shall get the Goods inspected in the manufacturer's works by a competentauthority and submit a test certificate and also a guarantee/warranty certificate that the Goods conform to laid down specifications.

b) WBMSCL or its representative may inspect and/or test any or all item of the Goods to confirmtheir conformity to the Contractat their own cost and expense, prior to dispatch from the manufacturer's premises or at theport of entry.

Section V. Bidding Forms

FORM1

TenderForm

(Tobefurnishedonnon-judicialstamp-paperofRs.100/- ,affirmedbeforeaFirstClassMagistrate/Notary/ExecutiveMagistrate in the case of domestic bidderor any other legally equivalent document as permissible under the laws of the respective country, where the bidder is incorporated)

Date:…….....……

BidReferenceNo.:_____

NameofContract:SUPPLY AND COMMISSIONING OF DIFFERENT TYPES OF ONCOLOGY EQUIPMENT IN THE MEDICAL COLLEGES OF THE GOVERNMENT OF WEST BENGAL.

TheManagingDirector,
WestBengalMedicalServicesCorporationLtd, SwasthyaSathi,
GN-29,Sector–V,SaltLake, Kolkata-700091

Sir,

I/We,theundersignedherebyacceptall thetermsandconditionsof theBidReferenceNo.: **WBMSCL/NIT-XXX/2025,DatedXX.XX.2025-**anditsAmendments andAddenda/ Corrigendatheretoareread and accepted without anymodification orcondition(s).

We also

1. certifythat:

   a) Wehaveexamined andhavenoreservations totheBidding Documents,includingAddendaissuedinaccordancewithInstructionstoBidders.

   b) Wehavequotedforallthejobsinfullunderthescopeofworkofthetender

   c) WeoffertoexecutetheScopeofWorkinconformitywithBiddingDocuments.

   d) The offeredproductsareinaccordancewiththerequiredspecificationsandtechnical requirements.

   e) OurbidconsistingoftheTechnicalBidandtheFinancialBidshallbevalidforaperiodof 2 (two) yearsfromthedateof opening of Financial Bid in accordancewiththe Bidding Documents. Thepricesquoted byusandaccepted byWBMSCL shallholdgoodandremainvalidforaperiodof**2(two)**yearfromthedateof opening of Financial Bidandnoadditionalclaimswillbemadeonaccountofanypricevariationorfluctuationinmarketrates.The ratequotedshallremainbindinguponusandmaybeacceptedatanytimebeforetheexpirationof**2(two)**ye ars fromthedateof opening of Financial Bid.

   f) Ifourbidisaccepted,wewillsubmitaPerformanceSecuritywithin 14 (fourteen) days of issuance of

AOC/ within 10 (ten) days of receipt of intimation of issue of LC (as may be applicable)inthepresc ribedformatasgivenintheBiddingDocuments.

g) Ourcompanyhasbeenincorporatedinaccordancewith thelawsof _____andgovernedbythem.

h) Ourcompanyhavecommissioned nos. Oftheofferedmodelandproviding necessaryservicesupporttotheequipment.

i) Wehave never been blacklisted by any Government Department/ Agency in India during the last 5 years.

j) There is noadversereportagainsttheequipment offeredbyusinanyGovt. institution.

k) WewillpermitWBMSCLoritsrepresentativetoinspectouraccountsandrecordsandotherdocumentsrel atingtothebidsubmissionandtohavethemauditedbyauditors appointedbytheWBMSCL.

l) Allthestatementsmadeintheattacheddocumentsaretrueandcorrect.Incaseofanyinformationsubmitte dprovedtobefalseorconcealed,penaltiesshallbeimposedin termsoftheBiddingDocuments.

2. We understandthat:

(i) Partialorincompletebidsubmissionwillleadtocancellationofourbid.

(ii) Thetenderinvitingandacceptingauthorityreservestherighttorejectanyapplication withoutassigninganyreason.

Enclose:

1.NonStatutoryDocuments/MyDocuments
2.StatutoryDocuments(BidA&BidB)
3.Forms&Annexuredulyfilledup,signed&notarized(whereapplicable)

Name…….

Inthecapacityof……

Signed……

Dulyauthorizedtosignthebidforandonbehalfof(ifapplicable)……..

Date…….

Form2: Check-List

[Pleasefillinandincludewithyourbid]

Note1: It is essential that all documents in hard copy are to be placed before the Bid Evaluation Committee and arranged in the same sequence as given in theCheckList.Allthedocumentsshouldbe appropriatelyflagged.

Note2: If any document is written in any language other than English, an English translation of the document duly authenticated is to be submitted.

Note 3: The documents listed at Sl. No. 1,2,3, 4, 5,7,10, & 13 must be submitted online during online bid submission or else the bid would be liable to be summarily rejected.

Note4: After opening of the Technical Bids, if it is found that any of the documents required to be submitted with the bids is wanting, WBMSCL shall reserve the right to allow late submission of such document at its discretion within a specified time limit.

NonstatutorydocumentstobesubmittedunderMyDocuments				
Sl. No.	**Activity**	**Yes/No/NA**	**PageNo. in thebid**	**Remark**
1	PANCard			
2	GST registration Certificate			
3	IEC Certificate			
4	AERB type approval Certificateof the offered model.			
5	Performance Statement Form (For the period of last three calendar years ending December 2022) - Form 7 of Section V Should be supported with documentary evidence (copy of work orders along with proof of payment received / copy of work orders along with installation certificate) that the bidder hassupplied Medical equipment in Hospitals in India during the last 3 (three) Financial Years (FY).			
6	Income Tax returns for assessment years2022-2023, 2023-2024 and 2024-2025 (Financial years 2021-2022, 2022-2023 and 2023-2024.			
7	Tender Form as per Form 1			
8	Manufacturer's Authorization (If applicable) as per Form 6A of SectionV			
9	Satisfactory Performance Certificate from at least 3 (three) users of the quoted model in support of the satisfactory operation & at least 01 (One) for the quoted model in India.			
BID–A				
10	Earnest Money Deposit (EMD) (Copy of Bank Guarantee (BG).			

11	Declaration of the bidderon letter head that “We agree to submit a copy of the Tender Documents and its Amendments and Addenda thereto duly initialled by us in all pages with our seal/rubber stamp affixed thereto, in token of acceptance thereof.”			
12	Spare parts and accessory manufacturers Authorisation (if applicable) as per Form 6B of Section V			

BID-B				
Sl. No.	**Activity**	**Yes/No/NA**	**PageNo intheBid**	**Remark**
13	Modeloftheequipmentofferedfor**(SelfDeclaration)**withBrochureandTechnicalDataSheet			
14	ComparativeDataTableofthetechnicalspecifications(FormNo.4ofSectionV)			
15	CE("ConformitéEuropéene") (4 Digit notified body)&USFDAapprovalCertificate oftheofferedmodel,as applicable CE("ConformitéEuropéene")CertificateshouldbefromEUNotifiedBodiesauthorizedto conductaudits.(copy of the certificate submitted with the bid shall be either notarised or apostilled, notarised/ apostilled copy of certificate should be submitted in original)			
16	Pre-requisites ofinstallation [Power(KVA,Phase,Hz)Civil and anyotherrequirement,ifany].			
17	Average Annual Turnover of the bidderduring the Financial Years 2021-2022, 2022-2023 and 2023-2024 (in INR) - to be certified by practising Chartered Accountant as per format given in **FORM 10 of Section V.**			
18	Form11:DeclarationofQualityCertificationofEquipment(asapplicable)			
19	AERB type approval certificate of the offered model.			
20	Bidders shall furnish a copy of the Agreement/ MOU with the agency which shall undertake the Turnkey Work on behalf of the bidder and shall also furnish at least 3 (three) certificates issued in favour of the agency demonstrating satisfactory completion of Turnkey Work in Government hospitals/ Govt.medical colleges/ Private Medical Colleges having Govt. recognition or National Medical Commission, India, within the last 3 (three) financial years i.e. 2022-2023, 2023-2024 and 2024-2025.			

Form3:PROFORMA OF CERTIFICATE

(TO BE ISSUEDBY THE CONSIGNEEAFTER SUCCESSFUL COMMISSIONINGANDFINAL ACCEPTANCEOF THE LINAC, CT Simulator (4D) and HDR Brachytherapy)

Certificate of commissioning of equipment and its satisfactory and faultless Functioning after commissioning

(To be issued jointly by the Director/MSVP/Superintendent & HOD)

This is to certify that the equipment(s) as detailed below is functioning satisfactorily since it was commissioned on.....

a) Contract No. / Supply Order No. Dated :

b) Description of the equipment (s):

c) Serial no. of the equipment (s):

d) Quantity :

e) Name of the Health Facility :

f) Date of commissioning :

Signature of Authorized Signatory of Facility
(Rubber stamp to be affixed)

Signature of HOD
(Rubber stamp to be affixed)

West Bengal Medical Services Corp. Ltd.

Form3a:ConsigneeReceipt Certificate (CRC)

(To be issued by consignee's authorized representative)

[The consignee may issueanadditionalchallan receiptifdelivered by courier or transporter]

Dateofsupply by the Company Person or Courier:	
Nameand AddressoftheConsignee:	
Nameof theitemsupplied (withMake&Model & Model No.):	
PurchaseOrder /ContractNo.:	
Nameof theSupplier:	
No.OfUnitssupplied:	
Placeofdestination (The user Dept. where the equipment will be actually installed):	
InvoiceNo.&Date:	
Details ofBatch /Serial Numbers, if any of item supplied:	
...…… ….. (Signature&OfficeSeal ofauthorized representative ofConsigneeswith date) [Name and designation ofthe signatory to be written capitalletter]	
...…… …. (Signature&OfficeSeal ofHead of theInstitute/Hospital with date) [Nameand designationof thesignatory to be written capitalletter]	

West Bengal Medical Services Corp. Ltd.

Form 3b: Satisfactory InstallationCertificate(SIC)

Bid Reference :

Award of Contract Reference :

Description of Equipment/Service :

Date of Installation :

This is to certify that the equipment(s) as detailed below has/have been received in good condition along with all the standard and special accessories, consumables, set of spares in accordance with the contract/technical specification of the equipment and site preparation including interiors as per bid document.

Details of equipment, accessories, consumables, spares, etc

Sl	Description	Quantity	Serial No. / Part No.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

In case of space deficiency, another sheet with the same format can be annexed.

Thesupplierhasalso submitted the following,

1. Tools formaintenance
2. Detailedoperationandmaintenancemanual both inhardand soft copy for each itemof supply at each location

Theproving testhasbeendone toourentire satisfaction.Theequipments, itsaccessoriesand ancillariesof the sitepreparation including interiors is functioning satisfactorilyand faultlessly

Declaration by Unit Head (HOD/MO-IC/Others):

Sticker designed by WBMSCL is fitted with the equipment ☐ Yes ☐ No

Signaturewith stamp:

Name (in Block):

P.T.O. →

The following operators/ end users have been trained to operate the equipment(s),

Sl	Name	Designation	Contact No	E-mail ID (In CAPS)	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

In case of space deficiency, another sheet with the same format can be annexed.

Countersigned by the head of the institute/ hospital:

Signature_____

Name _____

Designation with Stamp
_____

Date _____

Phone No_____

Signature of Unit Head:
(HOD/MO-IC/Others)

Name (in Block):

Designation with Stamp:

Form4: TechnicalSpecificationForm
(Comparative DataTable)

WBMSCL'sminimumTechnicalRequirements	***Compliance***

THE OFFEREDPRODUCTSARE INACCORDANCEWITHTHE REQUIREDSPECIFICATIONS AND TECHNICAL REQUIREMENTS:

YES NO

ANYDEVIATIONS MUST BE LISTEDBELOW:

Form5:Bid Security(BankGuarantee) Form

[Insert:NoBidSecurityisrequestedorTheBankshallfillinthisBankGuaranteeForminaccordancewith theinstructionsindicated.]

[Bank'sNameandAddressofIssuingBranchorOffice]

Beneficiary: West Bengal Medical Services Corporation Limited, having its registered office at Swasthya Sathi, GN- 29, Bidhannagar, Sector – V, Salt Lake, Kolkata-700 091

Date: _____

BIDGUARANTEE No.: _____

Wehavebeeninformedthat*[nameofthebidder]*(hereinaftercalled"theBidder")hassubmittedtoyou itsbiddated(hereinaftercalled"theBid")fortheexecutionof*[nameofcontract]*underInvitationtoBidNo. *[NITnumber]*(“the NIT”).

Furthermore, we understand that,according to your conditions, bidsmust besupported byabid security. AttherequestoftheBidder,we*[nameofBank]*herebyirrevocablyundertaketopayyouanysumorsums notexceedingintotalanamountof*[amountin figures]*(*[amountinwords]*)uponreceiptbyusofyourfirst demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s)underthe bidconditions, because the Bidder:

a) has withdrawnitsBid duringthe period of bid validityspecified bytheBidder in the Formof Bid; or
b) havingbeennotifiedoftheacceptanceofitsBidbyWBMSCLduringtheperiodofbidvalidity,(i)fails orrefusestoexecutetheContractForm;or(ii) failsorrefusestofurnishthePerformanceSecurity,ifrequired, in accordancewith the Instructionsto Tenderers.

This guaranteewillexpire:(a)iftheBidderisnottheSelected Bidder,upon thereceiptofacopyof yournotificationtotheBidderofthenameoftheSelected Bidder;or(b) if the Bidder is the Selected Bidder,twenty-eightdaysafterthe expiration of the Bid Validity Period.

Consequently,anydemandforpaymentunderthisguaranteemustbereceivedbyusattheofficeonor beforethat date.

Thisguaranteeis subject to the UniformRulesfor Demand Guarantees,ICCPublication No. 458.

While issuing Bank Guarantee, issuing applicant must mention receiver's details as ICICI Bank A/c. No.: 105605003391, IFSC ICIC0001056, Branch Salt Lake Sector 5, in BG text at which SFMS IFIN 760 message to be sent by issuing bank, to establish the authenticity of given BG.

_____

[Signature]

Form6A:Manufacturer'sAuthorizationForm

[ThebiddershallrequiretheManufacturertofillinthisForminaccordancewiththeinstructionsin theBiddingDocuments.Thisletterofauthorizationshouldbeontheletterheadof theManufacturerandshoul dbesignedby apersonwiththeproperauthoritytosigndocumentsthatarebindingontheManufacturer.Suchcertificateis notrequiredwhereManufactureristhebidder.]

Date:

NIT No.:

To:
MD, WBMSCL

WHEREAS

We *[insertcompletenameof Manufacturer],*who are official manufacturers of *[inserttype of goods manufactured],*havingfactoriesat*[insertfulladdressofManufacturer'sfactories],*doherebyauthorize*[i nsert completenameofbidder]*to submit a bid the purpose of which is to provide the following Goods, manufacturedbyus*[insertnameandorbriefdescriptionoftheGoods]and*tosubsequentlynegotiatean dsign the Contract.

WeherebyextendourfullguaranteeandwarrantyinaccordancewiththeGeneralConditions forGoods,with respect tothe Goods offered by the abovebidder.

When resold by [*name of bidder*], these goods are subject to applicable warranty terms of your Bidding Documents.

We assure you that in the event of [*name of bidder*] not being able to fulfill its obligation as our Sales & Service Provider in respect of your Bidding Documents, we would continue to meet our terms stated in the Bidding Documents through alternate arrangements.

Authorised Signatory of the Manufacturer

Name

Designation with stamp

Date _____

Form 6B: SPARE PARTS AND ACCESSORIES MANUFACTURER'S AUTHORIZATION FORM

[The bidder shall require the manufacturers of the spare parts and accessories which are being procured by them for running the equipment to fill in this Form in accordance with the instructions in the Bidding Documents. Thisletter of authorization should be on the letterhead of such manufacturer and should be signed by a person with the proper authority to sign documents that are binding on such manufacturer.]

Date:

NIT No.:

To:
MD, WBMSCL

WHEREAS

We *[insert complete name of manufacturer],* who are manufacturers of *[insert category of spare parts/ accessories] and/or supply of spare parts/ accessories [insert particulars of spare parts/ accessories being supplied],* having factories at *[insert full address of place where such items are being manufactured],* do hereby authorize *[insert complete name of Bidder]* to submit a bid, the purpose of which is to provide the following Goods*[insert name and or brief description of the Goods] and* to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the General Conditions for Goods, with respect to the Goods offered by the above bidder.

When resold by [*name of bidder*], these goods are subject to applicable warranty terms of your Bidding Documents.

We assure you that in the event of [*name of bidder*] not being able to fulfill its obligation as our Sales & Service Provider in respect of your Bidding Documents, we would continue to meet our terms stated in the Bidding Documents through alternate arrangements.

Authorized Signatory of the manufacturer _____

Name_____

Designation with stamp_____

Date_____

Form7: PerformanceStatementForm

(For the period of last three years, if applicable)

Bid no: _____ Date of Opening: _____

Name of the Firm_____

Order placed by (Full address of purchaser)	Order no& date	Description &quantity of ordered Items	Value of Order	Date ofcompletion ofDelivery		Remarks indicating reasons of late delivery,if any	Was the supplies of Goods satisfactory
				As per Contract	Actual		

Signatureandseal ofthe bidder

_____

Form8(a):*PRICESCHEDULEFORGOODSTOBEIMPORTEDFROMABROAD (To be uploaded separately for each package)*

PACKAGE NAME:.....

1	2	3	4	5	6	7	8
Sl. No.	BriefDescription of Goods (Item wise breakup of price quoted in sl no. 1.01 of BOQ)	Country of Origin	Quantity (Nos.)	**Price per unit**(inINR) **Unit Price onCIP(Kolkata)**[i.e.value ofthe Goods including allchargesfor export,carriage,insurance during loading,unloadingand transportation, loading andunloading atportofexportand import] +**allother charges for unit**(i.e.charges forlocal transportationandstorage,ExtendedInsurance, installation,commissioning,supervision, demonstrationand training) The unit price is excluding the cost of Dosimetry& QA Equipment andMould Room accessories [*Tobefedinthedesignated*	**Total price**(in USD) [(Quantity at 4)x (Price per unitat5)]	Payment Mode Payment will be made in USD	Duties & Taxes Custom Duty & GST will be paid as applicable
1							
2							
3							
4							
5							
6							
7							

8							
9							
10							

TotalTender price in USD:_____

In words:_____

Note: -

1.Ifthere is adiscrepancy between the unitprice andtotalprice,the unit price shallprevail.

2.The charges for CMCafter warranty shallbe quotedseparately.

3.The Selected Bidder willbe fully responsible for the safe arrivalofthe Goods atthe namedport/airportofentryingoodconditionas per terms ofCIPas per Incoterms 2020.

SignatureofBidder_____

Name_____

BusinessAddress_____

Place:_____ **Signatureofbidder**_____

Date:_____ **Sealofthebidder**_____

Form8(b): PRICE SCHEDULE FORDOMESTIC GOODS OR GOODS OF FOREIGNORIGINLOCATEDWITHININDIA OR GOODS TOBE IMPORTEDANDSUPPLIEDINCLUDING SITE PREPARATION AND INTERIOR WORKS TO BE CARRIED OUT ON TURNKEY BASISAGAINSTPAYMENTININDIANRUPEES

1	2	3	4	5	6
Sl. No.	Brief Description of Goods	Country of Origin	Quantity	Price per Unit Price (at Consignee's Site) [i.e. value of the goods including all charges for supply, storage, installation, commissioning, supervision, demonstration and training including site preparation and interior works to be carried out on turnkey basis] exclusive of all taxes *[To be fed in the designated cell under Rate in the BOQ]*	Total Price
A	High Energy LINAC for Kolkata MCH		1		
B	High Energy LINAC for North Bengal MCH		1		
C	CT Simulator (4D) for North Bengal MCH		1		
D	HDR Brachytherapy for North Bengal MCH		1		

Totaltender pricein INR:_____

In words:_____

*Taxes:

GST - …….. %

Anyother applicable taxes.....%

Note: -

1. Ifthere is adiscrepancy between the unitprice andtotalprice,the unit price shallprevail.
2. The charges for CMCafter warranty shallbe quotedseparately.
3. The bidder must quote price for “GOODS TO BE IMPORTED AND SUPPLIED AGAINST PAYMENT IN INDIAN RUPEES” after having taken in to account, the provision of Customs Duty Exemption Certificate (CDEC) by the Purchaser, as per Customs Tariff Act.

Name_____

BusinessAddress_____

Place:_____ **Signatureofbidder**_____

Date:_____ **Sealof thebidder**_____

Form8(C):*PRICESCHEDULEFORCOMPREHENSIVEMAINTENANCECONTRACTAFTERWARRANTYPERIOD AGAINST PAYMENT IN INDIAN RUPEES:*

1	2	3	4					5
Sl.	**DESCRIPTION OF GOODS**	**QUANTITY (Nos.)**	**ComprehensiveMaintenanceContractCost after completion of5 yearswarranty for Each Unit year wise*.** [*Tobefedinthedesignated cellunderRateintheBOQ*]					**TotalComprehensive MaintenanceContract Costfor 5 Years [3x{4(a)+4(b)+4(c)+4(d)+4(e)}]**
			Year1	**Year2**	**Year3**	**Year4**	**Year5**	
			(a)	**(b)**	**(c)**	**(d)**	**(e)**	
A	High Energy LINAC for Kolkata MCH	1						
B	High Energy LINAC for North Bengal MCH	1						
C	CT Simulator (4D) for North Bengal MCH	1						
D	HDR Brachytherapy for North Bengal MCH	1						

Total pricein INR:_____

In words:_____

GST:ApplicableGSTinaddition%

Anyother applicable taxes.....%

NOTE:-

1.Incase ofdiscrepancy betweenunitprice and totalprices,the unitprice shallprevail.

2.ThecostofComprehensiveMaintenanceContract(CMC)whichincludespreventivemaintenanceincludingtesting&calibrationasper technical/ service/operational manual, labourandspares, aftersatisfactorycompletionof WarrantyPeriodmaybequotedfornext

5years onyearly basis for complete equipmentandf.

3.Thetaxestobepaidextra,tobespecificallystated.Intheabsenceofanysuchstipulationthepricewillbetakeninclusiveofsuchtaxes andnoclaimfor the samewill be entertained later.

4.The uptime warranty will be 96%on24(hrs)X7(days)X365(days)basis or as stated intechnicalspecificationof the technical evaluationdocument.

5.Allsoftware &hardware including free ofcostreplacementofallcomputer hardware once in the 5years CMCperiod.

6.The stipulations intechnicalspecification willsupersede above provisions.

7.TheSuppliershallkeepsufficientstockofsparesrequiredduringComprehensiveMaintenanceperiod.Incasethespares are requiredto beimported,itwould bethe responsibilityofthe suppliertoimport andgetthemcustomsclearedandpayallnecessary duties and taxes.

Name_____

BusinessAddress_____

Place:_____ **Signatureofbidder**_____

Date:_____ **Seal ofthebidder**_____

Form9(a):Pricesfor OptionalItems

Sl.No.	Items	UnitPriceonCIP(Kolkata)+ Extended Insurance+ localtransportationandstorage (in USD/INR)
1	TPS includingOncology Information System(OIS), if required toprocure withHigh-energy LINAC	
2		
3		

Form9(b):PricesforSpares

Spare parts

Bidderstoattach/encloseaseparateprice listofallspares andaccessoriesandconsumables, if any,(Including minor)requiredformaintenanceand repairs infutureafter guarantee/warranteeperiodintheprescribedformatbelow,

LINEARACCELERATOR/ CT Simulator (4D)/ HDR Brachytherapy		
Sl.No.	**Items**	**Rate per unit in USD/INR**
1		
2		
3		

Form10:Turnovercertificate

IcertifythatAverageAnnualTurnoverof*(insertthenameofthecompany)***duringtheFinancialYears2021-2022, 2022-2023 and 2023-2024is Rs. .....***(inCrore)***as per theAuditedAccounts of theOrganization.**

NOTE: For the purposes of this Clause, exchange rate from any foreign currency to Indian Rupees prevailing on the last day of the respective financial year shall be applicable.

Signatureandseal ofChartered Accountant

_____

Form11:DeclarationofQualityCertificationofEquipment

(to be issued on the letterhead of the bidder)

Iamtheauthorised signatoryof----------,(nameofCompany) andinthecontextofsupplyand/or installationofthe----------(NameoftheEquipment,Nameoftheofferedmodel)whichisan(nameof class)solemnlyaffirmanddeclareas follows:

1. Thatthedeviceisinconformitywiththerequirementsofthemedicaldevicesdirective93/42/EEC which applytoit.
2. Thatthe abovementioned model of (Name oftheEquipment)is CE (EuropeanConformity)/ US FDAapproved.
3. Thatthevendorcompanyand/orsupplieronwhosebehalfIamtheauthorisedsignatoryadmitthe responsibility on the subject relatingto the standardandsafety ofthe equipment.
4. Thattheoriginalcopy/photocopyoftheCE/ US FDAcertificationoftheofferedmodelisenclosedand/or shall be subject to inspection on demand.

DEPONENT

SectionVI.ContractForms

Form 1: Performance Security

B.G. No. Dated:

To:
[_____]
West Bengal Medical Services Corporation Limited
Swasthya Sathi
GN-29, Salt Lake, Sector-V
Kolkata-700091

WHEREAS:
(A) West Bengal Medical Services Corporation Limited (WBMSCL) has been requested by the Government of West Bengal to procure on their behalf for the Supply and Commissioning of Different Types of Oncology Equipment for the Medical Colleges of the Govt. of West Bengal ("**Project**").
(B) WBMSCL has invited bids from eligible and qualified bidders for the Project.
(C) The Bidding Documents for the Project requires the Selected Bidder to furnish a Performance Security to WBMSCL for a sum of INR [_____] (Indian Rupees_____ only) assecurity for due and faithful performance of its obligations, under and in accordance with the Bidding Documents (as defined herein below).
(D) We, [PLEASE INSERT NAME OF THE BANK] having our registered office at [PLEASEINSERT ADDRESS OF THE BANK] and one of its branches at [PLEASE INSERTADDRESS OF THE BRANCH OFFICE] (the **"Bank"**) have agreed to furnish this BankGuarantee by way of Performance Security.
Now, therefore, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1 In consideration of you, WBMSCL**,** (hereinafter referred to as the "Authority", which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the offer of …… (a company registered under the laws of_____) and having its registered office at …… (hereinafter referred to as the "Selected Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for the Supply and Commissioning of Different Types of Oncology Equipment for the Medical Colleges of the Govt. of West Bengal (hereinafter referred to as "the Project") pursuant to the Bid Reference No._____ dated …… issued in respect of the Project and other related documents (hereinafter collectively referred to as "Bidding Documents", we, (Name of the Bank) having our registered office at …… and one of its branches at …….. (hereinafter referred to as the "Bank"), at the request of the Selected Bidder, do hereby in terms of Clause 11, of Section – II of the Bidding Documents, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfillment and compliance of the terms and conditions of the Bidding Documents by the said Selected Bidder and unconditionally and irrevocably undertake to pay forthwith to the Authority an amount (hereinafter referred to as the "Guarantee") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Selected Bidder if the Selected Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.

2 Any such written demand made by the Authority stating that the Selected Bidder is in default of the due and faithful fulfillment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.

3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Selected Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Selected Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the Authority by reason of failure of the Selected Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Selected Bidder to keep its Bid open during the Bid Validity Period as set forth in the said Bidding Documents for any reason whatsoever. Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding INR_____ (Indian Rupees _____) only.

4. This Guarantee shall be irrevocable and remain in full force for a period of (62) months from the date of Award of Contract (AOC) subject to extensions in accordance with the terms of the Bidding Documents or for such extended period as may be mutually agreed between the Authority and the Selected Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.

5. Each demand made by the Authority shall be sent to the Bank stating that the Selected Bidder has failed to comply with the terms and conditions of the Bidding Documents and as a result of the failure the amount claimed is due to the Authority and the demand shall be signed by an authorized representative of the Authority.

6. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Selected Bidder is in default of due and faithful fulfillment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Selected Bidder to keep its bid open during the bid validity period set forth in the said Bidding Documents, and the decision of the Authority that the Selected Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Selected Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other relevant authority.

7. The Guarantee shall not be affected by any change in the constitution or winding up of the Selected Bidder or the Bank or any absorption, merger or amalgamation of the Selected Bidder or the Bank with any other person or any amendment to Bidding Documents.

8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.

9. We undertake to make the payment on receipt of your notice of claim on us addressed to [name of Bank along with branch address] and delivered at our above branch which shall be deemed to have been duly authorized to receive the said notice of claim.

10. It shall not be necessary for the Authority to proceed against the said Selected Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said

Selected Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealised.

11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.

12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorised and has full power to execute this Guarantee for and on behalf of the Bank.

13. This Guarantee shall be governed by and construed in all respects in accordance with the laws of India. The courts of India shall have exclusive jurisdiction to settle any disputes which may arise out of or in connection with this Guarantee.

Signed and Delivered by ……. Bank
By the hand of Mr. /Ms. ……., its …….. and authorized official.

(Signature of the Authorized Signatory) (Official Seal)
Notes:

i. The Bank Guarantee should contain the name, designation and code number of the officer(s) signing the Guarantee.
ii. The address, telephone number and other details of the Head Office of the Bank as well as of issuing Branch should be mentioned on the covering letter of issuing Branch.