

Tamilnadu Science and Technology Centre
(Established by Government of Tamilnadu)
Gandhimandapam Road, Chennai 600 025

**TENDER DOCUMENT FOR THE
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING
OF
FULL-DOME MIRROR PROJECTION SYSTEM**

AT

**B. M. Birla Planetarium
Periyar Science and Technology Centre
Gandhimandapam Road, Chennai 600 025**

INVITATION FOR BID

TAMILNADU SCIENCE AND TECHNOLOGY CENTRE

FULL DOME MIRROR PROJECTION SYSTEM - INVITATION FOR BID

1.0 Separate sealed bids are invited by the undersigned for and on behalf of Tamilnadu Science and Technology Centre (TNSTC), Chennai as indicated below.

2.0 **Name of the work: FULL DOME MIRROR PROJECTION SYSTEM FOR PLANETARIUM SKYTRE, B. M. BIRLA PLANETARIUM, PERIYAR SCIENCE AND TECHNOLOGY CENTRE, CHENNAI, INDIA**

2.1 SCOPE OF SUPPLY AND SERVICES

Supply of equipment for spherical projection for planetarium dome. The necessary software for geometry correction for cylindrical displays for spherical dome should also be supplied. The necessary suitable hardware for projecting the visuals all dome should be supplied. The suitable projection system should also be supplied.

3.0 Specification No.

4.0 Cost of Bid documents : Nil (To be downloaded from the following websites :

<http://tenders.tn.gov.in/>

<http://tnstc.gov.in/>

5.0 Earnest Money Deposit : Rs. 15,000.00 or US \$ 350.00

6.0 Validity of Bid : 120 days from the date of opening of bid.

7.0 Schedule for availing the Bid documents, receipt of Bids and Opening of Bids.

a. Date of Commencement : 20.09.2008
of issuance of
Bid documents at websites

b. Due Date and Time of : 20.10.2008 ; 3.30 p.m.
Receipt of Bids

c. Date and Time of pre bid : 10.10.2008 ; 3.30 p.m.
Meeting

d. Time of Opening of Bids : 20.10.2008 ; 4.00 p.m.

Note: If any of the above dates happens to be a holiday, the next working day will be the due date

8.0 Sale of Bid documents:

Bid documents can be downloaded from the following websites :

<http://tenders.tn.gov.in/>

<http://tnstc.gov.in/>

9.0 GENERAL

9.1 Telex / Fax / e-mail / Telegraphy bid will not be accepted and TNSTC is not responsible for any postal delay in submission of Bids, loss or damage at any stage.

9.2 Bid documents are not transferable. Bids received from those who are not purchased the documents will not be opened. Issue of Bid documents will not automatically mean that the bidder is considered qualified.

9.3 Bids received after the due date and time for submission shall not be accepted and shall be returned unopened to the bidders.

9.4 Bids not accompanied by the EMD as specified or with in adequate value of EMD shall not be entertained and such bids will be rejected.

9.5 TNSTC reserves the rights to reject any or all the bids without assigning any reasons thereof.

9.6 TNSTC will not be responsible for any costs or expenses incurred by the bidders in connection with the preparation or delivery of bids including costs and expenses related to site visits and pre-bid meeting. Also the TNSTC will not be responsible for any loss of tenders / documents sent by post.

Fax No.091-44-24402893

**THE EXECUTIVE DIRECTOR.
Tamilnadu Science and Technology Centre
Chennai – 600 025.**

SECTION – 2.0

INSTRUCTIONS TO BIDDERS (ITB)

2.1.0 PROJECT INFORMATION

2.1.1 Tamilnadu Science and Technology Centre (TNSTC), Chennai has proposed to establish a “**Full Dome Mirror Projection System**” System at B.M.Birla Planetarium, Chennai.

2.1.2 TNSTC with its Registered Office at Gandhi Mandapam Road, Engineering College Post, Chennai – 600 025, India (hereinafter referred to as Purchaser) invites Bids for supply of equipment and establishment of above system as per the scope indicated in this tender specification.

2.2.0 MAIN OBJECTIVE OF THE PROPOSAL

The proposal focus on setting up of Full Dome Mirror Projection System which aims at projection of images and animations on a spherical dome using corrective measures. This will kinder interest and create curiosity among the budding young scientist to know the indepth of the concept. Projecting the visuals all dome will make the visitor as if they are also a part of the mission. Thus by having all the infrastructures, the Periyar Science and Technology Centre will serve as a nodal point for the effective Science and Technology communication.

The scope of supply and services to be rendered by the bidders for achieving the above main objective are indicated in clause No. 2.6.0 of this specification.

The project requirements and the technical details are given in Section 5.0 of this specification.

2.3.0 GENERAL INSTRUCTIONS

- 2.3.1 The PURCHASER will receive Bids in respect of the equipment to be supplied and services to be rendered for the project as set forth in this tender specification. All the Bids shall be prepared and submitted in accordance with the following instructions.
- 2.3.2 Bids received after the due date and time fixed for receipt of Bids as set out in the "Invitation for Bid", shall not be accepted & returned to the Bidders unopened.
- 2.3.3. The PURCHASER may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents.
- 2.3.4 The "Scope of works" referred herein shall cover the entire scope of the proposal which includes supply, installation, testing, commissioning, trial operation, performance testing, handing over and training of the Tamilnadu Science and Technology Centre staff for operation and maintenance of the equipment and software systems, for a period of one month from the date of handing over after satisfactory performance tests. Offers with incomplete details shall be rejected.
- 2.3.5 All costs and expenses incidental to preparation of their proposal, discussions and conferences if any, including pre-award discussions, technical and other presentation in the Purchaser's office, etc shall be to the account of the Bidders and Purchaser shall bear no liability whatsoever on such costs and expenses.
- 2.3.6 The PURCHASER" will receive bids for FULL DOME MIRROR PROJECTION SYSTEM projects at Periyar Science and Technology Centre, Chennai as set-forth in this Tender Document.
- 2.3.7. The "PURCHASER" reserves the right to itself to accept any bid or reject any or all bids or cancel/withdraw "Invitation to Bid" without assigning any reason for such decision. Such decision by "PURCHASER" Shall bear no liability of any kind whatsoever, consequent upon such a decision.

2.3.8 The scope of supply and services, the bidding procedures and the Terms and Conditions of the contract are brought out in this Tender document.

2.3.9. The sale of tender document to a prospective Bidder shall not mean that he is considered qualified.

2.4.0 **PROJECT INFORMATION**

2.4.1 Scope of supply & services for the proposed Full Dome Mirror Projection System project has been furnished in this tender document to the extent possible. However, the bidders shall study the project requirements in details and submit their offer suitably. Any clarifications, on the project requirements may be got clarified in writing from the Executive Director, Tamilnadu Science and Technology Centre, Chennai.

2.5.0 **QUALIFYING REQUIREMENTS:**

2.5.1 The bidding is open to those meeting the following requirements.

2.5.2 Qualifying requirements (for bidders)

2.5.2.1 The Bidder should have successfully completed within the last 5 years the design, engineering, supply, installation testing and commissioning of a **“Full Dome Mirror Projection System ”** system or such similar system and it should have been in successful operation for at least one year. An end user certificate to the above effect shall be submitted along with the bid.

2.5.2.2. The latest audited account statements for the last three financial years (viz.2004-2005, 2005-2006 and 2006-2007) should be enclosed.

2.5.2.3 The above stated requirements are a minimum. However, the Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any bidder, if in the opinion of the Purchaser, the qualification data is incomplete or the bidder is found not qualified to satisfactorily perform the works.

2.5.2.4 Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability and capacity to perform the works, should the circumstances warrant such an assessment in the overall interest of the Purchaser.

2.6.0 SCOPE OF SUPPLY AND SERVICE

2.6.1 The scope of supply and services shall completely cover the activities and services on design, engineering, supply, installation, testing, commissioning, trial operation, performance testing, handing over and training of Tamilnadu Science and Technology Centre staff on total turn key basis as specified below:

- a) detailed design and engineering of all equipment and necessary auxiliaries and system(s)
- b) complete manufacture including quality control/shop testing;
- c) providing engineering drawings, data sheets, operation & maintenance manuals etc for the purchaser's approval;
- d) packing, forwarding, shipment and transportation (including port handling and customs clearance from the manufacturer's works to the site);
- e) receipt, proper storage, preservation and conservation of equipment at the site;
- f) Installation including complete networking, testing, start-up, successful operation, trial run and successful performance testing of the system as indicated in this tender specification.
- g) Training of TNSTC staff for operation and maintenance of the equipment/system, from the date of successful completion of the performance testing and handing over of the system.
- h) Furnishing of spares required for the maintenance of the system for a period of 5 years from the date of handing over.
- i) Any other equipment including special tools, tackles and services required for satisfactory completion of the FULL DOME MIRROR PROJECTION SYSTEM and operation & maintenance of the same on total turnkey basis;
- j) Any other activity not listed above but required for safe and successful operation of the system and for meeting the Purchaser's requirements shall be deemed to have been included in the contractor's scope.

TIME SCHEDULE

2.7.1. The time is the essence of this contract. The system shall be supplied and installed and trial operation shall be completed within 4 months from the date of Letter of Intent.

2.7.2 The purchaser reserves the right to request for a minor change in the work schedule during pre-award discussions with the successful Bidder, without altering the overall requirements of the system proposed.

2.7.0 BID CURRENCY

The bid shall be quoted in any major foreign currencies viz. Indian Rupee, US\$, Aus \$, Euro, J.Yen or Sterling Pound.

2.9.0 EARNEST MONDEY DEPOSIT (EMD)

2.9.1 An EMD of Rs. 15,000/- or US \$ 350/- shall accompany the bid along with techno-commercial bid. The EMD offered shall be in the form of Demand Draft in favour of Executive Director, Tamilnadu Science and Technology Centre, payable at Chennai.

2.9.2 If the successful BIDDER fails to acknowledge the Letter of Intent and / or fails to submit, the Security Deposit as specified in the Specification, in the form prescribed within thirty (30) calendar days after the date of the "Letter of Intent", then the EMD amount of the successful BIDDER will be forfeited by the PURCHASER.

2.9.3 The EMD remitted by the unsuccessful BIDDER'S will be returned after the acceptance of the award of Contract by the successful bidder.

2.9.4 Any Bid not accompanied with EMD as stipulated above will be summarily rejected by the purchaser.

2.9.5 No interest will be payable by the Purchaser on the EMD.

2.9.6 EMD paid by the Bidder will also be forfeited if,

- (i) He withdraws his tender before the expiry of validity period or backs out after acceptance of the offer or after placement of order, by the purchaser.
- (ii) The bidder revises any of the terms quoted by them in their offer, within the bid validity period.
- (iii) The bid supporting documents furnished along with the bid are found to be false.

2.10.0 BID DOCUMENTS

- 2.10.1 The Computers, hardwares, components and software to be supplied, services to be rendered & the networking to be executed, the bidding procedures and Contract terms and conditions are prescribed in this Bid Document.
- 2.10.2 The BIDDERS are requested to examine all instructions and other terms and conditions specified in this Bid Document before submitting their bids. Failure to furnish all information as requested in this Bid Document or submission of a Bid which is substantially non-responsive may result in rejection of the Bid.

2.11.0 CLARIFICATION ON BID DOCUMENTS

- 2.11.1 If the Bidder finds any ambiguity in any of the terms and conditions stipulated in this specification, he shall get it clarified from the Executive Director, Tamilnadu Science and Technology Centre. A Bidder requiring any clarification in bid document may notify the Purchaser in writing. The Purchaser will respond in writing to any request for such clarification of the Bid document, within 7 days of receipt of such communication. A pre-bid meeting will be held at the office of the Purchaser, on 10.10.2008, 3:30 pm. to clarify the bidders clarifications. The bidders who have purchased the tender documents shall alone be permitted to attend the pre-bid meeting.

2.12.0 AMENDMENT TO THE BIDDING DOCUMENT

- 2.12.1 At any time after the issue of the Bid documents and before the submission of the bid, the PURCHASER may make any changes, modifications or amendments to the Bid documents and shall send intimation of such change to all those who have purchased the bid documents. In such case, the Purchaser may, at its discretion, extend the deadline for the submission of Bids.

2.13.0 LANGUAGE OF THE BID

- 2.13.1 All informations in the bid shall be in English.
- 2.13.2 Information in any other language shall be accompanied by its translation in English. Failure to comply with this may disqualify a bid. In the event of any discrepancy in meaning, the English language copy of all documents shall govern.

2.14.0 SUBMISSION OF BID

2.14.1 The Bidder is expected to examine all instructions and Schedules detailed in the Specification and submit the Schedule of prices and other required particulars as called for in this tender specification. All bids shall be prepared by typing or printing with indelible black ink. The Bidder's proposal and the documents attached thereto shall be considered as forming a part of the Contract. All corrections, over typing etc. in the tender should be attested by the tender signing authority.

2.14.2 The Bids shall be submitted in two parts as detailed below:-

Part – I - “ENVELOPE – A” (Techno-Commercial Bid)

The above Envelope shall contain

- a. A Demand Draft towards E.M.D.
- b. Documentary evidence required for Bid qualification requirement.
- c. Technical details of the schemes proposed.
- d. Commercial terms and conditions (except price).

All documents shall be submitted in triplicate.

THIS ENVELOPE – “A” SHOULD NOT CONTAIN ANY PRICE DETAIL

Part – II - “ENVELOPE – B” (Price Bid)

The above Envelope shall contain only the PRICE details as called for.

The above two Envelopes shall be separately sealed, superscribed “Tender for FULL DOME MIRROR PROJECTION SYSTEM against tender specification No.TNSTC-01/B1/2008 due on 20.10.2008 and addressed to

The Executive Director
Tamilnadu Science and Technology Centre
Gandhimandapam Road
Engineering College post
Chennai – 600 025.
India

Envelope-A and Envelope-B shall be enclosed in an **Overall Sealed Envelope**, superscribed "Tender for FULL DOME MIRROR PROJECTION SYSTEM against tender specification No. TNSTC-01/B1/2008 due on 20.10.2008 and addressed to

The Executive Director
Tamilnadu Science and Technology Centre
Gandhimandapam Road
Engineering College post
Chennai – 600 025.
India

- 2.14.3 Envelope-A and Envelope-B and the overall envelope should be individually sealed and superscribed as above. Bidder's name and postal address shall be indicated in all the envelopes. The Bidders have the option of sending the bid by registered post or submitting the bid in person, so as to ensure that the bids are received in the specified office of the Purchaser by the date and time indicated in the "INVITATION FOR BID". In case of sending by post, Bidders are advised to send them well in advance so that they are delivered at the Office of the Executive Director, Tamilnadu Science and Technology Centre, Chennai-25 before the prescribed date and time

The Bids delivered in person / courier shall be handed over to the Executive Director, Tamilnadu Science and Technology Centre, Chennai-25 before 15.00 hours on the due date.

The Purchaser will not be responsible for any postal or other transit loss or delay in receipt of the Bid. Telex / Fax / E-mail or telegraphic Bids will not be entertained and will be rejected.

Bid documents are not transferable. Bids received from those who have not purchased the bid documents will not be opened and returned unopened.

Any Bid received by the Purchaser after the due date and time specified for submission of tender offer, will be rejected and returned unopened to the tenderer.

Bids not accompanied by the EMD or with inadequate value shall not be entertained and such bids shall be rejected.

- 2.14.4 The overall sealed envelope will be opened first and envelope-A will be taken out in the presence of the bidders on the due date and time. The technical details and commercial conditions of the bidders who have satisfied the EMD requirement will be read out. If any of the Bidders indicate the price in Envelope-A, the same will be rejected.

2.14.5 Envelope-B will not be opened at the time of opening of Envelope-A but will be authenticated in the covers by the officers authorised to open the Techno-commercial Bids. Envelope-B of the Bidders, as authenticated will be kept under the safe custody of the empowered officer to open the bid. Envelope-B (Price Bid) will be opened later, under intimation to the Bidders after scrutiny of the Bid Qualification requirements and after evaluation of Techno-commercial Bids.

The Bid must contain the name, residence and place of business of the person or persons making the Bid and must be signed and sealed by the BIDDER with his usual signature. The names of all persons signing should also be typed or printed below the signature.

Each and every page of the Bid documents should be serially numbered and properly signed.

2.15.0 POLICY FOR BIDS UNDER CONSIDERATION

2.15.1 Bids shall be deemed to be under consideration immediately after they are opened and until such time official intimation of award / rejection is made by the Purchaser to the Bidders. While the bids are under consideration, Bidders and / or their representatives or other interested parties are advised to refrain from contacting by any means, the Purchaser and / or his employees / representatives on matters related to the bids under consideration. The Purchaser, if necessary, will obtain clarifications on the bids by requesting for such or through personal contact as may be necessary. Bidders will not be permitted to change the substance of the bids after the bids have been opened.

2.16.0 INFORMATION REQUIRED WITH THE BID

2.16.1 The Bids must clearly indicate the name of the MANUFACTURER, the type or model of each principal item of equipment proposed to be supplied and installed. The Bid should also contain drawings and descriptive materials indicating general dimensions, material from which the parts are manufactured, principles of operation, the extent of pre-assembly involved, and the proposed installation etc.,

2.16.2 Quality assurance documentation as specified.

2.16.3 Weights and dimensions of principal equipments, parts, method of unloading transport to site and handling during installation.

2.16.4 Any Bid not containing sufficient descriptive materials to describe accurately the materials proposed, shall be treated as incomplete and rejected. Such materials and drawings submitted by the BIDDER will be retained by the PURCHASER. Any major departure from these drawings and descriptive materials, submitted will not be permitted during the execution of the "Contract" without specific written permission of the PURCHASER.

2.17.0 LOCAL CONDITIONS:

2.17.1 It will be imperative for each Bidder to fully inform himself of all local conditions and factors which may have any effect on the execution of the works covered under this tender specification.

2.17.2 In their own interest, the bidders are particularly requested to familiarize themselves with the Income Tax Act 1962, the companies Act, 1956, Import – Export Policy 1997-2002 and other related acts and laws prevalent in India. Further, the bidders are requested to comply with Insurance Act and other relevant provisions particularly with reference to the requirement of taking insurance for storage, erection, testing and commissioning till the equipment is handed over.

2.17.3 The contractor shall obtain and pay for all permits and licences or other privileges necessary to complete the work, original copies of which shall be delivered to the Purchaser or his authorized representative and will become the property of the Purchaser.

2.17.4 It must be understood and agreed that such factors have properly been understood and considered while submitting the bid. No claim whatsoever including those for financial adjustment to the contract awarded under this specification will be entertained by the Purchaser. Neither any change in the time schedule of the contract nor any financial adjustments arising thereof shall be permitted by the Purchaser, which are based on the lack of such clear information or its effect on the cost of the works to the bidder.

2.17.5 The laws, rules and regulations of the Government (Central as well as state) and all Government Authorities in India, having jurisdiction over the work shall govern for this contract with the same effect. Where such laws, rules and regulations conflict the Contract documents, the more stringent requirements as interpreted by the Purchaser or his authorized representative shall govern. Should such conflict require changes in the contract documents, the contractor shall promptly notify the purchaser.

2.18.0 SUPPLEMENTARY PRICE SCHEDULE

- 2.18.1 The Purchaser will examine the bids to determine whether they are complete, whether required guarantees have been furnished, whether the documents have been properly signed and whether the bids are generally order.
- 2.18.2 Such of those bids received in conformity with the requirement of the Tender documents fulfilling the qualifying requirement as specified in the Tender documents and are technically and commercially responsive shall be evaluated by the Purchaser for the complete works covered under this Tender document.
- 2.18.3 After the qualification criteria has been satisfied, the technical bid of the qualified bidders would be analysed and wherever essential, technical clarifications and confirmations would be sought for from them so as to clarify for fulfilling the requirements of the specifications to the satisfaction of the purchaser. If due to such clarifications and confirmation, there is a repercussion on price bids already submitted by the qualified bidders, they shall indicate such repercussions in the post-bid clarification meeting, clearly relating such changes with their original price bids, failing which such clarifications / confirmations shall be deemed to have no price repercussions. Bidders shall be asked to submit only supplementary price bids commensurate with addition / deletion as agreed during the post-bid clarification. **No revised price bid will be entertained.**

The price bids of the bidders who are not qualified technically will be returned unopened.

2.19.0 PRICE BASIS

- 2.19.1 The Bidder shall quote in their proposal a lumpsum price (F.O.R. Destination including all taxes and duties) for the entire scope of work, covered under this Tender specification, on Firm price basis for the entire contract period.

The above contract price shall be firm through out the contract period. The break-up details like CIF value of the materials, taxes & duties considered, inland freight & insurance, installation charges etc. shall also be furnished.

Taxes and other levies

The quoted lumpsum price shall include all taxes, duties, octroi excise. Any statutory variation on taxes and duties rates made during the tenure of the contract will be adjusted by the Purchaser. However any increase in the duties & taxes because of delay in the completion of work attributed to the Contractor, shall be to the Contractor's account. The bidder shall indicate clearly the taxes and duties considered in percentage in price schedule. In case, of the delay, the taxes & duties as applicable on the scheduled date of supply / service or as applicable on the actual date of supply / services whichever is less shall be taken as the basis for making payment of taxes & duties.

2.19.2 Arithmetical errors in the price will be rectified on the following basis:

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the bidder does not accept the correction of the errors as above, his bid will be rejected and the amount of EMD forfeited.

2.19.3 The bidder should ensure that the prices furnished in various price schedules are consistent with each other. In the case of any inconsistency in the prices furnished in the specified price schedules, the Purchaser shall be entitled to consider the highest price for the purpose of evaluation and lowest of the prices in these schedules for the purpose of award of contract.

2.20.0 CUSTOMS DUTY AND OTHER TAXES

2.20.1 The Tamilnadu Science and Technology Centre (TNSTC), is exempted from payment of customs duty for the items covered in the tender. TNSTC shall issue necessary certificate for registration with customs authority and for availing the duty exemption.

The consignment shall be addressed directly to
The Executive Director
Tamilnadu Science and Technology Centre
Gandhimandapam Road
Chennai – 600 025
India.

However, the consignment shall be cleared by the supplier from the customs. Necessary authorization will be issued to the contractor for clearing the consignment from customs. The current rate of Service Tax and other taxes if any shall be included in the quoted price. The current rates of service tax and other taxes shall be indicated separately.

2.21.0 VALIDITY OF THE BID

2.21.1 The bid should be kept valid for acceptance for a period of 120 days from the due date Techno-commercial bid opening. In case, any bidder quotes a lower validity period than that called for, his offer shall be liable for rejection.

2.21.2 In exceptional circumstances, the Purchaser may solicit the bidder's consent for an extension of the period of the bid validity. The request and response thereto shall be made in writing (including fax or telex). A bidder may refuse the request without forfeiting his bid security. A bidder granting the request for extension will not be permitted to modify his bid.

2.22.0 COMPARISON AND EVALUATION OF BIDS

2.22.1 General

The price bids originally submitted by the bidders and the supplementary price schedule (if any), shall be opened on a specified date and time in the presence of the Bidders.

The price bids shall be evaluated as below:

- a. For the purchase of evaluation of bids, prices expressed by the bidders in foreign currency in their bids will be converted into Indian Rupee at the bill selling exchange rates as issued by Reserve Bank of India / State Bank of India as on the date of techno-commercial bid opening.
- b. The lumpsum price quoted by the bidders on the basis of F.O.R. destination including all taxes & duties, for the entire scope covered in this tender specification shall be taken as the basis for ranking the bidders.

2.23.0 AWARD OF CONTRACT

2.23.1 Letter of intent (LOI) for award of contract shall be made in writing to the successful bidder by the Purchaser and the date of issue of LOI will be the effective date of the contract.

2.24.0 SECURITY DEPOSIT FOR CONTRACT PERFORMANCE GUARANTEE

2.24.1 As a contract performance security, the successful bidder will have to furnish a Security deposit for 5% percent of the total value of the contract for the faithful performance of the contract in accordance with the terms and conditions specified in the contract and in the Tender documents. The EMD already remitted by the successful bidder will be retained as part of the Security Deposit. The balance amount of Security Deposit may be remitted either by Demand Draft, obtained from any one of the scheduled banks, drawn in favour of the Executive Director, Tamilnadu Science and Technology Centre, Chennai-600 025, payable at Chennai or in the form of an irrevocable Bank Guarantee (BG) as per the format enclosed with this tender documents. If the above BG is obtained from any foreign Bank, the same should be countersigned by their correspondent Bank in India.

The Security deposit shall be furnished within 30 days from the date of LOI and shall be kept valid till successful completion of work and handing over of the system, after which the security deposit will be returned, on submission of an acceptable bank guarantee for performance guarantee.

2.25.0 PERFORMANCE BANK GUARANTEE

2.25.1 The equipment supplied shall be guaranteed for trouble free performance for a period of Thirty six (36) months from the date of successful commissioning & handing over of the system and should be supported by a Bank Guarantee for 5% of the contract value, which shall be submitted on successful commissioning and handing over the system. The above BG shall be kept valid till the warranty period is over.

2.25.2 The performance guarantee shall cover additionally the following guarantees to the Purchaser:-

- a. The successful bidder guarantees the successful and satisfactory operation of the equipment / system, supplied and installed under the Contract.
- b. The successful bidder further guarantees that the equipment provided and installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the Purchaser fully rectify free of expenses to the Purchaser such defects as developed under the normal use of the said equipment within the period of guarantee specified in the relevant clauses of this Volume.

2.26.0. LIABILITY FOR ACCIDENTS AND DAMAGES

2.26.1 Under the Contract, the Contractor shall be responsible for loss or damage to the existing equipment / system until taking over of the system by the purchaser.

2.27.0 LIQUIDATED DAMAGES FOR DELAY IN COMPLETION

2.27.1 If the contractor fails to successfully hand over the system after completion of trial operation as per the agreed delivery schedule, the contractor will be liable for payment as liquidated damages (LD) and not as penalty, for the delayed period at the rate of 1/2 % of the total contract price per completed week of delay or part thereof. The total amount of liquidated damages for such delay shall be subject to a maximum of 5% of the total contract of price.

2.28.0 CONTRACT QUALITY ASSURANCE

2.28.1 The bidder shall include in his proposal the Quality Assurance Programme containing the overall quality management and procedures which he proposes to follow in the performance of the works during various phases.

2.28.2 At the time of Award of Contract, the detailed Quality Assurance Programme to be followed for the execution of the Contract will be mutually discussed and agreed to and such agreed programme shall form a part of the Contract.

2.29.0 MAINTENANCE TOOLS AND TACKLES

2.29.1 The proposal shall include all special tools and tackles required for the operation and maintenance of the equipment / system. The bidder shall indicate all the above items in the Bid Proposal giving therein the description and the quantity of each item and price thereof. The lumpsum price to be quoted by the bidder shall include the prices of these tools and tackles. Unless otherwise specified in the Technical Specifications, these will be delivered with the main equipment.

2.30.0 TENDER FORM

2.30.1 The bidders are requested to fill up the Tender form (enclosed in **Annexure-B, INB**) and enclose with their price bid (**Envelope-B**).

ANNEXURE – A (INB)**BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT
FOR CONTRACT PERFORMANCE**

Bank Guarantee No. _____

Date: _____

WHEREAS Tamilnadu Science and Technology Centre is an autonomous body, registered under the Tamilnadu Societies Registration Act 1975, and its office at Gandhimandapam Road, Engineering College Post, Chennai – 600 025 (India) (hereinafter referred to as the “Purchaser” which expression shall unless repugnant to the context include its successors, executors, administrators, legal representatives and assigns) is setting up of a Full Dome Mirror Projection System in the Tamilnadu Science and Technology Centre at Chennai District, in the State of Tamilnadu, (India).

WHEREAS the purchaser has placed a Letter of intent No. _____ dated _____ as also a contract dated _____ (hereinafter called the CONTRACT) on M/s. _____ having its Registered Office _____ (hereinafter referred to as “the Contractor”) for setting up of the Full Dome Mirror Projection System on the terms and conditions specified therein.

AND WHEREAS in conformity with the provisions of Clause _____ of the said CONTRACT, the Contractor has agreed to furnish Bank Guarantee for an amount equivalent to 5% of the Contract Price ie. Rs. _____ for the faithful execution of the contract as per the agreed terms and conditions.

AND WHEREAS the Purchaser has agreed to accept a Bank Guarantee for Rs. _____ from _____ Bank having its Head office at _____ through its Branch _____ (hereinafter referred to as “the Bank” which expression shall unless repugnant to the context include its successors and assigns).

In consideration of the above, the BANK hereby unconditionally guarantees and undertake as a direct responsibility, to pay to the Purchaser any amount up to a total sum of Rs. _____ (Rupees _____ only).

The BANK shall effect payment under this Guarantee immediately without any protest or demur and without any reference to the contractor upon the Purchaser's written request stating that the Contractor did not fulfil their obligations under the CONTRACT, without being entitled to enquire whether this payment is lawfully asked for or not. In any case, however, the BANK's responsibility under this Guarantee is limited to the above-mentioned total sum of Rs. _____.

The decision of the Purchaser as to whether the contractor has fulfilled its obligation or not under the Contract shall be final and binding on the Bank and the Contractor.

The Guarantee shall be valid for a period of _____ months from _____ i.e. upto _____. The Guarantee herein contained shall be a continuing Guarantee and shall not be affected by any change in the constitution of the Bank or of the Contractor. This Guarantee shall be in addition to and shall not affect or be affected by any other security now or hereafter held by the Purchaser and Purchaser at its discretion and without any further consent from the BANK and without affecting the liability of "the Bank" and other indulgence to or make other arrangements with the contractor and nothing done or omitted to be done by the Purchaser in pursuance of any authority contained in this guarantee shall affect or discharge the liability of the Bank.

NOTWITHSTANDING anything herein before above contained, the liability of the BANK under this Guarantee shall be restricted to Rs._____ and the Guarantee shall expire on the _____ day of _____. Unless a suit or action to enforce a claim under the Guarantee is filed against us within six months from the date of expiry i.e. on or before _____ all rights under the said Guarantee shall be forfeited and we shall be relieved and discharged from all liabilities thereunder.

IN WITNESS WHEREOF we have set our hands and seal hereunder at this _____ day of _____ at _____.

Bank Seal & Signature

Witnesses

1.
(Name and Address)

2.
(Name and Address)

Note: If the above Bank guarantee is executed by any foreign Bank, the same should be countersigned by their correspondent Bank in India.

ANNEXURE – B (INB)**TENDER FORM**
(This should be enclosed with the Price Bid only)

Date: _____

Specification No. _____

To

(Name and Address of Purchaser)

Gentlemen,

Having examined the Conditions of Contract and Specifications, the receipt of which is hereby duly acknowledged, we, the undersigned offer to supply and deliver (Description of Goods and Services) in conformity with the said drawings, Conditions of Contract and Specification for the sum of (Total Bid Amount in words and figures) in accordance with the schedule of prices attached herewith and made part of this tender.

We, undertake to (if our tender is accepted) to commence delivery within (Number) days and to complete delivery of all the items specified in the Contract within (Number) days calculated from the date of receipt of your Letter of Intent.

We agree to abide by this tender for a period of (Number) days from the date fixed for tender opening under clause of the instruction to Bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

In the event, our proposal is accepted, we agree to furnish a Contract Performance Guarantee in the manner acceptable to Tamilnadu Science and Technology Centre and for the sum equal to 5% of contract price within 30 days of receipt of your letter of intent.

Until a formal contract is prepared and executive, this tender together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.

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

Signed this day of2008

.....
(signature)

.....
(in the capacity of)

Duly authorized to sign bid for and on behalf of
.....

(seal of the firm)

WITNESS

ADDRESS

Signature :

Date :

Note: This should be enclosed with the price bid only.

SECTION – 3.0**GENERAL TERMS AND CONDITIONS OF CONTRACT****3.1.0 GENERAL TERMS AND CONDITIONS OF CONTRACT**

3.1.1 The General Terms & Conditions shall form a part of the Tender specification.

3.2.0 CONTRACT DOCUMENTS

3.2.1 The terms “Contract Documents” shall mean and include the following which shall be deemed to form an integral part of the Contract :

- a. Invitation to Bid including the letter forwarding, Tender documents, Instruction to the Bidders, General Terms and Conditions of Contract, Erection conditions of Contract, General and Detailed Technical Specifications of the Equipment / System to be supplied and installed under the Contract as brought out in this Tender specification.
- b. Contractor’s bid proposal and the documents attached thereto, including the letters of clarifications and amendments between the Contractor and the Purchaser prior to the award of Contract except to the extent of repugnancy.
- c. All the materials, literature, data and information of any sort given by the Contractor along with his bid, subject to the approval of the Purchaser.
- d. Letter of intent and any agreed variations to the conditions of the documents and special terms and conditions of Contract, if any.

3.2.2 In the event of any conflict between the above mentioned documents, the more stringent requirement shall govern and the Purchaser decision shall be final and binding upon the parties.

3.3.0 DEFINITION OF TERMS

3.3.1 “Change Order” shall mean a written order to Contractor issued authorizing a change in Word and, if appropriate, an adjustment in one or more of the Project variables.

- 3.3.2 “Contract” means the detailed order issued by the Purchaser on acceptance of LOI by the Contractor.
- 3.3.3 “Contractor” shall mean the Bidder whose bid has been accepted by the Purchaser for the award of the Contract and shall include such successful Bidder’s legal representatives, successors and permitted assigns.
- 3.3.4 “Contract Price” shall mean the lumpsum price quoted by the Contractor in his bid with additions and deletions as may be agreed and incorporated in the Letter of Intent, for the entire scope of the works.
- 3.3.5 “Contract Master Schedule” shall mean the schedule detailing how the principal elements of the work will be completed. This schedule will reflect the key dates as shown on the contract Master Bar Chart and shall be revised by Contractor as necessary to reflect how the work will proceed.
- 3.3.6 “Drawings”, “Plans” shall mean all:
- a) Drawings furnished by the Purchaser as a basis for bid.
 - b) Supplementary drawings furnished by the Purchaser to clarify and to define in greater detail the intent of the Contract.
 - c) Drawings submitted by the Contractor with his bid provided such drawings are acceptable to the Purchaser.
 - d) Drawings furnished by the Purchaser to the Contractor during the progress of the work, and
 - e) Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are approved by Purchaser.
- 3.3.7 “Engineer” shall mean the officer appointed in writing by the Purchaser to act on their behalf as engineer from time to time for the purpose of the Contract.
- 3.3.8 The term “Equipment Portion” of the Contract Price shall mean the CIF value of the imported equipment and material as furnished by bidders.
- 3.3.9 The term “Erection Portion” of the Contract Price shall mean the value of field activities of the works including port clearance, if any, inland transportation, handling and storage, erection, testing and putting into satisfactory operation including successful completion of performance tests to be performed at Site by the Contractor including cost of insurance.

- 3.3.10 Effective “Date of Contract” shall mean the date of issue of Letter of Intent.
- 3.3.11 “Handling Over” shall mean the Purchaser’s written acceptance of the works performed under the Contract, after successful commissioning, trial operation and demonstration of performance of the system.
- 3.3.12 “Inspector” shall mean the Purchaser or any person nominated by the Purchaser from time to time, to inspect the equipment of works under the Contract and / or the duly authorized representative of the Purchaser.
- 3.3.13 “Latent Defect” shall mean any defects and Deficiencies or Defective work that:
- a. was caused by an act or omission by the contractor that implies either failure to pay due regard to the serious consequences that a conscientious and responsible contractor would normally foresee as likely to ensue, or a willful disregard of any consequence of any such act or omission;
 - b. would not have been disclosed by a reasonable examination prior to the expiry of the Latent Defects period.
- 3.3.14 “Letter of Intent” shall mean the official letter issued by the Purchaser notifying the Contractor that his bid has been accepted.
- 3.3.15 “Manufacturer’s Works” or “Contractor’s Works” shall mean the place used by the manufacturer, the Contractor, their Collaborators or Sub-contractors for the performance of the Works.
- 3.3.16 “Month” shall mean the calendar month. “Day” or “Days” unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each. A “Week” shall mean continuous period of seven (7) days.
- 3.3.17 “Performance Tests” shall mean all operational checks and tests required to determine and demonstrate the guaranteed performance of the system.
- 3.3.18 “Purchaser shall mean Tamilnadu Science and Technology Centre (TNSTC) and shall include their legal representatives, successors and assigns.
- 3.3.19 “Sub-contractor” shall mean the Company / Firm named in the Contract for any part of the works or any firm to whom any part of the contract has been sub-let by the contractor with the consent in writing of the Purchaser and will include the legal representatives, successors and permitted assigns of such company firm.

- 3.3.20 "Specification" shall mean the Tender Specifications and form a part of the Contract.
- 3.3.21 "Tenderer" / "Bidder" shall mean a Firm / Company who has submitted their offer in response to the bid invitation.
- 3.3.22 The terms "Equipment" and "Materials" shall mean and include FULL DOME MIRROR PROJECTION SYSTEM and materials to be provided by the Contractor under the Contract.
- 3.3.23 "Trial Operation" shall mean the operation of the system for a period of 15 days without any disturbance.
- 3.3.24 "Warrantee Period" shall mean the period during which the Contractor shall remain liable for repair or replacement of any defective part of the works performed under the Contract.
- 3.3.25 "Works" shall mean and include the furnishing of equipment, labour & services, transport, handling, unloading and storage at site, civil construction and complete erection, testing, commissioning putting into satisfactory operation and completion of successful performance tests defined in the Contract.
- 3.3.26 "Writing" or "Written" shall include any manuscript, type-written or printed statement, under or over signature and / or seal as the case may be.
- 3.3.27 When the words "Approved" "Subject to Approval", "Satisfactory", "Equal to" "Proper", "Requested", "As Directed", "Where Directed", "When Directed", "Determined by", "Accepted", "Permitted" or words and phrases of like importance are used, the approval, judgment, director, etc is understood to be a function of the Purchaser / Consultant.
- 3.3.28 Words imparting the singular only shall also include the plural and vice-versa where the context so requires.

3.4.0 CONTRACTOR TO INFORM HIMSELF FULLY

- 3.4.1 The contractor shall be deemed to have carefully examined all Contract Documents to his entire satisfaction. If he has any doubt as to the meaning of any portion of the Contract Document, he shall, before signing the contract, set forth the particulars thereof, and submit them to the Purchaser in writing, in order that such doubt may be removed. The Purchaser will provide such clarifications as may be necessary, in writing to the Contractor. Any information otherwise obtained from the Purchaser or the Engineer shall not in

any way relieve the Contractor of his responsibility to fulfill his obligations under the Contract.

3.5.0 USE OF CONTRACT DOCUMENTS AND INFORMATION

3.5.1 The Contractor shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

3.5.2 The Contractor shall not, without the purchaser's prior written consent, make use of any document or information enumerated in various Contract documents except for purpose of performing the Contract.

3.6.0 EFFECT AND JURISDICTION OF CONTRACT

3.6.1 The Contract shall be considered as having come into force from the date of issue of Letter of Intent (LOI), unless otherwise provided in the LOI.

3.6.2 The laws applicable to the Contract shall be the laws in force in India. The Courts of Chennai shall have exclusive jurisdiction in all matters arising under this Contract.

3.7.0 ASSIGNMENT AND SUBLETTING OF PART OF CONTRACT

3.7.1 The Contractor may, after informing the Purchaser / Engineer and getting his written approval, assign or sub-let any part of the contract other than for main equipment, for minor details or for any part of the plant for which makes are identified in the contract. Suppliers of the equipment not identified in the Contract or any change in the identified supplier shall be subject to approval by the Purchaser / Engineer. The experience list of equipment vendors under consideration by the Contractor for this Contract shall be furnished to the Purchaser / Engineer for approval prior to procurement of all such items / equipment. Such assignments / subletting shall not relieve the Contractor from any obligation, duty or responsibility under the Contract. Any assignment as above without prior written approval Engineer shall be void.

3.7.2 For components / equipment procured by the Contractor for the purposes of the contract, after obtaining the written approval of the Purchaser, the Contractor's purchase specifications and enquiries shall call for quality of FULL DOME MIRROR PROJECTION SYSTEM to be submitted by the suppliers along with their proposals. The quality of FULL DOME MIRROR PROJECTION SYSTEM called for from the vendors shall set out, during the

various stages of manufacture and installation, the quality practices and procedures followed by the vendor's quality control organization, the relevant reference documents / standards used acceptance level, inspection, documentation raised etc.

3.8.0 PATENT RIGHTS AND ROYALTIES

3.8.1 Royalties and fees for patents covering materials, articles, apparatus, devices, equipment or process used in the works shall be deemed to have been included in the Contract Price. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees; and he alone shall be liable for any damages or claims for patent infringements and shall keep the Purchaser indemnified in that regard. The Contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted for alleged infringement of any patents involved in the works, and in case of an award of damages, the Contractor shall pay for such award. In the event of any suit or other proceedings instituted against the Purchaser, the same shall be defended at the cost and expenses of the Contractor who shall also satisfy / comply and decree, order or award made against the Purchaser. Final payment to the Contractor by the Purchaser will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment of any part thereof furnished by the Contractor, is in such suit or proceedings held to constitute infringement, and its use is prohibited, then Contractor shall, at his option, and at his own expense, either procure for the Purchaser, the right to continue use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so it becomes non-infringing as acceptable to Purchaser.

3.9.0 TIME – THE ESSENCE OF CONTRACT

3.9.1 The time and the date of completion of the works as stipulated in the specification by the Purchaser without or with modifications, if any, and so incorporated in the Letter of Intent, shall be deemed to be the essence of the Contract. The Contractor shall so organize his resource and perform his work as to complete it not later than the date agreed. The time for completion of the works contracted for, shall be reckoned from the date of Letter of Intent by the Purchaser.

3.9.2 The Contractor shall submit a detailed Contract Master Bar Chart / Contract Master Schedule, consisting of adequate number of activities covering various key phases of the works.

3.9.3 The above Contract Master Bar Chart / Contract Master Schedule Chart shall be reviewed and periodic review reports shall be submitted by the Contractor as directed by the Purchaser / Engineer.

3.9.4 Subsequent to the finalization of the Contract Master Bar Chart / Contract Master Schedule Chart, the contractor shall make available to the Purchaser, a detailed project schedule, in line with the agreed contract network.

3.9.5 Works to the satisfaction of the Engineer and Owner.

The Contractor shall execute, complete and maintain the works including statutory requirements strictly in accordance with the Contract to the satisfaction of the Purchaser and shall comply with the adhere strictly to the Engineer's instructions and directions on any matter (whether mentioned in the Contractor shall take instructions and directions only from the Purchaser / Engineer their representative.

The detailed programme should show the order of the procedure and method in which he proposed to carry out the works. The Contractor shall whenever required by the Engineer or Engineer's representative, furnish for his information particulars in writing of the Contractor's agreement for the carrying out of the works, the submission to and approval by the Engineer or Engineer's representative of such programme or the furnish of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the Contract, particularly for the quality and timely completion of the work.

3.10.0 CHANGE OF QUANTITY

3.10.1 The Purchaser reserves the right to vary the quantities of items or groups of items to be ordered as specified in the accompanying Technical Specifications, as may be necessary, during the execution of the Contract, but such variations unless otherwise specified in the accompanying Technical Specifications, shall not be subject to any limitation for the individual items or group of items.

3.10.2 The Contract Price based on the unit rates available in the Contract shall accordingly be adjusted for the change in quantities as above. The base unit rates, as identified in the Contract shall however remain constant during the currency of the Contract. In case the unit rates are not available for the changes in quantity, the same shall be subject to mutual agreement.

3.11.0 DEDUCTIONS FROM CONTACT

3.11.1 All costs, damages or expenses which the Purchaser may have paid, for which under the Contract the Contractor is liable, will be claimed by the Purchaser. All such claims shall be deducted by the Purchaser from the amount due or becoming due to the Contractor by Purchaser under the Contractor or may be recovered by actions of law or otherwise, if the Contractor fails to satisfy the Purchaser of such claims. Such deduction shall be made only with sufficient proper reasons.

3.11.2 In addition to the provision of clause above, which relates to the recovery by the Purchaser of any amounts that the Purchaser may have paid for which the Contractor is liable under the Contract, the Purchaser shall also be entitled to recover all dues in terms of the Contract including Liquidated Damages for delay, by way of deductions from the payments due to the contractor or that may become due to the contractor in future or from any securities / guarantees under the contract and / or otherwise.

3.12.0 PACKING, FORWARDING AND SHIPMENT

3.12.1 Imported Equipment

3.12.2 The Contractor, wherever applicable shall, after proper painting, pack and crate all equipment for sea shipment in a manner suitable for shipment to tropical, humid climate region in accordance with the internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail and / or sea and during storage at the site till the time of erection. The Contractor shall be held responsible for all damages due to improper packing.

3.12.3 The Contractor shall notify the Purchaser of the date of each shipment from the port to embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.

3.12.4 The Contractor shall give complete shipping information concerning the weight, size, content of each package including any other information the Purchaser may require.

3.13.0 DEMURRAGE, WHARFAGE, ETC.

3.13.1 All demurrage, wharfage and other expenses, incurred due to delayed clearance of the material, attributed to the contractor, shall be to the account of the Contractor.

3.14.0 INSURANCE

3.14.1 The Contractor shall take insurance coverage so as to cover the entire liabilities until the system is handed over to the Purchaser. The above insurance charge shall be included in the quoted lumpsum price.

3.15.0 CONTRACTOR'S DEFAULT

3.15.1 If the Contractor neglects to execute the works with due diligence and expedition or refuses or neglects to comply with any reasonable orders given to him, in writing by the Engineer in connection with the works or contravenes the provisions of the Contract, the Purchaser may give notice in writing to Contractor to make good comply with the notice within thirty(30)days from the date of service thereof, then and in such case the Purchaser shall think fit, it shall be lawful for him, without prejudice to forthwith execute such part of the works as the Contractor, to take the works wholly or in part out of the Contractors hands recon tract with any other person or persons to complete the works or any part thereof and in that event the Purchaser shall have free use of all Contractors equipment that may have been at the time on the site in connection with the works without being responsible to the Contractor for fair and tear thereof and to the exclusion of any right of the Contractor over the same, and the Purchaser shall be entitled to retain and apply any balance which may otherwise be due on the Contract by him to the Contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of the works or of completing the works as the case my be. If the cost of completing the works or executing a part thereof as aforesaid shall exceed the balance due to the Contractor, the Contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the Contractor shall have to pay if the completion of works is delayed.

3.15.2 In addition, such action by the Purchaser as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of works.

3.15.3 The termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the performance Guarantee nor the time thereof. The performance Guarantee shall be valid for the full value and for the full period of the Contract guarantee period.

3.16.0 FORCE MAJEURE

3.16.1 Neither the Contractor or the Purchaser shall be considered in default in performance of its obligations hereunder if such performance is prevented or delayed for any causes beyond the reasonable control of the party affected, such as war, hostilities, revolution, riot, civil commotion, epidemic, major fires, explosions, floods, earthquakes or because of any law, order, proclamatory regulations or ordinance of Government act of God, provided notice in writing of such cause with necessary evidence that the obligation under the Contract

is thereby affected or prevented or delayed, is given within 14 days from the happening of the event and in any case it is not possible to serve the notice

within the said 14 days period, then within the shortest possible period without delay. In case the force majeure conditions prolong beyond a continuous period of 6 months, the Purchaser shall be entitled to decide the further course of action including revisions in the terms of Contract, if any.

- 3.16.2 As soon as the cause of Force Majeure has been removed, the party whose ability to perform its obligation has been affected shall notify the other party the actual delay occurred on account of such activities.
- 3.16.3 Although the time for completion of work shall be suitably extended(not exceeding the period during which the work was stopped on account of force Majeure clause). However, such extension shall not result any financial claim by the Contractor against the Purchaser on account of such delay for for any other reason whatsoever.

3.17.0 DELAYS BY PURCHASER OR HIS AUTHORISED AGENTS

- 3.17.1 In case the Contractor's performance is delayed due to any act or omission on the part of the Purchaser or his authorized agents, then the Contractor shall be given due extension of time for the completion of the works, to the extent such omission on the part of the Purchaser has caused delay in the Contractor's performance of his work, for which no compensation will be payable for idle labour, shift and machineries.

3.18.0 TERMINATION OF CONTRACT ON PURCHASER'S INITIATIVE

- 3.18.1 The Purchaser reserves the right to terminate the Contract due to reasons other than those mentioned under clause entitled "Contractor's Default". The Purchaser shall in such an event give fifteen(15) days notice in writing to the Contractor of his decision to do so. The Contractor shall be paid by the Purchaser for all work executed prior to the date of termination at the rates & prices provided in the Contract.
- 3.18.2 The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the Purchaser, stop all further sub Contracting or purchasing activity related to the work terminated and assist the Purchaser in maintenance, protection, and disposition of the works acquired under the Contract by the Purchaser.

3.18.3 If the Contract is terminated under the provisions of the above clause, the Contractor shall with all reasonable diligence remove from the site all the Contractor's equipment and shall give similar facilities to his sub-Contractors to do so.

3.18.4 If the Contract is terminated as aforesaid, the Contractor shall be paid by the Purchaser (in so far as such amounts or items shall not have already been covered in the payment made to the Contractor) for all work executed and accepted by the Engineer prior to the date of termination at the rates and prices provided in the Contract and in addition:

- a) The amount payable in respect of any preliminary items, so far as the work or service comprised therein has been carried out or performed and an appropriate portion as certified by the Engineer of any such items of the work or service comprised therein which has been partially carried out or performed
- b) Any other expenses which the Contractor has incurred for performing the works under the Contract subject to being duly certified by the Engineer, based on documentary evidence for having incurred such expenses.

3.18.5 The Contractor shall be further required to transfer the title and provide the Purchaser with the following, in the manner and as directed by the Purchaser.

- a) Any completed works.
- b) Such partially completed works including drawings, information and Contract rights as the Contractor has specially performed, produced or acquired for the performance of the Contract.

3.19.0 NO WAIVER OF RIGHTS

3.19.1 Neither the inspection by the Purchaser or the Engineer or any of their officials, employees, or agents nor any order by the Purchaser or the Engineer for payment of money or any payment for or acceptance of, the whole or any part of the works by the Purchaser or the Engineer, nor any extension of time, nor any possession taken by the Engineer shall operate as a waiver of any provision of the Contract.

3.20.0 SETTLEMENT OF DISPUTES

3.20.1 Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the parties.

3.20.2 All unsettled dispute(s) or difference(s) arising out of or in connection with the Contract shall be decided by the Engineer whose decision shall be final and binding on the parties.

3.21.0 RELEASE OF INFORMATION

The Contractor shall not communicate or use in advertising, publicity, sales release or in any other medium, photographs or other reproduction of the works under this Contract, or description of the site , dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained from the Purchaser.

3.22.0 TYPE OF THE CONTRACT

3.22.1 Notwithstanding anything stated elsewhere in the tender Document the Contract to be awarded shall be on total turnkey basis covering the complete activities, covered in this Tender specification.

3.22.2 The award of Contract shall cover both the supply & services and in any way shall not dilute the responsibility of the Contractor for the successful commissioning of the equipment / system as per this Tender Document.

3.22.3 Transfer of title, in respect of equipment and materials supplied by the Contractor to Tamilnadu Science and Technology Centre pursuant to the terms of the Contract shall pass on to Tamilnadu Science and Technology Centre with negotiation of shipping documents at foreign port of embarkation of that equipment and materials.

3.22.4 This transfer of Title shall not be construed to mean the acceptance and the consequent "Taking over" of equipment and material. The Contractor shall continue to be responsible for the quality and performance of such equipment and material and for their compliance with the specifications until "Taking over" and the fulfillment of warranty provisions of this Contract.

3.22.5 This Transfer of Title shall not relieve the Contractor from the responsibility for all risks of loss or damage to the equipment and material as specified under the clause entitled "Insurance" of this Section.

3.23.0 COMPLETION OF CONTRACT

3.23.1 Unless otherwise terminated under the provisions of any other relevant clause, this contract shall be deemed to have been completed at the expiration of the warranty period as provided for under the clause entitled "warranty" in this specification.

3.24.0 ENFORCEMENT OF TERMS

3.24.1 The failure of either party to enforce at any time any of the provisions of this contract any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have here under.

3.25.0 ENGINEER'S DECISION

3.25.1 In respect of all matters which are left to the decision of the Engineer including the granting or withholding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.

3.25.2 If in the opinion of the Contractor, a decision made by the Engineer is not in accordance with the meaning and intent of the contract, the Contractor may file with the Executive Director within fifteen (15) days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time shall become final and binding.

3.26.0 TRAINING OF PURCHASER'S PERSONNEL

3.26.1 The Contractor shall undertake to train engineering personnel selected and sent by the Purchaser at the site for a period of 30 days, in installation, operation and maintenance of the equipment system.

3.26.2 The Contractor shall provide the training equipment and material during training period. All the software, films, video cassettes, transparencies, notes etc. used in the training programme shall remain the property of the Purchaser at the end of the Contract.

3.26.3 The contractor shall draw up a preliminary training programme to be included in the offer. The detailed training programme shall be submitted after award of the Contract and shall be subject to the Purchaser's approval.

3.26.4 The methodology of imparting training shall be supplemented with computer based training including supply of software packages, etc. shall be indicated in the bid and shall be subject to the Purchaser's approval.

3.27.0 **SUSPENSION OF WORK**

3.27.1 The Purchaser reserves the right to suspend and reinstate execution of the whole or any part of the work without invalidating the provision of the Contract. Orders for suspension or reinstatement of the work will be issued by the Engineer to the contractor in writing. The time for completion of the work will be extended for a period equal to the duration of the suspension.

3.28.0 **CHANGES IN WORK**

3.28.1 **Purchaser – Initiated Changes in Work**

The Purchaser is at liberty to issue any written order designated as a Change Order to make any Change in work including ordering additions within the general scope of the work, or deletions or revisions in the work, including, but not limited to, changes:

- a) In the specification (including drawings and designs)
- b) In the method or manner of performance of the work
- c) In directing acceleration of work.

Said additions, deletions or revisions shall not, in any way, invalidate this Contract and Contractor agrees to accept payment of such changes and changes to other Project Variables according to the procedures outlined herein and as if the altered work has been part of the original contract. Contractor shall promptly proceed with all such orders upon the receipt thereof.

3.28.2 **Contractor – Requested Changes Orders**

Contractor shall not seek any Change Orders for its own convenience which (a) adversely affect the completion of the Project in accordance with this Contract, (b) to Purchaser's detriment (i) change any of the Project Variables or (ii) modify the Guaranteed Values, (c) adversely affect Contractor's ability to meet the Guaranteed Values during the performance tests, or (d) materially deviate from the plans, drawings and specifications included in this Contract. Also, no Change Order shall be issued, no increase of this Contract Amount and no adjustment to the specified time schedule, the Contract Master Schedule or the Guaranteed Values shall be made in connection with any correction of errors, omissions, Defects and Deficiencies or improper or Defective work on the part of the Contractor or any subcontractors in the performance of the work. Purchaser may in its sole discretion approve or reject any Contractor initiated Change Order.

3.28.3 Compliance with Contract

Changes in the work shall be performed within the applicable provisions of this Contract. Upon receipt of a Change Order, Contractor shall proceed expeditiously unless otherwise provided for in the Change Order. Contractor shall perform no extra or changed work unless specifically authorized by Purchaser.

3.28.4 Initiation

Either party may request to Change Order. For Purchaser initiated changes, Purchaser may required a proposal from Contractor to complete the changed work prior to authorizing any change to this Contract. Within fourteen (14) days of receipt of such request for a proposal, Contractor shall provide a written proposal to Purchaser setting forth any anticipated adjustments to the Project Variables and the Contrast Master Schedule that such Change order may require. If a Change Order is requested by Contractor, the request must include a description of the change in work, its effect on the Project Variables, the effect on the Contract Master Schedule any other information necessary for Purchaser to evaluate making the change. Costs associated with the requested change shall be broken down in detail in a manner acceptable to Purchaser initiated Change Orders (except for change Orders resulting from Events of Force Majeure or Purchaser Caused Delays) in preparing the proposal shall be borne solely by Purchaser, provided, however, that Contractor shall have previously notified purchaser in writing of the estimated costs of preparing such request and Purchaser shall have authorized Contractor to proceed with such preparations, and provided that Purchaser reimbursement obligation shall not exceed contractor's estimate without Purchaser's prior written approval of such additional expense. All costs in preparing Contractor requested Change Orders and Change Orders resulting from Events of Force Majeure or Purchaser Caused Delay shall be borne exclusively by Contractor.

3.28.5 Notification of Change Order

Contractor shall immediately advise the Purchaser in writing of any request by the Purchaser that it believes constitutes as Change Order and will not perform such work until properly authorized by the Purchaser.

3.28.6 Valuation and Payment of Change Orders

Changes Orders that impact the Contract Price will result in lumpsum increase or decrease to the contract Price. If work is deleted Purchaser and Contractor will agree on a lumpsum deduction from this Contract Amount.

3.28.7 Conditions for Change Orders

Contractor shall only be entitled to an increase in the Contract Amount or an extension of the Guaranteed Performance Dates with respect to any work performed if such work is included in one of the following:

- a) A formal written amendment ; or
- b) A change order

3.28.8 Deletion from Work

The Purchaser may delete from the work any item by Change Order. Any deletion of an item shall not invalidate any Contract provision or other requirement and Contractor will complete the work not so deleted under this Contract. Such deletions from the work may include Purchaser procurement of plant, materials and equipment which Contractor is otherwise obligated to purchase thereunder.

3.28.9 Change in Applicable Laws

In the event any change in applicable Laws, applicable Permits or the technical requirements of this Contract entitles Contractor to a Change order pursuant to this Section Contractor's obligation to perform the work in compliance with such Applicable Laws, Applicable Permits or the technical requirements of this Contract shall be subject to Purchaser's execution of such Change Order.

3.29.0 WARRANTY

3.29.1 The Contractor shall warrant that the equipment will be new and in accordance with the Contract Documents and free from defects in material and workmanship for a period of Thirty six (36) calendar months commencing immediately after handing over the system. The Contractor's liability shall be limited to the replacement of any defective parts in the equipments / system under normal use and arising solely from faulty design, materials and / or workmanship provided always that such defective parts are repairable at the site and are not in meantime essential in the commercial use of the facility. Such replaced defective parts shall be returned to the Contractor unless otherwise arranged. No repairs or replacement shall normally be carried out by the Engineer when the system is under the supervision of the Contractor's supervisory engineers.

- 3.29.2 In the event of an emergency where, in the judgement of the Engineer, delay would cause serious loss or damage, repairs or adjustments may be made by the Engineer or a third party chosen by the Engineer with notice to the Contractor and the cost of such work shall be paid by the Contractor. In the event such action is taken by the Engineer, the Contractor will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the Contractor's liability under the terms and conditions of the Contract.
- 3.29.3 The repaired, or new parts shall be furnished and erected free of cost by the Contractor. If any repair is carried out on his behalf at the site, the Contractor shall bear the cost for such repair.
- 3.29.4 The cost of any special or general overhaul rendered necessary during the guarantee period due to defects in the plant or defective work carried out by the Contractor, the same shall be borne by the Contractor.
- 3.29.5 The acceptance of the equipment by the Engineer shall in no way relieve the Contractor of his obligation under this clause.
- 3.29.6 In case of those defective parts which are not repairable at site but are essential for the commercial operation of the equipment, the Contractor and the Engineer shall mutually agree to a programme of replacement or renewal which will minimize interruption / dislocation to the maximum extent, in the operation of the plant and equipment.
- 3.29.7 At the end of the Warranty period, the Contractor's liability ceases except for latent defects. In respect of goods supplied by Sub-contractors to the Contractor where a longer guarantee (more than 36 months) is provided by such Sub-contractors, the Purchaser shall be entitled to benefit of such longer guarantees.
- 3.29.8 It should be clearly understood that all expenses in respect of replacement / repair during the warranty period including but not limited to transportation cost, all taxes, duties and levies as applicable, etc. till such spare parts are installed in the system after necessary repairs / replacement and the system is put back into operation, shall also be to the contractor's account.
- 3.29.9 The Contractor shall submit a Bank Guarantee for 5% of the contract price as security for successful performance of the system, in conformity with the various guarantees and warranties contained in the contract as per proforma enclosed. The Bank Guarantee shall be valid till the warranty period is over.

3.30.0 DEFENCE OF SUITS

3.30.1 If any action in Court is brought against the Purchaser or Engineer or an Officer or agent of the Purchaser, for the failure or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his subcontractors, or in connection with any claim based on lawful demands of sub-contractors, workmen, suppliers or employees, the Contractor shall in all such case indemnify and keep the Purchaser, and the Engineer and / or his representative harmless from all losses, damages, expenses or decrees arising of such action.

3.31.0 LIMITATION OF LIABILITIES

3.31.1 Except in respect of latent defects liability, the long terms availability of spares and other specific liabilities identified in the Contract, the Contractor shall be released from his liabilities under the Contract at the end of the warranty period. The Contractor shall be released from his liability in respect of latent defects on expiry of five (5) years after successful completion of performance test and handing over of the system, installed by the contractor.

3.31.2 The total liability of the Contractor under the clause shall be limited to an amount equivalent to the total price. However, the Contractor shall not be liable for remote and consequential damages such as loss or profit, cost of capital & cost of replacement etc.

3.32.0 FOREIGN FIELD PERSONNEL

3.32.1 The Contractor shall submit to the Engineer, a complete list of foreign field personnel (including necessary data as may be required by Engineer), required for the performance of the works in India. He shall also intimate the programme of their visit to India and departure from India during the pendency of the Contract. The Engineer will have the right to review the list of such personnel and ask for increase in the strength or reschedule the visits of such personnel if in the opinion of the Engineer, the list of personnel mentioned is not sufficient for effective performance of the Contract.

3.33.0 TAXES, PERMITS AND LICENCES

3.33.1 The Contractor shall be liable and pay all non-Indian taxes, duties, levies, lawfully assessed against the Purchaser or the Contractor in pursuance of the Contract. In addition the Contractor shall be responsible for payment of all Indian duties, levies and taxes lawfully assessed against the Contractor for his personal income and property only. This clause shall be read in conjunction with relevant clause of instruction to Bidder.

3.34.0 SPARES

3.34.1 The spares required for success operation and maintenance of the system for a period of 5 years shall be supplied along with the main equipment.

The cost of such spares shall be included in the quoted lumpsum price.

The list spares to be supplied along with main equipment, shall be furnished in the Techno-commercial bid.

3.35.0 PAYMENT

3.35.1 The payment to the Contractor for the performance of the works under the Contract shall be made as below :-

100% payment shall be made on successful commissioning, trial operation and handing over of the system. In case of any delay, in supply and installation of the system the payment shall be made as below:-

a. For supply

The foreign currency quoted by the contractor for supply, will be converted into Indian Rupee as per the bill selling exchange rate (as per RBI / SBI) as applicable on the scheduled date of supply and the amount will be frozen in Indian Rupee.

When the supply is made with delay, the payment for such supply shall be made in Foreign currency, equivalent to above Indian Rupee subject to a maximum of quoted foreign currency, as per the bill selling exchange rate (as per RBI / SBI) as applicable on the actual date of supply.

b. For Installation

The charges indicated in the foreign currency for installation and other activities shall be converted into Indian Rupee as per the bill selling exchange rate (as per RBI / SBI) as applicable on the scheduled date of installation and the amount will be frozen in Indian Rupee.

When the installation is made with delay, the payment for such installation shall be made in Foreign currency, equivalent to above Indian Rupee subject to a maximum of quoted foreign currency, as per the bill selling exchange rate (as per RBI / SBI) as applicable on the actual date of installation.

**ANNEXURE – B 9 (GCC)
PERFORMANCE BANK GUARANTEE**

Bank Guarantee No.....

Date.....

WHEREAS Tamilnadu Science and Technology Centre is an autonomous body registered under the Tamilnadu Society's Registration Act 1975 and its office at Gandhi Mandapam Road, Chennai-600 025 (India) (hereinafter referred to as the 'Purchaser' which expression shall unless repugnant to the context include its successors, executors, administrators, legal representatives and assigns) is setting up a in the state of Tamilnadu (India) (hereinafter referred to as 'Power Project').

WHEREAS the Purchaser had placed a Contract dated (hereinafter called the CONTRACT) on M/s. having its registered office (hereinafter referred to as "the Contractor") for setting up of the said Full Dome Mirror Projection System on the terms, specifications and conditions specified therein.

AND WHEREAS the Clause No..... of the said contract stipulates that the Contractor shall submit a Bank Guarantee as herein contained for an amount of Rs..... Being the 5% of the Contract Price as security for successful performance of the said FULL DOME MIRROR PROJECTION SYSTEM setup by the contractor, in conformity with the various guarantees and warranties contained in the said contract and the Contractor has agreed to furnish such Bank Guarantee.

AND WHEREAS the Purchaser has agreed to accept a Bank Guarantee for an amount equivalent to 5% of the Contract price i.e. as security for successful performance of the said FULL DOME MIRROR PROJECTION SYSTEM set up by the Contractor, in conformity with the various guarantees and warranties contained in the said contract and the Contractor has agreed to furnish such Bank Guarantee.

AND WHEREAS the Purchaser has agreed to accept a Bank Guarantee for an amount equivalent to 5% of the contract price i.e. From Bank having its head office at Through its branch (hereinafter referred to as "the bank" which expression shall unless repugnant to the context include its successors and assigns)

In consideration of the above, the Bank hereby unconditionally guarantees and undertakes as a direct responsibility to pay the Purchaser any amount upto a total sum of (.....only)

The Bank shall effect payment under this Guarantee immediately without any protest or demur and without any reference to the Contractor upon the Purchaser's written request stating that the As set up by the Contractor is not performing satisfactory as per the stipulations made in the Contract, without being entitled to enquire whether this payment is lawfully asked for or not. IN any case, however, the Bank's responsibility under this Guarantee is limited to the above mentioned total sum of

The decision of the Purchaser as to whether the said FULL DOME MIRROR PROJECTION SYSTEM is performing satisfactorily or not shall be final and binding on the Bank and the Contractor.

The Guarantee shall be valid for a period ofmonths fromupto The Guarantee herein contained shall be continuing guarantee and shall not be affected by any change in the constitution of the Bank or of the Contractor. This guarantee shall be in addition to and shall not affect or be affected by any other security now or hereafter held by the Purchaser and the Purchaser at its discretion and without any further consent from the BANK and without affecting the liability of the BANK and other indulgence to, or make other arrangements with the Contractor and nothing done or omitted to be done by the Purchaser in pursuance of any authority in this guarantee shall affect or discharge the liability of the BANK.

NOTWITHSTANDING anything herein before above contained the liability of the BANK under this guarantee shall be restricted to And the guarantee shall expire on thedate of Unless a suit or action to enforce a claim under the guarantee is filed against us within six months from the date of expiry i.e. on or before all rights under the said guarantee shall be forfeited and we shall be relived and discharged from all liabilities thereunder.

IN WITNESS WHEREOF we have set our hands and seal hereunder at thisday of200at.....

Signature & Seal of the Bankers

Witnesses

- 1.
- 2.

Note: If the above Bank Guarantee is furnished by any foreign bank, the same should be countersigned by their correspondent bank in India.

SECTION – 4.0

ERECTION CONDITIONS OF CONTRACT.

4.1.0 GENERAL

4.1.1 The Contractor upon receipt of LOI shall, nominate a responsible officer as his representative at site suitably designated for the purposes of overall responsibility and coordination of the works to be performed at site. Such person shall function from the site office established by the Contractor, during the pendency of Contract.

4.2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES

4.2.1 The contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum wages Act, 1948, payment of Wages Act and Contractor labour (Regulation Abolition Act) on any other law and the rules made thereunder in respect of any employee or workman employed or engaged by him or his sub-Contractor.

4.2.2 All registration and statutory inspection fees, if any in respect of his work pursuant to this Contract shall be to the account of the Contractor. Any registration, statutory inspection fees lawfully payable under the provisions of the Indian Boiler Regulations and any other statutory laws in respect of the plant equipment shall be to the account of the Contractor. Should any such inspection or registration needs to be rearranged due to the fault of the Contractor or his sub-contractor, the additional fees for such inspection and/or registration shall be borne by the Contractor.

4.3.0 PURCHASER'S LIEN ON EQUIPMENTS

4.3.1 The purchaser shall have lien on all equipment including those of the contractors brought to the site for the purposes of erection, testing and commissioning of the plant. The purchaser shall continue to hold the lien on all such equipment till final acceptance of plant. No material brought to the site shall be removed from the site by the Contractor and/or his sub-contractors without the prior written approval of the Engineer.

4.4.0 INSPECTION, TESTING AND INSPECTION CERTIFICATES

4.4.1 The provisions of the clause entitled “Inspection, Testing and Inspection Certificate” under the technical conditions of the Contract shall also be applicable to the erection portion of the works. The Engineer shall have the right to reinspect any equipment though previously inspected and approved by him, at the Contractor’s works, before and after the same are erected at site. If by the above inspection, the Engineer rejects any equipment, the Contractor shall make good for such rejections either by replacement or modifications/repairs as may be necessary, to the satisfaction of the Engineer. Such replacements shall also include the replacements or re-execution of such of those works of other Contractor and/or agencies which might have got damaged or affected by the replacements or rework done to the contractor’s work.

4.5.0 ACCESS TO SITE AND WORKS ON SITE

4.5.1 Suitable access to and possession of the site shall be afforded to the Contractor by the Purchaser in reasonable time.

4.5.2 In the execution of works, no persons other than the Contractor or his duly appointed representative, Sub-contractor and workmen, shall be allowed to do work on the site, except by the special permission, in writing, of the Engineer or his representative.

4.6.0 CONTRACTOR’S FIELD PERSONNEL

4.6.1 Contractor shall deploy only competent and experienced personnel in each field of work and shall furnish bio-data of such personnel to Purchaser’s approval prior to posting.

4.7.0 DISCIPLINE OF WORKMEN

4.7.1 The Contractor shall adhere to the disciplinary procedure set by the Purchaser/Engineer in respect of his employees and workmen at site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor at the site, if in the opinion of the Engineer such employee has misconducted himself or be incompetent or negligent or otherwise undesirable and then the Contractor shall remove such a person objected to and provide in his place a competent replacement.

4.8.0 CONTRACTOR'S FIELD OPERATION

4.8.1 The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedule for carrying out each part of the work. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of his responsibility towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Purchaser or any of his representatives and no claim of the contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contractor shall be solely responsible for the safety, adequacy and efficiency of plants and equipments and his erection methods.

4.8.2 The Contractor shall have the complete responsibility for the conditions of the work site including the safety of all persons employed by him or his sub-Contractor and all the properties under his custody during the performance of the work. The requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours. The constructions reviewed by the Engineer is not intended to include review of Contractor's safety measures in, on or near the work site, and their adequacy or otherwise.

4.9.0 PROTECTION WORK

4.9.1 The Contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the Purchaser or the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings.

4.10.0 EMPLOYMENT OF LABOUR

4.10.1 The Contractor shall employ on the work only his regular skilled employees with experience of his particular work. No female labour shall be employed after darkness. No person below the age of eighteen years shall be employed.

4.10.2 Contractor's Employees

1. The Contractor shall provide and employ on the site in connection with the execution and maintenance of the works the following :
 - a) Technical personnel, skilled and experienced in their respective trades and are competent to give proper supervision to the work they are required to supervise and executive.

- b) Such skilled, semi-skilled and un-skilled labour as is necessary for the proper work strictly as per specification and timely execution and maintenance of the works.
 - c) Where required by Law or Regulation of local or other authority, such personnel shall be duly licensed by the Competent Authority to practice their trades, professions and callings.
 - d) The same technical personnel of the Contractor shall continue till completion of work and if at all it is necessary to withdraw any of the technical personnel of the Contractor to any other site, the same shall be done with written approval of Engineer or Purchaser unless it is a case of resignation.
2. The Contractor shall be responsible for payment of salaries to the said labour / employees. The Contractor shall also be liable to extend / provide all the benefits admissible to said labour / employee under various laws in force.

4.10.3 All traveling expenses including provisions of all necessary transport to and from site, lodging allowances and other payments to the Contractor's employees shall be sole responsibility of the Contractor.

4.10.4 Contractor's employees shall wear identification badges, safety helmets and applicable protective gear while on work at site.

4.10.5 In case the Purchaser becomes liable to pay any wages or dues to the labour or any Government agency under any of the provision of the Minimum Wages Act, Workmen Compensation Act, Contract Labour (Regulation & Abolition) Act or any other law due to act of omission of the Contractor, the Purchaser may make such payments and shall recover the same from the Contractor's bill.

4.11.0 FACILITIES TO BE PROVIDED BY THE PURCHASER

4.11.1 The Electricity required for installation of the system shall be provided free of cost, by the purchaser.

4.11.2 Construction Tools and Equipment

The Purchaser shall not be responsible or held liable for any damage to person or property consequent upon the use, misuse or failure of any construction tools and equipment used by the Contractor or any of his Subcontractors, single such construction tools and equipment may be furnished, rented or loaned to the Contractor or any of his Subcontractors. The acceptance and / or use of any such construction tools and equipment by the Contractor or his Subcontractors shall be construed to mean that the Contractor accepts all responsibility for and agrees to indemnify and save harmless the purchaser from any and all claims for said damages resulting from said use, misuse or failure of such construction tools and equipment.

Section – 5

SPECIFICATIONS FOR FOR THE SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FULL-DOME MIRROR PROJECTION SYSTEM AT B. M. BIRLA PLANETARIUM, PERIYAR SCIENCE AND TECHNOLOGY CENTRE, TAMILNADU SCIENCE AND TECHNOLOGY CENTRE, CHENNAI – 600025, INDIA

Supply, installation, testing and commissioning of good quality full dome mirror projection system suitable for the 15 metre diameter dome of the B. M. Birla Planetarium, Periyar Science and Technology Centre, Chennai – 600 025, INDIA. The system should be complete in all respects as per the following broad specifications and the same should be supplied and installed at the aforementioned planetarium.

MIRROR PROJECTION SYSTEM

i) Spherical Mirror

High quality convex mirror with standard accessories to reflect the image from a projector onto the 15 meter diameter dome to achieve full dome (360°) digital projection. The mirror and the suitable software must be capable of correcting the optical distortions arising due to projection on a hemispherical dome.

ii) Projector

DLP Projector (DELL 5100 MP or equivalent) having at least 1400 X 1050 resolution with 2000 ANSI lumens or more with suitable DLP module from a reputed company such as Texas Instruments or equivalent and with other accessories.

iii) Software

Software capable of correcting the pre distortions of a standard fish eye image movie. This predistorted image on reflecting off the spherical mirror mentioned above must create a full dome perfect distortion-free projection on the 15 meter dome. The software must be capable of suitably correcting the optical distortions of full dome (fish eye) movies and software applications.

A library of astronomical images and animations must be accompanied to enable the purchaser to make planetarium shows of their own.

At least one full dome planetarium show must be supplied along with. Popular software such as Stellarium, MD Player, Domeiface, Solar System Simulator (Solar) pano dome, Celestia and a collection of astronomy and cutting edge science simulation datasets that can be used to explain concepts in astronomy needed to be provided.

iv) Computer

Apple Power Mac G5 OS X 10.4.8 or equivalent. The computer must have at least 2 graphics displays and other standard accessories

v) General

The entire set up of mirror and projector must be positioned on the existing 15 meter dome's perimeter. The system must be capable of working along with the existing opto-mechanical Goto GM II projector at the planetarium.

The rates for additional mirror and DLP Projector lamp needed to be quoted.