



TENDER DOCUMENTS

FOR

**DESIGN, MANUFACTURING, SUPPLY, INSTALLATION, TESTING AND
COMMISSIONING OF 5000 LITTER OF CALORIFIER WORKS**

November, 2025

**INDIA HABITAT CENTRE
CORE 5A, 6TH FLOOR
LODHI ROAD
NEW DELHI
PIN - 110003**

Find us: www.indiahabitat.org
Reach us: hazari@indiahabitat.org

INDEX

S. No.	Description	Pages
1.	Notice Inviting Tender	4 - 5
2.	Scope of Work	6
3.	Selection Criteria	7 - 8
4.	Technical specifications	9 - 12
5.	Technical Data Sheet	13 – 17
6.	Material of Construction	18
7.	Code	19
8.	General Conditions of Contract	20 - 44
9.	Bill of Quantities	45 - 47

NOTICE INVITING TENDER

Date : 12.11.2025

To,

M/s.

Dear Sir,

Sub. : Design, Manufacturing, Supply, Installation, Testing and Commissioning Of 5000 Litters of Calorifier Works

1. You are invited to participate in tendering for Design, Manufacture, Supply, Installation, Testing, Commissioning and Allied works required for functionality of a 5000 litters capacity Calorifier at India Habitat Centre, Lodhi Road, New Delhi – 110 003 as described in the tender documents.
2. The entire Design, Manufacture, Testing and Supply & installation of the above mentioned equipment shall be completed within 4 (Four) months from the date of award of work as per the Tender Documents.
3. Tender documents can be downloaded from www.indiahabitat.org (go to Notice-Tender) before 26th of November, 2025.
4. **Pre-bid Meeting shall be held on 20th November, 2025 at 3 pm at India Habitat Centre, Core 5A, 6th Floor, Conference hall, Lodhi Road, New Delhi – 110003, followed by a site visit.**
5. **The completed sealed tender documents shall be received up to 3.00 P.M. on 26th November, 2025 in the office of Director, M/s. India Habitat Centre, Core-5A, 6th Floor, Lodhi Road, New Delhi – 110 003, On the sealed envelope write clearly in capital letters "TENDER DOCUMENT FOR DESIGN, MANUFACTURE, TESTING, SUPPLY & INSTALLATION OF 5000 LTRS CALORIFIER FOR INDIA HABITAT CENTRE, LODHI ROAD, NEW DELHI – 110 003.**
5. Tenders received after the above time and date, whether sent by post / courier or delivered in person, are liable to be rejected.
6. **All the Tender Documents downloaded shall be submitted Technical Bid & the Commercial Bid in two separate envelopes along with Sealed Tenders duly signed.**

7. The Owner does not bind himself to accept the lowest or any tender and reserves the right to reject, negotiate any or all the tenders received without assigning any reason.
8. The quoted rates shall indicate separately all taxes and duties Octroi, transportation etc. Any variation due to this account during the contract period will not be paid. The prices shall be firm for the contract period.
9. If the supplier fails to supply the transformer within the stipulated period. Liquidated damages/penalty will be levied at the rate of 0.5% per week to a maximum limit of 5% of the contract value
10. The Tender shall be valid for at least 30 (Thirty days) from the date of opening.
11. Tenders which do not fulfill all or any of the above conditions or are incomplete in any respect and deviations from Tender conditions are liable to rejection.
12. The Tender Documents should be signed on each page by the tenderer or his duly authorised representative. Any overwriting, correction or cancellation should be duly signed in INK and stamped. Tender Documents should be accompanied by a certified true copy of an absolute power of attorney in favour of the signatory to the documents. The rates shall be filled in figures and words.
13. The tenderer shall submit a detailed list of personnel and plant and equipment, which are proposed to be continuously employed on the work until its completion, in the event his tender is accepted. The Tenderer shall also submit a detailed programme showing activities, milestones etc. depicting his plans to complete the work in the scheduled time. In the event of the tenderer not submitting his detailed completion programme along with the tender, the time schedule as mentioned in the tender documents will hold good and shall be binding on the tenderer.
14. Any discrepancies, omissions, ambiguities or conflicts in or among contract documents or any doubt as to their meaning should be called to the attention of the Owner (IHC). IHC will review these and where information sought is not clearly indicated or specified, will issue a clarifying bulletin to all tenderers which will form part of the contract documents. Oral instructions shall not be considered.
15. The contract shall be binding on the tenderer as soon as the acceptance of the tender is communicated to the tenderer by IHC.
16. The Tender documents should accompany latest Income Tax clearance certificates.

Scope of Work:

1. Design, Manufacture, Supply, Installation, Testing & Commissioning of 5000 Litters of Calorifier along with all allied works for India Habitat Centre, Lodhi Road, New Delhi -110 003.
2. Dismantling – Dismantle and storing the existing calorifier to the designated space as recommended by engineer in charge. It would be not be more than 500 meters away.
3. Disconnecting the existing plumbing attached with the existing calorifier as per site.
4. Removal and disposal of insulating material from the calorifier. Insulating materials shall be disposed of out of IHC premises. The insulating materials shall be packed in such a way that no loose materials fall anywhere before disposing of.
5. Preparing the shop drawing as per site condition and general arrangement of the calorifier for IHC's approvals.
6. Testing needs to be done after commissioning the unit and a detailed report to be submitted with acceptable parameters for IHC's approvals.
7. Site survey to be done by the Contractor before preparing the shop drawing and manufacturing the calorifier, as the unit has to be fixed on the existing site and the space is defined.
8. Material movement space and location (entry / exit) to be checked by the contractor on site before submission of the bids, once submitted it is considered that the contractor has got acquainted with the site condition.
9. All shutdowns to be approved in written by the Client / Facility Team.
10. During work execution coordination for man and machine movement to be done with the Client / Facility Team.
11. Any Civil work required for successful commissioning of the calorifier is to be in-the scope of the IHC. However, the same need to be informed to IHC in writing well in advance. No claim shall be entertained for any delay in civil work.

12. Contractor shall ensure that other services nearby should not be affected. Restoration of the same to be in the scope of the bidder.
13. Technical data sheet of the all materials to be submitted for approval before apply.

Selection Criteria

Minimum Eligibility Criteria: The interested bidders should meet the following minimum qualifying criteria:

- A. The company should have a minimum of 10 years+ of experience delivering similar kind of projects anywhere in India. However, experience in Delhi NCR region, will be preferred.
- B. Company should have delivered 10 similar projects related to Supply, installation, testing and commissioning of 5000 or above liters capacity calorifiers in the last 7 years.
- C. Company needs to provide Client list with contact details of at least 5 completed projects in Delhi-NCR with a possibility to visit the site by the client team if they choose to inspect prior work and quality delivered by the contractor.
- D. The past experience in similar nature of work should be supported by certificates issued by the client's organisation. In case the work experience is from Private sector the completion certificate shall be supported with copies of Letter of Award and copies of Corresponding TDS Certificates. Value of work will be considered equivalent to the amount received as per the TDS Certificates.
- E. Company Registration Certificate.
- F. Company should have valid authorization certificate form OEM for dealing the product.

METHOD STATEMENT & EQUIPMENT

- I. A brief method statement and implementation plan, mentioning the proposed schedule and order of the works to be executed at the site, along with the movement of tools, manpower and materials.
- II. List of machinery and tools that are to be used during the execution of the works has to be submitted with photographs.
- III. Detailed work method statement is to be submitted by the contractor when the work is awarded, before commencement of any work on site

STANDARDS & SPECIFICATIONS

1. Technical bid should encompass detailed specifications, including make, complying standards, relevant certificate as applicable for each of the component proposed to be supplied by the bidder under the bid process.

DEVIATIONS

- ❖ Any deviation from the specification and/or any other requirements of this bid must be disclosed by the bidder in writing.

FINANCIALS

1. Documents showing Average Annual financial turnover, as per audited balance sheet and Profit & Loss account, during the last three financial years (FY 2024-25, FY 2023-24 and FY 2022-23 or earlier year before covid-19 2017-18 and 2018-2019) shall be at least INR 50 Lakhs.



TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS FOR CALORIFIER.

1. Scope of Work

This specification covers the **design, engineering, manufacturing, supply, installation, testing, and commissioning** of a complete **5000 liters hot water calorifier system**. The calorifier shall provide reliable hot water for domestic/industrial use with necessary **heating elements/heat exchangers, insulation, controls, instrumentation, and safety devices**. The contractor shall ensure complete installation including interconnections, testing, and handing over in fully functional condition.

2. Applicable Standards

The calorifier and its components shall conform to the latest editions of relevant standards:

- IS 2825 – Unfired Pressure Vessels
- IS 8753 – Electric water heaters
- IS 302 – Safety of electrical appliances
- IS 4503 – Electric immersion water heaters
- ASME Section VIII, Div.1 – Pressure Vessel Construction
- IEC/IS standards for control panel and instrumentation

3. Design Parameters

- **Storage Tank Capacity:** 5000 liters (net)
- **Working Pressure:** 6 – 10 bar (as per site requirement)
- **Hydro Test Pressure:** 1.5 × design pressure
- **Hot Water Outlet Temperature:** 60 – 70°C adjustable
- **Cold Water Inlet Temperature:** Ambient to 35°C
- **Heating Source:** Electrical (immersion heaters) OR Steam/Hot water coil (as per BOQ)
- **Heat Input Capacity:**
 - **Electrical:** Minimum 150–200 kW (with staged elements for load sharing)
 - **Steam/Hot water coil:** Equivalent duty designed for required recovery rate
- **Heat Losses:** ≤ 2°C in 8 hours (with proper insulation)

4. Constructional Features

4.1 Storage Vessel

- Material: **Mild Steel (IS 2062 Gr B) with epoxy/glass lining or Stainless Steel SS 304/316.**
- Head type: Dished ends (torispherical/ellipsoidal).
- Shell thickness: Designed as per ASME/IS codes for pressure rating.
- Internal lining: **Food grade epoxy (min. 400 microns) OR Glass-lined** for corrosion protection.
- Manhole: DN 400 mm minimum for inspection.
- Flanged nozzles for inlet, outlet, drain, vent, safety, thermometer, and pressure gauge.
- Skid-mounted base frame for easy installation.

4.2 Insulation & Cladding

- Insulation: **100 mm thick high-density PUF / mineral wool.**
- Cladding: **0.6 mm aluminum sheet / 0.5 mm SS sheet.**
- Heat loss designed to be minimal as per ASHRAE guidelines.

4.3 Heating Arrangement

- **Electrical Heating Type:**
 - Sheathed tubular immersion heaters, low watt density ($< 8 \text{ W/cm}^2$).
 - Designed for 3-phase, 415 V, 50 Hz supply.
 - Divided into multiple stages for load management.
 - Provided with thermostats and high-limit cut-outs.
- **Steam/Hot Water Heating Type:**
 - Removable copper/SS U-tube bundle or helical coil.
 - Steam inlet with pressure-reducing valve and strainer.
 - Condensate trap arrangement.
 - Design duty to heat entire tank capacity within 3–4 hours.

4.4 Controls & Safety Devices

- Digital temperature indicator with controller.
- Thermostat (30–90°C adjustable).
- High temperature safety cut-out.
- Pressure gauge (0–16 bar).
- Safety relief valve (ASME approved, factory set).
- Non-return valve on inlet.
- Drain valve at bottom.
- Air vent at top.

5. Testing & Inspection

- Hydrostatic pressure test at 1.5 times design pressure.
- Electrical insulation and continuity test of heaters.
- Factory acceptance test (FAT) before dispatch.
- Performance test at site for outlet temperature and recovery rate.
- All inspection records to be submitted.

6. Installation & Commissioning

- Placement of calorifier at designated location with proper alignment.
- Connection of inlet, outlet, drain, vent, safety, and condensate (if steam type).
- Electrical wiring and earthing from panel to heaters.
- Initial water filling, heating cycle, and functional testing.
- Training of client's personnel on operation and maintenance.

7. Documentation

The vendor shall submit:

- GA drawings with nozzle orientation.
- P&ID with control scheme.
- Electrical wiring diagrams (for electrical type).
- Material test certificates.
- Factory test certificates.
- O&M manuals (3 sets in hard + soft copy).
- Warranty certificate.

8. Warranty & Support

- Warranty: **18 months from supply OR 12 months from commissioning**, whichever is earlier.
- Spares availability: Minimum **10 years** from supply date.
- Free service support during warranty period.

DESIGN DATA SHEET (5000 Liters Calorifier)	
Application	Calorifier
Equipment Detail	Cylindrical Shell with dish Ends
Code of Design and Construction	ASME Sec VIII Div 1, Edition 2015 or & IS 2825-1969 with amendments
ASME Certification Requirement	No
National Board Registration	No
Country of Installation	India
Location of Installation	—
Diameter of Shell	1500 mm
Shell Thickness	8 mm
Type	Cylinder
Orientation	Horizontal/Vertical
Service fluid	Water
Fluid density	1000 Kg/m ³ @ 25 Deg C
Corrosion allowance	0 mm
Volume of Shell (For each shell)	~5000 Lit
No of Tanks	Based on the proposed Design
Tank elevation	Based on the proposed Design
Actual Heat duty	465.2 KW = 400000 KCal

Design Conditions (Coil side)	
Flow rate of saturated steam	20 Cu M/Hr
Operating pressure	10 kg/cm2 (g)
Operating temperature (In / out)	70 Deg C (steam) / 65 Deg C (water)
Internal Design Pressure	12 kg/cm2 (g)
Operating fluid	Water
MAWP	14 kg/cm2 (g)
External Pressure	10 kg/cm2 (g)
Cyclic Operation	NIL
Design Temperature	100 Deg C
Design Conditions (Shell side)	
Expected flow rate from 5000 lit tank	25 cu m/Hr
Operating pressure	10 kg/cm2 (g)
Operating temperature (In / out)	27 Deg C / 60 Deg C
Internal Design Pressure	12 kg/cm2 (g)
Operating fluid	Water
MAWP	12 kg/cm2 (g)
External Pressure	Nil
Design Temperature	100 Deg C

Other data's	
Wind Loading	ASCE 7-05 or IS 875 (Edition 1987)
Seismic Loadings	UBC 1997 or IS 1893 (Edition 2002)
Radiography	SPOT-RT 3
Joint Efficiency	As per UW-12
Loadings - UG-22	Saddle support, Hydro Test.
PWHT	As per code (Not required)
Internals	Yes
Insulation	Yes (75 mm rock wool) with aluminum cladding
Fire Proofing	No
Snow loading	No
Ladder rings	Yes

Dimensional details	
Shell dimensions	
Diameter of Shell (ID)	Based on the proposed Design
TL to TL length	Based on the proposed Design
Shell Thickness	8 mm (Including mill tolerance)
Dish Ends	2:1 Ellipsoidal
Thickness of Dish ends	8 mm (After Forming), 10 mm before forming.
Support type	Saddle support of 8 mm thick
Total length of the vessel	Based on the proposed Design
coil dimensions	
Coil diameter (Spiral)	Based on the proposed Design
Tube dimensions	19.05 mm OD x 18 SWG thickness
No of rolls or spiral in coil	Based on the proposed Design
Area of coil covered for heat transfer	Based on the proposed Design
Length of the tube in meters	Based on the proposed Design
Pitch between spiral	80 to 100 mm
Lifting lug	150 x 120 x 10 mm

Nozzle No	Description	Qty (Nos)	size	Flange Type	Class (or) Series	Others
N1	Water Inlet	1	DN 80 SCH 80	SORF, B 16.5	150	-
N2	Water Outlet	1	DN 80 (SCH 80)	SORF, B 16.5	150	-
N3	Overflow/drain	2	DN 25 (SCH 160)	SORF, B 16.5	150	-
N4	PRV	1	DN 25 (SCH 160)	SORF, B 16.5	150	-
N5	Pressure gauge at inlet	1	DN 15 (SCH 160)	SORF, B 16.5	150	-
N6	Thermometer at inlet	1	DN 15. (SCH 160)	SORF, B 16.5	150	-
N7	Thermometer at outlet	1	DN 15. (SCH 160)	SORF, B 16.5	150	-
MH	Manhole	1	DN 600 (8 thk)	SORF, B 16.5	150	with davit arm mechanism and RF pad

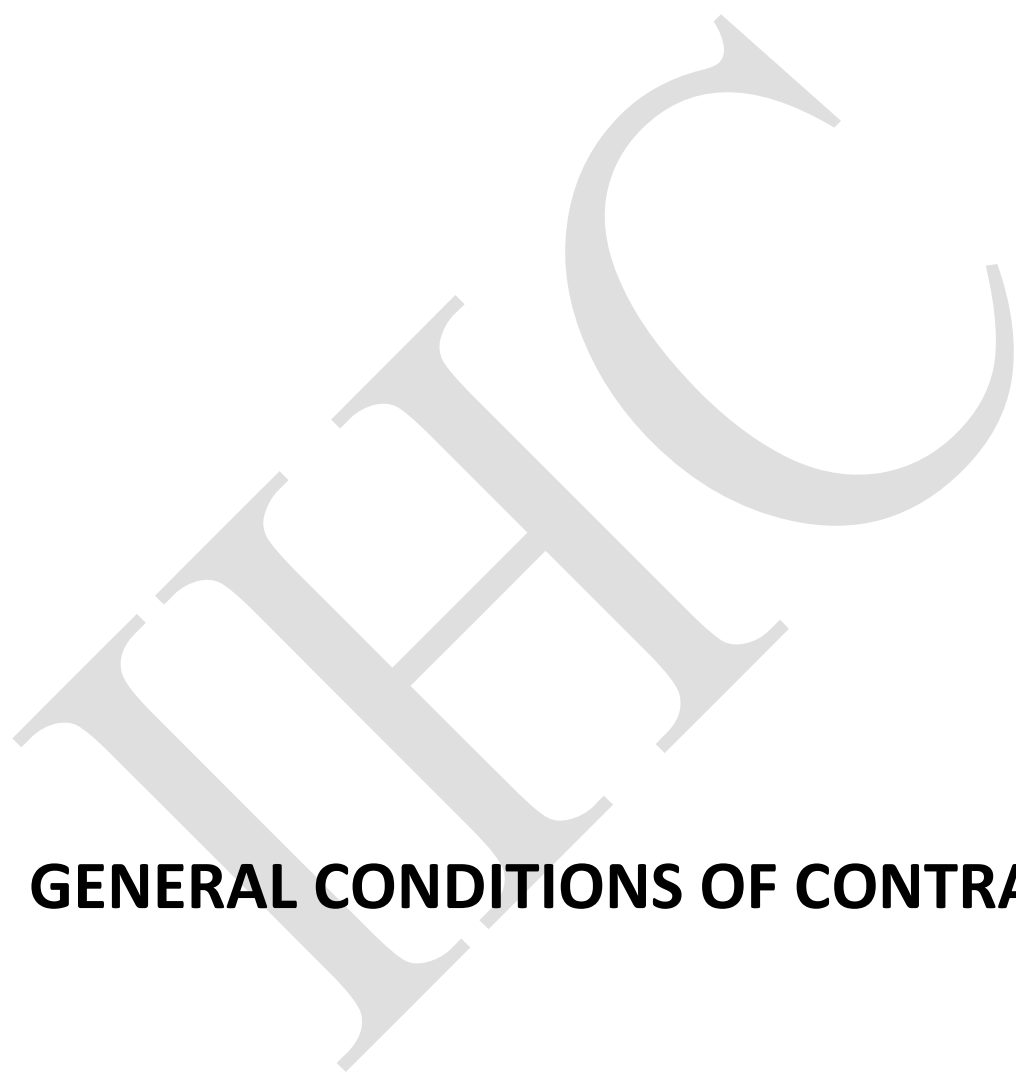
MATERIAL OF CONSTRUCTION

SHELL	SA 240 TP 304
NOZZZLES	SA 312 TP 304 and SA 182 F 304
TUBES FOR COIL	SA 213 TP 316
FLANGES	SA 182 F 304
BLIND FLANGES	SA 182 F304
STUDS	SA 193 GR B7
NUTS	SA 194 GR 2H
GASKETS	Non asbestos
WEAR PLATE FOR LEGS AND LIFTING LUGS	SA 240 TP 304
Support & lug	SA 240 TP 304
DAVIT ARM	SS 304
Ladder	IS 2062 Gr B

CODES TO BE FOLLOWED	
DESIGN AND FABRICATION	ASME Boiler and Pressure vessel Code SEC VIII, Div 1, Edition 2015 or latest as ammended
MATERIALS	ASME Sec II, Part A
WELDING RODS	ASME SEC II, Part C
WELDING QUALIFICATION	ASME Sec IX
NON DESTRUCTIVE EXAMINATION	ASME Sec V
FLANGES	ASME B 16.5
PIPES	ASME B 36.10
FITTINGS	ASME B 16.11
NOZZLE LOADINGS	WRC 107
WIND LOADING	ASCE 7-05 and IS 875 (Edition 1987)
SEISMIC LOADING	UBC 1997 and IS 1893 (Edition 2002)
PAINTING	2 coats of red oxide paint

Documents to be submitted after release of formal Purchase Order
3 Copies

1. Design of Storage tank.
2. Drawings for Approval.
3. Inspection and Test plan.
4. PQR and WPS for Approval.



GENERAL CONDITIONS OF CONTRACT

INSTRUCTIONS TO TENDERERS

1. Sealed tenders are invited by **India Habitat Centre, Lodhi Road, New Delhi** for the above mentioned work from competent and resourceful contractors.
2. This is a fixed item rate contract and not subject to any escalation.
3. All quoted rates shall include all costs involved in completing the work in all respect. This will include the cost of materials, labour, consumable, machinery/ tools & tackles, transportation charges of materials to and from site, wastage, taxes/ duties / levies/ royalty such as GST etc.
4. Every bidder shall furnish along with the tender, copy of his latest Income Tax Clearance Certificate, Registration with tax department on Works Contract Tax, without which the tender is liable to be rejected.
5. Tenders not properly filled, mutilated with incorrect calculation and generally not complying with the conditions may likely to be rejected. Over writings are not permitted. All cancellations and insertions should be signed by the bidder.
6. All rates shall be quoted on the blank form of the tender. Tenders with rates quoted on private paper shall be rejected. Bidders should quote their rates both in figures and in words. The bill of quantities as mentioned must be fully priced and the total of each page along with carried over figures of the previous page shall be written in ink and signed by the bidder on every page.
7. All attached detail/drawings etc. should also be dully signed by bidder.
8. If the tender is submitted by or on behalf of a company incorporated under the Companies Act (1959) it shall be signed on their behalf by the authorised signatory. If it is submitted by a partnership firm, it shall be signed with the Co-partnership firm name by a member of the firm who shall sign his own name & give the name & address of each partner of the firm and attach a copy of power of attorney with the tender authorizing him to sign on behalf of the partners. A certified copy of the registered partnership deed shall also be submitted along with the tender.
9. The tender shall remain valid for acceptance for a period of 30 days from the date of opening of the tender.
10. All bidder shall inspect the site of proposed work before quoting the rates. Site will be hand over as it is where it is basis. Bidder should get acquainted with site conditions, entry/exist locations, availability of materials, labour movement etc. and also on the prevailing local labour laws and other by-laws. Any approach for vehicle/truck from adjoining roads is to be made by the contractor at his own cost.

11. Units of rates as shown in the bill of quantities should be carefully seen. Rates once given by the bidder shall remain unchanged and no excuse on any account will be entertained, after the tenders are opened.
12. The rates of items are for all floors, leads, lifts, depths, curvatures, shape and width, moulding unless otherwise specified specially against the item.
13. No alternations shall be made by the tenderer, in the instructions to the tenderer on NIT contract form, conditions of the contract, Details and specifications, and if any such, alterations are made or any special conditions are attached, the tender is liable to be rejected.
14. The acceptance of the tender rests with the Owner, who reserves the right to reject any or all the tenders including the lowest tender without assigning any reasons whatsoever.
15. The Owner reserves the right of accepting a tender either in whole or part or divide the work between two or three parties thereof without any change in the accepted rates, terms and conditions, as for the entire scope of the work put to tender.
16. Defect liability period will be 12 months from the date of actual handing over of the work to Owner. The contractor shall be responsible to make good /replace any defects in material and /or workmanship free of cost and expeditiously which may occur within the "Defects Liability Period".
17. The Contractor shall not be entitled to any compensation for any loss suffered by him due to idle labour, delay in commencing or executing the work, hindrance from work of other agencies / pending decision, whatever may be the cause including delays in procuring Government controlled / other materials and also in securing statutory clearances on our part.
18. After acceptance of the tender, the tenderer shall sign the necessary contract papers within 7 days from the receipt of the above intimation. In case of delay the "Earnest Money" may be forfeited and the tender cancelled or the contract enforced as per the terms of the tender and the tenderer shall thus be bound to execute the work even though the formal agreement has not been executed and signed.
19. Water and electricity required for the execution of work shall be provided by Owner, free of cost, at one point and necessary piping/ distribution upto and within the place of work shall be done by the contractor at his cost. However Temporary Electrical connections shall be available inside the building and contractor shall make his own arrangement upto place of work.
20. Weather: No extension of time will be allowed to the contractor due to normal weather conditions prevalent in the area. The contractor is expected to take all the precautions at his own cost to safe guard against any damage /loss to the materials and work whether in transit or completed and also any weather protection which may be required to continue his work during adverse weather conditions.

21. Detail drawings (2copies) before execution, will be supplied to the owner. Owner will verify or approve the drawing within 7 working days, further modifications in the drawings, if any required, should be asked to the contractor and such modifications shall be done by the owner without any extra charges and resubmit within 3-4 working days. No claim of any kind will be entertained on account of delay in supply of any details, drawings, facilities to be supplied by the owner as per contract.
22. The Contractor shall pay to labour employed for execution of this contract/work, wages not less than the minimum wages as per provision of the contract labour (Regulation and Abolition Act 1970) and contract labour Rules as amended time to time as applicable. He shall comply with stipulation of the contract labour act/laws as applicable in the state.
23. Work shall be carried out from 8 am to 8 pm only.
24. The Bill of quantities, civil, electrical, machnical drawings shall be properly correlated and all these documents should be read and operated in harmonious conjunction. However, in case of any anomaly between the items description given in the bill of quantities appended with the tender the drawings relating to the relevant item, contractor shall bring the same to the notice of owner for clarification.
25. Other agencies will also simultaneously execute their works like Electrical and other building works for the same or different projects/works along with this work in particular. The contractor shall afford necessary working facilities for the same. No claim in the matter shall be entertained.
26. The work shall be carried out in a manner complying in all respects with the requirement of relevant bye laws of the local body/State Govt. under the jurisdiction of which the work is to be executed or as directed by the Site Engineer and nothing extra will be paid on this account.
27. The materials used shall conform to the relevant IS standard / or as approved by the owner with necessary ISI mark on the body, wherever applicable.
28. Testing of Materials :
Various materials required for testing shall be provided free of cost by the Contractor. Testing and other incidental costs incurred towards this is to be borne by the contractor.
29. The contractor shall provide at his own cost suitable weighing and measuring arrangements at site for checking the weight/dimensions as may be necessary for execution of the work.
30. Payment will be made based on actual and joint measurement of work done. The mode of measurement will be as per ISI 1200 /CPWD Standards only or as approved by the Owner.
31. Contractor is required to follow the program and complete the work on the basis of the program given. Contractor should prepare weekly progress report, to be submitted to the site in charge for review.

32. Contractor should submit record of deployment of labour on a daily basis, as per programme to the Engineer-In-Charge IHC for review. As time being the essence of the Contract, any shortfall in progress shall be treated as breach of contract and action shall be taken as per clauses of agreement.
33. The Contractor(s) bids that qualify the Technical criteria, only their Financial Bids will be opened to proceed in the tender process.
34. Contractor to submit the Technical Bid & the Commercial Bid in two separate envelopes.



GENERAL CONDITIONS OF CONTRACT

Owner : **India Habitat Centre, Lodhi Road,
New Delhi**

APPENDIX 'A'-SCHEDULE OF FISCAL ASPECTS

1. Date of Commencement : 7 day after issue of work order/award letter
2. Date of Virtual Completion : 4 months from date of the project award

Terms of payment

- a). Mobilization Advance : 25% against acceptance of the Work Order and submission of Bank Guarantee of the same value with a validity of six months from the date of issue of advance in the prescribed format approved by IHC.
 - b). Interim payment : 40% before dispatched of the calorifier, proper dispatch documents to be submitted as a proof of dispatch.
 - c). Testing & commissioning : 30% of value of Work Order shall be released after successful Completion of the work.
 - d). Retention Money : 5% of WO value shall be done till one year from the date of supply.
 - e). Defect Liability period : One year from the date of virtual completion.
3. Insurance : Only all risks insurance policy to be obtained by Owner.
Workmen Compensation Policy by the contractor.
Contractor has to indemnify Owner for any mis-hapenning at site.

6. Earnest Money Deposit

Bidders shall furnish an earnest money deposit in the amount of Indian Rupees -----
------. The deposit shall be in the form of a Demand Draft, Banker's Cheque or Bank Guarantee in favour of **India Habitat Centre, Lodhi Road, New Delhi**. No interest shall accrue on the earnest money deposit. Client will reject any bid not accompanied by earnest money.

Client will return the earnest money to all Bidders without interest within Thirty (30) days of the expiration of the bid validity period.

The earnest money deposit shall be subject to forfeiture if a Bidder withdraws or modifies its bid after opening. In the case of the successful Bidder, the earnest money shall be subject to forfeiture if within the time specified in the letter of intent the successful Bidder fails to mobilize for the Work or fails to sign the Contract.

GENERAL CONDITIONS

1. Definitions
2. Owner, Owner, and Contractor
3. Scope, of work
4. Owner's Staff
5. Site
6. Type of Contract
7. Contract Agreement
8. Separate Contractor
9. Taxes
10. Notice & Fees
11. Water for Construction
12. Power for Construction
13. Time of Completion
14. Liquidated Damages
15. Contractor's Liability Regarding damages to property; injury to persons
16. Labour regulations
17. Assignment & Sub-letting
18. Co-ordination of work
19. Progress payments
20. Variation in materiel costs & Wage Rates
21. Extras & Variations
22. Payments withheld
23. Contract Supervision
24. Material and workmanship
25. Deductions for uncorrected works
26. Correction of work before final payment
27. Virtual completion
28. Defects
29. Owner's Status & Decisions
30. Access to the works
31. Indian Standards
32. Protection & Cleaning
33. Force Majeure
34. Termination of the contract by the Owner
35. Entry to site
36. Settlement of Disputes
37. Jurisdiction

GENERAL CONDITIONS

1. DEFINITIONS

Owner : **India Habitat Centre, Lodhi Road,
New Delhi**

- a) **Contract:** The contract means the documents forming the tender and acceptance there of and the formal agreement executed between the owner the contractor together with the documents consisting of the invitation to tender, the agreement, the conditions of the contract, specification, the drawings and Bill of quantities and all these documents as / per contents all modifications instructions issued from time to time by Owner before execution shall be deemed to form the contract and shall be complementary to one another.
- b) **Contractor:** Contractor shall mean the bidder whose tender has been accepted and who is authorised to carry out and execute the work tendered for by him.
- c) **Sub-Contractor** : The term 'Sub-Contractor' as employed herein, includes those having a direct contract with the contractor and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked. Anyone doing work on a piece rate basis shall also be deemed as a sub-Contractor.
- d) **Provisional sum:** Provisional sum or Provisional lump sum shall mean a lump sum included in the tender documents and shall represent the approximate value of the work for which details are not available at the time of issue of the tender.
- e) **Written Notice:** Written notice shall be deemed to have been duly served in delivered in person to the individual to a member of the firm or to an officer of the corporation for whom it is intended or if delivered and a written delivery receipt obtained or sent by registered mail to the last business address known to him who gives the notice.
- f) **The Works:** It shall mean the works in respect of which tender by the contractor has been accepted and which are set out in the conditions of contract, specifications, Bill of quantities, and including all additions, substitutions, and variations or ordered by the Owner.
- g) **Virtual Completion:** Virtual completion shall mean that the works are completed in all respects and fit for use in every respect including installation of all services complete in working order to the full satisfaction of the Owner and the Owner.
- h) **Working Day:** Working day shall mean any day from *Monday to Sunday*, both inclusive, excluding National Holidays.
- i) **Normal Working Hours:** Normal working hours shall mean eight (8) hours per working day. The Specific timings would vary depending upon the time frame as per project programme

for each activity. Contractor shall make arrangements for all additional time to complete the job within the time allocated for the activity.

l) The Site: The Site shall mean the building at **INDIA HABITAT CENTRE, LODHI ROAD, NEW DELHI**

j) Project/Site Engineer: Project Engineer is an officer appointed by the IHC. His responsibility extends to recording of measurements, verification of Contractors bills, issuance of Owner purchase materials and issuance of certification of payments. Supervise the day to day work, ensure the implementation of correct specifications, quality of workmanship, and compliance of tender's instructions.

2. OWNER, OWNER AND CONTRACTOR

The Owner, Owner and the Contractor are those mentioned as such in the Agreement and shall include their legal representative/s, assign/s, or successor/s. They are treated throughout the contract documents, as if each were of singular number and masculine gender.

3. SCOPE OF WORK

- a) **Scope:** The general character and the scope of work is illustrated and defined by the Bill of quantity drawings and specifications herewith attached.
- b) **Extent:** The contractor shall carry out and complete the said work in every respect in accordance with the contract and with the directions of and to the satisfaction of the owner.
- c) **Intent:** The Contract documents are Complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labour and materials, equipment and transportation necessary for the proper execution of the work.
- d) **Owner's Instructions:** The owner may, from time to time, issue further supplementary drawings and/or written instructions, details and directions and explanations which are collectively referred to as owner's instructions. The owner shall forthwith comply with and duly execute works comprised in such owner's instruction provided always that verbal instructions, directions and explanations given to the Contractor or his representatives by the Owner shall if involving a variation be confirmed in writing.

5. SITE

Contractor has to satisfy himself about site conditions before tendering, The Contractor shall visit and examine the site and satisfy himself as to the site conditions, the correct dimensions of the work, and facilities for obtaining the special articles called for in the Contract Documents. No extra charge made in consequence of any points or on the grounds of insufficient description or otherwise shall be allowed.

Possession: The possession of the site shall be given on the date specified. The Contractor shall there upon commence the works regularly and diligently proceed with the same and

complete the same on or before the contract date for completion. Contractor shall execute the work and complete the same in all respects to the satisfaction of Owner.

6. TYPE OF CONTRACT

- a) The contract shall be at item rate and the Contractor shall be paid at the accepted rates for the actual quantity of work carried out by him in accordance with the Contract Documents, as authorised and measured.
- b) Bill of Quantities: The Quantities given in the Bill of quantities are provisional and are meant to indicate the intent of the work and provide a uniform basis for tendering. The Contractor shall be paid for the actual quantity of work executed by him in accordance with Contract Documents at the accepted rates. The Owner reserves the right to increase or decrease any of the quantities or totally omit any items of work so long as the total contract does not vary beyond plus or minus 25% and the Contractor shall not claim extras or damages on account of any reason or reasons direct or indirect.

- 7. CONTRACT AGREEMENT:** The owner will issue the Work order to the successful bidder as contract agreement duly signed by both parties.

8. SEPARATE CONTRACTS

The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly co-ordinate his work. If any part of the contractor's work depends for proper execution or results of the other contractor, the contractor shall inspect and promptly report to the Owner any defects in such work that renders it unsuitable for such proper execution and results. His failure to inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of the work.

9. TAXES

All quoted rate shall include cost of transportation of materials to the site, all taxes etc. and all levies legally payable or would payable on materials and equipment forming part of the work.

10. NOTICE & FEES

The Contractor shall comply with all government acts including any bye-laws, or regulations of local authorities relating to the works and shall give all notices and shall pay all fees and charges amenable by law thereunder and indemnify the Owner against the same.

11. POWER FOR CONSTRUCTION

The Owner shall provide power for construction at one point at site of work free of cost. The Contractor shall provide all temporary service lines, boards, switches, cut outs, etc. as required for his use on the works and remove the same on completion at his own cost.

12. Force Majeure

1. When a Party to this Agreement is unable (wholly or in part) by reason of force majeure to carry out any obligation under this Agreement, then that Party shall,
 - a. Give the other Party prompt notice of that force majeure, with reasonably full particulars thereof and in so far as known, the probable extent to which it will be unable to perform or be delayed in performing the obligation, and
 - b. Use all possible diligence to remove that force majeure as quickly as possible. During the duration of the force majeure, the obligations of the Parties so far as they are affected by force majeure shall stand suspended. The period of suspension or that affected by force majeure shall than be added to the period of this agreement.
2. If after a period of three (3) days the force majeure has not ceased, the Parties shall meet in good faith where they have not already met earlier, to discuss the situation and endeavour to achieve a mutually satisfactory resolution to the problem.
3. If the force Majeure continues for a period beyond two months and no mutually satisfactory resolution is possible then the Party receiving the notice of force majeure shall have the right to terminate this agreement.
4. In this agreement, "force majeure" means an act of God, war, blockade, lightening, fire, earthquake, storm, flood, strike, governmental restraint, expropriation, intervention or any other such cause (whether of the kind specifically mentioned as aforesaid or otherwise) which is not within the control of the Party affected.

14. Time is of the Essence

Time shall be of the essence in respect of any date or period specified in this Contract or any notice or other communications served under any provision of this Contract, and in particular, in respect of the completion of the project by the successful bidder by the date indicated.

15. Dispute Resolution

1. In the event of any dispute or difference between the parties hereto, such disputes or differences shall be resolved amicably by mutual consultation. However, if such resolution is not possible, the then unresolved dispute or difference shall be referred to arbitration of the sole arbitrator to be appointed by the Director IHC.
2. The provisions of Arbitration and Conciliation Act, 1996 shall be applicable to the arbitration.
3. The venue of such arbitration shall be at Delhi and the language of arbitration proceedings shall be English.
4. The Arbitrator shall make a reasoned Award which shall be final and binding on the parties hereto.
5. Pending the submission of and/or decision on a dispute, difference or claim or until the Award is published; the parties hereto shall continue to perform all of their respective obligations under this Agreement without prejudice to a final adjustment in accordance with such Award.

6. The cost of the arbitration shall be shared equally by the parties to this Agreement. However, the expenses incurred by each party in connection with the preparation, presentation shall be borne by party itself.

16. Change Orders

IHC and the successful bidder may agree to make any changes by way of amendment of the Contract in terms of quantity, cost and implementation schedule, with mutual consent and in writing.

17. IHC's Obligations

1. IHC will provide all required information and clarification, to resolve issues, as may arise, during the execution of the Contract.
2. IHC shall ensure timely approvals of deliverables of the successful bidder.

14. LIQUIDATED DAMAGES

- a). The works shall throughout the stipulated period of the contract should proceed with expedition and diligence and the Contractor shall pay to the Owner such sums as stipulated in "Appendix-A" as curtailed and liquidated damages for each day, Sunday and holidays inclusive, that the works delayed or incomplete, after specified dates of completion. The total amount payable by way of damages under this clause shall not exceed 10% (Ten percent) of the total value of the contract. Further to ensure good progress the contractor will be bound to execute
 - 1/6th of the work before 1/4 of whole time has elapsed
 - 3/8th of the work before 1/2 of whole time have elapsed.
 - And 3/4th of the work before 3/4 of the whole time have elapsed.
- b). Intermediate Liquidated & Ascertained damages at the rate of Rs.5000/- per day of delay in case of non- achievement of intermediate target fixed as per the agreed schedule. This amount shall be released if total work is completed in given time frame.

15. CONTRACTORS LIABILITY REGARDING DAMAGE TO PROPERTY, INJURY TO PERSONS.

- a) The Owner shall not be liable or responsible for any accident, loss, injury resulting in death or otherwise or damage of kind whatsoever happening or accruing during term of performance of the worked herein referred to and in connection therewith to persons and/or property, materials and equipment, and the Contractor shall fully indemnify and protect the Owner from and against the same.
- b) In addition to the liability imposed by law upon the Contractor for injury (including death) to persons or damages to property by reason of the negligence of the Contractor or his agents, which liability is not impaired or otherwise affected hereby, the contractor hereby assumes liability for and agrees to save the Owner harmless and indemnify him from every expense, liability or payment by reason of any injury, (including death) to persons or damage to property suffered through any act of omission of the Contractor or any of his sub-Contractors, or any person directly, or indirectly employed by any of them or from the

conditions of the premises or any part of the premises which is control of the Contractor or anyone directly or indirectly employed by either of them, or arising in any way from the work called for, by this contract.

- c) Further, the Contractor hereby agrees and undertakes to indemnify the Owner from any loss or damage or death arising out of Owner's instruction by ensuring that the insurance policy taken out under this clause covers this contingency.
- d) The Contractor shall submit certificates to the Owner giving evidence that he is fully insured against claims for death, bodily injury and property damage in connection with his operations under this contract for any reasons whatsoever including acts of nature.
- e) The Contractor shall obtain written certificates of similar insurance from all his sub-Contractors and hereby assumes responsibility for any claims or losses to the Owner resulting from the failure of any of the Sub-Contractors to obtain adequate insurance protection in connection with their work in this project.
- f) The Contractor shall not proceed with the work until he has received in writing from the Owner, approval of the certificates of insurance required by the preceding paragraph.
- g) These certificates shall be fully executed and shall state that policies cannot be cancelled until 10 (ten) days after written notification of such intent of cancellation has been given to the Owner. All policies shall be with insurance companies acceptable to the Owner.
- h) The Contractor shall be responsible for anything which may be excluded from the insurance policies above referred to and also for all other damages to any property arising out of and incidental to his carrying out the contract in a negligent and defective manner. He shall also indemnify the Owner in respect of any costs, charges or expenses arising out of any claims or proceedings and also in respect of any award of or compensation of damage arising therefrom.
- i) The Owner shall be at liberty to and is hereby empowered to deduct costs, charges, and expenses arising or accruing from or in respect of any such claim or damage from any sum or sums due to or becoming due to the Contractor.
- j) The Contractor shall continuously maintain adequate protection of all his work, materials and equipment from damages, destruction or loss and shall protect the Owners property from injury arising in connections with his contract.
- k) The Contractor shall cover up and protect the works from the weather and suspend all operations during adverse weather conditions, which in Owner opinion will be detrimental to the works. In default the Contractor shall make well any such damage, destruction, loss or injury.
- l) When so ordered by the Engineer-In-Charge, the Contractor shall suspend any work that may be subjected to damage by climatic conditions.

- m) Keeping in view of security, no extra person will be entertained and allowed to the working site, and without identity card, certified by Engineer-In-Charge (IHC). Contractor has to issue these cards for labours, staffs and visitors, at his own (contractor) expenses.
- n) Temporary fence is to be constructed wherever necessary as per direction and instruction of Owner and to be removed after completion of contract and site should be cleared.

16. LABOUR REGULATIONS

- a) The Contractor shall pay to the labour engaged by him the wages, not less than the minimum wages fixed under the law of the place.
- b) The Contractor shall have no claim whatsoever on account of his paying wages higher than the minimum wages for any reason whatsoever.
- c) The Contractor shall be wholly and solely responsible for full compliance with the provisions under all labour laws and/or regulations such as payment of wages Act 1936, Minimum Wages Act 1948, Employees Liability Act 1938, and Workmen's Compensation Act 1923. Industrial Dispute Act 1947 and the Maternity Benefit Act 1961, or any modifications thereof or any other law relating thereto and rules made thereunder from time to time.
- d) Contractor should get labour licence issued from the concerned local authority.
- e) Contractor should deposit EPF for labour to the government treasury as per applicable laws.
- f) The Contractor shall at his own expense comply with or cause to be complied with model rules for labour welfare framed by the government or other local bodies from time to time for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works (and the workers hutment area) In case the contractor fails to make arrangements and provide necessary facilities as aforesaid, the Owner shall be entitled to do so and recover the cost thereof from the Contractor.
- g) **Safety Code:** The Contractor shall at his own cost arrange for the safety provisions stipulated by Government or local authorities or as required by the Owner/owner in respect of all labour directly or indirectly employed for performance of the works and shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid, the Owner shall be entitled to do so and recover the cost thereof from the contractor. Contractor should ensure that all workers will wear helmets and shoes during execution and stay at site premises.
- h) The Contractor shall not employ any labour under 18 years of age on the job. If female is engaged, the Contractor shall make necessary provision at his own expense for safeguarding shelter and care of small children and keeping them clear out of the site. No labourer shall reside within the site
- i) Contractor should furnish documents relating to payments made to the labourers/sub-contractors if asked by the owner/Owner.

17. ASSIGNMENT AND SUB-LETTING

The Contractor shall not without the written consent of the Owner assign this contract or sub-let the work. Any permission to sublet the work shall not absolve the Contractor from any liability under this contract.



18. CO-ORDINATION OF WORK

At the commencement of work and from time to time, the Contractor shall confer with other contractors, sub-Contractors, and persons engaged in separate contracts in connection with the work and with the Owner for the purpose of the co-ordination, and execution of the work. The Contractor shall ascertain from the other Contractors, sub-Contractor, and persons engaged in separate contracts, in connection with the works the extent of all chasing, cutting and forming of all openings holes grooves etc., as may be required to accommodate the various services. The Contractor shall ascertain the routes of all services and the positions of all floor and wall outlets, traps etc., in connection with the installation of plant, services and arrange for the construction of work accordingly. The breaking and cutting of completed work broken or patched work without first ascertaining that the broken surface is adequately reinforced to receive and hold the future work. Work broken without authorisation will be subject to replacement at the direction of the Owner.

19. PROGRESS PAYMENTS

- a) Unless otherwise provided in the contract, and subject to these conditions, the Contractor shall from time to time, be entitled to receive payment on the basis of actual work executed, approved and certified by the Owner regarding compliance with specifications and acceptability, subject to deductions hereinafter mentioned. The Contractor shall submit bills (three copies), prepared in accordance with acceptable norms duly supported by actual measurements and duly verified jointly by the Owner provided that the value of the bill is not less than the minimum value stipulated in Appendix A. If the bill value is less than the value specified in Appendix A, such bills will not be considered. From every intermediate bill, the Owner shall retain a sum of ten percent (10%) of the value of the work done and any other statutory deduction. Out of the total retention money half the amount shall be released after one month of virtual completion and balance after completion of defects liability period. This amount may also be released one month after virtual completion if Bank Guarantee of equivalent sum is submitted by the contractor with validity period of defect liability period. No interest shall be due to the Contractor for sums retained by the Owner. All intermediate payments do not imply acceptance and final payment being subject to all clauses of this contract. The final bill shall be submitted by the Contractor within two weeks of the date of virtual completion of work, failing which the measurements of work taken by the Owner shall be considered as final and binding on the contractor unless objected to within one month of their being recorded in the measurement books.
- b) The Owner may at his option accept a performance bond in an approved form in lieu of the money to be retained until the expiry of the defects liability period plus three months as grace period.
- c) Unfixed materials (Secured Advance): The Contractor shall be paid for unfixed imperishable materials, that have been brought to site and stored for incorporation in the work to the extent of 70% of the cost of such materials as jointly certified by the Owner and the Contractor, provided claims for such payments are supported by all relevant vouchers measurement books and receipts. Only such materials as are brought to site in reasonable time for incorporation in the work shall be recommended for payment under this sub-clause. The amount thus paid shall be treated as advance and adjustable against progress

payments in the next running bill. Such materials when paid for, becomes the exclusive property of the Owner and shall not be hypothecated to any party or removed from the site, regardless of whether accepted later or not.

- d) The said materials shall remain in the custody of the Contractor, until the work is completed and delivered to the Owner, and any loss or damage shall be the sole responsibility of the Contractor. An insurance policy against theft, loss or damage by fire, accident and all other causes including acts of God, to cover the value of all materials at site for which the Contractor claims payment shall be taken by the Contractor at his cost in the name of the Owner. The policy shall be kept in force till the materials are incorporated in the works. The policy and receipts for the premium shall be submitted to the Owner for his inspection.
- e) Mobilization Advance: The contractor may be given an interest free mobilization advance upto a maximum of 25% of the value of contract against a Bank Guarantee, which would be recovered from the contractor's R/A bill on a pro-rata basis.

20. VARIATION IN MATERIALS COST AND WAGE RATES

The Contract rates shall be deemed to fully cover for all fluctuations in prices of materials, duties, taxes, labour wages etc., and any claim for extras on such account by the Contractor shall not be entertained.

21. EXTRAS AND VARIATIONS

- a) If at any time whilst the works are in hand, it shall be deemed expedient by the Owner, on the advice of the Owners, to order materials or work of a different description from that specified, or to alter their situation or vary of form or dimensions of the works, or of any part thereof or to make variation or to substitute one class of work from another, the Owners shall have full power to do so. The work involved in any such variations and additions shall be executed by the Contractor; and no such variations or additions shall in any way annul this contract, or extend the completion time but paid for, or deducted upon approval by the Owners, from the account of the Contractor, as the case may require according to the rates set out in the Bill of Quantities.
- b) If any portion of the work so ordered to be done shall not be in the opinion of the Owner of the same value or class of work provided for in the Bill of Quantities, the same shall be executed by the Contractor at rates computed in the following manner. The rates for such items of work not included in the Contract shall be computed on the basis of estimated quantities of materials and labour and prevailing costs of materials (mentioned in the tender as per Annexure A & B) and labours involved in the work and twenty percent (20%) added towards establishment, tools/plant, overheads and profit. The rates so derived shall be subject to approval of the Owner/owner.
- c) Before any extra work, or work of an altered value or class is undertaken by the Contractor, he shall procure an order in writing from the Owner based upon the recommendation of the Owner for carrying out such extra or variation in work, and the Contractor shall not be entitled to any payment for such extras or variations unless he produces, if asked to do so, the written order for the same, as aforesaid, and he shall not be entitled to plead that the

Owners omitted to provide such written order, as it is to be distinctly understood that the responsibility for obtaining such order shall be with the Contractor.

- d) The Contractor shall not be entitled to any other rates than the rates set out in the Bill of Quantities, on any plea that the work was in a different position, or of a different class from, or in a more difficult position than shown on the plan or described in the Specifications or Bill of Quantities, unless an agreement entitling him to payment at other than the rates set out in the Bill of Quantities shall have been previously made and signed by the Owner and the Contractor.

22. PAYMENTS WITHHELD

The Owner may cause to withhold on account of subsequently discovered evidence, cause to nullify the whole or a part of any certificate to such extent as may be necessary to protect the Owner from loss on account of:

- a) Defective work not remedied.
- b) Failure of the Contractor to make payments properly to Sub-Contractors or for materials or labour or equipment.
- c) Damage to another Contractor or Sub-Contractor's work.
- d) A reasonable doubt that the contract cannot be completed from the balance unpaid.
- e) A reasonable doubt that the Contractor intends to leave work items incomplete.
- f) Failure to provide samples, shop drawings, models or charts as called for.
- g) Failure to honour the clauses of the agreement

23. CONTRACT SUPERVISION

The Contractor shall provide full and adequate supervision during the progress of the works and shall keep a competent and authorised Graduate Engineer of minimum 5 years of experience for this project constantly on the works. Such authorised Engineer must be able to receive and act upon all instructions, directions or orders given by Owner/ his representatives.

24. MATERIAL AND WORKMANSHIP

- a) All materials to be incorporated in the works shall be new. Materials, equipment and workmanship are to be of the best quality of the specified type and to the entire satisfaction of the Owner/Owner. The Contractor shall immediately remove from the premises any materials, equipment and/or workmanship, which in the opinion of the Owner/his representative, are defective or unsuitable and shall substitute proper materials, equipment and/or workmanship at his own cost. The term approval used in connection with this contract shall mean the approval of the Owner. In case of non-compliance of the instructions, action as deemed fit under various clauses of the agreement shall be taken.

- b) The Contractor, shall, if required, submit satisfactory evidence as to the kind and quality of materials and equipment.
- c) Where special makes or brands are called for in schedule they are mentioned as standard. Other marks or brands of equal quality may be used, provided approval is first obtained in writing from the Owner. Unless substitutions are requested and approved in writing no deviation from the Specifications will be permitted. In case it is noticed at latter stage that deviations have been made without prior approval of Owner, contractor has to redo the work again as per specification without any extra cost to owner.
- d) The Contractor shall indicate and submit written evidence of those materials or equipment called for in the specifications that are not obtainable for installation in the building within the time limit of the contract.
- e) Failure to indicate the above within one month after signing of the Contract, will be deemed sufficient cause for the denial of request for the extension of the contract time because of the same.
- f) All materials and equipment shall be delivered so as to ensure a speedy and uninterrupted progress of the work. Same shall be stored without any obstruction as well as over loading of any portion of the structure, and the Contractor shall be entirely responsible for damage or loss to the materials by weather or other causes. Materials shall be stored in an orderly manner and protected against damage by dilution or any cause whatsoever. When required, materials shall be stacked, stored or arranged as directed by the Owner/Engineer-In-Charge.
- g) Immediately after the award of the contract, the contractor shall submit for approval of the Owner, a complete list of all materials and equipment he and his sub-Contractor propose to use in the work, of definite brand or make, which differs in any respect from those specified, and also the particular brand of any articles where more than one is specified as standard. He shall also list items not specifically mentioned in the specifications but which are reasonably inferred and necessary for the completion the work.
- h) The Contractor shall employ the right kind of workmen, jigs, tools and equipment to fabricate and install all materials and equipment, whether locally purchased or imported and whether provided by the Owner or Contractor , without any damage and in accordance with the manufacturer's instructions and manuals.
- i) Inspection: All materials, equipment and workmanship shall be subject to inspection, and test by the Owner/Owner at any and all times during manufacture and/or construction. The Owner shall have the right to reject defective materials, equipment and workmanship and the Contractor shall promptly segregate and remove the rejected materials and equipment from the premises without any charge to owner. If the Contractor fails to proceed at once with the replacement of rejected materials/or the correction of defective workmanship, the owner will replace such materials and equipment and/or correct bad workmanship and charge the cost thereof to the Contractor or may terminate the right of the Contractor. Contractor shall provide promptly, without additional charge, all reasonable facilities, labour,

materials and equipment necessary for the safe and convenient inspection and test that may be required by the Owner.

- j) Testing: All tests shall be conducted in a manner and through an organization selected by the Owner. The Contractor shall arrange for such test and shall also bear all expenses in connection therewith.

25. DEDUCTIONS FOR UNCORRECTED WORK

If the Owner deems it in expedient to correct the damaged work or the work not done in accordance with the contract, an equitable deduction from the contract price mentioned by the Owner shall be final.

26. CORRECTION OF WORK BEFORE FINAL PAYMENT

- a). The Owner shall conduct a pre-final inspection just before the virtual completion of the work and prepare a list of substandard materials, equipment and defective work which fail to conform to the contract specifications. The Contractor shall promptly replace the item mentioned in the list and shall bear the cost for making good all work of other Contractors, destroyed or damaged by such replacement or removal.
- b). If the Contractor fails to remove and replace above rejected materials, equipment and/or bad workmanship within a reasonable time, fixed by written notice, the Owner may employ and pay other persons to amend and make good such defects and the expenses consequent thereto shall be recoverable from any amount due or which may become due to the Contractor. Decision of the Owner will be final and binding.

27. VIRTUAL COMPLETION

- a). The work shall be considered as virtually completed only upon fulfillment of the procedure laid down in the clause above and when the Owner and the Contractor have certified in writing that the work has been virtually completed. The defects liability period shall commence from the date of such certificate.

28. DEFECTS

- a) The Contractor shall make good at his own cost and to the satisfaction of the Owner, all defects which in the opinion of the Owner, is not in accordance with the drawings or specifications, or Bill of Quantities or as per instruction of the Owner, which may appear within six months after completion of work. Defects shall mean non-conformity, as determined by the Owner, of completed work/materials supplied, with the requirements laid down in the drawings, specifications, Bill of Quantities and other documents forming part of the contract. In case of failure on part of contractor same shall be rectified on risk and cost of the contractor and decision of the Owner will be final and binding.
- b) Maintenance during Defects Liability period: The Contractor shall provide and maintain adequate staff and labour at his own expense to attend to defects arising in the works during the defects liability period. He shall attend to the defects pointed out to him expeditiously. Failure to attend the defects shall be taken as breach of contract and action as per clause of contracts shall be taken.

29. OWNER'S STATUS AND DECISIONS

a) Status: The Owner shall have general supervision and direction for the work. He is authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the work. The Owner shall be the interpreter of the Conditions of Contract and the judges of its performance.

b) Decisions: The Owner shall, within a reasonable time, make decisions on all claims of the Contractor and on all other matters relating to the executing and progress of the work or the interpretation of the Contract Documents. The decision, opinion, direction of the Owner with respect to all or any of the following matters shall be final and without appeal.

- Variation or modifications of the design.
- The Quality or quantity of works or the additions or omission or substitution of any work.
- Any discrepancy in the Drawings or between the Drawings and/or Specifications.
- The removal and/or re-execution of any works by the Contractor.
- The dismissal from the works of any persons employed thereon.
- The opening up for inspection of any work covered up.
- The amending and making good of any defects under defects liability period.
- Materials and workmanship.
- The Contractor to provide everything necessary for the proper execution of the work.
- Provided that any action under the above clauses is subject to approval of the Owner, if the variation has any financial implications.
- Dismissal: The Contractor shall on the report of the Owner immediately dismiss from the works, any person employed thereon by him who may, in the opinion the Owner or the Owner, be incompetent or misconduct's himself, and such person shall not be employed on the works without the permission of the Owner or the Owner.

30. ACCESS TO THE WORKS

Access for Owner and Owner to the works :The Owner and the Owner and their representatives shall at all reasonable times have access to the works and to the workshops or other places of the Contractor, where work is being prepared for the contract, and when work is to be so prepared in workshops or other places of sub-Contractors, the Contractor shall by a term in the Sub-Contractor, contractor as far as possible, secure a similar right of access to those workshops or places for the Owner, the Owner and their representatives and shall take all things reasonable necessary to make such right effective.

31. INDIAN STANDARDS

A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest revision of that standard, including such revisions/amendments as may be issued by the Indian Standard Institution during the currency of the contract and the corresponding clause/s therein shall hold valid in place of those referred to. ISI shall also mean its successor Bureau of Indian Standards.

32. PROTECTION AND CLEANING

- a) The Contractor shall protect and preserve the works from all damage or accident by providing suitable and adequate measures as required by the Owner. This protection shall be provided for all property adjacent to the site as well as on the site. The Owner may direct such measure as are deemed necessary. Contractor shall be liable to entirely replace items damaged due to failure to provide adequate protection.
- b) The Contractor shall properly clean the work as it progresses and shall promptly remove all rubbish and debris from the site from time to time, as is necessary and as directed. On completion, the Contractor shall ensure that the premises and/or site are cleaned and surplus materials, debris, sheds, etc. are removed so that the whole site is left fit for immediate use and to the satisfaction of the Owner.
- c) Fire Precautions: The contractor shall take all necessary precautions to prevent the risk of fire and shall provide fire- fighting equipment for dealing with localised fires that may arise. All cutting equipment and other items of plant fuel and equipment subject to fire hazard must be safely and securely stored when not in use, the contractor shall ensure that no materials are burned on site.

33. FORCE MAJEURE

- a) The right of the Contractor to proceed with the work shall not be terminated because of any delay in the completion of the work due to enforceable causes beyond the control and without the fault or negligence of the Contractor, including but not limited to acts of God, or of the public enemy, restraints by Governing State, fires, floods, unusually severe weather.
- b) If the Contractor is wholly prevented from performance of the Contract for a period in excess of thirty (30) consecutive days because of a Force Majeure, the Owner may terminate this contract by fifteen (15) days written notice delivered to the Contractor. In the event this contract is so terminated, the Contractor shall be paid all costs actually incurred (this costs shall not include any other expenses of the Contractor, such as loss of profits, salaries of Contractor's employees, expenses of Contractor towards maintenance of his establishment etc.) for the work executed upto the date of termination. Failure to agree on an equitable adjustment shall be deemed as a dispute.

34. TERMINATION OF THE CONTRACT BY THE OWNER

If the Contractor shall be adjudged bankrupt or if he should make a general assignment for the benefit of his creditors, or if a receiver shall be appointed on account of his insolvency or if he should persistently or repeatedly refuse to carry on the work diligently or shall fail, except in case for which extension of time, is provided, to supply enough properly skilled workman or proper materials or equipment, or persistently disregard laws, ordinances, or instruction of the Owner or otherwise be guilty of breach of the contract, or has suspended the works then the Owner upon the recommendation of the Owner, that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor seven days notice in writing, terminate the employment of the Contractor and take possession of the premises and of all materials, equipment tools and

appliances thereon and finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the amount due to the Contractor for the work carried out by him as per the contract terms shall exceed the expense of finishing the work including compensation for additional management and administrative services such excess shall be paid to the Contractor. If otherwise, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner and the damage incurred, through the Contractor's fault, shall be certified by the Owner and his decision in this matter shall be final and binding on the Contractor.

35. ENTRY TO SITE

It is hereby expressly declared that the entry of the Contractor(s) on the site will be merely as a license for carrying out the works under this agreement, and they shall not, by his/their being allowed such entry on the premises acquire any right, lien or interest either in the works carried out by them under the agreement or anything appurtenant or attached thereto and their claim will only be in the nature of money found payable to them in accordance with the provisions contained herein.

36. SETTLEMENT OF DISPUTES

All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works (whether during the progress of the works or after their completion, and whether before or after the determination, abandonment or breach of the contract) shall be referred to and settled by the Owner who shall state his decisions in writing. Such decision may be in the form of a final certificate or otherwise. The decisions of the Owner with respect to any or all of the following matters shall be final and without appeal.

- a). The variation or modifications of the design.
 - b). The quality or quantity of works or the addition or omission or substitution of any work.
 - c). Any discrepancy in the Drawings or between the Drawings and/or specifications and Bill of Quantities.
 - d). The removal and/or re-execution of any work executed by the Contractor.
 - e). The dismissal from the works of any person employed thereupon.
 - f). The opening up for inspection of any work covered up.
 - g). The amending and making good of any defects under defects liability period.
 - h). Acceptability of materials, equipment and workmanship.
 - i). Materials, labour, tools and equipment necessary for the proper execution of work.
 - j). Assignment and sub-letting.
 - k). Delay and extension of time.
 - l). Termination of contract by the Owner.
 - m). Unsatisfactory progress of work.
- n). But if either the Owner or the Contractor be dissatisfied with the decision of the Owner on any matter, question or dispute of any kind except the matters listed above, then and in any such case, either party (the Owner or the Contractor) may within twenty eight days, after receiving notice of such decisions, give a written notice to other party through the Owner

requiring that such matters which are in dispute or difference for which such written notice has been given is hereby referred to the arbitration and final decision of a single Arbitrator being a person who is a Chartered Engineer/ Chartered Owner/Chartered Surveyor (Building and Quantities) to be agreed upon and appointed by both the parties or in the case of disagreement as to the appointment of a single Arbitrator to the arbitration of two Arbitrators both being persons who are Chartered Engineer/Chartered Owner/Chartered Surveyors (Building and Quantities), one to be appointed by such Arbitrators, shall, before taking upon themselves the burden of reference appoint an umpire, who must also be a Chartered Engineer/Chartered Owner/Chartered Surveyor as described earlier.

- o). The Arbitrator, the Arbitrators or the Umpire shall have power to open up, review and issue certificate opinion, decision, requisition or notice pertaining to the matters referred to them, Upon every or any such references the cost of incidental to the reference and award respectively shall be at the discretion of the arbitrator or Arbitrators or umpire who may determine the amount thereof, or direct the same to be taxed as between Attorney and Client or as between party and party. This submission shall be deemed to be submission to Arbitration within the meaning of the Indian Arbitration Act, 1940 or any statutory modifications thereof. The award of the Arbitrator or Arbitrators or the Umpire shall be final and binding, on both the parties. The Owner and the Contractor hereby also agree that Arbitration under this clause shall be a condition precedent to any right of action under the Contract. The venue of arbitration hearings shall be New Delhi. In all cases where the amount of award is Rs.75,000/- and above the Arbitrator shall give the reason for award.

37. JURISDICTION

All matters arising out of or in any way connected with this agreement shall be deemed to have arisen in New Delhi and only the courts in New Delhi shall have jurisdiction to determine the same.

BILL OF QUANTITIES

CALORIFIER

S.No.	Description	Unit	Qty.	Rate	Amount
I)	CALORIFIER :				
1.0	Design, manufacturer, factory test, supply, loading, transportation, unloading at storage, installation & testing of 5000 liters of a Calorifier . Suitable for indoor installation in Basement as per the specification provided in the tender documents.	Nos.	1		
2.0	Supply and installation of following size NON - RETURN VALVE with dual plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating as specified. Suitable for hot water application, duly insulated to the same specifications as the connected piping and adequately supported as per specifications.				
2.1	75 mm dia	Nos	1		
3.0	Supply and installation of BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating with flanges, suitable for hot water application, duly insulated to the same specifications as the connected piping.				
3.1	75 mm dia	Nos	8		
4.0	Supplying, fixing, testing and commissioning of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted as per specification and as required complete in all respect.				
4.1	75 mm Dia	Rmt	50		
4.2	50 mm Dia	Rmt	25		
4.3	40 mm Dia	Rmt	25		

5.0	Supplying, fixing, testing and commissioning of following sizes Y - STRAINER of Ductile CI Body flanged ends with stainless steel strainer for hot water circulation including insulation as specified.				
5.1	75 mm dia	Nos	1		
6.0	Providing and fixing in position the industrial type pressure gauges with gun metal / brass valves complete as required	Nos	2		
7.0	Providing & fixing in position the mercury in glass industrial type thermometers.	Nos	2		
8.0	Supply and fixing of rock wool of 75 mm thickness, 100 kg/m ³ density shall be applied tightly around the pipes with staggered joints and secured using GI/SS binding wire or aluminium bands to prevent gaps and heat loss. Aluminium cladding sheets of minimum 0.5 mm thickness shall be properly shaped, overlapped, and fixed with screws, rivets, or bands to provide complete protection against moisture and weather. Joints shall be sealed, with longitudinal seams placed at the bottom to avoid water ingress. Bends, flanges, and valves shall be insulated with removable type cladding for easy maintenance. All work shall be carried out neatly, uniformly, and safely by trained personnel, ensuring a durable, weatherproof, and maintenance-friendly installation.				
8.1	75 mm Dia	Rmt	50		
8.2	50 mm Dia	Rmt	25		
8.3	40 mm Dia	Rmt	25		
9.0	Dismantling, removing and shifting to the location as directed by site engineer of old existing Calorifier capacity 5000 litter with all accessories.	Lumsum	1		
TOTAL CARRIED OVER TO SUMMARY					0