

3299

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: Project Information

1	Project Information	Chapter-I
2	Scope of Works	Chapter-II
3	Facilities in the scope of Contractor/BHEL (Scope Matrix)	Chapter-III
4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V
6	Time Schedule	Chapter-VI
7	Terms of Payment	Chapter-VII
8	Taxes and other Duties	Chapter-VIII
9	Technical Specification	Chapter-IX
10	General	Chapter-X
11	Schedule of items Quantities	Chapter-XI

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: Project Information

1.0 Project Information:

NSPCL a joint venture between NTPC Ltd and SAIL supplies power and process steam to Bhilai Steel Plant of Steel Authority of India Ltd. (SAIL) from its coal based Power Plant II at Bhilai (2x30 MW + 1x14 MW) on captive basis.

NSPCL, BHILAI PP - 2 captive power plant comprises of three pulverized coal-fired boilers, each with a capacity of 150 TPH, originally supplied by M/s BHEL. These units, commissioned in during the period 1982-85, are outdoor-type, tangentially fired, balanced draft, natural circulation boilers with a radiant dry-bottom furnace. The boilers utilize bowl mills for coal pulverization and were designed to use fuel oil for start-up, blast furnace gas (BFG) for stabilization and partial load support, and coal for the primary load-carrying operation. Following a significant operational upset incident (explosion) in 1992, the BFG system was decommissioned and replaced with coke oven gas (COG) firing. Since the retrofit, COG has served as the primary start-up and load-carrying fuel.

NSPCL proposes to carry out the renovation and modernization works for Re-introduction of Blast Furnace Gas Firing System in all 3 units of Bhilai PP-II units.

Sl. No.	Description	Details
1.1	Location	Bhilai Steel Plant Complex
1.2	Nearest Highway	NH 53
1.3	Nearest Commercial Airport	Raipur (35 km)
1.4	Nearest Railway Station	Bhilai (4 kms)
1.5	Indicative Coordinate	21011'25" (N), 81026' 05" (E)
1.6	Site Elevation	305 Meters above Sea level
1.7	Maximum Temperature	43 degree Centigrade
1.8	Minimum Temperature	14 degree Centigrade

In addition to the above, for any further information, to assess the existing plant/equipment conditions, the bidder is advised to visit the plant/site and collect the information as required, before quoting against this specification. The employer will provide all cooperation to the representative of the bidder in obtaining the required information during their visit to site. Condition of the plant, equipment and system shall be carefully assessed by the bidder for assessing the scope of work. Information on the plant and system given in this specification shall not be construed in any manner whatsoever, as to limit the scope of work by the bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

SUPPLY, FABRICATION, MANUFACTURING, TRANSPORTATION, RECEIPT AT SITE AND ERECTION OF PRE ENGINEERED AND RE-ERECTABLE TYPE (QTY - 01) CLOSED STORAGE SHED (SIZE 42MX15M) INCLUDING CIVIL FOUNDATION WORK AT PP-II (2X30MW +1X14MW) NSPCL BHILAI.

2.0 SCOPE OF WORK

2.1 Scope of Work: -

This specification covers manufacturing / fabrication, supply, loading, unloading, transportation, receipt at site, assembly, erection, painting of steel structures of (Qty - 01) closed storage shed. Required hardware, Pre-Painted Galvanized sheets, wall cladding, windows, Door, Turbo Vent, FRP, Rolling Shutter ventilators with canopy and Handing over of Closed Dismantle/Re-assemble type Pre-Engineered, Pre-fabricated Steel Storage Sheds in all respect including Civil foundation work. This also includes workmanship guarantee for **12 months** of operations for performance, of materials supplied and erected by them covered under the scope of the contract. All the major fabrication jobs shall be done at contractor's works elsewhere and to be transported to designated sites for assembly, erections, associated finishing works as per detailed specification.

2.2 PART - A: - CIVIL WORK

Civil Work - All Civil Work including Foundation & PCC Flooring shall be in the scope of bidder. **All material required for civil work shall be in the scope of bidder including Foundation Bolts & Nuts.**

- A.** Preparation of drawings of Civil Work including Foundation. Drawing to be get vetted / certified through IIT / NIT / Chartered Engineer, it is in the scope of bidder.
- B.** The work shall include leveling of the designated land, including cleaning and removal of debris, rubbish, unwanted materials, and other obstructions. All removed debris/materials shall be shifted and disposed of at the designated location as instructed by the Site In-Charge.
Note: The bidder shall visit and inspect the site before submission of their rates and shall be deemed to have considered all site conditions, requirements, and associated costs in their quoted rates.
- C.** Flooring - 75 mm thick PCC (1:3:6) above 150 mm thick stone (Rubble) soling to be provided.
- D.** Brick Work - 115 mm thick with 1:4 mortar & 12 mm thick plaster both side to be provided to fill the gap between flooring & wall sheeting / cladding of the shed all around.
- E.** Contractor shall ensure/ascertain the stability, safety of the said work. Any modification/variation from the said drawings, if necessary as suggested by the contractor will have to be approved by BHEL in writing.
- F.** Standard specifications for various items of work for building as per the relevant IS-codes (latest edition) shall be applicable for this work. The work has to be executed as per standard specification and drawings to the satisfaction of BHEL
- G.** Tentative PEB Shed layout & Section drawings will be provided by BHEL
- H.** The front area of the PEB shed, including the area in front of the entry gate, shall be provided with concrete flooring suitable for the smooth and safe movement of cranes,

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

trucks, trailers, and other heavy vehicles.

All the items in BOQ shall be read in conjunction with the relevant Technical Specification attached with this tender specification and work shall be carried out accordingly. All the report shall be submitted in the prescribed Performa as mentioned in tender documents and No extra claim shall be entertained on this account.

Tentative PEB Shed drawings are attached as 'Vol - I F Drawings' for bidder guidance.

2.3 PART - B: - STRUCTURAL STEEL WORK

Structural Steel Work: - All materials for structural steel works have to be supplied by the contractor and necessary test certificates of the materials procured for this work has to be submitted for scrutiny. All fabrication and erection of structures must be executed according to the specification and drawings. Erection of trusses is true to line and level and aligned properly, as per drawing and instruction of Engineer In-charge. All structural material should be procured from approved Source of BHEL

- Design drawing will be provided by BHEL; **Fabrication drawing is in bidder scope.** No additional payment on account of fabrication drawing will be paid by BHEL. Fabrication drawing shall be approved by BHEL.
- **PAINTING SCHEDULE:** - Structural / steel members will have 1 coat of Zinc Chromate primer (surface preparation of the section as per the standards to suit the climatic conditions) followed by 2 coats of synthetic enamel paint, if not pre-coated.
- The roof truss should have bolted joints at crown and at both ends.
- **Welding** shall be strictly in accordance with IS 9595
- **Connection fasteners:** All primary connections fasteners shall be of high tensile strength bolts of grade 8.8 conforming to IS 1379 and Secondary connection fasteners shall be of Grade 4.6 machine bolted. Sheeting fasteners shall be self-tapping/self-drilling screws with EPDM washers and nuts with hexagonal heads complete from reputed manufacturer shall be included in the scope.
Since these are detachable sheds & to be in repetitive use at other locations, proper marking (permanent) shall be made for identification to ease re-erection. The stores shed shall be so designed that it can be dismantled at any time and may be transported and to be re-erected at other location.

Material specifications:

The following is the list of the material standards and specifications for which the building components is designed.

S.NO.	Materials	Specifications	Steel Yields
1	Built-up Members	ASTM A572M Gr50	Fy = 345 MPa
2	Hot Rolled Secondary	IS: 2062 Gr.A	Fy = 250 MPa

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

	Members		
3	Cold Formed Secondary Members	ASTM A 570 M Gr65	Fy = 450 MPa
4	New Sheetting Panels	ASTM A 792 M	Fy = 550 MPa
5	X-Bracing Members, Roads	IS: 2062 Gr.A	Fy = 250 MPa
6	Anchor Bolts	IS: 2062 Gr.A	Fy = 250 MPa
7	High Strength Bolts for Primary Connections	ASTM A 325 M- ANSI 18.2.3.7/18.2.3.6M OR IS 4000-1992 CLASS 8.8	Grade 8.8
8	Machine Bolts for Secondary Connections	IS: 1367 Class 4.6 (Part 1 to 3)	Grade 4.6
9	Self-Drilling Self Tapping Screws	AS 3566.1 - 2002 Corrosion Resistance Class-3	-
10	Welding	70 ksi Electrode	Futs=480Mpa

2.4 CLADDING:

- Roof and side cladding with min. thickness of 0.47mm & 0.55mm respectively as per drawing/BOQ. Both roof and side cladding are to be made “Water Tight”. Roof slope shall be 1:10.
- Purlins for wall & roof cladding shall be ‘Z or C’ shape made-up with pressed steel.
- **Gutters:** 26G metallic Eaves gutter including all fixing accessories like clamps, drop end etc.
 - a. **Down Take Pipes:** Sufficient Rain Water down Pipe shall be provided and properly connected with gutters all around the sheds.

2.5 GENERAL

All works at Contractor place shall be carried out in proper workmanship. Items of works covered by the following specification shall be carried out as per approved MQP by BHEL. Unless otherwise specified in this section or in the description of item, the cost of stage of works including all materials mentioned hereunder shall be deemed to have been included in the rates of items provided in the schedule.

Bidders may take note of the following points while sending their offers:

- a) The quoted prices also include the cost of receipt, unloading, stacking and handling of materials supplied by vendor from its work to NSPCL Bhilai site, assembly and erection with associated works including Civil Foundation Work.
- b) Bidders are requested to gather all relevant information & prevailing local laws etc. in the specified regions. No claim shall be entertained on account of lack of knowledge of site condition.
- c) The above technical specification is a minimum requirement and idea for the bidders only.
- d) The materials and workmanship must be of good quality and accepted standards and specifications. BHEL reserves the right to reject any material not up to the specification. After completion of work, the building and areas around them should be cleared of all

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

rubbish, debris etc. and handed over in fit condition for occupation.

2.6 Inspection & acceptance of goods: It is subject to BHEL inspection at supplier's works before dispatch or on receipt of materials at destinations as the case may be, as per the agreed/approved MQP. Final/ stage inspection will be carried out at the destination/ supplier's works by the authorized inspection officials in line with agreed MQP. Wherever preliminary or stage inspection is to be carried out at supplier's work, the same is subject to final acceptance after receipt of material at destination and the decision of purchaser shall be final.

2.7 Quality Plan: Vendor to submit quality plan after receipt of work order. The quality plan is expected to cover generally specification of item, the stage inspection to be carried out, Guarantee/ Warrantee/Test certificate/Inspection report, sampling plan as per relevant IS specification. The bidder/vendor shall furnish the details of the inspection facilities available with him in the quality plan, as applicable. The vendor is requested to ensure work completion as per approved QP in all aspect before start of work. The vendor should provide calibrated instrument etc. for carrying out the inspection as per the quality plan.

2.8 Rejection: The seller shall intimate the purchaser in writing within 15 days after receipt of rejection advice regarding the disposal of rejected material and action plan for replacement. If no information is received within this time, the purchaser shall be at liberty to return the material at the risk and cost of the seller after recovering the cost if any, including inward freight and other incidental charges incurred. The purchaser will not be responsible for the rejected material thereafter and no claim will rest on them.

2.9 Packing, Marking and Forwarding

Packing: The supplier shall arrange for secure protecting packing of the goods suitable for tropical condition to avoid loss, damage or atmosphere action during transit by road. The packing standard shall comply with relevant National standards wherever available, carrier's conditions of packing or established trade practice. The seller shall be liable to replace the material or reimburse the value of the loss notwithstanding whether insurance is arranged by him or not. The packing materials and cases and packing charges are included in the quoted price unless otherwise agreed.

Marking: The following marking shall be made on each package in black bold capital letter.

- A) Name of CONSIGNOR - ("Supplier's name)
- B) Name of CONSIGNEE - Bharat Heavy Electricals Limited - PSWR
- C) WEIGHT: Gross & Net

The above marking should be stenciled or written in bold letter on the package. Should the packages too small, suitable cards/metal tags giving these details may be tagged or nailed. Copy of the packing slip should be kept in each package without failed.

Dispatch Intimation: Immediately after dispatch, the seller shall intimate BHEL PSWR Bhilai R&M site. The details of the items dispatched Quantity, Order Reference and LR/RR no and date by Fax/e-mail.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

Name of the officials

BHEL -Site in charge,

New Service Building,
NTPC-SAIL Power Company Limited (NSPCL)
Bhilai-PP2, Inside Bhilai Steel Plant (BSP)
DURG, PO: Bhilai (East) Bhilai, Pin- 490021(India)

2.10 Other Related Activities: -

The contractor shall take adequate precautions to ensure complete safety and prevention of accidents at site. The safety precautions shall conform to IS codes wherever applicable.

All the above jobs shall be as per BHEL Engineer's instructions, drawings, and detailed specification.

2.11 Field Quality Assurance:

The contractor shall be responsible for day-to-day quality checks of fabrication, erection and welding works during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/BHEL'S customer and as per Field Quality Plan approved by BHEL. Cutting plans, Fabrication protocols, erection protocols, welding protocols, DP test protocols etc shall be made on regular basis as per approved formats. During erection, alignment of various members shall be checked as per approved erection tolerances with the help of laser alignment tools (HILTI make or equivalent) to the extent possible. The Contractor shall establish their own field quality lab or have tie-up with approved lab by BHEL of the plant if so required by BHEL.

2.12 In case of non-finalization of delay analysis, BHEL at its discretion may provide provisional time extension with withholding 10% of running bills.

Note:

Bidders are requested to specifically note the following:

Bidders are requested to have pre-bid visit/ inspection of site to make them fully acquainted with the site situation & nature of job. No claim shall be entertained at later date on account of non-familiarization of site conditions. Bidders may fix up their site visit in consultation with BHEL Officials.

Sh. Prashant Gupta BHEL Site Office- BFG R&M site NSPCL Bhilai- PP-II Email: pk.gupta@bhel.in Mob. 8889922884	Sh. Shailesh Kumar Dhruw SAS-PSWR/BHEL-Nagpur Email- skdhruw@bhel.in Mob. 9429198227
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2.13 Labour and Staff Colony: The following are in the Bidder's scope of work for labour & staff colony:

- Development of Bidders temporary staff colony and labour colony having adequate no. of rest rooms along with toilets & fencing etc.
- All Civil and Structural work associated with drinking and service water for Bidder's labour and other personnel at the work site/colony/offices including pump houses, pipes, overhead tank, tube wells etc.
- Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

- The facilities for occupational safety, healthy environment, first aid, drinking water, resting place & toilets, canteen, crèche, etc. shall be provided at the workplace for construction workers by the contractor.
- Development and maintenance of above facilities for construction workers hired by the Contractor shall solely rest with the Contractor.

2.14 Construction Power (Provided by BHEL free of cost for Construction purpose only):

The Bidder would be provided with free 415 Volts, 3-phase & Neutral supply of electricity only for the purpose of execution of the contract at one point only at work site. For further distribution, bidder shall make his own arrangements. Electricity for all other facilities if required by the Bidder shall be on chargeable basis as per NSPCL norms

1. Construction power (three phase, 415 V/ 440 V) will be provided free of cost at one point near the site. Further distribution shall be arranged by the contractor at his own cost and services. Contractor shall be responsible for fulfilment of all requirements including statutory requirements in this regard. Contractor shall deploy and install required energy meter, cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act. Contractor shall also obtain approvals of appropriate authority and pay necessary fees, levies etc towards the clearance of such installations, prior to use. Sufficient power factor compensation equipments like capacitor shall be provided by contractor for reactive loads like welding machines etc. In case of any fine/penalty on account of low power factor, same shall be shared by contractor proportionately according to power consumption.
2. Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/ erection etc. and safety of personnel. It may become necessary to relocate some of the installations to facilitate work by other agencies or by him.
3. It shall be the responsibility of the Contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced electrician.
4. While reasonable efforts will be made to ensure continuous electric power supply, interruptions cannot be ruled out and no claim from the Contractor shall be entertained on this account such as idle labor, extension of time etc. The Contractor shall adjust his working shift accordingly and deploy additional manpower, if necessary, so as to achieve the target.
5. Contractor to note that till construction power is made available by BHEL/NSPCL, contractor shall make his own arrangement like DG set etc. The contractor shall also take the approval/ permission of statutory authorities for his DG set installation. The Contractor has to make his own arrangement for the same as required to carry out the job under the scope of work within the quoted rate. Nothing extra shall be paid on this account of DG set up and running for construction and office maintenance etc.
6. Contractor shall be well equipped with back-up power supply arrangement like DG set and diesel operated welding machine etc. to tackle situations arising due to failure of supplied power, so as to ensure continuity and completion of critical processes like Operation of Batching Plant, Concreting, etc. that are underway at the time of power failure or important activities planned in immediate future.
7. BHEL is not responsible for any loss or damage to the Contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply.
8. Contractor is advised to maintain the calibrated energy measuring instruments and use their system as efficiently as possible to maintain the HT side input energy meter reading and LT side outgoing energy meter reading to sub-contractors as equal.
9. The bidder will have to Procure & install General mobile illumination system during construction right from start of his work. This system will include temporary pole lighting,

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Works and Technical Specifications

portable lighting towers with DG back-up, within the quoted price. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.

10. Contractor to arrange energy meter for office.

General:

If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor will have to provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized/ accredited agency for working out the power consumption. In case of recalibration required for any reason the necessary charges including replacement by calibrated meters is to be borne by the contractor. Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.

Contractor to arrange calibrated energy meter (tamper proof, suitably housed in a weather proof box with lock & key arrangement) for office and this construction power at office is chargeable as per applicable tariff rates.

2.15 Construction water (Provided by NSPCL free of cost):

Free supply of water will be made available for construction and drinking purposes at a single point at works site to be decided by NSPCL

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	ESTABLISHMENT (Only for Erection at Site)			
3.1.1	FOR CONSTRUCTION PURPOSE AT SITE:			
a	Open space for office (as per availability)	Yes		Location will be finalized after joint survey with owner.
b	Open space for storage (as per availability)	Yes		Location will be finalized after joint survey with owner.
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Fire fighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	FOR LIVING PURPOSES OF THE BIDDER			
a	Open space for labour colony (as per availability)		Yes	Contractor has to make his own arrangements for shelter and transportation of labors as per their requirement.
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	Construction Plan shall be approved by BHEL/NSPCL
3.2.0	ELECTRICITY			
3.2.1	Electricity For construction purposes			
a	Single point source (of Voltage 415 V, A.C., 3 Phase , 50 Hz)	Yes		415 Volts, 3-phase & Neutral supply of electricity only for the purpose of execution of the contract at one point only at work site. For further distribution, bidder shall make his own arrangements. Electricity for all other facilities if required by the Bidder shall be on chargeable basis as per NSPCL norms.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc of the bidder			
a	Single point source		Yes	Free of cost for construction purpose
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc		YES	Contractor has to make his own arrangement.
a	Single point source	Yes		Chargeable. The charges for the actual energy consumed by the Contractor shall be Recovered by bidder based on the prevalent rate of NSPCL + Applicable Taxes / Duties, if any. (Further distribution will be in bidder scope.)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3.0	WATER SUPPLY			
3.3.1	For construction purposes:			
a	Making the water available at single point	Yes		Free supply of water will be made available for construction purposes at a single points at site to be decided by NSPCL , Further distribution will be in bidder scope.
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	<u>Water supply for bidder's office, stores, canteen etc.</u>			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Making the water available at single point	Yes		Free supply of water will be made available for construction purposes at a single points at site to be decided by NSPCL , Further distribution will be in bidder scope.
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.4.0	LIGHTING			Note: The area lightning of BHEL's Material store/ yard and premises shall be in the scope of BHEL.
a.	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5.0	COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER			
a	Telephone, fax, internet, wi-fi, e-mail services etc		Yes	
3.6.0	COMPRESSED AIR wherever required for the work		Yes	
3.7.0	Demobilization of all the above facilities		YES	
3.8.0	TRANSPORTATION			
a	For site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

Sl.No	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the erection/constructions drawings for all the materials covered under this scope	Yes	Yes	For Details Pl refer Chapter-IX-
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL
c	As-built drawings - where ever deviations observed and executed and also based on the decisions taken at site- example - routing of small bore pipes		Yes	Changes are to be marked in drawing & handover to BHEL on completion of work.
d	Shipping lists etc for reference and planning the activities			NOT APPLICABLE
e	Preparation of site erection schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on Sl No. e		Yes	In consultation with BHEL
h	Daily erection / work plan based on Sl No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in a month.		Yes	
j	Preparation of preassembly bay			NOT APPLICABLE
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself			NOT APPLICABLE
L	Arranging the materials required for preassembly			NOT APPLICABLE

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps and MMEs to be deployed by Contractor

A: TOOL & PLANTS

CONTRACTOR SHALL DEPLOY ALL NECESSARY T&P TO MEET THE SCHEDULES, AS PRESCRIBED BY BHEL ENGINEER AND REQUIRED FOR COMPLETION OF SUBJECT WORK.

B: MEASURING AND MONITORING DEVICES (MMD):

AS PER REQUIREMENT TO BE FINALIZED AT SITE.

NOTE:

CONTRACTOR SHALL DEPLOY ALL NECESSARY T&P TO MEET THE SCHEDULES & AS PRESCRIBED BY BHEL ENGINEER AND REQUIRED FOR COMPLETION OF WORK

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – V: T&Ps and MMEs to be deployed by BHEL on sharing basis

BHEL WILL NOT PROVIDE ANY MATERIAL OR ANY T & P's FOR THIS WORK.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VI: Time Schedule

TIME SCHEDULE & MOBILIZATION

6.1 Initial Mobilization and Time Schedule

After issuance of LOI (through email/fax/courier), Contractor shall report to the Construction Manager/Site in charge of BHEL at site and make MOM (Minutes of Meeting) for commencement of Civil Foundation Making, fabrication of storage shed, supply at site, mobilization of manpower and T&P at site, Date of start of work and detailed completion program.

The contractor has to subsequently augment his resources in such a manner that the entire works are completed within the contract period of 60 Days in a manner required by BHEL to match with the project schedule.

DATE OF ACTUAL START OF WORK SHALL 10 DAYS FROM DATE OF INTIMATION FOR MOBILIZATION AT SITE FROM BHEL SITE INCHARGE AFTER ISSUE OF LOI BY BHEL.

Note: In order to meet above schedule in general, and any other intermediate targets set, to meet customer/project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: TERMS OF PAYMENT

7.0 TERMS OF PAYMENT

7.1 Part -A: CIVIL WORK:

7.1.1 80% for Part-A Civil Work shall be paid after completion of all Civil Construction Work i.e. Approval of Civil Drawing, Earth Work, PCC, Foundation, Brick Work, Foundation Bolts & Nuts including supply of material, manpower & T&P. BHEL shall not provide any material.

7.1.2 20% for Part-A Civil Work shall be paid after completion of Erection of PEB Shed over Civil Foundation & Certification of BHEL Site Engineer.

7.2 Part -B: STRUCTURAL STEEL WORK:

7.2.1 100% payment for Part - B Structure Steel Work shall be paid after supply, Erection of PEB Shed (As per Scope of Work) & Certification of BHEL Site Engineer.

7.3 The payments for works under the scope of this contract shall be as per clause no 2.6; 2.22; 2.23 of General Conditions of Contract and Volume-IB, Chapter-X of SCC. However, ~~Clause No. 10.5 on RA Bill Payments~~, in Volume-IB, Chapter-X of SCC, is revised as under:

The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile. No interest shall be payable for the payment (if any) made beyond 30 days.

All documents like HR Clearance, Quality and Safety Compliances, etc. required for processing the RA Bills should be submitted along with RA Bills.

Few points of consideration are as below:

7.3.1 The measurements sheets of work done in a month shall be submitted in triplicate duly agreed/signed by BHEL Engineer. The contractor shall extend all necessary assistance for verification of measurements of works without any extra cost.

7.3.2 The RA bill payments are interim payments and bills shall be submitted in prescribed formats.

7.3.3 BHEL will release payment through **Electronic Fund Transfer (EFT)/RTGS**.

7.3.4 Final bill shall be submitted after completion of works and upon material reconciliation along with all prescribed formats.

7.4 The workmanship guarantee period for this contract shall be **12 months from the date of completion** of entire work as certified by BHEL.

7.5 The Bill will be paid at BHEL -Site office, New Service Building, NTPC-SAIL Power Company Limited (NSPCL) , Bhilai-PP2, Inside Bhilai Steel Plant (BSP) , DURG, PO: Bhilai (East) Bhilai, Pin- 490021(India) where the PEB shed will be erected.

7.6 **Extra/Additional Items of Work:** - The works shall be regulated as per clause no 2.15 and clause no 2.16 of General Conditions of Contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- VIII: Taxes and Other Duties

TAXES, DUTIES, LEVIES (Rev 14 dated 09/10/2020)

1. All taxes excluding GST, GST Cess & BOCW Cess but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.
2. Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
3. **GST :**
The successful bidder shall furnish proof of GST registration. GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
4. GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
5. E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
6. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:
BHEL GSTN - As per **Annexure -1**
NAME -- Bharat Heavy Electricals Limited
ADDRESS - Site address
7. Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-
Email id ---- to be intimated later on.
In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- VIII: Taxes and Other Duties

8. In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
9. Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
10. Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law , GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.
11. Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

12. **New taxes and duties:-**Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.

Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.

In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

13. For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- VIII: Taxes and Other Duties

transport agency, and also containing other information as mentioned under rule 46.

14. TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.
15. TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.
16. TCS under Income Tax 1961 has been implemented with effect from 1st October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions
 - i. Buyer shall be as per clause (a) of section 206C- (1H)
 - ii. Seller shall be as per clause (b) of section 206C- (1H)
 - iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

If Successful Bidder is falling under the purview of TCS then he has to submit a declaration in that respect along with relevant financial statements before the start of work or if bidder is falling under preview of TCS during the work in progress then bidder is compulsorily required to submit relevant financial statement in the beginning of the respective FY.

For TCS claim, vendor has to submit relevant documents required as per Income Tax Act.

17. Refer Annexure - 2 for BOCW Act & Cess Act.

ANNEXURE-1

State wise GSTIN no.s of BHEL

Sl. No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- VIII: Taxes and Other Duties

ANNEXURE-2

BOCW Act & Cess Act

Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:

1. It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
2. It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.
3. It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.
4. It is responsibility of the contractor to register under the Building and other Construction Workers' Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may , by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers' Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5. It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996.
6. It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
7. It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees' Compensation Act, 1923.
8. It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- VIII: Taxes and Other Duties

or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder along with following statistics :

(i) Number of Building Workers employed during preceding one month.

(ii) Number of Building workers registered as Beneficiary during preceding one month.

(iii) Disbursement of Wages made to the Building Workers for preceding wage month.

(iv) Remittance of Contribution of Beneficiaries made during the preceding month

9. BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.
10. It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
11. Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty (if any, imposed by Cess Authorities) from the payables on account of non-compliance.
12. The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: Technical Specification

Refer Annexure-I for: -

- Technical Specification
- Drawings

Note: - A standard PEB shed drawing of size 15 m × 60 m is attached in this tender. The same drawing may be utilized as a reference drawing, with necessary modifications to suit the required 15 m × 42 m shed. All materials and T&P and required resources shall be arranged by bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- X: GENERAL

- 10.1 THE WORK SHALL BE EXECUTED UNDER USUAL CONDITIONS AFFECTING MAJOR THERMAL POWER PROJECTS IN AN EXISTING POWER PLANT AND IN CONJUNCTION WITH NUMEROUS OTHER OPERATIONS AT SITE. THE CONTRACTOR AND HIS PERSONNEL SHALL COOPERATE WITH PERSONNEL OF CUSTOMER'S CONTRACTORS, COORDINATING HIS WORK WITH OTHERS AND PROCEED IN A MANNER THAT SHALL NOT DELAY OR HINDER THE PROGRESS OF WORK AS A WHOLE.
- 10.2 ALL THE WORK SHALL BE CARRIED OUT AS PER THE INSTRUCTIONS OF BHEL ENGINEER. BHEL ENGINEER'S DECISION REGARDING CORRECTNESS OF THE WORK AND METHOD OF WORKING SHALL BE FINAL AND BINDING ON THE CONTRACTOR.
- 10.3 THE CONTRACTOR SHALL PERFORM ALL REQUIRED SERVICES WHICH MAY NOT BE SPECIFIED HEREIN BUT NEVERTHELESS REQUIRED FOR THE COMPLETION OF WORK WITHIN QUOTED RATES.
- 10.4 ALL NECESSARY CERTIFICATES AND LICENSES REQUIRED TO CARRY OUT THIS WORK ARE TO BE ARRANGED BY THE CONTRACTOR EXPEDITIOUSLY.
- 10.5 ALL CRANES, TRANSPORT EQUIPMENTS, HANDLING EQUIPMENT, TOOLS, TACKLES, FIXTURES, EQUIPMENT, MANPOWER, SUPERVISORS/ENGINEERS, CONSUMABLES ETC REQUIRED FOR THIS SCOPE OF WORK SHALL BE PROVIDED BY THE CONTRACTOR.
- 10.6 ALL EXPENDITURE, INCIDENTALS IN THIS CONNECTION WILL HAVE TO BE BORNE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED IN THE RELEVANT CLAUSES ELSEWHERE IN THESE SPECIFICATIONS. THE CONTRACTOR'S QUOTED RATES SHALL INCLUDE ALL SUCH CONTINGENCIES. IN THIS CONNECTION REFER RELEVANT CLAUSE OF GENERAL CONDITIONS OF CONTRACT.
- 10.7 THE CONTRACTOR SHALL PERFORM ALL REQUIRED SERVICES WHICH MAY NOT BE SPECIFIED HEREIN BUT NEVERTHELESS REQUIRED FOR THE COMPLETION OF WORK WITHIN QUOTED RATES.
- 10.8 THE DISTANCES INDICATED IN THESE SPECIFICATIONS ARE ONLY APPROXIMATE. HOWEVER, THE TENDERERS SHOULD ASSESS THE VARIOUS DISTANCES AND SITE CONDITIONS BY VISITING SITE BEFORE SUBMITTING THEIR OFFER. NO ADDITIONAL/EXTRA CLAIMS FOR ANY VARIATION IN THIS REGARD WILL BE ENTERTAINED.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X Schedule of items Quantities and Factor for deriving Item Rate from the accepted Lump-sum Price

This Chapter consists of Part A & Part B of Volume II “Price bid”:

CONTENTS	
Description of Parts of Vol-II “Price Bid”	Remarks
Part A: Instructions to the Bidders	Instructions are mentioned as below
PART B: % weightage for amount of individual items of Schedule of quantity	Refer Latest Chapter-XI of Vol-IA TCC (BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS)
PART C: Total Lump Sum Price for entire scope of WorkF	This part is implanted in the E- Procurement portal entitled as “Part-C of Vol-II Price Bid”.

Part A: Instructions to the Bidders

- Bidders shall quote Total Lump-sum Price for the entire scope of work at the place implanted in the E-Procurement Portal titled as “Part-C of Vol-II Price Bid”.** Price mentioned elsewhere in the offer of the bidder shall be treated as Null and Void.
- BHEL has fixed the % weightages as in “Part-B” for the amount of individual items of Schedule of Quantity w.r.t. the total price of Price Bid Vol-II.
- Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL. This amount shall not be rounded off.
- Based on the quantities of individual item and the amount arrived in Sl No 3 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount of an item.
- For the convenience of bidders, BHEL has issued an excel sheet with all requisite formulae as detailed above. **However, this excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.**
- Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.4 above.

PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price (as quoted by the bidder in “Part C of Vol-II-Price Bid”)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X Schedule of items Quantities and Factor for deriving Item Rate from the accepted Lump-sum Price

Item No.	Description	Unit	Qty.	Weightage
Part -A : CIVIL WORK				
1	Civil Construction Work i.e. Approval of Civil Drawing, Earth Work, PCC, Foundation, Brick Work, Foundation Bolts & Nuts including supply of material, manpower & T&P. Bhel shall not provide any material.	LS	1	40.000000
Part -B : STRUCTURAL STEEL WORK				
	Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.			
2	Supply of factory/shop fabricated structural steel in Rolled/built up section/combination, transportation and erection, alignment at site, Painting as per specification, bolted connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, assembly, edge preparation, preheating (min preheat and interpass temperature of 20 Deg C for welding over 20 mm and upto 40 mm & 66 Deg C for welding over 40 mm and upto 63 mm & 110 Deg C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, protection against damage in transit, stability of structures, temporary structures (weight of temporary structures not payable), etc all complete as per specification and drawing.	LS	1	30.250000
3	Providing, erection and fixing permanently color coated galvanised MS troughed metal 0.47mm thick roof sheet of approved colour as per relevant IS code and specification. Minimum galvanisation of 275 gsm total on both sides including fixing of sheet to purlin with self drilling screws, stitch screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by sheet including overlap.	LS	1	11.500000

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X Schedule of items Quantities and Factor for deriving Item Rate from the accepted Lump-sum Price

4	Supply and Fixing of external sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.55 mm TCT(Total coated thickness) permanently colour coated zinalume sheet (150 gsm zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 300 Mpa yield strength. The colour coating shall be comprise of SMP.The colour coating shall comprise of 20 microns finish coat over a 5-micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side.The metal cladding shall have 500 mm cover width,47 mm high crests at 250 mm centers with special male/female side laps and anti siphoning feature to prevent leakage .The sheet shall be fixed with the help of concealed compatible interlocking clips and wafer head zinc cotted self drilling fastner/screws 4.2X25 mm long on to the sub-girts.The clips shall be concealed and no fastner are to be penetrate the external sheeting all complete as per specification. Measurement of cladding shall be of the elevation/plan area of side covered by cladding including overlap.	LS	1	13.750000
5	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, Screw, nuts, washers, bitumen washers etc. complete including overlap 100mm . (As per requirement)	LS	1	2.000000
6	Supply & fixing of Turbo Vent 600 mm Dia. all complete as per specification	NOS.	5	0.450000
7	Providing and fixing in position Mechanically operated rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles. (partly coiled and lath/full lath). (24 SQM)	LS	1	1.000000

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X Schedule of items Quantities and Factor for deriving Item Rate from the accepted Lump-sum Price

8	Providing and fixing steel windows, ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision.including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Rate is inclusive of glazing) - (20 SQM)	LS	1	0.480000
9	Providing and fixing steel door with frame all complete with 45mm thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. (3 SQM)	LS	1	0.180000
10	Providing and fixing UPVC rainwater take pipes of 110mm diameter- Class 3 as per IS:4985 including all complete	LS	1	0.39000

Note: This Chapter-XI is uploaded separately as file titled 'Chapter XI-BOQ and Percentage Weightage'-3292.

NOTE : BIDDER TO SUBMIT SEPARATE INVOICE FOR PART-A AND PART-B