

**NIT No. MOD/CIVIL/10051142**

**Sub: - Construction of Press Shop Extension towards south side including Machine Foundations**

**(Note: The Special terms and conditions given here supersede the relevant terms & conditions given in General Terms and Conditions).**

**1.0 INTRODUCTION**

**1.1** This section of the tender defines the scope of the contractor's work other than as specified in the Technical Specifications. The requirement and conditions mentioned in this section are in addition to what are stated in "Instructions to Tenderers", "General terms and conditions" & "Technical Specifications".

**1.2 In case of any conflicting provisions/discrepancy given in different sections of the tender following shall be the order of preference forming the basis for arriving at a conclusion :**

- A) Description in schedule of quantities of Price Schedule**
- B) Technical Specifications**
- C) Special Conditions if any**
- D) Drawings**
- E) General terms & conditions**

**1.3 Brief Description of Project site:** - The project site is located inside factory premises of BHEL Bhopal. BHEL, Bhopal is located approximately 8 km from Bhopal Railway Station. Nearest Airport is Raja Bhoj Airport located at a distance of 20 km from BHEL Bhopal.

**1.4** The bidders are advised to take into account all factors and any fluctuations in the market rates etc having effect on prices. No delay will be accepted and no claim will be entertained on this account after acceptance of the tender or during the currency of the contract. It is advisable that the bidders visit the site prior to bid submission for proper assessment of site and its working condition.

**2.0 QUALIFYING CRITERIA** - The bidders should fulfil following qualifying criteria:

**2.1** The Average annual financial turn over of the bidder during the last 3 years ending 31st March 2009 should not be less than Rs 2.30 Crores.

**2.2** The bidder should have the experience of having successfully executed similar civil works during last 7 years ending 31/08/2009 amounting to values mentioned as under in a completed contract/running contract.

(1) Three works each valuing not less than Rs 3.00 Crores

Or

(2) Two works each valuing not less than Rs 3.75 Crores

Or

(3) One Work valuing or less than Rs 6.00 Crores.

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Date of Issue.

26 Sept 2009

Similar work shall mean construction of industrial buildings/commercial building/ factory sheds/workshops sheds.

**2.3.** The bidder should have experience of having successfully completed in any of the year during last 7 years ending 31.08.09. Minimum 1000 MT structural steel fabrication work & 3000 Cum RCC work. The experience for structural steel fabrication work & RCC Work need not be necessarily during the same period. For Qualification against this criteria (i.e. 2.3) Principal bidder should have experience in atleast one field of the quantity mentioned above. For other field, they may go for pre -bid tie up arrangement with another agency having experience of mentioned quantity. The bidder would be required to submit a notarized copy of such agreement along with their techno commercial bid. However, the total responsibilities with regard to contractual obligations shall be of principal bidder.

**2.4.** The Bidder must possess PF, ESI, and PAN and service tax registration number in their names.

**2.5** The Bidder should submit a declaration that labour license shall be submitted by them at the time of award of work.

**Note:**

**1.0 Except for Criteria No 2.3 where pre-bid tie-up arrangement is permitted all other above mentioned criteria should be met by the bidder himself and not by any associate bidder.**

**2.0 The bidder is required to submit documentary evidence in support of each of the above qualifying criteria.**

**3.0 SCOPE OF WORK -**

**Brief Scope of Work is as follows :-**

The tendered work envisages civil construction works pertaining to Electrical Machines capacity augmentation scheme to be carried out inside BHEL Bhopal factory premises.

The scope of work broadly consists of:

(1) Extension of press shop Block towards south side.

Extension shall comprise of constructions of two bays (i) 160.02m X 18.92m having height 18.3m with EOT crane of 30T capacity at 14.80m height (ii) 83.82m X 18.59m having height 11.72m with EOT crane of 10T capacity at 9.144m height including toilet units.

(2) Construction of various machine foundations either in the extended block or in existing block of electrical machine.

I) CNC vertical Borer

II) Radial Arm Drilling M/C

III) CNC lathe 600 swing

IV) Hydraulic Umbrella press 180Ton

- V) Putty pressing M/C – LEM
- VI) Vacuum pressure impregnation Plant
- VII) Electrically heated oven -500 KW
- VIII) Balancing Machine - LEM
- IX) Balancing Machine -IMM
- X) 30 ton battery power system for inter section movement on rails.
- XI) 12 Ton battery power system for inter section movement on rails.
- XII) Test plant augmentation & Upgradation – I MM
- XIII) Test plant augmentation & Upgradation - LEM
- XIV) Programmable loop winding m/c
- XV) Automatic hydraulic coil pulling machine
- XVI) CNC vertical machining center

The above scope may undergo changes based on BHEL's final requirement. Based on BHEL's requirement, the work of similar nature may be executed at place other than specified above inside factory premises. For details scope of work refer Technical Specification.

#### **4.0 COMPLETION SCHEDULE:**

##### **4.1 The completion of the project will be as follows.**

Sl.No	Work	From the date of LOI
1	Casting of all foundation column	2 month
2	Fabrication of all major structure as col., girder and trusses.	4 months
3	Erection of all structures	6 months
4	Roof sheeting and cladding	8 months
5	Balance works like brick work plastering downtake pipe flooring machine foundation etc including finishing.	11 months

**4.2** On intimation by BHEL through Fax or E-Mail for issue of LOI, the contractor has to make initial mobilisation of his materials, resources and work force so as to commence the work with in 15 days of issue of LOI. Further mobilisation of fresh resources and augmentation of existing resources shall be done in consultation with BHEL in all the areas as covered in scope of work.

**4.3** Upon award the contractor shall submit to BHEL within 15 days of issue of LOI, a network Schedule showing the sequence of activities with duration covering complete activities under the scope. The work shall be completed within the time period as specified above.

**5.0 PRICE SCHEDULE:**

**5.1** Please refer to the Price Schedule. Price bid should be submitted strictly as per the enclosed price schedule. Any deviation w.r.t. price schedule is not acceptable and the offer having deviation is liable to be rejected. **Rates quoted by the bidder against schedule items shall remain firm & no variation whatsoever shall be allowed.**  
(Pl read instruction carefully given in the price schedule before filling up)

**5.2 The description of item contained in price schedule may not be elaborate. For more clarity about the scope, this should be always read in conjunction with the Technical Specifications.**

**6.0 TAXES AND DUTIES:**

**6.1** Price shall include all taxes / Duties / Royalties / Octroi/ Entry Tax applicable as on date of submission of tender **except Service Tax.**

**6.2 Service Tax shall be payable to the contractor at actuals at the rate prevailing at the time of execution.**

**6.3** No claim shall be admissible on account of upward or downward revision in rate of existing taxes & duties (except Service Tax) subsequent to bid submission. However if any new taxes & duties are introduced subsequent to bid submission and during the currency of the contract including its extension if any for the reasons not attributable to the contractor, the same shall be reimbursed at actual against documentary evidence of remittance by the contractor. In case the contract period is extended for the reasons attributable to the contractor, no such reimbursement shall be made during extended period.

**6.4** Income Tax & VAT shall be deducted at source (TDS) as per prevailing rules and copy of TDS & other taxes deducted at source shall be provided to contractor.

**7.0 TERMS OF PAYMENT:**

**7.1** Progressive payment shall be made based on the actual measurements of works executed subject to the deductions towards income tax with surcharge, VAT or any other tax or levies applicable and recoveries towards materials/ services rendered on chargeable basis, penalty and LD, if applicable.

**7.2** All the payments due to the Contractor will be made through Electronic Fund Transfer (EFT). For EFT facility the successful bidder is required to submit the details duly endorsed by their bank in the prescribed proforma as enclosed at Annexure "A".

**7.3 Normally payment of bills takes about 60 days from the date of submission of bills duly verified by Site Engineer.**

**7.4** Any interim Payment made relating to work done or materials delivered vide running account bill may be modified or corrected by any subsequent interim payment or by the final payment. No certificate of the Engineer-in-charge supporting an interim payment shall of itself be conclusive evidence that any work or materials to which it relates is/ are in accordance with the contract.

**Note: Advance Payment – BHEL does not give advance of any kind as a policy.**

**8.0 VARIATION IN CONTRACT PRICE:**

The quantities shown on the drawings & documents may vary. BHEL reserve the right to add or delete items depending upon the final requirement. For such addition or deletion or quantity variation, the Contract price shall be adjusted based on the quoted unit price, which shall be valid for a variation of  $\pm 30\%$  of the total contract price.

**9.0 EXTRA/ADDITIONAL ITEMS OF WORK:**

**9.1** Any **NEW ITEM** of work which is not as per the scope envisaged in the tender but found essential during execution of the contract for satisfactory completion of the total work then it will come under the ambit of Extra Item of Work. In case such extra item is

executed the rate for the same shall be determined in the following ways and in the same priority:

- (a) In case such extra item is contained in CPWD DSR 2007, the rate of such item shall be same as given in DSR 007 with percentage above/below as quoted by the successful bidder against the price schedule annexure based on DSR 2007.
- (b) In case determination of rate of extra item is not possible by manner described above, the rate for extra item shall be derived on prevailing market rates and on actual basis by observing the consumption of materials (with allowable wastage as per standard practice), deployment of labours and other incidentals with 15% as contractor's premium and over heads. For this purpose the contractor has to maintain and produce proper record duly certified by the BHEL Engineer. Decision of BHEL in this regard shall be final and binding on the contractor.

**9.2** The contractor on receipt of drawings from BHEL shall inform with in 15 days item to be executed as extra / additional item of work. The contractor shall also submit rate of such items as derived by the method at 9.1 (a) or (b) as may be applicable.

**9.3** Under no circumstances the contractor shall suspend the work on the plea of non-settlement of rates falling under the clause or claim any compensation on that account.

**9.4** BHEL reserves the right to carry out such extra/additional items of work through any other contractor or in such a manner as he considered advisable.

#### **10.0 SUSPENSION OF WORK & FORE CLOSURE OF CONTRACT.**

BHEL reserves the right to suspend and restart execution of the contract without invalidating the provisions of the contract. Orders for suspension or restart of the contract will be issued by BHEL to the contractor in writing. If the suspension is on account of safety of the work or for reasons other than default of contractor then the contractor shall be entitled to an extension of time equal to the period of every such suspension plus 25%. No price variation or any additional claim/compensation on this account shall be admitted. If the suspension is on account of default on the part of the contractor no time extension or compensation shall be permitted.

If at any time after acceptance of tender BHEL decides to abandon or reduce the scope of work for any reason whatsoever the Engineer-in-Charge shall give notice in writing to that effect to the contractor & the contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of foreclosure of the whole or part of the works. In the event of such foreclosure after acceptance of tender the contractor shall be paid at contract rates full amount of works executed at site & in addition a reasonable amount as certified by the Engineer-in-Charge for the items mentioned below which could be utilized on the works in the full extent because of Foreclosure.

- (a) Any Expenditure incurred on site infrastructure work/enabling works
- (b) Any Expenditure incurred on materials meant for incorporation in the work lying unutilized which the contractor does not desire to retain. The cost of such materials shall however take in to account purchase price, cost of transportation & deterioration which may have been caused to material whilst in the custody of contractor.
- (c) For Contractors material not retained by BHEL reasonable cost of transportation of such materials from site to contractors permanent store or to his other works whichever is less shall be payable.
- (d) Reasonable compensation for transfer of T & P from site to contractors permanent store or to his other works whichever is less shall be payable to the contractor.
- (e) In case of foreclosure all surplus material issued to the contractor either free of charge or on chargeable basis & lying at site shall be returned by the contractor to BHEL after proper reconciliation taking into account normal wastage & allowance for any deterioration/damage as may be permitted.

**11.0 EVALUATION OF THE OFFER AND ISSUE OF WORKS ORDER**

- 11.1** The bidder shall submit complete price of the package. No column should be left blank.
- 11.2** Evaluation of the offer will be strictly based on information submitted by the bidder. In view of this, the bidder is requested to go through the tender documents carefully and furnish all details clearly. Missing information may not be asked by BHEL.
- 11.3** Prices quoted against different annexure of price schedule shall be combined to arrive at the total price of the package. **In case of any item not quoted, the highest quoted rate for that item amongst all bidders will be taken for the purpose of evaluation and the lowest quoted rate for that item amongst all bidders will be taken for award.**
- 11.4 Total price of the package shall be compared for the purpose of arriving at L-1.** In case Bharat Heavy Electrical Limited calls L1 for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer, which shall be binding, on the bidder. All expenses for attending such negotiations are to be born by the bidder.
- 11.5** Based on the techno-commercial evaluation and priced bids, the successful bidder shall be awarded the contract for the complete package.
- 11.6 No condition or deviations should be asked for in price bid.**
- 11.7** Work is indivisible in nature and shall be awarded to a single party.

**12.0 INSURANCE –**

- a) It shall be the sole responsibility of the contractor to get insured the property, materials, machineries, tools & tackles etc. belonging to him
- b) It shall be the sole responsibility of the contractor to insure his workmen against risks of accidents and injury while at work as required by the relevant rules and to pay compensation, if any, to them as per Workmen's Compensation Act. The work will be carried out in a protected area and all the Rules and Regulations of BHEL in the factory Area which are in force from time to time shall be followed by the contractor.
- c) If due to contractor's carelessness, negligence and / or non-observance of safety and other precautions, any accident / injury occurs to other persons / public, damage to BHEL's property and/or personnel occurs, and if BHEL is unable to recover in full its claim from the Insurance Company, the deficit will be recovered from the contractor. The contractor shall be responsible for necessary compensation and other expenses in full, if so decided by the appropriate authority.
- d) It shall be the responsibility of the contractor to provide security arrangements for the equipment/materials belonging to BHEL & handed over to the contractor for use in the work till these are incorporated in the work & accepted by BHEL or are returned to BHEL Stores.

**13.0 LD FOR DELAY**

The total work under scope is to be completed within the completion time mentioned under Clause 5.3 of Special Conditions. Required shutdown, approval, drawings and material in scope of customer/BHEL shall be made available to contractor in time. **Delay in completion of the work under scope that may take place beyond contractual schedule OR within any extension for the reasons attributable to the contractor shall be subject to imposition of LD at the rate of 0.50 % of the contract order value per week of delay subject to maximum ceiling of 10% of the contract order value.**



**14.0 WARRANTY**

**14.1 The warranty period for the work executed shall be for a period of 12 months from the completion of total work envisaged under the scope except for water-Proofing work in Machine Foundation & elsewhere for which warrantee period shall be 5 years from the date of completion of work.**

**14.2** In case of any deficiencies in the erection/ workmanship, which is detected before the expiry of the warranty period, the contractor on notification by BHEL shall rectify or remedy the defects at his own cost and provisions of this clause shall apply to the portions of the plant so replaced or renewed until the expiration of 6 months from the date of such replacement or renewal or the expiration of the original warranty period whichever is later. The repairs of the defective work shall be done by the contractor within a reasonable time to be decided mutually with the BHEL. If any defects be not remedied within a reasonable time, BHEL may proceed to do the work after giving 30 days notice to the contractor at the reasonable price and debit the cost to the contractor, but without prejudice to any other rights which BHEL may have against the contractor in respect of such defects. The new warranty after repairs shall be for 6 months from the date of commissioning or original warranty which ever is later.

**14.3** During warranty period the contractor shall be liable to repair, rectify or replace any defects that may develop in the works executed by them or their subcontractors arising from faulty workmanship. The contractor's obligation against the above clause shall be limited at contractor's option to replace or repair at contractors works or at site. All charges to remedy the defects shall be borne by the contractor.

**14.4** The acceptance of the work by the engineer shall in no way relieve the contractor of his obligation under this clause.

**14.5** For Faithful performance during warranty period security money as mentioned under Security Deposit & return of Security Deposit Clauses under GTC shall be retain upto the expiry of Warranty period plus 3 months claim period.

**15.0 EXTENSION FOR DELAY:**

If the works be delayed due to

- a) Force majeure or
- b) Delay on the part of the other contractors or tradesmen engaged by the BHEL in executing work not forming part of the contract, or
- c) Any other cause which, in the absolute discretion of BHEL is beyond the contractor's control then upon the happening of any such event cause delay, the contractor shall immediately give notice thereof in writing but shall nevertheless use constantly his best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of BHEL to proceed with the work.

Requests for extension of time, to be eligible for consideration shall be made by contractor in writing within fifteen days of the happening of the event causing delay. The contractor may also, if practicable, indicate in such a request the period for which extension is desired, the working plan for remaining work.

In any such case Engineer-in-charge, BHEL or any other officer authorized by BHEL may give a fair and reasonable extension of time for completion of the work. Such extension (Grant/Denial) shall be communicated to the contractor by the Engineer-in-charge in writing, within 3 (three) month of the date of receipt of such request by the Engineer-in-charge.

**16.0 FACILITIES TO BE PROVIDED BY BHEL**

**16.1 Construction Office & Store:** Depending upon the availability and requirement, the space for construction of office and stores shall be provided free of cost to the contractor. Before finally leaving site, all shed etc. have to be dismantled/ removed

- and the site left shall be clean and tidy. The land allocated shall be vacated and handed over to the owner.
- 16.2 Electricity:** The contractor shall submit to the Engineer within 30 days from the signing of Contract Agreement his electrical power requirement. The contractor shall be provided with supply of electricity at one point in the project site free of charge for the purpose of contract execution except for fabrication work which shall be charged as per Annexure C of Price Schedule. The contractor shall make his own further distribution arrangement. All temporary wiring must comply with local regulations and will be subject to Engineer inspection and approval before connection to supply. The arrangement of the Luminary shall be the responsibility of the contractor. The proper illumination at work site is the responsibility of Contractor.
- 16.3 Water:** Supply of water will be made available free of charge for the construction purposes & drinking purposes at an agreed single point in the site. Any further distribution will be responsibility of the contractor. Further distribution to other points at work site or to his office shall be the responsibility of the contractor. The contractor will made their own arrangement for storage of water of inadequate capacity for curing of pre-cast concrete structures, construction & general curing. Due to scarcity of water all over Bhopal the contractor shall comply with all measures as suggested by Engineer-in-charge to avoid wastage of water.
- 16.4 Residential Accommodation:** Upon award of work the contractor shall apply for allotment of residential accommodation for their personnel who is going to be posted at site for execution of the work. Subject to availability with BHEL & as permitted under rule, the residential accommodation may be made available on chargeable basis including electricity charges, water charges & other Charges etc. The Contractor shall abide by the rules, regulations of quarter allotment, cancellation, possession /vacation. In case BHEL is unable to provide this facility, the contractor has to make their own arrangement at their own expense.
- 17.0 CONTRACTOR'S SUPERVISION:**  
The Contractor shall either himself supervise the execution of the Works or shall appoint a competent agency approved by the Engineer-in-Charge to act in his stead. If in the opinion of the Engineer-in-Charge to act in his stead, the Contractor has himself not sufficient knowledge and experience to be capable of receiving instructions or cannot give his full attention to the works, the Contractor shall, at his own expense, employ as his accredited agent an engineer approved by the Engineer-in- Charge. Orders given to the Contractor's agent shall be considered to have the same force as if these had been given to the Contractor himself. If the Contractor fails to appoint a suitable agent as directed by the Engineer-in-charge, the Engineer-in-Charge shall have full powers to suspend the execution of the Works until such date as a suitable agent is appointed and the contractor shall be held responsible for the delay so caused to the Works. The Contractor should appoint one Project Manager of Civil Engineering background of minimum 10 years Experience in relevant field, one Graduate Civil Engineer of 5 years Experience, One Fresh Graduate Engineer or Diploma Engineer in Civil Engineering Discipline having 5 year Experience. In case Contractor is unable to appoint above technical Staff then Rate of recovery will be done at following rates:-

SI.No.	Qualification	Experience (year)	Rate of recovery
(i)	Project Manger with Degree	10	Rs.20,000/-p.m.
(ii)	Graduate Engineer	5	Rs.15,000/-p.m.
(iii)	Graduate Engineer or diploma Engineer	Nil 5	Rs.10,000/-p.m.



## 18.0 SAFETY MEASURES

- The following are a few safety measures suggested while carrying the work. However all the items of work should be carried out in safe working manner taking all precautions.
- Proper and necessary precautions shall have to be taken wherever the work involves breaking of reinforced cement concrete slab and dismantling of brick work. These items of work will have to be carried in the presence of the Engineer-in-charge.
- Proper and necessary scaffolding is to be erected wherever dismantling of brick work is carried out at height more than 1.80 M
- Reinforced cement concrete slab should be dismantled parallel to the main reinforcement, each piece not exceeding 300mm wide. Under no circumstances the supporting wall shall be cut or removed until the supporting slab is demolished.
- The contractor shall keep supply all safety equipment like safety boots, goggles, helmets and safety belts, to all the workers.
- The contractor shall keep a supervisor always at work site.
- Power shut down shall be taken before commencement of the work wherever power cables are running.
- Proper and necessary scaffolding and ladders are to be used for carrying out all types of works.
- The contractor shall provide safety nets to the work force during the execution of work at height of more than 3 meters and as directed by the engineer in charge.
- The contractor shall take all necessary safety precautions and arrange for appropriate appliance to its authorized officials to prevent loss of human lives, injuries to personnel engaged and damage to property.
- The Contractor shall provide to the work force and ensure the use of the following personnel Protective Equipment as found necessary and as directed by the authorized BHEL Officials.
  - I. Safety Helmets conforming to IS: 2925: 1984
  - II. Safety belts conforming to IS: 3521: 1999
  - III. Safety shoes conforming to IS: 1989:PART 2:1986
  - IV. Eye, and face protection devices conforming to IS: 8520:1977.
  - V. Hand and body protection devices conforming to IS: 6994 - 1973 and IS 8519: 1977, IS: 8807-1978.

## **SAFETY IN CIVIL ENGINEERING WORKS**

- While working at heights, a safe foot holds and hands holds should be provided.
- No loose material should be allowed to remain in the vicinity of persons working at heights due to which they may inadvertently loose their balance and fall down.

- Wherever, it is reasonable practical, workers should be made to use safety belts.
- Ladders, crawling ladders and crawling boards are to be provided if a person has pass across or work on or from any material liable to fracture under his weight and cause him to fall more than 1.98 metres.
- In considering whether a material is likely to fracture beneath a person's weight, regard must be had to any additional weight he may be carrying or supporting.
- Ladders crawling boards etc., to be securely supported and if necessary secured to prevent slipping.
- Guard rails, coverings or other suitable means may be used to prevent person stepping on to fragile material, while working or passing near it if such material is likely to fracture under his weight and cause him to fall more than 1.98 metres.
- While working on sloping roofs, suitable, crawling, boards or crawling ladders should be used. These crawling ladders should be properly supported and securely enhanced to the sloping surface or the roof ridge.
- Suitable and sufficient means are to be provided to prevent fall of articles from a sloping roof.

**DEMOLITION:**

- ✓ Safe access should be provided to every place at which any person has to work. Scaffolds should be provided for all work.
- ✓ Shoring or either steps are to be taken to prevent accidental collapse of the building or part of the building being dismantled.
- ✓ Similar precautions are to be taken against collapse of any adjacent building, if this would involve danger.
- ✓ No steel work or iron work is to be cut or released unless precautions are taken to avoid danger from sudden twist, spring or collapse.
- ✓ No framing is to be removed unless all practicable steps are taken to avoid collapse of the structure.
- ✓ Demolition work is to be placed under the supervision of a competent person experienced in demolition work.

**EXCAVATIONS:**

- ❖ Barriers are to be provided round excavations, shafts, pits and opening into which persons can fall a vertical distance of 1.98 metres. These barriers are to be as close as practicable to the edge of the excavations and are to be erected as soon as practicable after excavating begins. They are to be maintained in position except when necessarily removed for the access of persons or materials.
- ❖ Adequate and suitable timbering should be used to prevent danger from falls or dislodgement of sides of excavations etc., or materials adjacent to it. Timbering is to be done as early as practicable in the course of work.

- ❖ No person should be allowed to work in any excavation. Shaft or tunnels after explosives have been used in or near it, in a manner likely to affect stability, until a thorough examination has been made by a responsible person.
- ❖ No person should be allowed to work in any excavation, Shaft or tunnels after an unexpected fall of work rock, earth or to her material or after substantial damager to timber or other supports, unless the part concerned is thoroughly examined by a responsible person declared safe.
- ❖ No material should be placed near the edge of the excavation so as to endanger persons below. No load should be placed or removed near the edge of an excavation etc., where it is likely to cause the collapse of the side of the excavation and so endanger to any person.
- ❖ If excavation is likely to affect the security of another structure (permanent or temporary) steps must be taken to safeguard persons employed from possible collapse of that structure.
- ❖ Means of reaching a place of safety is to be provided, when there may be danger from rising water or irruption of water or materials.
- ❖ Means to prevent over running are to be taken when vehicle is used to tip material into pit or excavation or over the edge of embankment or earth work.

**LADDERS:**

- Ladders to be used should be of good construction, of a suitable and sound material of adequate strength.
- Ladders with missing or defective rungs should not be used.
- Wooden stiles or sides and wooden rungs should have grain running length wise.
- Rungs should be properly fixed to the sides.
- Ladders standing on a base are to be equally and properly supported on each stile or side.
- Ladder standing on a base to be securely fixed near its upper resting place, if such fixing is impractical the ladder must be fixed at or near its lower end. If this is also impracticable a person, must be stationed at the feet of the ladder to prevent it from slipping.
- Ladder should not be placed on loose bricks or loose packing.
- Except when there is an adequate handled, ladder must rise to a height of a least 3 feet 6 inches (1.00 Mtr.) above the landing place or above the heights rung reached by the feet of persons using the ladder.
- Space at each rung to be sufficient to provide adequate foot held.
- Openings in landing places through which ladders pass should be as small as practicable.
- Folding steps ladders should have level and firm footing and should not stand on loose bricks or other loose packing.

**SCAFFOLDS:**

- Materials used for scaffolds should be of sound and adequate strength.
- The timber used should be suitable quality, good condition, bark complete stripped off, and without paint or other treatment which would prevent defects from being easily seen.
- Timber and material with projecting nails should not be used.
- Metal parts should be of suitable quality, in good condition, free from corrosion or other patent defects likely to affect strength.
- Defective parts or materials should not be used and no defective ropes or bonds should be used.
- Standards or upright should be vertical or slightly inclined towards the building or other structure, where practicable and to be sufficiently close to ensure stability.
- Displacement or sinking of standards or uprights to be prevented either by provision of base plates or either adequate means.
- Ladders used as uprights to be adequate strength secured to prevent slipping and so placed that the two stiles of sides of each ladder are evenly supported.
- Ladders are to be horizontal, as nearly as possible and should be secured to standards or uprights by efficient means.

**WORKING PLATFORMS:**

- ✚ All working platforms should be closely boarded, planked or plated.
- ✚ Boards should be of sufficient thickness having regard to the distance between putlogs other supports.
- ✚ All boards should be at least 51 mm thick and 210 mm wide.
- ✚ Boards should rest securely and evenly on their supports. Each board should have at least three supports unless the thickness and the distance between the supports are such as to present on due or unequal staging when, supported on the two pipes.
- ✚ No board should project beyond for more than four times its thickness, unless secured to prevent tipping.
- ✚ No board should project to an extent which makes it unsafe having regard to its thickness and strength and the weight likely to be on it.
- ✚ The platforms should be of adequate width to give sufficient working space.
- ✚ The platforms should extend at least 600 mm. beyond, the end of wall or working face if work is being done at that end of the wall of face.
- ✚ The platforms should have guard rails to a height of between 920 mm and 1150 mm. above the platform or any raised part of it.

- ✚ The platforms should have toe-boards high enough to prevent falls of persons, tools and materials, with a minimum height of 15.5 mm. space between the toe-boards and the lowest guard rail should not exceed 760 mm. guard rails and toe-boards should be on the inside of uprights unless there is some other means of preventing their outward movement.
- ✚ Guard rails and toe-boards should always remain in position except when removal is necessary for the access of persons or materials, or other necessary purposes of the work.

**SAFETY NETS AND BELTS:**

- If all or any of the above requirements is not practicable, resources may be taken to use suitable safety belts or nets to prevent persons falling from heights of 1.98 metres and above.
- Safety belts when used should be attached continuously to suitable and fixed anchorages.
- Safety nets should be maintained in all positions necessary to protect persons at work, except in so far as they have to be temporarily removed for the passage of materials or for any other purposes.

**LIFTING TACKLES/CRANES:**

Lifting roof trusses should be undertaken after discussing the procedure with BHEL taking all necessary care to prevent accidents.

**MATERIAL HANDLING AND STORAGE:**

Adequate arrangement be made for material handling & storage taking due care against damages.

If the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipments or to carry out instructions issued by the authorized BHEL officials, BHEL shall have the right to take corrective steps at the risk and cost of the contractors.

In case of a fatal or disabling injury accident to any person due to lapses by the contractor. BHEL shall have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim or his/her dependents. Before imposing the penalty, appropriate enquiry shall be held by BHEL.

In case of any damage to propriety due to the lapses by the contractor, BHEL shall have the right to recover the cost of such damages from the contractor after holding an appropriate enquiry.

In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay from the payments due to the contractor after notifying the contractor suitably.

If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so. BHEL shall have the right to terminate the contract and get the job completed at the risk and cost of the sub contractors.

**MATERIAL ISSUE, CONSUMPTION & RECONCILIATION:**

It shall be the responsibility of the contractor to get the free issue materials (cement, reinforcement steel, structural steel etc.) issued from BHEL's Store after proper documentation work. Loading transportation to work site, unloading and proper storage of material shall be done by the contractor at their own expense. Return of surplus material to store and return of scrap material to scarp yard shall be the responsibility of the contractor at their own expense. Proper method of accounting of steel, Tor steel, cement & scrap material be followed as per BHEL Procedure .The books of such accounting be offered for auditing by BHEL at pre-decided regular interval. The material Reconciliation statement should necessarily be enclosed with each running account Bills as well as Final Bill. Due to non-submission of material reconciliation statement with invoice the bill processing may get delayed for which the Total responsibility lies with the contractor.

**19.0 TOOLS, TACKLES & EQUIPMENTS:-**

**19.1** All tools & Tackles, handling facilities, plant & machinery and consumables required for satisfactory execution of the job will have to be arranged by the contractor free of cost. All measuring instruments, tools and tackles should be tested periodically and the contractor shall also produce necessary certificate and proof of having tested & calibrated from certified agencies. Only instruments calibrated within last one year from the date of use shall be used at site. List of tools, tackles & equipments of reputed manufacturers with proper Test / Calibration Certificates to be arranged by the contractor at his own cost is given below but not limited to this **(only for guidance)** :

**(A) Electrical Tools / Instruments**

- i) Cable jacks & spindle, cable rollers, supporting stand for cable drums, electrician's tools kit, jointing / termination kit(s) fitter tool kit, etc.
- ii) General tools e.g. screw drivers, testers, pliers, spanners, test lamp, feeler gauges, hydraulic and manual crimping tool kit etc.
- iii) Safety hand lamps, fuses, bulbs, switches and cables, test lamp, field telephone and buzzer sets, walkie – talkie set etc.

**(B) Mechanical Tools, Instruments (as per requirements).**

- i) Welding Machines, generator sets with cables etc. Gas cutting sets, gas-brazing sets, heating torch, soldering irons, regulators, hoses, etc.
- ii) Hand trolleys, mobile equipments, Tractor, Transport vehicles, hydraulic and screw jack, pipe and torque wrenches, wooden sleepers, manila ropes, chain pulley block, slings and D'shackles, eye bolts, lifting tackles and equipments.
- iii) Hand grinding machines, bench grinder, and bench vice, pipe vice, Base Mounted Drill Machines, Grinding wheels, Hand Drill Machine.
- iv) Grinding Machine for fabrication works, drill machines, drill bits, taps and die set, reamers, hammers, files, punches, scrappers, screw drive sets, pliers, hacksaw and blades, chisels, Allen key sets, spanners, measuring tapes and Scales.
- v) Spirit level, straight edge, dial gauge, precision level gauge, etc.



- vi) Other test equipments as required for testing and commissioning of the project shall have to be arranged by the contractor.

**(C) Civil Engineering Equipment**

**Earth moving equipment** -Excavators (various sizes), Bulldozers

**Equipment for hoisting & lifting –**

1. Tower
2. Builder's hoist
3. Hydra
- 4.

**Equipment for concrete Work -**

1. Concrete batching plant
2. Concrete pump
3. Concrete transit mixer
4. Concrete mixer (diesel)
5. Concrete mixer (electrical)
6. Needle vibrator (electrical)
7. Needle vibrator (petrol)
8. Table vibrator (elect./petrol)

**Equipment for building work**

1. Block making machine
2. Bar bending machine
3. Bar cutting machine
4. Wood thickness planer
5. Drilling machine.
6. Circular saw machine
7. Welding generators
8. Welding transformer
9. Cube testing machines
10. M.S. pipes
11. Steel shuttering
12. Steel scaffolding
13. Grinding/polishing machines

**Equipment for road work-**

1. Road rollers
2. Bitumen pavers
3. Hot mix plant
4. Spreaders
5. Earth rammers
6. Vibratory road rollers

**Equipment for transportation-**

1. Tippers
2. Trucks

**Pneumatic equipment**

1. Air compressor (diesel)

**De-watering equipment -**

1. Pump (diesel)
2. Pump (diesel)

**Power equipment**

1. Diesel generators  
(Any other plant/equipment)

**19.2 CONSUMABLES:**

The contractor shall arrange & provide all consumable items of best quality in adequate number / quantity as per specifications required for day-to-day working for satisfactory completion of the work at his own cost. The material so supplied shall be of best quality according to the specification.

- i) Soldering and brazing alloy, flux, various types of welding electrodes, filter materials etc.
- ii) Industrial and welding gases like oxygen, acetylene, compressed air, water, etc.
- iii) Kerosene, rust removing liquid, cleaning cloths, chemical liquid for pickling, CTC, xylol, thinner, cotton wastes, jointing compounds, M-seal, Teflon tapes, engineers blue, adhesive tapes etc.
- iv) Clamps, GI Wires, bolts, nuts and washers as required.
- v) And all other consumable materials mentioned in tender specification in respective section and necessary for completion of work.

**19.3** The contractor shall submit a list of all materials, tools and tackles, equipments, consumables etc. brought inside the plant site to be duly verified by Engineer.

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**ANNEXURE "A"**

**FORMAT FOR (EFT) ELECTRONIC FUND TRANSFER**

You are requested to submit the information as per details given below at the earliest to enable processing of e-payment:

1. Name of the Supplier (Max 60 char)
2. Account No(Max 17 char)
3. Name of the bank, branch, city (Max 60, 40 and 20 characters respectively)
4. Branch Code (Max 5 char)
5. MICR Code (Max 30 char)
6. IFSC Code (Max. 30 char) [Every NEFT enabled bank / branch has a unique IFSC Code (Indian Financial Security Code)] This code may differ from RTGS IFSC code.

**VENDORS / BIDDERS ARE SUPPOSED TO SUBMIT THE INFORMATION ON FIRM'S LETTER HEAD DULY ENDORSED AND STAMPED BY THEIR BANKERS.**

In addition to above information please also furnish the following details to enable faster clearance of bills.

7. E-Mail Address (Max 40 char)
8. Details of TIN No. (Max 11 char)