

***NTPC LIMITED***  
*(A Government of India Enterprise)*



***SECTION – III***

***GENERAL CONDITIONS OF CONTRACT  
(GCC)  
FOR O&M WORKS***

*VER: 2.1*

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## GENERAL CONDITIONS OF CONTRACT

### A. Contract and Interpretation

#### 1. Definitions

- (a) "Employer" / "Owner" / "Corporation" means the NTPC Limited, New Delhi, having its registered office at NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi and shall include their legal representatives, successors and permitted assigns.
- (b) "Contract" means the Contract Agreement entered into between the Employer and Contractor, together with contract documents referred therein. The term "Contract" shall in all such documents be construed accordingly and includes special conditions, specifications, designs, drawings, "Schedule of Quantities/Bill of Quantities" with rates and amount. These documents taken together shall be deemed to form the Contract and shall be complimentary to one another.
- (c) "Contract Documents" mean the following documents that constitute the Contract between the Employer and the Contractor:
  - (i) The Contract Agreement alongwith its appendices
  - (ii) Letter of Award/Service Purchase Order alongwith its appendices including agreed variations annexed.
  - (iii) Amendment to Tender/Bidding Documents
  - (iv) Special Conditions of Contract
  - (v) Technical Specifications & Bid drawings & Field Quality Assurance plan
  - (vi) General Conditions of Contract
  - (vii) The Bid and Bill of Quantities submitted by the Contractor
  - (viii) Instructions to Bidders
- (d) "GCC" means the General Conditions of Contract
- (e) "SCC" means the Special Conditions of Contract.
- (f) "Day" means calendar day of the Gregorian Calendar.
- (g) "Week" means a continuous period of seven (7) calendar days.
- (h) "Month" means calendar month of the Gregorian Calendar.
- (i) The "Contractor" means the individual or firm or company whether incorporated or not, undertaking the Works and shall include its legal representatives, successors, and permitted assigns.
- (j) "Sub-Contractor" shall mean a person or a Corporate body approved by Engineer-in-Charge who has entered into a contract with the Contractor to complete a part of the Works.
- (k) The "Contract Sum" / "Contract Price" means:
  - (i) In the case of Lump Sum Contracts the sum for which the bid is accepted.
  - (ii) In the case of item Rate Contracts the cost of the Works arrived at after extension of the quantities shown in Bill of Quantity (BOQ) by the item rates

for the various items and summing them to arrive at the total price.

- (iii) In case of percentage rate contracts, the estimated value of the contracts as mentioned in the tender adjusted by the contractor's percentage.
- (l) "Engineer-in-Charge/Officer-in-Charge" shall mean the person nominated by the Employer or his duly authorized representative who shall direct, supervise and be in charge of the Works for purposes of the Contract.
- (m) "Market rate" means the rate for an item of Work, determined on the basis of the cost of labour and material brought to Site by Contractor and incorporated in the Works and for use of plant and equipment for the Work executed.
- (n) "Bill Of Quantity" shall mean the priced and completed Bill of Quantity (BOQ) forming the part of the bid or such Bill of Quantity (BOQ) forming the part of the Contract, as the case may be, with amendments, if any, thereto.
- (o) The "Site" means the working Project/Station/Region or any other place where the Works is to be executed under the Contract.
- (p) "Temporary/ Enabling Works" means all temporary works of every kind required in or about the execution, completion or maintenance of the Works.
- (q) "Urgent Works" shall mean any urgent measures which, in the opinion of the Engineer-in-Charge, become necessary during the progress of the Works to obviate any risk of accident or failure or which become necessary for reasons of security and safety.
- (r) "The Works" shall mean the Works to be executed in accordance with the Contract or part(s) thereof as the case may be and shall include all extra or additional, altered or substituted works or temporary/ enabling Works and urgent works as required for performance of the Contract.
- (s) "Cost" shall mean all expenditure reasonably incurred or to be incurred by the Contractor or Employer, as the case may be, whether on or off the Site, including overhead and other charges, but excluding profit.
- (t) Throughout these Bidding Documents, the term "Bid" and "Tender" and their derivatives (Bidder/Tenderer, Bidding/Tendering, Bidding Document/Tender Document, etc.); Bill of Quantity / Schedule of Quantity / Schedule of Quantities/ Bill of Quantities; Employer / NTPC; Bid Security / Earnest Money Deposit; Security Deposit / Performance Security/ Performance Guarantee; Engineer-in-Charge / Engineer, appearing any where in the Bidding Documents shall have the same meaning and are synonymous to each other.

## **2. Heading and Marginal Notes to Conditions**

Heading and marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the Contract.

## **3. Singular & Plural**

Where the context so requires, words importing the singular only will also include the plural and vice versa.

## **4. Order of the precedence of the Documents**

- 4.1 Subject to order of precedence listed below, all documents forming part of the Contract (and all parts thereof) are intended to be correlative, complementary and mutually explanatory. The Contract shall be read as a whole.

4.2 The order of precedence of documents shall be as under:

- I. The Contract Agreement alongwith its appendices
- II. Letter of Award alongwith its appendices
- III. Special Conditions of Contract
- IV. Technical Specifications & Bid drawings & Field Quality Assurance plan
- V. General Conditions of Contract
- VI. The Bid and Schedule of Quantities/ Bill of Quantities submitted by the Contractor
- VII. Instructions to bidders

An amendment issued after execution of contract agreement shall take precedent over the formal contract and all other contract documents.

4.2 Any error in description, quantity or rate in Bill of Quantity (BOQ) or any omission therefrom shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the Works comprised therein according to drawings and specifications or from any of his obligations under the Contract.

**5. Instructions and Notices under the Contract:**

5.1 Subject as otherwise provided in the Contract, all notices to be given on behalf of the Employer and all other actions to be taken on its behalf may be given or taken by the Engineer-in-Charge or any officer for the time being entrusted with the functions, duties and powers of the Engineer-in-Charge by the Employer. All instructions, notices and communications, etc., under the Contract shall be given in writing.

5.2 The Contractor or his authorised representative shall be in attendance at the Site(s) during all working hours and shall superintend the execution of the Works with such additional assistance in each trade as the Engineer-in-Charge may consider necessary. Orders given to the Contractor's representative shall be considered to have the same force as if they had been given to the Contractor himself.

5.3 The Engineer-in-Charge shall communicate or confirm the instructions to the Contractor in respect of the execution of Work in a 'Works Site Order Book' maintained in the office of the Engineer-in-Charge and the Contractor or his authorised representative shall confirm receipt of such instructions by signing the relevant entries in this Book. If required by the Contractor he shall be furnished a certified true copy of such instruction(s).

**6. Contractors Representative**

- (i) Within seven(7) days of the issuance of Service Purchase Order/Letter of Award the Contractor shall nominate the Contractor's Representative and shall request the Employer in writing to approve the person so nominated. If the Employer makes no objection to the appointment within fourteen (14) days, the Contractor's Representative shall be deemed to have been approved. If the Employer objects to the appointment giving the reason therefor, then the Contractor shall appoint a replacement within seven (7) days of such objection.
- (ii) The Contractor's Representative shall represent and act for the Contractor at all times during the currency of the Contract and shall give to the Engineer-in-charge all the Contractor's notices, instructions, information and all other communications under the Contract.
- (iii) All notices, instructions, information and all other communications given by the Employer or the Engineer-on-charge to the Contractor under the Contract shall be given to the Contractor's Representative or, in his absence, its deputy, except as herein otherwise provided.
- (iv) The Contractor shall not revoke the appointment of the Contractor's Representative without the Employer's prior written consent, which shall not be unreasonably withheld. If the Employer consents thereto, the Contractor shall

appoint some other person as the Contractor's Representative, pursuant to the procedure set out in GCC Sub-Clause 6 (i).

- (v) The Contractor's Representative may, subject to the approval of the Employer (which shall not be unreasonably withheld), at any time delegate to any person any of the powers, functions and authorities vested in him or her. Any such delegation may be revoked at any time. Any such delegation or revocation shall be subject to a prior notice signed by the Contractor's Representative, and shall specify the powers, functions and authorities thereby delegated or revoked. No such delegation or revocation shall take effect unless and until a copy thereof has been delivered to the Employer and the Engineer-in-Charge.
- (vi) Any act or exercise by any person of powers, functions and authorities so delegated to him or her shall be deemed to be an act or exercise by the Contractor's Representative.

## 7. **Laws governing the Contract**

This Contract shall be governed by the Indian laws for the time being in force. The Courts at Delhi shall have jurisdiction, in all matters unless otherwise stated in the SCC.

## 8. **Settlement of Disputes [This clause has been modified. Refer "Modified GCC Clause No. 8 - Settlement of Disputes", appended herewith]**

### 8.1 **Settlement of Disputes**

#### 8.1 **Mutual Consultation**

If any dispute of any kind whatsoever shall arise between the Employer and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities, whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such dispute or difference by mutual consultation. If the parties fail to resolve such a dispute or difference by mutual consultation, then the dispute may be settled through Expert Settlement Council / Arbitration / other remedies available under the applicable laws.

#### 8.2 **Resolution of Dispute through Expert Settlement Council**

If the parties fail to resolve such a dispute or difference by mutual consultation, the dispute if the parties agree, may be referred to Conciliation in cases involving disputed amount up to Rs 250 crores, which is to be arrived at considering the claim and counter claim of the parties to the dispute.

##### 8.2.1 **Invitation for Conciliation:**

8.2.1.1 A party shall notify the other party in writing about such a dispute it wishes to refer for Conciliation within a period of 30 days from the date of raising of the dispute in case of failure to resolve the same through mutual consultation. Such Invitation for Conciliation shall contain sufficient information as to the dispute to enable the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action.

8.2.1.2 Upon acceptance of the invitation to conciliate, the other party shall submit its counter claim, if any, within a period of 30 days from the date of the invitation to conciliate. If the other party rejects the invitation or disputed amount exceeds Rs 250 crores, there will be no Conciliation proceedings. There shall be no Conciliation where claim amount is only up to Rs 5 lakhs.

8.2.1.3 If the party initiating Conciliation does not receive a reply within thirty days from the date on which it sends the invitation, or within such other period of time as specified

in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party.

8.2.2 Conciliation:

8.2.2.1 Where Invitation for Conciliation has been furnished under GCC sub clause 8.2.1, the parties shall attempt to settle such dispute through Expert Settlement Council (ESC) which shall be constituted by CMD, NTPC.

8.2.2.2 ESC will be formed from experts comprising of three members from the panel of conciliators maintained by NTPC. However, there will be single member ESC for disputes involving claim and counter claim (if any) up to Rs. 1 crore. CMD will have authority to reconstitute an ESC to fill any vacancy.

8.2.2.3 The eligible persons for consideration for empanelment in the panel of conciliators shall be amongst Retired Civil Servants of Govt. of India not below the rank of Joint Secretary, Retired Judges, Retired Executive directors/Directors/ Chairman of any Maharatna / Navratna company in India other than NTPC Ltd, Retired Independent Directors who have served on the Board of any Maharatna / Navratna company in India other than NTPC Ltd and Independent experts in their respective fields preferably registered with the Indian Council of Arbitration or Delhi International Arbitration Centre or Federation of Indian Chambers of Commerce and Industry or SCOPE Arbitration Forum.

8.2.3 Proceedings before ESC:

8.2.3.1 The claimant shall submit its statement of claims along with relevant documents to ESC members, and to the party(s) indicated in the appointment letter within 30 days of the issue of the appointment letter. The respondent shall file its reply and counter claim (if any) within 30 days of the receipt of the statement of claims. Parties may file their rejoinder/additional documents, if any in support of their claim/counterclaim within next 15 days. No documents shall be allowed thereafter, except with the permission of ESC.

8.2.3.2 The parties shall file their claim and counterclaim in the following format

- a. Chronology of the dispute
- b. Brief of the contract
- c. Brief history of the dispute
- d. Issues

Sl. No.	Description of Claims/ Counter claims	Amount (in foreign currency/INR)	Relevant Contract Clause

- e. Details of Claim(s)/Counter Claim(s)
- f. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)

Note: Statement of claims shall be restricted to maximum limit of 20 pages.

8.2.3.3 In case of 3 members ESC, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, ESC recommendations will be signed by all the members.

8.2.3.4 The parties shall be represented by their in house employees. No party shall be allowed to bring any advocate or outside consultant/advisor/agent to contest on their behalf. Ex-officers of NTPC who have handled the subject matter in any capacity shall not be allowed to attend and present the case before ESC on behalf of contractor. However, ex-employees of parties may represent their respective organizations. Parties shall not claim any interest on claims/counter-claims from the

date of notice invoking Conciliation till execution of settlement agreement, if so arrived. In case, parties are unable to reach a settlement, no interest shall be claimed by either party for the period from the date of notice invoking Conciliation till the date of ESC recommendations and 30 days thereafter in any further proceeding.

8.2.3.5 ESC will conclude its proceedings in maximum 10 meetings, and give its recommendations within 90 days of its first meeting. ESC will give its recommendations to both the parties recommending possible terms of settlement. CMD, NTPC may extend the time/number of meetings, in exceptional cases, if ESC requests for the same with sufficient reasons.

8.2.3.6 Depending upon the location of ESC members and the parties, the venue of the ESC meeting shall be either Delhi/Mumbai/Kolkata/Chennai or any other city whichever is most economical from the point of view of travel and stay etc. All the expenditure incurred in ESC proceedings shall be shared by the parties in equal proportion.

8.2.4 Fees & Facilities to the Members of the ESC

The cost of Conciliation proceedings including but not limited to fees for Conciliator, Airfare, Local transport, Accommodation, cost towards conference facility etc shall be as provided herein below:

S. No.	Fees/ Facility	Entitlement
1	Fees	As paid to NTPC Independent Directors [Presently Rs. 20,000 per meeting]. In addition each conciliator to be paid Rs. 10,000 for attending meeting to authenticate the settlement agreement - max. of Rs. 2,10,000 per case per Conciliator.
2	Secretarial expenses	Rs. 10,000 lump sum (to 1 member only).
3	Transportation in the city of the meeting	Car as per entitlement or Rs. 2,000 per day
4	Venue for meeting	NTPC conference rooms
Facilities to be provided to the out-stationed member		
5	Travel from the city of residence to the city of meeting	As per entitlement of Independent Directors. Executive class air tickets / first class AC train tickets/ Luxury car/ reimbursement of actual fare. However, entitlement of air travel by Business class shall be subject to austerity measures, if any, ordered by Govt of India.
6	Transport to and from airport/ railway station in the city of residence	Car as per entitlement or Rs. 3,000
7	Stay for out stationed members	As per entitlement of Independent Directors.
8	Transport in the city of meeting	Car as per entitlement or Rs. 2000 per day

Aforesaid fees is subject to revision by NTPC from time to time and subject to government guidelines on austerity measures, if any. All the expenditure incurred in the ESC proceedings shall be shared by the parties in equal proportions. The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the ESC proceedings.

8.2.5 If decision of NTPC is acceptable to the contractor, a Settlement Agreement under section 73 of the Arbitration and Conciliation Act 1996 will be signed within 15 days

of contractor's acceptance and same shall be authenticated by all the ESC members. Parties are free to terminate Conciliation proceedings at any stage as provided under the Arbitration and Conciliation Act 1996.

8.2.6 The parties shall keep confidential all matters relating to the Conciliation proceedings. Parties shall not rely upon them as evidence in arbitration proceedings or court proceedings.

### 8.3 **Arbitration**

8.3.1 If the process of mutual consultation and/or ESC fails to arrive at a settlement between the parties as mentioned at GCC Sub-Clauses 8.1 & 8.2 above, Employer or the Contractor may, within Thirty (30) days of such failure, give notice to the other party, with a copy for information to the ESC (as applicable), of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. The mechanism of settling the disputes through arbitration shall be applicable only in cases where the disputed amount (i.e. total amount of Claims excluding claims of interest) does not exceed Rs. 25 crores. In case the disputed amount exceeds Rs. 25 Crores, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party. There shall be no arbitration where the claim amount is only up to Rs. 5 lakhs.

The parties at the time of invocation of arbitration shall submit all the details of the claims and the counter-claims including the Heads/Sub-heads of the Claims/Counter-Claims and the documents relied upon by the parties for their respective claims and counter-claims. The parties shall not file any documents/details of the claims and counter-claims thereafter.

The claims and the counter claims raised by the parties at the time of invocation of the arbitration shall be final and binding on the parties and no further change shall be allowed in the same at any stage during arbitration under any circumstances whatsoever.

The parties to the contract shall invoke arbitration within Six months from the date of completion of the Facilities under the contract or the termination of the contract as the case may be and the parties shall not invoke arbitration later on after expiry of the said period of six months. The parties shall not invoke arbitration other than in the case of completion of the Facilities or the termination of the contract as mentioned above.

Notwithstanding the above, in case of disputes with Indian Contractor who is a Central Government Department /Enterprise /organisation or a State Level Public Enterprise (SLPE), the aforesaid limit of Rs 25 crores shall not be applicable and arbitration proceeding may be commenced irrespective of the amount involved in dispute if the dispute could not be resolved through Conciliation as brought out at GCC Sub Clause 8.2 above.

8.3.2 Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GCC Sub Clause 8.3.1, shall be finally settled by arbitration.

8.3.3 Any dispute raised by a party to arbitration shall be adjudicated by a Sole Arbitrator appointed by CMD, NTPC from the List of empanelled Arbitrators of NTPC in the following manner :-

- a) A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving 60 days notice to the other party.
- b) If the Arbitrator so appointed dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings, it shall be lawful for CMD, NTPC to appoint another person in his place in the same manner as aforesaid. Such person shall proceed with the reference from the stage where his predecessor had left.

- c) It is agreed between the parties that the Arbitration proceedings shall be conducted as per the provisions of Fast Track Procedure as provided under section 29B of the Arbitration and Conciliation Act, 1996 as amended.
- d) Arbitrator shall be paid fees at the following rates:

<b>Amount of Claims and Counter Claims (excluding interest)</b>	<b>Lump sum fees (including fees for study of pleadings, case material, writing of the award, secretarial charges etc.) to be shared equally by the parties.</b>
Upto Rs 50 lakhs	Rs. 10,000 per meeting subject to a ceiling of Rs. 1,00,000/-.
Above Rs 50 lakhs to Rs 1 crore	Rs. 1,35,000/- plus Rs. 1,800/- per lakh or a part there of subject to a ceiling of Rs. 2,25,000/-.
Above Rs. 1 crore and upto Rs. 5 Crores	Rs. 2,25,000/- plus Rs. 33,750 per crore or a part there of subject to a ceiling of Rs. 3,60,000/-.
Above Rs. 5 crores and upto Rs. 10 crores.	Rs. 3,60,000/- plus Rs. 22,500/- per crore or a part there of subject to a ceiling of Rs. 4,72,500/-.
Above Rs. 10 crores	Rs. 4,72,500 plus Rs. 18,000/- per crore or part thereof subject to a ceiling of Rs. 10,00,000/-.

If the claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee which may be used for determining the arbitration fee as brought out above.

- e) If after commencement of the Arbitration proceedings, the parties agree to settle the dispute mutually or refer the dispute to Conciliation, the arbitrator shall put the proceedings in abeyance until such period as requested by the parties. Where the proceedings are put in abeyance or terminated on account of mutual settlement of dispute by the parties, the fees payable to the arbitrator shall be determined as under:
- (i) 40% of the fees if the Pleadings are complete.
  - (ii) 60% of the fees if the Hearing has commenced.
  - (iii) 80% of the fees if the Hearing is concluded but the Award is yet to be passed.
- f) Each party shall pay its share of arbitrator's fees in stages as under:
- (i) 40 % of the fees on Completion of Pleadings.
  - (ii) 40% of the fees on Conclusion of the Final Hearing.
  - (iii) 20% at the time when arbitrator notifies the date of final award.
- g) The Claimant shall be responsible for making all necessary arrangements for the travel/ stay of the Arbitrator including venue of arbitration, hearings. The parties shall share the expenses for the same equally.
- h) The Arbitration shall be held at Delhi only unless specified otherwise in the SCC.
- i) The Arbitrator shall give reasoned and speaking award and it shall be final and binding on the parties.

j) Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof shall apply to the arbitration proceedings under this clause.

8.3.4 In case the Indian Contractor is a Central Government Department/ Enterprise/organisation or a State Level Public Enterprise (SLPE), the dispute arising between the Employer and the Contractor shall be referred for resolution to the Permanent Machinery of Arbitrators (PMA) of the Department of Public Enterprises, Government of India as per Office Memorandum No. 4(1) 2011-DPE(PMA)-GL dated 12.06.2013 issued by Government of India, Ministry of Heavy Industries and Public Enterprises, Department of Public Enterprises and its further modifications and amendments.

8.4 Notwithstanding any reference to the Conciliation or Arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.

(b) the Employer shall pay the Contractor any monies due to the Contractor.

## **B. Subject Matter of Contract**

### **9. Scope of Contract**

The Work to be carried out under the Contract shall be as delineated in Bidding Documents and shall, except as otherwise provided in these conditions, include all labour, materials, tools, plant, equipment, and transport which may be required in preparation of and for and in the full and entire execution and completion of the Works.

### **10. Notices to Local Bodies**

10.1 The Contractor shall comply with and give all notices required under any Governmental authority, instrument, rule or order made under any Act of Parliament, State Laws or any regulation or bye-laws of any local authority relating to the Works. He shall before making any variation from the Contract necessitated by such compliance give to the Engineer-in-Charge a written notice giving reasons for the proposed variation and obtain the Engineer-in-Charge's instructions thereon, in writing.

10.2 The Contractor shall pay and indemnify the Employer against any liability in respect of any fees or charges payable under any Act of Parliament, State laws or any Government instrument, rule or order and any regulations or bye-laws of any local authority in respect of the Works.

### **11. Human Resources**

11.1 The Contractor for the purpose of the Contract shall engage / employ adequate number of key personnel in all areas such as operation, maintenance, repair, testing, inspection, design / engineering (wherever applicable), planning, scheduling and construction and carrying out of all maintenance of his plant and equipment (as detailed in the SCC) and competent and skilled work force as directed by the Engineer-in-Charge. The Engineer-in-Charge will approve any proposed replacement of such key personnel including work force only if their qualifications, experience, competence and capabilities are substantially equal to or better than those personnel originally identified and approved by the Engineer-in-Charge.

11.2 The Engineer-in-Charge may require the Contractor to remove from Site of Works or from any other area of Work related to the Contract, any member of the Contractor personnel or work force who

(i) Persists in any misconduct or lack of care

(ii) Performs his duties incompetently or negligently or otherwise carelessly

(iii) Fails to conform with any provisions of the Contract or

(iv) Persists in any conduct which is prejudicial to the safety, health or

protection of the Work and environment.

If appropriate, the Contractor shall appoint a suitable replacement within fourteen (14) days or within such period as may be agreed between the Engineer-in-Charge and Contractor.

11.3 The Contractor shall unless otherwise provided in the Contract, make his own arrangement for engagement of all staff and labour, local or otherwise and for their payment, housing, transport, lodging and welfare as may be required by law and or by industry practice. The Contractor shall provide the Engineer-in-Charge a return in detail in such form and at such intervals as he may reasonably prescribe showing the staff and number of the several classes of labour and other staff from time to time employed by the Contractor at Site or in connection with the Work along with such information as the Engineer-in-Charge may reasonably require.

**11.4 Labour laws and Regulations and compliance thereof**

11.4.1 During the entire period of Contract, the Contractor and his Sub-Contractors shall, at all times abide by all existing labour enactments, rules made therein, regulations, notifications and bye-laws by the appropriate government, local authority or any other labour laws or notification that may be issued under any labour law prevailing as on the date seven (7) days prior to the date set for opening of the bids, published by the State or Central Government or Local Authorities.

During the entire period of Contract, the Contractor and his Sub-Contractors shall, at all times abide by the following Acts/Statutes related to Human Resources:

1. Factories Act, 1948;
2. Contract Labour (Regulation & Abolition) Act, 1970;
3. EPF & MP Act, 1952;
4. Building & Other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996;
5. ESI Act, 1948;
6. Minimum Wages Act, 1948;
7. Payment of Wages Act, 1936;
8. Payment of Bonus Act, 1965;
9. Payment of Gratuity Act, 1972;
10. Workmen's Compensation Act, 1923;
11. ID Act, 1947;
12. Maternity Benefit Act, 1961;
13. Inter-State Migrant Workmen (Regulation of Employment & Conditions of Service) Act, 1979;
14. Fatal Accidents Act, 1855
15. Model Welfare Code
16. The Building And Other Construction Workers' Welfare Cess Act, 1996
17. The Carriage by Road Act, 2007.

The above will deem to include all relevant/applicable rules made thereunder, regulations, notifications and bye laws of the State or Central Govt. or the local authority and any other labour law (including rules) regulations, bye laws as well as those that may be passed or notification that may be issued under any labour law present and in future either by State or Central Govt. or by local authority.

This list is not in any way exhaustive and shall not absolve the Contractor from any of his liabilities or responsibilities in compliance with any other laws, regulations, notifications that may be in force during the tenure of Contract.

11.4.2 The Contractor and his Sub-Contractors shall indemnify the Employer, from any action taken against the Employer by any competent authority in connection with the enforcement of the applicable laws, regulations, notifications, on account of contravention of any of the provisions therein, including amendments thereto. If the Employer is caused to pay or otherwise made liable, such amounts as may be necessary for non-observance of the provisions stipulated in the laws, rules, notifications including amendments, if any on the part of the Contractor and/or his

Sub-Contractors, the Engineer-in-Charge / Employer shall have the right to deduct any such money from any amount due to the Contractor including his performance security, under the Contract. The Employer shall also have the right to recover from the Contractor any sum required or estimated as required for making good any loss or damage suffered / likely to be suffered by the Employer, on this account.

- 11.4.3 If due to an enactment of any new Act or Statute and rules made thereunder or any modification to the Acts/Statute or rules made thereunder, all after seven (7) days prior to the date set for opening of bids and as a consequence thereof, the Contractor has to incur additional cost or expenditure, the same will be reimbursed by the Employer to the Contractor, excepting those due to reasons attributable to the Contractor and those being already compensated by other provisions of the Contract, like Price Adjustment, Taxes and Duties etc.
- 11.4.4 It is specifically agreed that the Contractor and his Sub-Contractors shall obtain all the necessary registration, licenses, permits, authorisations etc. required under various enactments / Regulations enforced from time to time, specifically registration as employer under Provident Fund Act and Contract Labour Regulation & Abolition Act, and the Employer shall not be liable for any violation by the Contractor in this regard.
- 11.4.5 The employees of the Contractor or his Sub-Contractor(s) shall in no case be treated as the employees of the Employer at any point of time.
- 11.4.6 The Contractor and his Sub-Contractors shall be liable to make all due payments to all their employees and ensure compliance with labour laws. If the Employer, is held liable as 'PRINCIPAL EMPLOYER' or otherwise to incur any expenditure or to make any contributions under any legislation of the Government or Court decision, in respect of the employees of the Contractor or his Sub-Contractors, then the Contractor would reimburse the amounts of such expenditure/contribution so made by the Employer.
- 11.4.7 The Contractor shall employ labour in sufficient numbers to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the contract and to the satisfaction of the Engineer-in-charge.
- 11.4.8 The contractor shall be liable to pay his contribution and the employees contribution to the State Insurance Scheme in respect of all labour employed by him for the execution of the contract, in accordance with the provision of "The Employees State Insurance Act, 1948" as amended from time to time. In case the contractor fails to submit full details of his account of labour employed and the contribution payable, the Engineer-in-charge shall recover from the running bills of Contractor an amount of contribution as assessed by him. The amount so recovered shall be adjusted against the actual contribution payable to Employees State Insurance.

However, in case the ESI act is not applicable to the area where the Work is executed, as evidenced by the Certificate/Letter submitted to this effect from the local authorities, the Contractor shall be liable to arrange and pay for the expenses towards the medical treatment in respect of all labour employed by him for the execution of the Contract.

- 11.4.9 Staff quarters & labour hutments at Site if available, may be provided to the Contractor on chargeable basis at the discretion of the Engineer-in-Charge on mutually agreed terms and conditions.

**11.4.10 Safety**

The Employer has formulated Safety Rules for Construction & Erection of Power Plants and is enclosed at Annexure-A to GCC. These Safety Rules lay down the safety requirements for safe execution of project activities, responsibilities of the Contractor, and all concerned involved in Construction and Erection. The Contractor, including his sub-contractors, while executing the Works, shall strictly comply with these Safety rules and statutory requirements (including amendments thereof), as applicable, in respect of safety of personnel, equipment and materials at site area under execution of the Contractor.

In addition to other clauses specified in 'NTPC Safety Rules for Construction and Erection of Power Plants' [as enclosed with GCC/SCC], Contractor shall adhere to the following provisions for payment linked to Safety Compliances as specified in Payment Terms:

i) **Safety Personnel**

Contractor shall adhere to the requirements of Clause 2.3 (requirement of Safety personnel) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

ii) **Personal Protective Equipment & Safety Equipment**

Contractor shall adhere to the requirements of Clause 4 (Personal Protective Equipment) of 'NTPC Safety Rules for Construction and Erection of Power Plants' and the provisions of the Bidding Documents with regards to number of Safety Equipment/PPEs to be provided by the Contractor.

In case Contractor fails to comply with aforesaid requirement, EIC/Safety Officer shall issue a warning letter/Non-compliance Memo to the Contractor regarding the same advising him to take corrective action.

EIC/NTPC Safety Officer shall maintain written record of all such incidents when Warning letter/Non-compliance Memo is issued to the Contractor for not meeting the requirements of Clause 4.0 (Personal Protective Equipment) and the provisions of the Bidding Documents.

iii) **Safety Induction and Training**

Contractor shall adhere to the requirements of imparting Safety training as per Clause 8.0 (Safety Induction and Training) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

Contractor shall maintain written record of Safety trainings imparted to its Employees/ workmen for purpose of aforesaid payment. These records shall be available for review of EIC/NTPC Safety Officer all the time.

iv) **Medical and First Aid Amenities**

Contractor shall adhere to the requirements of Clause 13 (Medical and First Aid Amenities) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

NTPC Safety Officer/EIC shall maintain written record of incidences when requisite Medical and first aid amenities as per Clause 13 of Safety Rules were not available for purpose of aforesaid payment.

v) **Compliance to Work Permit System**

Contractor shall adhere to the requirements of Clause 17 (Work Permit System) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

In case Contractor fails to obtain work permit or fails to comply to any requirements of aforesaid Work permit system, he will be issued a warning letter/Non-compliance Memo by EIC/Safety Officer of NTPC regarding the same advising him to take corrective action.

NTPC Safety Officer / EIC shall maintain written record of all such incidents when Warning letter / Non-compliance Memo is issued to Contractor for not complying with the requirements of Work Permit System as per Clause 17 of Safety Rules for purpose of aforesaid payment

**12. Shift Work**

12.1 To achieve the required rate of progress in order to complete the Works within the

Time for Completion, the Contractor may carry on the work, round the clock, in multiple shifts per day, as may be necessary. The Contractor shall however be responsible for complying with all applicable laws in this regard.

- 12.2 No additional payment will be made on account of round the clock working in multiple shifts.
- 12.3 Wherever the work is carried out at night adequate lighting of working areas and access routes for pedestrians or vehicles shall be provided by the Contractor at his cost. Sufficient notice should be given by the Contractor to the Engineer-in-Charge regarding the details of works in shifts so that necessary supervision could be provided.

**13. Cooperation with other Contractors/ Agencies**

- 13.1 The Contractor shall extend all reasonable cooperation to other Contractors, agencies etc. of the Employer engaged in connection with the Work or any other Work not in the scope of this Work as may be required by the Engineer-in-Charge.
- 13.2 The Contractor shall attend at his cost, all the meetings with the Engineer-in-Charge, other contractors and the Consultants of the Employer for the purposes of the Contract. The Contractor shall attend such meetings as and when required by the Engineer-in-Charge.

**14. Security Watch and Lighting**

The Contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the Engineer-in-Charge for the protection of the Works or for the safety and convenience of those employed on the Works or the public.

**15. Prevention of Pollution**

The Contractor shall make necessary arrangement to prevent pollution. of the water in any adjacent water bodies including stream, springs, nallah, river and lakes etc. The Contractor shall be solely responsible and liable for all damage caused by any pollution that may take place during the execution of the Work.

**16. Training of Apprentices**

The Contractor shall during the currency of the Contract when called upon by the Engineer-in-Charge engage and also ensure engagement by Sub-Contractors employed by the Contractor in connection with the Works, such number of Apprentices in the categories and for such periods as may be reasonably required by the Engineer-in-Charge. The Contractor shall train them as required under the Apprentices Act, 1961 and shall be responsible for all obligations of the Employer under the Act including the liability to make payment to apprentices as required under the Act.

**17. Handing over of Site**

- 17.1 The Employer shall make available the Site to the Contractor as soon as possible after the award of the Contract free of encumbrance. The Contractor shall not be permitted to enter on (other than for inspection purposes) or take possession of the Site until instructed to do so by the Engineer-in-Charge in writing.
- 17.2 The Employer reserves the right to hand over the Site in parts progressively to the Contractor. The Contractor will be required to take possession of the Site without any undue delay and do Work on the released fronts in parts without any reservation whatsoever.
- 17.3 However, in case of any delay in handing over of the Site to the Contractor, which delays the performance of the Work, commensurate to the resources mobilised by the Contractor, then the Contractor will be eligible for suitable extension in time for

completion of the Works or any other compensation as per the provisions of GCC Sub-Clause 25.6.

- 17.4 The portion of the Site to be occupied by the Contractor shall be indicated by the Engineer-in-Charge at Site and the Contractor shall on no account be allowed to extend his operations beyond these areas. Further, the Contractor shall not hinder in any way the working of other contractors on the Site.
- 17.5 The Contractor shall plan his work as per space available. The Contractor shall make his own arrangement for movement of men, machinery, other equipment etc. required for carrying out the Works included under this Contract
- 17.6 The Contractor shall provide, if necessary, all temporary access to the Work Site and shall alter, adapt and maintain the same as required from time to time and shall take up and clear them away as and when no longer required and, as and when ordered by the Engineer-in-Charge and make good all damage done to the Site.
- 17.7 The Contractor shall be permitted the usage of facilities like stair case, lifts etc. of the Employer for the purposes of the Contract. If any damage is done to the facilities by the Contractor, the same shall be made good by the Contractor at his own cost, but as may be directed by the Engineer-in-Charge.

#### **18. Duties and Powers of Engineer-in-Charge and his representatives**

- 18.1 The Engineer-in-Charge shall have the full powers in respect of all the matters in connection with or arising out of this Contract, excepting those specifically reserved for the Employer. However, the Engineer-in-Charge shall not have any power to relieve the Contractor of any of his obligations and responsibilities under the Contract.
- 18.2 The duties of the representative of the Engineer-in-Charge are to watch and supervise the Works and to test and examine any materials to be used or workmanship employed in connection with the Works. He shall have no authority to order any work involving any extra payment by the Employer nor to make any variation in the Works, creating a financial liability to the Employer.
- 18.3 The Engineer-in-Charge may from time to time in writing delegate to his representative any of the powers and authorities vested in the Engineer-in-Charge and shall furnish to the Contractor a copy of all such written delegation of powers and authorities. Any written instruction or written approval given by the representative of the Engineer-in-Charge to the Contractor within the terms of such delegation shall bind the Contractor and the Engineer-in-Charge as though it has been given by the Engineer-in-Charge.
- 18.4 Failure of the Representative of the Engineer-in Charge to disapprove any work or materials shall not prejudice the power of the Engineer-in-Charge thereafter to disapprove such Work or materials and to order the pulling down, removal or breaking up thereof.
- 18.5 If the Contractor shall be dissatisfied with any decision of the representative of the Engineer-in-Charge he shall be entitled to refer the matter to the Engineer-in-Charge who shall there-upon confirm, reverse or vary such decision.

#### **C. Payment**

##### **19. Security Deposit**

- 19.1.1 The Contractor shall provide a Security Deposit in the amount equivalent to 10% (ten percent) of the contract value. The Security Deposit shall be held by the Employer as security for the due performance of the Contractor's obligations under the Contract.
- 19.1.2 The Bid security/Earnest money deposit furnished by the Contractor will be treated as part of the security deposit. However, if the earnest money deposit is in the form of a bank guarantee, the Contractor will be required to replace it with initial security

deposit of equivalent value in one of the forms given here-in-after, within 30 days of issue of Letter of Award/Service Purchase Order. This shall be subject to adjustment while deducting security deposit from the first on account payment.

Further, the Employer at the time of making payment deduct security deposit at the rate of 10 per cent of gross amount of each on account payment until the security deposit so deducted reaches the values mentioned above.. The deductions for the retention of money(ies) will be stopped after the security deposit limit of 10% (ten percent) of the Total Contract Value is reached, unless otherwise required in terms of clause 19.1.3.

The earnest money furnished by the Contractor shall be returned / refunded to him after receipt of the aforesaid bank guarantee and after verification of aforesaid bank guarantee from the issuing bank.

- 19.1.3 The Contractor may, at any time and from time to time, during the course of or after completion of the work, with the permission of the Employer, substitute his cash security deposit, including retention money(ies) deducted from his bills and lying with the Employer, by Bank Guarantee(s) in the prescribed proforma from a Bank acceptable to the Employer and withdraw the equivalent cash amount(s), provided the amount covered by any such Bank Guarantee is not less than Rs.1 lakh (Rupees One lakh only).

If at any time during the course of the work, the gross value of the work, as reflected by the Running Bills submitted by the Contractor has in the opinion of the Employer (which shall be final and binding on the Contractor), exceeded or is likely to exceed the Total Contract Value indicated in the acceptance of Tender, the Contractor shall be bound to pay further Security Deposit as will make up the total Security Deposit to 10%(ten percent) of the then anticipated Contract Value in any of the forms mentioned above failing which the Employer shall be at liberty to make such deductions towards Security Deposit from the Contractor's Running Bills, and will, at all times, ensure that the Security Deposit does not fall below 10% (ten percent) of the gross value of the work, as reflected by the gross payments made to the Contractor, without taking into account any deductions. If the shortfall in Security Deposit is discovered after completion of the work, the shortfall shall be made good by the Contractor on demand from the Employer, failing which, it will be recovered from any money(ies) due to the Contractor from the Employer under this contract or any other contract with the Corporation.

- 19.1.4 The Contractor, if he so desires, can also furnish a full Security Deposit of 10% (ten percent) of the Total Contract Value towards faithful performance of the Contract, in one or more of the following modes:
- a) by Demand draft/Pay Order/Bankers Cheque drawn in favour of "NTPC Ltd." payable at place mentioned in SCC (Cheques shall not be accepted) or any other mode specified in SCC.
  - b) If the Earnest Money Deposit has been made by Demand Draft, the Contractor may be permitted to adjust the same towards part of the Initial Security Deposit and pay the balance in the manner stipulated at (a) above.
  - c) By Bank Guarantee(s) in the prescribed form as included in the Tender Documents, from a Bank in India acceptable to the Employer, provided the amount covered by such Bank Guarantee is not less than Rs.1,00,000/- (Rupees One Lakh only). The format of the said bank guarantee shall be in accordance with the format included in the Section VII (Forms and Procedures). This bank guarantee shall have an initial validity upto ninety (90) days beyond the completion of Defect Liability Period of the Contract. However, in case the date of completion of defects liability period gets extended, the validity of the Security Deposit shall be extended by the period of extension of completion of defects liability.
  - d) Any other mode specified in the SCC/ITB.

- 19.1.5 If after completion of the work, the Total Contract Value falls below the Total Contract Value as indicated in the Letter of Award/Service Purchase Order/Acceptance of tender, such that the total Security Deposit in the hands of the Employer is in excess of the Total Security Deposit calculated at 10% (ten percent) of the reduced contract value, such excess amount, as is in the form of cash in the hands of the Employer, shall be refunded to the Contractor along with the Final Bill.

If the Security Deposit furnished by the Contractor to the Employer in the form of Bank Guarantees, the Contractor shall be permitted to replace the Bank Guarantee(s) already submitted, by Bank Guarantee(s) to cover the reduced value of Security Deposit, at the time of final bill.

- 19.1.6 The Contractor shall from time to time at the request of the Employer suitably extend the validity of any Bank Guarantee (whether furnished by way of Initial Security Deposit or Security Deposit) for such period(s) as may from time to time be required by the Employer failing which, without prejudice to any other right or remedy available to the Employer, the Employer shall be entitled to encash the Bank Guarantee.

- 19.2 The Engineer-in-Charge shall release/refund one half (50%) of the Security deposit refundable to the Contractor on completion of work. The Contractor shall alongwith his request submit the following:

- (i) Work completion certificate in terms of GCC clause 43
- (ii) Reconciliation of free issue material, if any.
- (iii) Reconciliation of Statutory requirements of PF, ESI etc. as applicable,
- (iv) Submission of "Certificate Regarding Labour Payments and Statutory Requirements"

The Contractor shall have to provide any other declaration forms required to be submitted.

The Engineer-in-Charge shall on demand from the Contractor release the balance security deposit on expiry of the Defects Liability Period or on payment of the amount of the Final Bill payable, whichever is later, provided the Engineer-in-Charge is satisfied that there is no demand outstanding against the Contractor, arising out of the Contract. The Contractor shall have to provide necessary declaration forms.

- 19.3 No interest shall be payable to the Contractor against the Security Deposit furnished/recovered by way of deductions from running account payments from the Contractor, by the Employer.

## **20. Payment on Account/Progressive Interim Payments**

Unless otherwise specified in the SCC, payment to the Contractor shall be released as per the provisions made herein below.

- 20.1 Bills for progressive payments shall be submitted by the Contractor on monthly basis on or before the date fixed by the Engineer-in-Charge for the Work executed during the preceding period. The Engineer-in-Charge shall then arrange to have the bill verified for payment. The Contractor is to submit all related documents with the bill to EIC as applicable like PF deposit receipt, ESI deposit receipt, Labour payment receipts, Insurance Cover (as per provisions given else where in the GCC). However, for the first RA bill PF and ESI deposit receipt copy shall not be insisted upon.

- 20.2 The progressive payment shall be released after certification by Employer's Field Quality Assurance Department (as applicable), that the Works have been performed in accordance with the Technical Specifications and also upon authorisation for the payment by the Engineer-in-Charge. However, the release of first progressive interim payment shall also be subject to submission of documentary evidence by the Contractor towards having taken the insurance policy(ies) in terms of relevant provisions of GCC Clause entitled 'Contractor's Liability and Insurance' and acceptance of the same by Engineer-in-Charge.

- 20.3 (i) In case of part acceptance of the Work, the Engineer-in-Charge shall have the right to release payment for that part of the Work.
- (ii) Acceptance of the Work without fulfilling all the obligations mentioned under rates and measurement in Technical Specifications shall be considered as part acceptance of Work.
- 20.4 The Contractor shall submit his bill, by the date stipulated by the Engineer-in-Charge, in the prescribed proforma, supported with measurements, jointly acknowledged and accepted in the measurement books. Payments of the Contractor's bill shall be paid by the Employer within twenty-one (21) days from the date of submission of bill subject to the authorisation of the Engineer-in-Charge. Alternatively, if so desired by the Contractor, after preliminary scrutiny and certification by the Engineer-in-Charge, 75% of the certified net payable amount shall be made by the Employer within seven (7) days. The amount certified shall account for all deductions, including statutory deductions as for GST (if applicable), income tax, etc., recoveries for advances and any other amounts due from the Contractor. The balance 25% shall be paid within twenty-one (21) days, from the date of submission of the said bill. Such payments made by the Employer shall not constitute any acceptance of the measurements of items of the Works by the Employer and the Engineer-in-Charge shall have the right to alter, modify, reduce or diminish the quantities or classification entered in the Measurement Books or Bills. The Employer shall have right to recover any amount paid in an earlier bill from any subsequent bill and should the amount to be recovered be more than the amount of the subsequent bill, the Contractor shall on demand from the Engineer-in-Charge or Employer immediately refund the extra amount to the Employer within seven (7) days. Wherever technically feasible, the payments shall be released electronically only as per details of bank account indicated in the Contract.
- 20.4.1 In cases of any discrepancy observed by the Employer in Contractor's bill, clarifications shall be sought in writing by the Employer within ten (10) days from the date of receipt of Contractor's bill/invoice/debit note by the Employer. The Contractor shall be required to submit the requisite clarifications within ten (10) days from the date of issuance of queries by the Employer. In case, no mutual agreement is reached between the Employer and the Contractor on any part of the bill/invoice, within ten (10) days of submission of clarification by the contractor, the Contractor shall issue a revised bill/invoice to avoid mismatch in GST returns of the Employer and the Contractor. Payment against agreed and admissible part shall be processed as per payment procedure within ten (10) days after receipt of the revised bill/invoice. The bill/invoice for the balance amount under question may be separately submitted for consideration of the Employer after resolution of issues of payment by the Employer. In case of non-submission of satisfactory clarification by the Contractor within the stipulated period, NTPC shall not be liable for the delay in making payment. If the bill submitted by Contractor is incorrect and has gross discrepancies, the bill shall be summarily rejected and returned to the Contractor. In the event of dispute, the same shall be settled as per GCC Clause (Settlement of Disputes).
- 20.4.2 The Employer has established a Vendor Bill tracking System where Vendor/Contractor can submit their bill/invoice and track its status.
- 20.5 Any interim certificate given relating to Work done or materials delivered, may be modified or corrected by any subsequent interim certificate or by the final certificate. No certificate of the Engineer-in-Charge supporting an interim payment shall itself be conclusive evidence that any Work or materials to which it relates is/are in accordance with the Contract.
- 20.6 In case of the delayed Work beyond the scheduled completion period, pending consideration of extension of time of completion if it had been requested by the Contractor, interim payments shall continue to be made as herein above provided.
- 20.7 Payment of Amount linked to Safety Aspects/ compliance to Safety Rules**

**I. The amount linked to Safety Aspects/ compliance to Safety Rules shall be paid in two parts, viz,**

A) 10% amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and

B) 90% amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in Safety Rules of NTPC.

**NOTE:**

**Amount linked to Safety Aspects/ Compliance to Safety Rules' specified in Price Schedule**

$$Y = \frac{\text{Total amount for Service Portion of the Contract}}{\text{Total amount for Service Portion of the Contract}} \times 100$$

**II.** While raising each RA Bill, Contractor shall claim Amount linked to Safety Aspects/ Compliance to Safety Rules in such a manner that amount claimed is equal to Y% of the total works portion (i.e. Amount of works/services other than the amount linked to safety Aspects/Compliance to safety rules) of RA Bill.

**III.** This aforesaid amount at para 20.7 (I) shall be withheld from first and second monthly RA bill of the respective quarter/three-month period and shall be released in part or full based on safety compliance duly certified by EIC and Safety-in-charge on quarterly basis. The amount for the entire quarter (i.e. RA bills raised during a 3-month period) shall be paid to the Contractors at the end of that three months period along with 3<sup>rd</sup>/last RA Bill for the quarter/three months period upon complying the following conditions:

A) **Amount of RA Bill linked to Fatal/ Major Accidents (0.1Y i.e. 10% of amount as elaborated above at para I.A)**

Aforesaid amount (on quarterly basis) shall be payable to Contractor only in case, there is

i) No fatal injury or accident causing death in that three months period  
and

ii) No Major injury or accident causing 25% or more permanent disablement to workmen or employees in that three months period. Permanent disablement shall have the same meaning as indicated in The Workmen's Compensation Act' 1923.

In case of any fatal injury or accident as elaborated above occurs during that three month period, the stipulated amount (0.1Y) subject to minimum of **Rs 10 Lakh per fatality** shall be forfeited and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

In case of any Major injury or accident causing 25% or more permanent disablement to workmen or employees occurs during that three month period, **Rs 4 lakh per Major injury** shall be deducted from the amount (0.1Y) linked to Fatal/ Major Accidents and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

Further, in case, Contractor doesn't raise RA Bills in any three month period/quarter and if any fatal injury and/or major accident takes place in that period, EIC shall deduct the amount [Rs 10 Lakh per fatality and Rs 4 lakh per Major injury] pertaining to this particular quarter from his next RA bill/due payment. In case, the amount to be deducted/forfeited exceeds the amount linked to Safety, the same shall be recovered from any other payments immediately due to the Contractor under the Contract.

The amount deducted/forfeited as mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Workmen's Compensation Act' 1923 and rules framed there under or any other applicable laws as applicable from time to time.

**B) Amount of RA Bill linked to Compliance of Safety Rules (0.9Y i.e. 90% of amount as elaborated above at para I.B)**

Aforesaid amount (on quarterly basis) shall be payable to Contractor in five equal parts under five heads as under:

**(i) Amount payable on deployment of required Safety Personnel**

One fifth of the amount specified in para 20.7.III.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by EIC in consultation with Safety dept. that required number of Safety personnel as per Clause 2.3 of 'NTPC Safety Rules for Construction and Erection of Power Plants' (as enclosed with GCC/SCC) have been deployed. The aforesaid amount linked to deployment of requisite safety personnel shall be paid as under:

- a) 50% of the amount referred at 20.7.III.B.(i), for deployment of Safety Supervisors shall be paid on pro-rata basis depending upon the actual no. of Safety Supervisors deployed vis-à-vis actual requirement :

Amount to be paid =  $0.09Y \times \text{Works portion of RA bill amount} \times (a/b)$

Where 'a' is actual no. of Safety supervisors deployed

and

'b' is required no. of Safety supervisors as per Safety Rules.

In case, actual no. of Safety supervisors deployed is more than requisite number (i.e.  $a/b$  is more than 1), the amount to be paid shall be restricted to 0.09Y.

- b) 50% of the amount referred at 20.7.III.B.(i), for deployment of Safety Officers

shall be paid on pro-rata basis depending upon the actual no. of Safety Officers deployed vis-à-vis actual requirement:

Amount to be paid =  $0.09Y \times \text{Works portion of RA bill amount} \times (a/b)$

Where 'a' is actual no. of Safety Officers deployed

and

'b' is required no. of Safety Officers as per Safety Rules.

In case, actual no. of Safety Officers deployed is more than requisite number (i.e.  $a/b$  is more than 1), the amount to be paid shall be restricted to 0.09Y.

- c) In case aforesaid requisite no. of Safety personnel are not deployed by Contractor, amount not to be paid as calculated above for that particular quarter/three-month period shall be forfeited and shall not be payable to the Contractor under the contract.

(ii) **Amount payable on providing requisite Personal Protective Equipment & Safety Equipment**

One fifth of the amount specified in para 20.7.III.B (calculated as 0.18Y of Service portion amount of RA Bill), shall be paid upon certification by EIC in consultation with Safety dept. that Contractor has adhered to the requirements of Clause 4 (Personal Protective Equipment) of 'NTPC Safety Rules for Construction and Erection of Power Plants' and the provisions of the Bidding Documents with regards to number of Safety Equipment/PPEs to be provided by the Contractor.

In case of non-compliance by Contractor, warning letter/Non-compliance shall be issued by EIC/Safety Officer of NTPC as per clause 10.4.9 (ii) of GCC. Further, if more than two such warning letters/Non-Compliance Memos are issued in a quarter/three monthly period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the Contractor under the contract.

(iii) **Amount payable on providing requisite Safety Induction and Training**

One fifth of the amount specified in para 20.7.III.B (calculated as 0.18Y of Service portion amount of RA Bill), shall be paid upon certification by EIC in consultation with Safety dept. that Contractor has adhered to the requirements of imparting Safety training ad per Clause 8.0 (Safety Induction and Training) of 'NTPC Safety Rules for Construction and Erection of Power Plants' to at least 90% of its employees/workmen (who have not been previously provided with requisite training) in a quarter/ three months period.

In case Contractor fails in meeting the aforesaid requirement, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the Contractor under the contract.

(iv) **Amount payable on providing requisite Medical and First Aid Amenities**

One fifth of the amount specified in para 20.7.III.B (calculated as 0.18Y of Service portion amount of RA Bill), shall be paid upon certification by EIC in

consultation with Safety dept. that Contractor has adhered to the requirements of Clause 13 (Medical and First Aid Amenities) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

In case Contractor fails to provide Medical and first aid amenities as per requirement of aforesaid Clause 13 even on one incidence in any quarter/three-month period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the Contractor under the contract.

(v) **Amount payable on compliance to Work Permit System**

One fifth of the amount specified in para 20.7.III.B (calculated as 0.18Y of Service portion amount of RA Bill), shall be paid upon certification by EIC in consultation with Safety dept. that Contractor has adhered to the requirements of Clause 17 (Work Permit System) of 'NTPC Safety Rules for Construction and Erection of Power Plants'.

In case of non-compliance by Contractor, warning letter/Non-compliance shall be issued by EIC/Safety Officer of NTPC as per clause 10.4.9 (v) of GCC. Further, if more than two such warning letters/Non Compliance Memos are issued in a quarter/three monthly period, above mentioned amount for that particular quarter/three month period shall be forfeited and shall not be payable to the Contractor under the contract.

- IV. In case 'Amount linked to Safety Aspects / compliance to Safety Rules' is less than % of the total Contract value as specified in SCC, the amount by which it is lower shall be retained proportionately from the other components of the Contract price while releasing payments of each RA bill. No interest shall be payable on the amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by EIC and Safety-in-charge on quarterly basis.

**21. Contract Price**

The Contract price shall remain **FIRM** through out the contract period and will be NOT be subject to adjustment for price escalation during the performance of the Contract until unless specified otherwise in the SCC.

**22. GST, Taxes, Duties, Levies etc.**

22.1 "Goods and Services Tax" or "GST" means taxes or cess levied under the Central Goods and Services Tax Act, Integrated Goods and Services Tax Act, Goods and Services Tax (Compensation to States) Act and various State/Union Territory Goods and Services Tax Laws and applicable cesses, if any under the laws in force (hereinafter referred to as relevant GST Laws), which shall be fully complied with by the Supplier of Services ie Contractor.

22.2 Except as otherwise specifically provided in the Contract, the Contractor shall be liable and responsible for the payment of all GST and any other taxes, duties, levies and charges imposed on the Contractor, its Sub-Contractors and those imposed on the Contractor's equipment, materials, supplies and services to be used in the performance of the Contract or furnished under the Contract.

22.3 The Contractor shall be responsible for payment of any tax levied on the 'Works Contract' in accordance with the applicable GST Law or Notification(s) by the State

or Central Government or other authorities and rules made thereunder including amendments, if any.

The Contract Price shall be exclusive of GST and all other taxes, duties applicable as per the rates prevailing as on seven (7) days prior to the date of bid opening.

However, the Contract Price shall be inclusive of any Seigniorage Fee or Royalties or cess or other charges payable on the quarried or mined metal, minerals or minor minerals, as the case may be, at the rate(s) prevailing within seven (7) days prior to the date of bid opening.

The rate of GST and all other taxes & duties applicable shall be quoted under relevant heading in the MS Excel Bill of Quantity and in case RCM is applicable on any supplies same shall be specified in Attachment 9 of Forms & Procedures (Section VII).

- 22.4 Where Employer as a service receiver is liable to pay GST under Reverse Charge Mechanism (RCM), GST applicable shall be paid by Employer.

In case of services covered under Reverse Charge Mechanism, for evaluation the bid of contractor shall be cost compensated as per the GST rate applicable as per GST Law.

Bidder must indicate the value of supplies covered under RCM in his bid in Attachment 9 of Forms & Procedures (Section VII).

In case RCM is applicable on any Supply and the Supply with value has not been specified by the Bidder in Attachment 9 of Forms & Procedures (Section VII), RCM paid by Employer shall be to Bidders account.

In case GST is applicable on free issue material, the Bidder must indicate the same in Attachment 9 of Forms & Procedures (Section VII). In case the same has not been specified by the Bidder in Attachment 9 of Forms & Procedures (Section VII), GST paid by Employer shall be to Bidder's account.

GST component will be deposited with the concerned authorities by the Employer.

- 22.5 In case of bids received from unregistered dealers, for evaluation their bid shall be cost compensated as per the GST rate applicable in view of Reverse Charge Mechanism (RCM) as per GST Law.

Bidder who does not indicate their GST number in the bid in Attachment 8 shall be considered as unregistered dealer.

GST component will be deposited with the concerned authorities by the Employer.

- 22.6 Contractor shall obtain a registration certificate as a dealer under the GST Law, if applicable, and other law(s) relating to levy of tax, duty, cess etc. and necessary evidence to this effect shall be furnished by the Contractor to the Employer prior to raising of invoice/bill of supply under GST.

The Contractor shall be required to submit the GSTIN, if applicable and PAN details to the Engineer-in-Charge before the submission of the first bill/ invoice under the Contract.

- 22.7 Notwithstanding anything to contrary contained in the Contract, the Contractor's right to payment under the Contract is subject to issuance of valid tax invoice/bill of supply as the case may be, payment of applicable GST to the credit of appropriate Government and submission of valid particulars of tax invoice under GST returns in accordance with GST Law.

- 22.8 Employer shall deduct GST at source at the applicable rates in case transactions under the Contract are liable to GST deduction at source.

- 22.9 Unless expressly stated otherwise, a common mechanism for reconciliation of input credit mismatch, to be followed by both NTPC and Supplier, shall be mutually agreed so that both parties follow the same procedure for disclosing the transactions in their respective returns. Notwithstanding anything in the Contract, penalty / damages shall be recovered in case the Contractor makes a default in following the agreed procedure.

- 22.10 The Contractor shall issue tax invoices/bill of supply as applicable, file appropriate returns, and deposit the applicable GST to the account of appropriate government within the time limit prescribed under the GST Law. In the event of any default, Supplier shall be liable to pay the amount which may be imposed on NTPC due to such default.
- 22.11 Provisions of GST law in respect of Related Persons/Parties may appropriately be taken into consideration by Bidders while submitting the bid.
- 22.12 If a new tax, duty or levy is imposed under statute or law in India after the date seven (7) days prior to date of bid opening and the Contractor becomes liable there under to pay and actually pays the said new tax, duty or levy for bonafide use on the Works contracted, the same shall be reimbursed to the Contractor against documentary evidence of proof of payment, provided that the amount thus claimed is not paid/payable under price variation provision of the Contract.

In case of any variation in the rate of existing taxes & duties, an equitable amount shall be payable to/recoverable from the Contractor to fully take into account any such change on production of satisfactory documentary evidence.

In case of variation in the rate of Seigniorage Fee or royalties during the period of contract, an equitable amount shall be payable to/recoverable from the Contractor, upon the submission of satisfactory documentary evidence.

- 22.13 The payment/reimbursement of statutory variations in the rates of tax and/or of new tax, duty or levy imposed under statute or law in India as above, would be restricted only to direct transactions between the Employer and the Contractor.
- 22.14 The Employer shall make necessary tax deductions under Income Tax Act or any other laws, if applicable.
- 22.15 The Contractor shall himself be informed of all the applicable laws, notifications, rules, circulars and other communications of the State or Central or other authorities with regard to levy of any tax, duty, cess, levy or fee etc, which in any manner may impinge upon him in performance of any obligations/responsibilities under or arising out of the Contract.
- 22.16 Contractor should comply with the provisions of e-way bill notified by appropriate authorities from time to time. The existing provisions regarding road permit will continue till such time if applicable.

### **23. Overpayments and Underpayments**

- 23.1 Wherever any claim for the payment of a sum of money to the Employer arises out of or under this Contract against the Contractor, the Contractor upon demand by the Employer or by the Engineer-in-Charge on behalf of the Employer, with explanation of the reasons for such a sum/ claim becoming due, shall forthwith pay the same to the Employer. If the Contractor fails to do so within twenty-one(21) days of such a claim, then the same may be deducted by the Employer from any sum then due or which at any time thereafter may become due to the Contractor under this Contract or from any other sum due to the Contractor from the Employer which may be available with the Employer or from his security deposit.
- 23.2 The Employer reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc. The Employer further reserves the right to enforce and recover any overpayment when detected, notwithstanding the fact that the amount of the final bill may include any item which is under dispute between the parties and referred to for settlement under GCC Clause entitled 'Settlement of Disputes' and notwithstanding the fact that the amount of the final bill figures in the arbitration decision/award.
- 23.3 If as a result of such audit and technical examination, any overpayment is discovered in respect of any Work done by the Contractor or alleged to have been done by him under the Contract, it shall be recovered by the Employer from the Contractor by any or all of the methods prescribed above. Similarly if any underpayment is discovered by the Employer, the amount shall be duly paid to the Contractor by the Employer

forthwith.

23.4 Provided that the aforesaid right of the Employer to adjust overpayments against amounts due to the Contractor under any other Contract with the Employer shall not extend beyond the period of two years from the date of payment of the final bill or in case the final bill is a minus bill, from the date the amount payable by the Contractor under the minus final bill is communicated to the Contractor.

23.5 Any amount due to the Contractor under this Contract for underpayment may also be adjusted against any amount then due or which may at any time thereafter become due from the Employer to the Contractor under any other Contract or account whatsoever.

**24. Time Limit for submission & payment of Final Bill and waiver of rights of all claims**

24.1 The final bill shall be submitted by the Contractor within one (1) month of physical completion of the Works unless otherwise a longer period is agreed to between the Engineer-in-Charge and the Contractor. No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payment of the final bill will be made within two (2) months of receipt of the same.

**24.2 MODE OF PAYMENT**

24.2.1 Wherever technically feasible, the payments shall be released electronically only as per details of bank account indicated in the EFT Form by the Contractor duly certified by the Bank alongwith cancelled cheque. The Contractor shall hold the Employer harmless and Employer shall not be liable for direct, indirect or consequential loss or damage sustained by the Contractor on account of any error in the information or change in bank details provided to the Employer in the prescribed form without intimation to Employer duly acknowledged.

24.2.2 If the payment due to the Contractor is made by the Employer by crossed account payee cheque, the same shall be forwarded to the address given in the Service Purchase Order/Contract Agreement.

**D. Execution of Facilities**

**25. Work Commencement, Execution & Delays, Time extension, Liquidated Damage(LD)**

**25.1 Commencement of Works**

The execution of the Works shall commence from the date of award unless specified otherwise in the Contract.

**25.2 Time for Completion**

The entire scope of Work covered under this Contract shall be completed within the time stated in SCC or within such extended time granted to the Contractor by the Employer under the provisions of GCC Sub-Clause 25.4. The time allowed for execution of the Works as specified in the SCC or the extended time in accordance with these Conditions shall be the essence of the Contract.

**25.3 Work Progress**

25.3.1 Unless already incorporated in the Letter of Award/Service Purchase Order, as soon as possible after the Contract is awarded, the Engineer-in-Charge and the Contractor shall agree upon a Work Schedule which will become the Contract Work Schedule. The Work Schedule shall be prepared in direct relation to the time stated in the Contract documents for the completion of the Works. The Work Schedule shall indicate the forecast of the dates of commencement and completion of various trades or sections of work.

25.3.2 All the Contractor's activities shall be performed and completed strictly in accordance with the agreed Work Schedule and to achieve the targets, the Contractor shall have to plan adequate mobilisation of all resources. The Engineer-in-Charge, shall however, have the right to review the progress and modify the sequence of carrying out the Work suiting the Site conditions and the Contractor shall be required to comply with such modifications and complete his activities in accordance thereof without any extra cost to the Employer.

#### 25.3.3 **Progress Review Meetings**

The Contractor shall attend all periodic progress review meetings organized by the Engineer-in-Charge or his authorized representative. The deliberations in the meetings shall inter alia include the scheduled program, progress of work achieved (including details of manpower, tools and plants deployed by the Contractor vis-a-vis agreed Work Schedule), inputs to be provided by Employer, delays, if any and recovery programme, specific hindrances to the Work and work instructions by Engineer-in-Charge. The minutes of such meetings shall be recorded in a register. These recordings shall be jointly signed by the Engineer-in-Charge or his authorized representatives and the Contractor and a copy of the signed records shall be handed over to the Contractor.

#### 25.4 **Extension of Time for Completion**

25.4.1 The Time for Completion specified shall be extended if the Contractor is delayed or impeded in the performance of any of the obligations under the Contract by reason of any of the following:

- a) any occurrence of Force majeure as provided in GCC Clause entitled 'Force Majeure', or
- b) Work Schedules for beyond deviation limits & Extra Items as provided in GCC Sub-Clause 45.5, or
- c) any default or breach of the Contract by the Employer, or delay on the part of other contractors engaged by the Employer in executing work not forming part of this Contract, or
- d) any suspension order given by the Employer under GCC Sub-Clauses 46.1 (ii) and 46.1 (iii), or
- e) Any other sufficient cause which, in the opinion of the Engineer-in-Charge, is beyond the Contractor's reasonable control;

by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the Contractor.

25.4.2 Except where otherwise specifically provided in the Contract, the Contractor shall submit to the Employer a notice in writing of a claim for an extension of the Time for Completion, together with particulars of the event(s) or circumstance(s) justifying such extension as soon as reasonably practicable, but no later than fourteen (14) days after the commencement of such event or circumstance. As soon as reasonably practicable, after the receipt of such notice and supporting particulars of the claim, the Employer shall give a fair and reasonable extension of time for completion of Work. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing, within thirty (30) days of the date of receipt of such request by the Engineer-in-Charge.

25.4.3 The Contractor shall at all times use his reasonable efforts to minimise any delay in the performance of his obligations under the Contract.

25.4.4 The compensations, if any, payable to the Contractor on account of any one or more of the above reasons of delay have been separately dealt with under relevant provisions of the Contract.

#### 25.5 **Liquidated Damages for Delay**

25.5.1 If the Contractor fails to complete the Work on or before the scheduled or extended

date of completion as per GCC Sub-Clauses 25.2 and 25.4, he shall, without prejudice to any other right or remedy of the Employer, arising out of the Contract on account of such delay, be liable for payment of liquidated damages @ ½ percent per week, not as penalty, on the Contract Value of the Work for every week that the progress remains below the required progress or that the Work remains incomplete subject to a maximum of 5% of the Contract Value.

In case of amendment in the contract value, the limiting value of the Liquidated damages shall be 5% of the amended Contract Value.

The amount of Compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Corporation.

25.5.2 The following documents shall form the principal basis for consideration of Extension of Time for Completion pursuant to GCC Sub-Clause 25.4 with or without Liquidated Damages and determining the compensation amount pursuant to GCC Sub-Clause 25.5.

1. The joint recordings in the periodic meeting register,
2. Written notices issued by the Employer and/or the Engineer-in-Charge or his authorized representative to the Contractor in the relevant period.
3. Written requests/ notices by the Contractor to Employer/ Engineer-in-Charge in the relevant period.

## 25.6 Delays by Employer or his Authorised Representative

25.6.1 In case the Contractor's performance is delayed due to any act of omission on the part of the Employer or his authorised representative, then the Contractor shall be given appropriate extension of time for the completion of the Works, to the extent such omission on the part of the Employer has caused delay in the Contractor's performance of his work. Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer-in-Charge shall be final.

25.6.2 If such delays by the Employer have resulted in any increase in the cost to the Contractor, the Contractor shall be eligible to claim demonstrable and reasonable costs supported by full details of such increased costs incurred by him with all documentary evidence. The Employer shall examine the justification for such a request for claim and if satisfied, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such an occurrence.

## 26. Sub Contracts

26.1 After the award of the Contract, the Contractor shall not subcontract the Works/ any part of the Works without the prior written consent of the Engineer-in-Charge. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any Sub-Contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor.

Provided that the Contractor shall not be required to obtain such consent for:

- a) the provision of labour,
- b) the purchase of materials which are in accordance with the standards specified in the Contract, or
- c) the subcontracting of any part of the Works for which the sub-contractor is named in the Contract.

In the event of the Contractor proposing a sub-contractor for any part of the Works

after the award of the Contract, he shall be required to take approval from the Engineer-in-Charge. The Contractor will then submit the requisite credentials of the agency(ies) he proposes to engage. The details so furnished by the Contractor shall be reviewed by the Employer. In case the agency(ies) proposed by the Contractor for the subcontracting are not considered acceptable, the Contractor will be required to furnish credentials of alternate agency(ies) for approval of Engineer-in-Charge. Based on the review and assessment, the agency(ies) shall be approved by the Engineer-in-Charge within fifteen (15) days of furnishing of credentials by the Contractor.

- 26.2 Where a list of approved agencies for a sub-contracting work is provided in the Contract, the Contractor shall inform the name of the sub-contractor selected by him within a period as agreed with the Engineer-in-Charge, however not later than fourteen (14) days of the date of such selection.

**27. Setting out the Works**

The Engineer-in-Charge shall supply Scope of work, technical requirements, dimensional drawings, levels and other information necessary to enable the Contractor to set out the Works and the Contractor shall set out the Works and be responsible for the accuracy of the same. He shall amend at his own cost and to the satisfaction of the Engineer-in-Charge any error found at any stage which may arise through inaccurate setting out. The Contractor shall protect and preserve all bench marks used in setting out the Works till date of submission of final bill under the Contract, unless the Engineer-in-Charge directs otherwise.

**28. Methodology of Execution & Equipment Mobilisation**

- 28.1 Methodology of execution and the work plan adopted by Contractor shall match the methodology/requirements specified in Technical Specifications.
- 28.2 The suggested minimum plant & equipment and machinery to be deployed by the Contractor for the execution of Work shall be as given in Technical Specifications.
- 28.3 The Contractor shall arrange at his own expense all tools, plant and equipment (hereinafter referred to as T & P) and crane required for execution of the Work, except as otherwise specified in SCC at rates and on terms specified therein.
- 28.4. The Contractor shall arrange at his own expense all tools, plant and equipment including Crane(s) (hereinafter referred to as T&P) required for execution of the work.
- 28.4.1 If the Contractor requires any item of T&P on hire from the Corporation, the corporation will, if such item is available, hire it to the Contractor at an hourly rate to be fixed by the Engineer-in-Charge.
- 28.4.2 The T&P shall be given to the Contractor on hire by the Corporation for a period of one hour or its multiple thereof. In case the T&P is hired by the Contractor for a period of four hours or less, the hire charges applicable for a minimum period of four hours shall be recovered from the Contractor's bills. In case the T&P is hired by the Contractor for a period exceeding four hours, the hire charges shall be calculated based on the charges applicable as per hourly rate. The hire charges in respect of T&P given on hire to the Contractor by the Corporation shall be recovered from the Contractor's bills.
- 28.4.3 For accounting purpose, total working hours shall be considered to be the period between time of placement of T&P to the Contractor at the requested location and time of release of the same. This shall be logged in Record Book on daily basis and shall be signed between Contractor/ Subcontractor and the Engineer-in-charge or his authorised representative. In case the T&P issued to the Contractor is not owned by the Corporation but hired from another agency, the authorised representative of the agency providing the T&P will also sign the said Record Book. In case the Contractor contests correctness of any entry and/or fails to sign the Record Book the decision of the Engineer-in-Charge shall be final and binding on him. Hire charges shall be calculated in accordance with the entries in the Record Book.
- 28.4.4 The Contractor will be exempted from levy of any charges for the number of days he is called upon in writing by the Engineer-in-Charge to suspend execution of the work,

provided Corporation's T&P/T&P hired by the Corporation in question has, in fact, remained idle with the Contractor because of the suspension, provided the Contractor, in case the period of suspension exceeds 11 days, returns Corporation's T&P/T&P hired by the Corporation to the place from where it was issued.

**28.5.1 T&P owned by Corporation**

The hire charges shall be as per NTPC guidelines and are to be borne by the Contractor. The Contractor shall permit the Engineer-in-Charge to carry out periodical maintenance of Corporation's T&P in accordance with the provision there for in the aforesaid Schedule, and there will be no deduction in hire charges for the period spent on such maintenance.

However, the Contractor shall be allowed to return the tools and plants (issued by the Corporation) for purposes of repairs and for the duration of such repairs no hire charges shall, be levied.

The Contractor shall be responsible for care and custody of Corporation's T&P (including employment of chowkidars) during the period Corporation's T&P remain with him and any damage (fair wear and tear excepted) to any of the equipment (except for Excepted Risks provided always the Contractor has taken precautions necessary to protect it from such risks) shall be made good at the Contractor's expense to the satisfaction of the Engineer-in-Charge unless such damage is caused because of negligence of crew provided by the Corporation.

**28.5.2 T&P hired by the Corporation**

The hourly hiring rate for T&P hired by the Corporation from another agency and issued to Contractor shall be all inclusive rate including the cost of hiring, operation & maintenance charges, fuel charges and other charges.

28.6 The Corporation gives no guarantee in respect of output of T&P hired to the Contractor and no reduction in rates or any compensation shall be allowed on the ground that out turn or performance of Corporation's T&P/T&P hired by the Corporation was not to the Contractor's expectation.

28.7 The T&P hired to the Contractor shall be returned at the place of issue by the Contractor to the Engineer-in-Charge (unless otherwise directed) on execution of the work or section of the work at the end of the day. In case the T&P is used by the Contractor in continuation of previous requisition and the crane has not moved out of his work area, then the movement of crane for fresh requisition(s) by the Contractor within his work area shall be to the Contractor's account.

28.8 The Corporation shall be entitled to terminate the hire without assigning any reason whatsoever and the Contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of termination of hire of T&P issued by the Corporation. On termination of the hire by the Corporation, the Contractor shall return the T&P at the place of issue unless otherwise directed by the Engineer-in-Charge

**29. Patent Indemnity**

29.1 The Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract in the performance of the Contract.

29.2 In the event of any claim being made or action being brought against the Employer or its representatives or its employees, in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof. However, such indemnity shall not apply when such infringement has taken place in complying with the specific directions issued by the Employer; but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to

the Contractor only if the use was as a result of any drawings and/or specifications issued after the award of Contract by the Employer, provided further that the Contractor has brought to the notice of the Engineer-in-Charge, of such infringement immediately upon the instructions of the Engineer-in-Charge or upon the Contractor becoming aware of such infringement.

**30. Materials for the performance of the Contract**

(a) *Materials to be provided by the Contractor*

1. The Contractor shall at his own expense, provide all materials required for the Works other than those which are to be issued by the Employer.
2. All materials to be provided by the Contractor shall be in conformity with the specifications laid down in the Contract and the Contractor shall, if requested by the Engineer-in-Charge, furnish proof to the satisfaction of Engineer-in-Charge that the materials so comply.
3. Wherever required by the Engineer-in-Charge, the Contractor shall, at his own expense and without delay, provide samples of materials proposed to be used in the Works. The Engineer-in-Charge shall within seven(7) days thereafter or within such further period as he may require, intimate to the Contractor in writing, whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange for fresh samples complying with the Technical specifications laid down in the Contract, for approval.
4. The Engineer-in-Charge shall have full powers to require removal of any or all of the materials brought to site by the Contractor which are not in accordance with the Contract specifications or do not conform in character or quality to samples approved by him. In case of default on the part of the Contractor in removing rejected materials, the Engineer-in-Charge shall be at liberty to have them removed by other means. The Engineer-in-Charge shall have full powers to order the Contractor to provide other proper materials to be substituted for rejected materials and in the event of the Contractor refusing to comply, he may cause the same to be supplied by other means. All costs, which may attend upon such removal and/or substitution, shall be borne by the Contractor.
5. The Engineer-in-Charge shall be entitled to have tests carried out as specified in the Contract for any materials supplied by the Contractor other than those for which, as stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer-in-Charge may reasonably require for the purpose. If no tests are specified in the Contract, and such tests are required by the Engineer-in-Charge, the Contractor shall provide all facilities required for the purpose and the charges for these tests including the cost of materials consumed/used in such tests shall be to the account of Employer, except if the tests disclose that the said materials are not in accordance with the provision of the Contract, then the same shall be to the account of the Contractor.
6. All charges on account of GST, other taxes and levies on materials obtained for the Works from any source (excluding materials issued by the Employer) shall be borne by the Employer except Seigniorage Fee or Royalties or cess or other charges payable on the quarried or mined metal, minerals or minor minerals.

(b) *Materials to be issued by the Employer:*

(i) **Materials to be issued by the Employer free of cost**

The Employer, if so stipulated in SCC, may issue material to the Contractor free of cost for incorporation in the Works as per the terms and conditions specified in the SCC/Technical Specifications.

(ii) **Materials to be issued by the Employer on chargeable basis**

If after the award of the Contract, the Contractor desires the Employer to

issue/supply any other materials, for the purposes of the Contract such materials may be issued by the Employer, if available, at rates and terms and conditions to be fixed by the Engineer-in-Charge. The Employer reserves the right not to issue any such materials. The non-issue of such materials will not entitle the Contractor for any compensation whatsoever either in time or in cost.

(c) *General:*

1. Materials required for the Works, whether brought by the Contractor or issued by the Employer, shall be stored by the Contractor only at places approved by the Engineer-in-Charge. Storage and safe custody of material shall be the responsibility of the Contractor.
2. Engineer-in-Charge shall be entitled at any time to inspect and examine any materials intended to be used in or on the Works, either on the Site or at factory or workshop or other place(s) where such materials are assembled, fabricated, manufactured or at any place(s) where these are lying or from which these are being obtained and the Contractor shall give such facilities as may be reasonably required for such inspection and examination.
3. All materials brought to the Site shall not be removed off the Site without the prior written approval of the Engineer-in-Charge. But whenever the Works are finally completed and advance, if any, in respect of any such material is fully recovered, the Contractor shall at his own expense forthwith remove from the Site all surplus material originally supplied by him.
4. The Employer may issue all the materials agreed to be issued to the Contractor under the Contract, at its site stores. All other costs such as loading, unloading, transportation to Contractor's godown, storage etc. till the materials are incorporated in the Works or returned to the Employer shall be to the account of the Contractor.
5. All materials issued to the Contractor, by the Employer for incorporation or fixing in the Works (including preparatory work) shall, on completion or on termination of the Contract, be returned by the Contractor at his expense, at the Employer's store, after making due allowance for actual consumption, reasonable wear and tear and/or waste. If the Contractor is required to deliver such materials at a place other than the Employer's store, he shall do so and the transportation charges from the Site to such place, less the transportation charges which would have been incurred by the Contractor, had such materials been delivered at the Employer's store, shall be borne by the Employer.

**31. Quality Assurance Programme**

- 31.1 Sampling, testing and quality assurance requirements shall be as given in Technical Specifications & Scope of Work.
- 31.2 All costs associated with testing of materials required as per Technical Specifications & Scope of Work shall be deemed to be included in Contract rates/prices in the Bill of Quantity (BOQ).

**32. Inspection and Approval**

- 32.1 All Works shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice to the Engineer-in-Charge or his authorised representative when each stage is ready. In default of such notice, the Engineer-in-Charge shall be entitled to appraise the quality and extent thereof.
- 32.2 No work shall be covered up or put out of view without the approval of the Engineer-in-Charge or his authorised representative and the Contractor shall provide full opportunity for examination and measurement of any work which is about to be covered up or put out of view . The Contractor shall give due notice to the

Engineer-in-Charge or his authorised representative whenever any such work is ready for examination and the Engineer-in-Charge or his representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly' attend for the purpose of examining and measuring such work. In the event of the failure of the Contractor to give such notice he shall, if required by the Engineer-in-Charge, uncover such work at his own expense.

- 32.3 The Engineer-in-Charge or his authorised representative shall have powers at any time to inspect and examine any part of the Works and the Contractor shall give such facilities as may be reasonably required for such inspection and examination.
- 32.4 The Contractor shall uncover any part of the Works and/or make openings in or through the same as the Engineer-in-Charge may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the Engineer-in-Charge.
- 32.5 The additional & specific inspection and approval requirements in respect of the Works are detailed further in the Technical Specifications.

### **33. Records and Measurement**

- 33.1 The Engineer-in-Charge shall, except as otherwise stated, ascertain and determine by measurement the value of the Work done in accordance with the Contract.
- 33.2 All items having a financial value shall be entered in Measurement Book, level book, etc. prescribed by the Engineer-in-Charge so that a complete record is obtained of all Work performed under the Contract.
- 33.3 Measurements shall be taken jointly by the Engineer-in-Charge or his authorised representative and the Contractor or his authorised representative.
- 33.4 Before taking measurements of any Work the Engineer-in-Charge or his authorised representative for the purpose shall give a reasonable notice to the Contractor. If the Contractor fails to attend or send his authorised representative for taking the measurements after such a notice or fails to countersign or to record the objection, if any, within a week from the date of measurement, then in any such event measurements taken by the Engineer-in-Charge or his authorised representative shall be taken to be correct measurements of the Work.
- 33.5 The Contractor shall, without extra charge, provide assistance with every appliance, labour etc. necessary for taking measurements.
- 33.6 Measurements shall be signed and dated by both parties each day on the Site on completion of measurement. If the Contractor objects to any of the measurements recorded, a note to that effect shall be made in the Measurement Book against the item objected to and such note shall be signed and dated by both parties engaged in taking the measurement. The decision of the Engineer-in-Charge on any such dispute or difference or interpretation shall be final and binding on both the parties and shall be beyond the scope of the provisions of settlement of disputes under the Contract.
- 33.7 Based on the above measurements, NTPC shall enter the same in SAP. A print out of the SAP records shall be taken for Running bill(s) and Final Bill and jointly signed by Engineer-in-Charge or his authorised representative and the Contractor or his authorised representative for the purpose of performance, payment and records.

### **34. Methods of Measurement**

- 34.1 Measurement of Contract items of Work shall be taken in accordance with method of Measurement stipulated in the Technical Specifications/Bill of Quantities (BOQ). In case of extra items, the Engineer-in-Charge shall also specify the method of measurement for such items at the time of his order for execution of such extra items.
- 34.2 In case no method of measurement is stipulated in Technical Specifications/ Bill of

Quantity (BOQ)/ Order of the Engineer-in-Charge, then the Method of Measurement of such items shall be as per the relevant Standard Method of Measurement issued by Indian Standards Institution or general industry practice/ local custom.

**35. Temporary / Enabling Works**

- 35.1 Temporary / Enabling Works as specified in the Technical Specifications or as directed by the Engineer-in-charge for the proper execution of the Works shall be carried out by the Contractor. These Works shall be executed by the Contractor at his own cost.
- 35.2 All equipment, labour, materials including cement, reinforcement and the structural steel required for the Enabling Works associated with the entire Contract shall have to be arranged by the Contractor only. Nothing extra shall be paid to the Contractor on this account and the unit rates quoted by the Contractor on this account and the unit rates quoted by the Contractor for various items in the Bill of Quantities (BOQ) shall be deemed to include the cost of Enabling Works.
- 35.3 The Contractor shall make his own arrangement for movement of men, machinery, other requirement etc. required for carrying out the Work included under this Contract.

**36. Urgent Works**

If any Urgent Work becomes necessary and the Contractor is unable or unwilling at once to carry it out, the Engineer-in-Charge may by his own or other means, carry it out as he may consider necessary. If the Urgent Work shall be such as the Contractor is liable under the Contract to carry out at his expenses all expenses, incurred on it by the Employer shall be recoverable from the Contractor and be adjusted or set off against any sum payable to him.

**37. Power & Water Supply and boarding and lodging of employees/ labour / staff**

- 37.1.1 The Contractor shall advise the Engineer-in-Charge, within seven (7) days from the date of acceptance of the Letter of Award/Service Purchase Order, about his exact requirement of space for his office, storage area, preassembly and fabrication areas etc. The above requirement shall be reviewed by the Engineer-in-Charge and space as decided by him will be allotted for his use as well as his Sub-Contractor's use. The Employer does not guarantee uninterrupted power supply.
- 37.1.2 The Contractor shall have to make arrangements for boarding and lodging of his employees/labour/staff at his own cost. NTPC shall NOT be providing any facility for the stay of employees/labour/staff. He shall not be entitled to any payment on account of the expenditure incurred for boarding and lodging of employees/labour/staff. However, NTPC may provide any facility if available on fully chargeable basis.
- 37.2 **Supply of Unfiltered Water for construction/maintenance/repair work only**
- 37.2.1 Unless otherwise stated in SCC, the Contractor shall draw water from the water supply mains provided in the project at suitable points to be indicated by the Engineer-in-Charge. All pipe lines, pumps and other accessories required for taking the water from the mains to the site of Work shall be provided by the Contractor at his own cost. He shall not be entitled to any payment on account of the expenditure incurred in providing the pipe lines, pumps, etc. No charges will be levied on the Contractor for the water drawn by him for the purpose of the construction/maintenance/repair work.
- 37.2.2 The Employer does not guarantee the maintenance of uninterrupted supply of water and in case of any interruptions of such supply of water; the Contractor shall be responsible for making at his own cost alternative arrangements for water. The Engineer-in-Charge also reserves the right to limit the quantity of water to be allowed to be drawn by the Contractor.
- 37.2.3 No claim for damages will be entertained by the Employer on account of interruption

of water supply or limitation of quantity of water as aforesaid or on account of the water so supplied being not fit for construction purposes or on any other account in connection with such water supply.

- 37.2.4 It will be the responsibility of the Contractor to adequately treat the water at his cost before use for the intended purpose.
- 37.2.5 Where the Contractor makes his own arrangements for water required for the Work, nothing extra shall be paid for the same. He should make arrangements for storage of sufficient quantity of water required for at least a day's work.

### **38. Site testing equipments and facilities**

- 38.1 As part of the Contract, the Contractor shall provide and maintain testing equipments and facilities for testing of materials and work executed under the direction and general supervision of the Engineer-in-Charge. The testing equipments should establish meeting of requirements detailed in the Technical specifications and scope of work and should have valid calibration certificate.
- 38.2 All equipments shall be provided by the Contractor so as to be compatible with the testing requirements specified. The Contractor shall maintain the equipment in good working condition for the duration of the Contract.
- 38.3 The Contractor shall provide approved qualified personnel to operate and maintain the testing equipments and facilities for testing of materials and work executed for the duration of the Contract. The number of staff and equipment available must at all times be sufficient to keep pace with the sampling and testing programme as required by the Engineer-in-Charge.
- 38.4 The Contractor shall re-calibrate all measuring devices whenever so required by the Engineer-in-Charge and shall submit the results of such measurements without delay.

### **39. Completion Certificate**

- 39.1 As soon as the Work is completed, the Contractor shall give notice of such completion to the Engineer-in-Charge and within fourteen (14) days of receipt of such notice the Engineer-in-Charge shall inspect the Work and shall furnish the Contractor with a certificate of completion indicating (a) date of completion, (b) defects, if any, in the Work to be rectified by the Contractor and/or (c) items, if any, for which payment shall be made at reduced rates. When separate periods of completion have been specified for items or groups of items, the Engineer-in-Charge shall issue separate completion certificates for such item or groups of items. No certificate of completion shall be issued nor shall the Work be considered to be complete till the Contractor shall have removed from the premises on which the Work has been executed all scaffolding, sheds and surplus materials (except such as are required for rectification of defects), and the like to the satisfaction of Engineer-in-Charge. If the Contractor fails to comply with any of the requirement of the conditions as aforesaid, on or before the date of completion of the Works, the Engineer-in-Charge may, at the expense of the Contractor fulfil such requirements and dispose of the scaffoldings, surplus materials and rubbish etc. as he thinks fit and recover the cost after giving due credit for the realised amount. The term 'completion' used herein means the physical completion of the Work and in no way means to connote the quality or time of performance of the Work.

In case of Period Contracts/Maintenance Contract(s), the Contractor shall give notice of such completion to the Engineer-in-Charge seven (7) days prior to the day of completion. On receipt of such notice the Engineer-in-Charge shall inspect the Work and shall furnish the Contractor with a certificate of completion indicating (a) date of completion, (b) defects, if any, in the Work to be rectified by the Contractor and/or (c) items/ services, if any, for which payment shall be made at reduced rates before the expiry of contract period.

- 39.2 If at any time before completion of the entire Work, items or groups of items for which separate periods of completion have been specified, have been completed, the

Engineer-in-Charge can take possession of any part or parts of the same (any such part(s) being hereinafter in this Condition referred to as 'the relevant part') notwithstanding anything expressed or implied elsewhere in this Contract.

- 39.3 In case of such taking over of possession by Engineer-in Charge of the said item or group of items, the following shall govern:
- 39.3.1 Within twenty-eight (28) days of request by the Contractor, the Engineer-in-Charge shall issue completion certificate for the relevant part as in GCC Sub-Clause 39.1 above provided the Contractor fulfils his obligations under that Condition for the relevant part.
- 39.3.2 The Defects Liability Period in respect of such items and the relevant part shall be deemed to have commenced from the certified date of completion of such items or the relevant part as the case may be.
- 39.3.3 The Contractor may reduce the value insured under GCC Clause entitled 'Contractor's Liability and Insurance' to the extent of the value of the completed items or relevant part as estimated by the Engineer-in-Charge and notified for this purpose. This estimate shall be applicable for this purpose only and for no other.
- 39.3.4 For the purposes of ascertaining liquidated damages for delay under GCC Sub-Clause 25.5 in respect of any period during which the Works are not complete the relevant part will be deemed to form a separate item or group, with date of completion as given in the Contract or as extended under GCC Sub-Clause 25.2 and actual date of completion as certified by the Engineer-in-Charge under this Clause.

**E. Defects Liability**

**40. Liability for Damage, Defects or Imperfections and Rectification thereof**

If the Contractor or his workmen or employees shall damage or destroy any part of the building/structure in which they may be working or any building, road, fence etc. contiguous to the premises on which the Work or any part of it is being executed, or if any damage shall happen to the Work while in progress, the Contractor shall upon receipt of a notice in writing in that behalf make the same good at his own expense. If it shall appear to the Engineer-in-Charge or his representative at any time during construction or re-construction or prior to the expiration of the Defects Liability Period, that any work has been executed with unsound, imperfect or unskilled workmanship or that any materials or articles provided by the Contractor for execution of the Work are unsound or of a quality inferior to that contracted for, or otherwise not in accordance with the Contract, or that any defect, shrinkage or other faults have appeared in the Work arising out of defective or improper materials or workmanship, the Contractor shall, upon receipt of a notice in writing in that behalf from the Engineer-in-Charge, forthwith rectify or remove and re-construct the work so specified in whole or in part, as the case may require or as the case may be, and/or remove the materials or articles so specified and provide other proper and suitable materials or articles at his own expense, notwithstanding that the same may have been inadvertently passed, certified and paid for and in the event of his failing to do so within the period to be specified by the Engineer-in-Charge in his notice aforesaid, the Engineer-in-Charge may rectify or remove and re-execute the work and/or remove and replace with others, the materials or articles complained of, as the case may be, by other means at the risk and expense of the Contractor.

**41. Defects Liability Period**

Unless otherwise specified in the Technical Specifications and Scope of Work/SCC, the Contractor shall be responsible to make good and remedy at his own expense within such period as may be stipulated by the Engineer-in-Charge, any defect which may develop or may be noticed before the expiry of twelve (12) months from the certified date of completion.

**F. Risk Distribution**

## **42. Employer's and Contractor's Risks and Insurance**

42.1 The Employer carries the risks which this Contract states as Employer's risks, and the Contractor carries risks which this Contract states as Contractor's risks, under this clause.

42.2 Irrespective of the Employer's Risks or Contractor's Risks the Contractor shall execute the Works as per Contract and as directed by Engineer-in-Charge.

### **42.3 Employer's Risks**

42.3.1 The 'Excepted Risks' are

(1) In so far as they occur in the Union of India and directly affect the execution of the Works:

(a) war and hostilities (whether war be declared or not), invasion, act of foreign enemies.

(b) rebellion, revolution, insurrection or military or usurped power or civil war.

(c) riot, commotion or disorder, unless solely restricted to employees of the Contractor or of his sub-contractors and arising from the conduct of the Works;

(d) ionizing radiations, or contamination by radio activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive, toxic, explosive, or other hazardous properties of any explosive, nuclear assembly or nuclear component;

(e) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speed;

(f) any operation of the forces of nature, which is unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate precautions or

(2) a cause due to the design of the Works, other than the Contractor's design.

42.3.2 In the event of any loss or damage to the Works or any part thereof and/or to any materials or articles at the Site from out of any occurrence of Excepted Risks, the following provisions shall have effect:

(a) The Contractor shall, as may be directed in writing by the Engineer-in-Charge, remove from the Site any debris and so much of the Works as shall have been damaged, take the same to the place identified by the Employer, at the Employer's cost.

(b) The Contractor shall, as may be directed in writing by the Engineer-in-Charge, proceed to rectify, repair, reconstruct or replace the damaged articles, materials and the Works under and in accordance with the Conditions of the Contract, at the Employer's cost.

42.3.3 The Contractor shall not be entitled to payment under the above provisions in respect of so much loss or damage as has been occasioned by any failure on his part to perform his obligations under the Contract or not taking precautions to prevent loss or damage or minimize the amount of such loss or damage.

### **42.4 Contractor's Risks**

42.4.1 All risks of loss of or damage to the physical property and of personal injury and death, which arise during and in consequence of the performance of the Contract, other than those covered under the Excepted Risks at sub-clause 42.3.1, will be the liability of the Contractor, except as otherwise provided in the Contract.

42.4.2 From commencement to completion of the Works, the Contractor shall take full responsibility for the care thereof and for taking precautions to prevent loss or damage and to minimize loss or damage to the greatest extent possible and shall be liable for any damage or loss that may happen to the Works or any part thereof from any cause whatsoever (save and except due to Excepted Risks) and shall at his own cost repair and make good the same so that at completion, the Works shall be in good order and condition and in conformity in every respect with the requirements of the Contract and instructions of the Engineer-in-Charge.

42.4.3 The Contractor shall indemnify and keep indemnified the Employer against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the Works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto; Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or to indemnify the Employer against any Compensation or damage caused by any occurrence of the Excepted Risks.

#### 42.5 **Insurance**

42.5.1 Before commencing the execution of the Works, the Contractor shall, without in any way limiting his obligations and responsibilities under this clause, indemnify the Employer against any damage/ loss or injury which may occur to his property and personnel, to any third party property and third person by or arising out of carrying out of the Contract, except due to reasons of 'Excepted Risks'.

42.5.2 Towards this end, the Contractor shall arrange adequate insurance coverages, in the joint names of the Employer and the Contractor and/or Sub-contractor, from the date of commencement of the Work to the end of the Defects Liability Period, to the nature and content, amounts and deductibles as further elaborated and detailed in the SCC for the following events which interalia will include the following:

- (i) loss of or damage to the Contractor's T&P;
- (ii) loss of or damage to the property other than Works including those of third parties; and
- (iii) injury or death of personnel belonging to the Contractor or any other party.

42.5.3 Contractor shall ensure that the insurance coverage of the above policies include any loss or damage to his Staff, Supervisors, Engineers and others who are not covered by Workmen Compensation Act. Alternatively, the Contractor will take suitable additional or separate insurance policies to cover the same.

42.5.4 The Contractor shall necessarily take Workmen Compensation Policy and Third Party Liability Policy. The third party liability policy shall be for value specified in the Technical Specifications & Scope of Work/SCC.

42.5.5 The Policies and certificate for insurance shall be delivered by the Contractor to the Engineer-in-Charge for the Engineer-in-Charge's approval before the date of commencement of the Works.

42.5.6 The aforesaid insurance policy/policies shall provide that they shall not be materially modified/ cancelled till the Engineer-in-Charge has agreed to such modification or cancellation in writing.

42.5.7 Upon grant of the time extension by the Engineer-in-Charge, it is understood that the Contractor's liability of indemnity will be extended suitably without any further action by the Employer and the Contractor shall promptly furnish documentary evidence to Engineer-in-Charge towards extension of insurance policies for the period of time extension.

42.5.8 The Contractor shall ensure that wherever applicable, his Sub-Contractor(s) shall take out and maintain in effect adequate insurance policies for their personnel, vehicles, T&P and property other than Works including those of third parties for the part of the Works executed by them under the Contract, unless such Sub-Contractors are covered by the policies taken out by the Contractor.

- 42.5.9 It shall be the responsibility of the Contractor to take the insurance cover for all his liabilities. However, if the circumstances warrant, Employer may, without being bound to, effect and keep in force any such insurance coverage and pay such premium or premiums, as may be necessary for that purpose from time to time and deduct the amount so paid by the Employer from any monies due or which may become due to the Contractor or recover the same as a debt due from the Contractor.

The Contractor shall extend support to NTPC for lodging of claims for its own material with the insurers for claim against Policies taken by NTPC.

### **43. Force Majeure**

#### **43.1 Definition of Force Majeure**

- 43.1.1 "Force Majeure" shall mean any event beyond the control of the Employer or of the Contractor, as the case may be, (but excluding 'Excepted Risks', which shall be dealt in accordance with GCC Clause entitled "Employer's Risks") and which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the Contract.

- 43.1.2 Notwithstanding the generality of the above, the following events shall be termed as Force Majeure events in respect of the Contract

- (i) terrorist acts,
- (ii) confiscation, nationalization, mobilization, commandeering or requisition by or under the order of any government or de jure or de facto authority or ruler or any other act of failure to act of any local state or national government authority,
- (iii) national/sectoral/illegal strike, sabotage, lockout, embargo, import restriction, port congestion, lack of usual means of public transportation and communication, industrial dispute, shipwreck, epidemics, quarantine and plague.

#### **43.2 Notice of Force Majeure**

- 43.2.1 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within fourteen (14) days after the occurrence of such event.

- 43.2.2 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended in accordance with GCC Clause 25.4 (Extension of Time for Completion).

- 43.2.3 Notwithstanding any other provision of the Clause, Force Majeure shall not apply to any obligations of the Employer to make payments to the Contractor herein.

#### **43.3 Duty to Minimize Delay**

- 43.3.1 The party or parties affected by the event of Force Majeure shall use reasonable efforts to mitigate the effect thereof upon its or their performance of the Contract and to fulfill its or their obligations under the Contract, but without prejudice to right to terminate the Contract.

#### **43.4 Consequence of Force Majeure**

43.4.1 If the Contractor is prevented from performing its obligations under the Contract by reason of Force Majeure of which notice has been given under Sub-Clause 43.2.1, and suffers delay by reason of such Force Majeure, the Contractor shall be entitled to an extension of time for any such delay, if the Completion is or will be delayed, in accordance with GCC Sub-Clause entitled "Extension of Time for Completion".

43.4.2 No delay or nonperformance by either party hereto caused by the occurrence of any event of Force Majeure shall

- a. constitute a default or breach of the Contract,
- b. give rise to any claim for damages or additional cost or expense occasioned thereby

if and to the extent that such delay or nonperformance is caused by the occurrence of an event of Force Majeure.

43.5 Termination for reasons due to extended Force Majeure

43.5.1 If the performance of the Contract is substantially prevented, hindered or delayed for a single period of more than seventy (70) days or an aggregate period of more than one hundred and forty (140) days or any such extended period as may be agreed to between the parties on account of one or more events of Force Majeure during the currency of the Contract, the parties will attempt to develop a mutually satisfactory solution, failing which either party may terminate the Contract by giving a notice to the other.

43.5.2 In the event of termination pursuant to GCC Sub-Clause 43.5.1, the rights and obligations of the Employer and the Contractor shall be as specified hereunder:

- (a) the Contractor shall be paid at contract rates for the work already executed by him
- (b) The Employer shall have an option to take over the Contractor's facilities/materials or any part thereof brought to site, at such rates as are determined reasonable by the Engineer-in-Charge.

43.5.3 In the event of any disagreement of the parties relating to matters at GCC Clause 42.5.2, the dispute shall be settled in accordance with GCC Clause titled "Settlement of Disputes".

#### **G. Changes in Contract Element**

#### **44. Changes in Constitution:**

Where the Contractor is a partnership firm, prior approval in writing of the Employer shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu Undivided Family business concern such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership firm which would have the right to carry out the Work hereby undertaken by the Contractor. If prior approval as aforesaid is not obtained, the Contract shall be deemed to have been assigned in contravention of GCC Sub-Clause 47.3 hereof and the same action may be taken and the same consequences shall ensue as provided for in the said GCC Sub-Clause 47.3.

#### **45. Powers of Engineer-in-Charge for alterations/ omissions/ additions /substitutions**

45.1 The Engineer-in-Charge shall have power (i) to make alterations in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the Works in case of non-availability of a portion of the Site or for any other reasons he may consider necessary and/or reasonable. Any such alterations, omissions, additions or substitutions shall be ordered by the Engineer-in-Charge as a deviation. The Contractor shall be bound to carry out the

said deviation in accordance with instructions given to him in writing by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the Contract as if originally provided therein and shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the original Works, except as otherwise provided herein.

## **45.2 Permissible deviation limit for variations in Contract Items**

### **45.2.1.1 For Contracts Other than overhauling**

In case of items of Work, quantities of which may change due to Site Conditions or any other reasons, the permissible limit of deviations over the original value of each item will be (+)20% for contracts other than those for overhauling. All the quantities of any item actually executed from 0-120% of the Contract quantity (0 to 1.2 times the quantity) will be payable at Contract rates for while the rates for the quantities above 120% of Contract quantity (1.2 times the Contract quantity) will be subject to review/revision.

### **45.2.1.2 For Contracts for overhauling**

In case of items of Work, quantities of which may change due to Site Conditions or any other reasons, the permissible limit of deviations over the original value of each item will be (+)50% for contracts for overhauling. All the quantities of any item actually executed from 0-150% of the Contract quantity (0 to 1.5 times the quantity) will be payable at Contract rates for while the rates for the quantities above 150% of Contract quantity (1.5 times the Contract quantity) will be subject to review/revision.

45.2.2 In case the Bill of Quantities (BOQ) contains sub-items of Work under a Main Item, then the above permissible limits of deviation shall be applicable on the value of each such sub-item and not on the entire value of the Main Item.

45.2.3 The deviations up to the above permissible limits shall be carried out by the Contractor at the same rates and terms as per the Contract.

45.2.4 Rates of Items of Work derived on the basis as detailed in GCC Sub-Clause 45.2 shall not be eligible for price adjustment.

## **45.3 Methodology for Determination of Rates for variations of Contract Items beyond the permissible deviation limits**

45.3.1 For Contract Items which exceed the limits over the original value of that item as mentioned in GCC Sub-Clause 45.2.1 above, the Contractor may, within fourteen (14) days of the date of receipt of the order to carry out the said work, inform the Engineer-in-Charge of the rate which he proposes to claim for such item(s) of Work on Market Rate(s) basis, supported by analysis of the rate claimed and the relevant documents to substantiate the same. While working out the rates on the basis of market rate, 10% (Ten percent) of the rate to cover all overheads and profits of the Contractor shall be considered. The Engineer-in-Charge shall, within seventy (70) days thereafter, after giving due consideration to the rate(s) claimed by the Contractor, determine the rate(s), in consultation with the Contractor, on Market Rate(s) basis. In the event of disagreement between the Engineer-in-Charge and Contractor, even after the said seventy (70) days from the date of submission of claims of the rate(s) by the Contractor, the Engineer-in-Charge within a further period of twenty-one (21) days thereafter, shall fix the rate(s)/price(s) as are, in his opinion appropriate. The rate(s)/price(s) so fixed shall be notified to the Contractor and shall be final and binding.

45.3.2 If the Engineer-in-Charge fails to determine and notify the rate(s)/price(s) even after expiry of the said twenty-one (21) days, then the Contractor will be at liberty to refer the matter for resolution to the Employer within a further period of fourteen (14) days after the above said twenty one (21) days. If the Employer does not determine and cause the Engineer-in-Charge to notify the rate(s)/price(s), then the matter would be determined in accordance with the provisions of GCC Clause entitled "Settlement of Disputes". However, in the meanwhile, the Engineer-in-Charge will pay for the items of Work executed beyond the permissible deviation limits, at 75% (seventy-five

percent) of the rate(s)/price(s) claimed by the Contractor with satisfactory supporting documents or at Contract Rate, whichever is less, purely on adhoc and provisional basis subject to adjustment.

45.3.3 In the event of the Contractor failing to inform the Engineer-in-Charge, within the stipulated period of fourteen (14) days time, the rate(s) which he proposes to claim, supported by relevant documents to substantiate the same, the rate(s) for such item(s) shall then be determined by the Engineer-in-Charge in consultation with the Contractor (if he so desires) on the basis of Market Rate(s) within seventy (70) days thereafter. The rate(s) /price(s) so determined shall be notified to the Contractor and shall be final and binding.

45.3.4 Rates of Items of Work derived on the basis as detailed in GCC Sub-Clause 45.3 shall not be eligible for price adjustment.

#### 45.4 **Methodology for Determination of Rates for Extra Items (Additional, Altered or Substituted Items) of Work**

45.4.1 Rates for Extra Items of Work (comprising of Additional, Altered or Substituted items of Work), shall be determined by the Engineer-in-Charge in the following order:

(i) If the rate(s)/price(s) for extra items occurring in a particular Bill of Quantities (BOQ) are available in other Bill of Quantities (BOQ) forming part of the Contract, the lowest of such rate(s)/price(s) will be used, subject to the nature of work being comparable.

(ii) If the rate(s) cannot be derived as per (i) above, then

(a) In case of contracts with only one Bill of Quantities (BOQ) forming the part of the Contract, the rate(s)/price(s) for the extra item(s) shall be derived from the lowest of any similar item(s) in that Schedule.

(b) In case of contracts with two or more Schedules of Quantities forming a part of the contract, the rates for the Extra Item(s) will be derived from the nearest similar item appearing in the Schedule in which the extra item is to be executed failing which from any other Schedule in which nearest similar item is available, the rate so derived being the lowest of such derived from nearest similar items in those other Schedules and used.

45.4.2 If the rate for any additional, altered or substituted item of work cannot be determined in the manner specified in GCC Sub-Clause 45.4.1 (i) & (ii) above, the Contractor shall, within fourteen (14) days of the date of receipt of the order to carry out the said Work, inform the Engineer-in-Charge under advice to the Employer of the rate which he proposes to claim for such item(s) of Work on Market Rate(s) basis, supported by analysis of the rate claimed and relevant documents to substantiate the same. While working out the rates on the basis of market rate, 10% (Ten percent) of the rate to cover all overheads and profits of the Contractor shall be considered. The Engineer-in-Charge shall, within seventy (70) days thereafter, after giving due consideration to the rate(s) claimed by the Contractor, determine the rate(s), in consultation with the Contractor, on Market Rate(s) basis. In the event of disagreement between the Engineer-in-Charge and Contractor, even after the said seventy (70) days from the date of submission of claims of the rate(s) by the Contractor, the Engineer-in-Charge within a further period of twenty-one (21) days thereafter shall fix the rate(s)/price(s) as are, in his opinion appropriate. The rate(s) /price(s) so fixed shall be notified to the Contractor and shall be final and binding.

45.4.3 If the Engineer-in-Charge fails to determine and notify the rate(s)/price(s) even after expiry of the said twenty-one (21) days, then the Contractor will be at liberty to refer the matter for resolution to the Employer within a further period of fourteen (14) days after the above said twenty-one (21) days. If the Employer does not determine and cause the Engineer-in-Charge to notify the rate(s)/price(s), then the matter would be determined in accordance with the provisions of GCC Clause entitled "Settlement of

Disputes". However, in the meanwhile, the Engineer-in-Charge will pay for the extra items of Work, at 75% (seventy-five percent) of the rate(s)/price(s) claimed by the Contractor with supporting documents or at Contract Rate, whichever is less, purely on adhoc and provisional basis subject to adjustment.

45.4.4 In the event of the Contractor failing to inform the Engineer-in-Charge within the stipulated period of fourteen (14) days time the rate(s) which he proposes to claim, supported by relevant documents to substantiate the same, the rate(s) for such item(s) shall then be determined by the Engineer-in-Charge in consultation with the Contractor (if he so desires) on the basis of Market Rate(s) within seventy (70) days thereafter. The rate(s) /price(s) so determined shall be notified to the Contractor and shall be final and binding.

45.4.6 Rates for Extra Items of Work, derived on the basis as detailed in GCC Sub-Clause 45.4 above shall not be eligible for Price Adjustment.

45.5 **Work Schedules for variation beyond deviation limits & Extra Items**

The Engineer-in-Charge shall finalise a Work Schedule in consultation with the Contractor for items of Work beyond deviation limits and the Extra Items of Work to be executed and the date(s) specified in this agreed Work Schedule shall be considered as the date for working out the Price adjustment amount. The primary consideration by the Engineer-in-Charge while determining the time required for execution of the altered or substituted item(s) of Work, would be quantities of the altered or substituted and not the value of altered or substituted item(s) of Work.

45.6 **Provisional payments**

Pending approval of the Rates for Contract Item(s) of Work beyond the permissible deviation limits as well as for Extra Items (Additional, Altered or Substituted item) of Work, provisional payment at an interim rate (75% of the rate/price determined by the Engineer-in-Charge), shall be made to the Contractor after recoveries as per terms and conditions of the Contract, in the interest of progress of Work, which shall be regularized after approval of Competent Authority.

46. **Suspension of Works**

46.1 The Contractor shall, on receipt of the order in writing of the Engineer-in-Charge, suspend the progress of the Works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary for any of the following reasons:

- (i) On account of any default on part of the Contractor; or
- (ii) for proper execution of the Works or part thereof for reasons other than the default on the part of the Contractor; or
- (iii) for safety of the Works or part thereof, for reasons other than those attributable to the Contractor.

46.2 The Contractor shall, during such suspension, properly protect and secure the Works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.

46.3 If the suspension is ordered for reasons (ii) & (iii) in Sub-Clause 46.1 above, in so far as it concerns suspension of part of the Works or whole of the balance, the Contractor shall be entitled to an extension of time equivalent to the period of suspension plus 25% thereof. The Contractor shall not be eligible for any other compensation whatsoever for such suspension, except as otherwise provided herein under.

46.4 If the suspension is ordered for reasons (ii) & (iii) in Sub-Clause 46.1 above, as far as it concerns the entire balance of Works on the date of suspension and if such period of suspension cumulatively exceeds twenty-eight (28) days, then in addition to

extension of time as in Sub-Clause 46.3 above, the Contractor shall be eligible for compensation, as the Employer may consider reasonable, in respect of salaries and/or wages paid by the Contractor to his employees and labour at site, remaining idle during the cumulative period of suspension, adding to the total thereof, a reasonable percentage as determined appropriate by the Engineer-in-Charge, to cover indirect expenses and incidentals of the Contractor, provided the Contractor submits his claim supported by details to establish the reasonableness of his claim to the Engineer-in-Charge under advice to the Employer within fourteen (14) days of the expiry of the said twenty-eight (28) days period.

- 46.5 If for any reason other than for reasons of Contractor's default as per GCC Sub-Clause 46.1(i) above, if the Contract remains suspended for a continuous period exceeding ninety (90) days, then the Employer and the Contractor shall mutually discuss and agree for a suitable course of action regarding the recommencement/reinstatement of the suspended work or alternatively treat the suspension as termination / abandonment of the Works by the Employer as per GCC Sub-Clause 47.1 herein. If out of above discussion it is determined that the Contract has to be treated as terminated under the provisions of GCC Sub-Clause 47.1, then the Contractor shall be eligible for compensation as envisaged in GCC Sub-Clause 47.1.1 herein.

## **47. Termination**

### **47.1 Termination by the Employer**

If at any time after award of Contract, the Employer shall decide to abandon or reduce the scope of the Works for any reason whatsoever and hence not require the whole or any part of the Works to be carried out by the Contractor, the Engineer-in-Charge shall give notice in writing to that effect to the Contractor and the Contractor except as herein under provided, 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 Works in full but which he did not derive in consequence of the said termination of the whole or part of the Works.

- 47.1.1 The Contractor shall be paid at Contract rates full amount for works executed at Site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilised on the Work to the full extent because of the said termination:
- (a) Any cost incurred on preliminary site work, e.g. access roads, labour huts, staff quarters and site offices; storage accommodation and water storage tanks, etc.
  - (b)
    - (i) The Employer shall have the option to take over Contractor's facilities/materials or any part thereof either brought to Site or of which the Contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the Work), provided, however, the Employer shall be bound to take over the materials or such portions thereof as the Contractor does not desire to retain. For materials taken over or to be taken over by the Employer, cost of such materials shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the Contractor.
    - (ii) For Contractor's materials not retained by the Employer, reasonable cost of transporting such materials from Site to Contractor's permanent stores or to his other Works, whichever is less. If materials are not transported to either of the said places, no cost of transportation shall be payable.
  - (c) If any materials issued by the Employer are rendered surplus, the same except normal wastage shall be returned by the Contractor to the Employer at rates not exceeding those at which these were originally issued less allowance for any deterioration or damage which may have been caused whilst the materials were in the custody of the Contractor.

- (d) Reasonable compensation for transfer of Contractor's T&P from Site to Contractor's permanent stores or to his other Works, whichever is less. If T&P are not transported to either of the said places, no cost of transportation shall be payable.

47.1.2 The Contractor shall, if required by the Engineer-in-Charge furnish to him wage books, time sheets and other relevant documents as may be reasonably necessary to enable him to certify the reasonableness of the amount payable under this Clause.

#### 47.2 **Termination on Contractor's Death**

47.2.1 If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the partners dies, then unless the Employer is satisfied that the legal representatives of the individual Contractor or of the proprietor of the proprietary concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract, the Employer shall be entitled to cancel the Contract as to its incomplete part without the Employer being liable in any way to payment of any compensation to the estate of the deceased Contractor and/or to the surviving partners of the Contractor's firm on account of the cancellation of the Contract. The decision of the Employer that the legal representatives of the deceased Contractor or the surviving partners of the Contractor's firm cannot carry out and complete the Contract shall be final and binding on the parties. In the event of such cancellation the Employer shall not hold the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable for damages for not completing the Contract.

#### 47.3 **Termination for Contractor's Default**

47.3.1 If the Contractor:

- (a) at any time makes default in proceeding with the Works with due diligence and continues to do so after a notice of seven (7) days in writing from the Engineer-in-Charge; or
- (b) commits default in complying with any of the terms and conditions of Contract and does not remedy it or take effective steps to remedy it within seven (7) days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or
- (c) fails to complete the Works or items of Work with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge; or
- (d) offers, or gives or agrees to give to any person in Employer's service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for the Employer; or
- (e) enters into a contract with the Employer in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Employer/ Engineer-in-Charge; or
- (f) obtains a Contract with the Employer as a result of ring bidding or other non-bonafide methods of competitive bidding; or
- (g) being an individual, or if a firm, any partner thereof, at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his affective or composition or arrangement

for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force, for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or

- (h) being a company, shall pass a resolution or the Court shall make an order for the liquidation of its affairs, or a receiver or manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or
- (i) assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) attempts to assign, transfer or sublet the entire Works or any portion thereof without the prior written approval of the Employer;

the Employer may, without prejudice to any other right to remedy which shall have accrued or shall accrue thereafter to the Employer by written notice, cancel the Contract as a whole or only such items of work in default, from the Contract.

47.3.2 The Employer shall on such cancellation have rights to:

- (a) take possession of the Works and any materials, construction plant, implements, stores, etc., thereon; and/or
- (b) carry out the incomplete Work by any means at the risk and cost of the Contractor.

47.3.3 On cancellation of the Contract in full or in part, the Employer shall determine what amount, if any, is recoverable from the Contractor for completion of Works or part of the Works or in case the Works or part of the Works is not completed, the loss or damage suffered by the Employer. In determining the amount, credit shall be given to the Contractor for the value of the work executed by him up to the time of cancellation, the value of Contractor's material taken over as well as incorporated in the work, and use of tools and plants belonging to the Contractor.

47.3.4 Any excess expenditure incurred or to be incurred by the Employer in completing the Works or part of the Works or the excess loss or damages suffered or may be suffered by the Employer as aforesaid after allowing such credit shall be recovered from any money due to the Contractor on any account, and if such money is not sufficient the Contractor shall be called upon in writing to pay the same within twenty-eight (28) days.

47.3.5 If the Contractor fails to pay the required sum within the aforesaid period of twenty-eight (28) days, the Engineer-in-Charge shall have the right to sell any or all of the Contractor's unused materials, construction plant, implements, temporary buildings etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the Contract and if thereafter there be any balance outstanding from the Contractor, it shall be recovered from him.

47.3.6 Any sums in excess of the amounts due to the Employer and unsold materials, construction plant etc., shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by the Employer of the Works or part of the Works is less than the amount which the Contractor would have been paid had he completed the Works or part of the Works, such benefit shall not accrue to the Contractor.

#### **48. Possession prior to completion**

The Engineer-In-Charge shall have the right to take possession of or use any completed or partially completed work or part of the work. Such possession or use shall not be deemed to be an acceptance of any completed work in accordance with the contract agreement. If such prior possession or use by the Engineer-In-Charge delays the progress of work, equitable adjustment in the time of completion will be made.

#### **49. Adherence to Fraud Prevention Policy**

The Contractor along with its Associate / Collaborator / Sub-Contractors / Sub-Vendors / Consultants / Service Providers shall strictly adhere to the Fraud Prevention Policy of Employer displayed on its website <http://www.ntpctender.com>.

The Contractor along with their ~~his~~ associate/ collaborator/ subcontractors/ subvendor/ consultant/ service providers shall observe the highest standards of ethics and shall not indulge or allow anybody else working in their organization to indulge in fraudulent activities during execution of the contract. The Contractor shall immediately apprise the Employer about any fraud or suspected fraud as soon as it comes to his notice.

If in terms of above policy it is established that the Contractor/his representatives have committed any fraud while executing the contract then the Security Deposit shall be forfeited.

**50. Limitation of Liability**

Except in cases of criminal negligence or willful misconduct,

- (a) neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and
- (b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.
- (c) the aggregate liability of the Employer to the Contractor, whether under the Contract, in tort or otherwise, at any point of time during the execution/performance of the Contract, shall not exceed the 'total Contract Price less payments already released to the Contractor'.

(a) .

**51. Policy for withholding and banning of Business dealings**

The employer has in place a policy for withholding and banning of business Dealings as enclosed. Business dealings may be withheld or banned with the Bidder/Contractor on account of any default by the contractor under GCC clause 47.3.1 or any of the grounds detailed in the said Banning Policy.

Declaration on Policy for withholding and banning of Business dealings duly filled as per employer's format is enclosed in the Section VII: Bid Forms and Procedures. This declaration is to be submitted along with the Technical Bid.

**52. Disposal of Scrap**

The Contractor shall with the agreement of the Employer promptly remove from the site any 'Scrap' generated during performance of any activities at site in pursuance of the Contract. The term 'Scrap' shall refer to scrap/ waste/ remnants arising out of the fabrication of structural steel work and piping work at the project site in the course of execution of the contract and shall also include any wastage of cables during the termination process while installing the cables. GST applicable, if any, shall be to Contractors account.

The ownership of such Scrap shall vest with the Contractor except in cases where the materials for the items have been issued by the Employer from its stores for their installation only without any adjustment to the Contract Price. The removal of scrap shall be subject to the Contractor producing the necessary clearance from the relevant authorities (Custom, GST etc.), if required by the law, in respect of disposal of the scrap. The liability for the payment of the applicable taxes/ duties shall be that of the Contractor.

The scrap generated out of Owner issue material without any adjustment to the Contract Price is to be returned to the Employer. Also the scrap generated out of any material, Plant and Equipment specifically stipulated in the Bill of Quantities in the Contract shall be the property of the Employer whether or not incorporated in the Work is to be returned to the Employer.

**53. Disposal of surplus material, Plant & Equipment**

Ownership of any material, Plant and Equipment brought by Contractor in excess of the requirements for the Work (i.e. surplus material) shall revert to the Contractor upon Completion of the Work or at such earlier time when the Employer and the Contractor agree that the materials in question are no longer required for the Work. However, any material, Plant and Equipment specifically stipulated in the Bill of Quantities in the Contract shall be the property of the Employer whether or not incorporated in the Work.

The Contractor shall remove from the site such surplus material brought by him in pursuance of the Contract, subject to the Contractor producing the necessary clearance from the relevant authorities (Customs, GST etc.), if required by law, in respect of re-export or disposal of the surplus material locally. The liability for the payment of the applicable taxes/duties, if any, on the surplus material so re-exported and/or disposed locally shall be that of the Contractor.

The Contractor shall also indemnify to keep the Employer harmless from any act of omission or negligence on the part of the Contractor in following the statutory requirements with regard to removal /disposal of surplus material. The Indemnity Bond shall be furnished by Contractor as per proforma enclosed. Further, in case the laws require the Employer to take prior permission of the relevant Authorities before handing over the surplus material to the Contractor, the same shall be obtained by the Contractor on behalf of the Employer.

The surplus generated out of Owner issue material without any adjustment to the Contract Price is to be returned to the Employer. Also any surplus generated out of any material, Plant and Equipment specifically stipulated in the Bill of Quantities in the Contract shall be the property of the Employer whether or not incorporated in the Work.

**54 No Claim for interest or damage**

**54.1 Interest on money due to the contractor:**

Contractor shall not be entitled to any interest or damage in case of any delay on the part of the Employer to pay the amount due upon measurement or as per Contract or otherwise. Contractor shall also not be entitled to interest upon any guarantee/ security/ retention money or payments in arrears or upon any balance which may on the final settlement of his account be due to him.

**54.2 No claim for interest or damage:**

No claim for interest or damage will be entertained or be payable by the Employer in respect of any amount or balance which may be lying with the Employer or may become due upon settlement/adjudication of any dispute, difference or misunderstanding between the parties by way of arbitration or court proceedings or otherwise or in respect of any delay or omission on the part of the Employer in making intermediate or final payment or in respect of any amount/damage which may be claimed through arbitration or court proceedings or in any other respect whatsoever.

**55 Procedure for Contract Closing**

**55.1** The closing of Contract shall be effected after completion of the defect liability period and return/refund of CPG/Security Deposit.

- 55.2** The following thirteen (13) certificates shall be issued by the concerned departments and submitted to Engineer-in-Charge for closing of contract.

<b>Certificate No.</b>	<b>Certificate Description</b>	<b>Responsibility</b>
CCP-01	Certificate of Final Amendment to the Contract	SSC C&M dept.
CCP-02	Drawing Receipt Certificate	Executing Dept./EIC
CCP-03	QA Documents Receipt Certificate	FQA
CCP-04	O&M Manual Receipt Certificate	Executing Dept./EIC
CCP-05	Scope Completion Certificate	Executing Dept./EIC
CCP-06	Liquidated Damages for Delay Certificate	Executing Dept./EIC
CCP-07	Shortfall in Equipment Performance Certificate	Executing Dept./EIC
CCP-08	"Material Reconciliation" Certificate	Executing Dept./EIC & Site Materials Mgmt.
CCP-09	"Payment Reconciliation" Certificate	Finance
CCP-10	Certificate regarding Labour Payments and Statutory Requirements to be furnished by Contractor.	Contractor
CCP-11	"No Demand Certificate" by Contractor	Contractor
CCP-12	Certificate of Completion of Warranty Period	Executing Dept./EIC
CCP-13	Certificate for Return of BGs/Security Deposit/Indemnity Bonds etc.	Finance

- 55.3** Both the Contractor and the Employer will make necessary efforts to complete the Contract Closing activities as per the timelines.

It shall be the responsibility of the contractor to submit the drawings along with the reproducibles, QA documents, O&M Manuals, List of Spares, As Built drawings, deliverables, etc., as applicable, in a timely and sequential manner so that the contract closing activities are not delayed/impeded.

The Employer shall also use its best endeavors to expedite all activities leading to successful closure of the contract. The Employer will review and approve the documents submitted by the Contractor in a timely and expeditious manner and the approvals shall not be unreasonably withheld.

# Modified GCC Clause No. 8 - Settlement of Disputes

Replace the existing Cl. No. 8 of GCC [Settlement of Disputes] as follows:

## **8.1 Mutual Consultation**

If any dispute of any kind whatsoever shall arise between the Employer and the Contractor in connection with or arising out of the Contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Facilities, whether during the progress of the Facilities or after their completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such dispute or difference by mutual consultation.

On reference of such a dispute by either party, the Employer shall invite the Contractor for mutual consultation, within seven (07) working days of such reference.

Without admitting the Employer's liability, the Employer may obtain, within 30 days of reference of the dispute, further details from the Contractor and examine it relating to the dispute. Such examination (if any) by the Employer shall not imply acceptance of the accuracy or completeness of the details. The Employer may hold discussions with Contractor with an effort to resolve the dispute.

If the parties fail to resolve such a dispute or difference by mutual consultation within a period of forty-five (45 ) days from the date of reference of such dispute or within such extended period as the parties shall agree in writing, then the dispute may be settled through Independent Engineer (if applicable) and / or Mediation through Independent External Monitors (if applicable) and / or through Conciliation and / or Arbitration (if applicable) / other remedies available under the applicable laws.

Notwithstanding anything contained in any other law for the time being in force, the parties shall keep confidential all matters relating to the Mutual consultation proceedings. Confidentiality shall extend also to any agreement reached during Mutual consultation, except where its disclosure is necessary for purposes of implementation and enforcement.

The parties shall not rely on or introduce as evidence in Independent Engineer/ Mediation / Conciliation / Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Mutual consultation proceedings,-

- a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;
- b) admissions made by the other party in the course of the mutual consultation proceedings;
- c) the fact that the other party had indicated his willingness to accept a proposal for mutual settlement.

# Modified GCC Clause No. 8 - Settlement of Disputes

## 8.2 Resolution of Dispute through Independent Engineer (IE) {Applicable only for corporate packages of Hydro Projects and EPC/ Main Plant/ SG/ STG/BoP Packages of thermal projects}}

If the parties fail to resolve the dispute or difference by mutual consultation within the period specified at Cl. 8.1 above, the dispute shall be referred to Independent Engineer (IE), as follows:

### I. Appointment, Selection and Removal of IEs / Experts:

(i) The Employer and Contractor shall jointly select only one Member for the Contract from the panel of Experts (for contracts of Hydro Projects), as enclosed in Special Conditions of Contract, as amended from time to time by Ministry of Power. For contracts of Thermal Projects, the Employer and Contractor shall jointly select only one Member for the Contract from the panel of Experts, to be notified by Ministry of Power, and communicated to Contractor by Employer.

For the joint selection process, after the award of the contract, the Contractor shall shortlist at least 3 Experts from the 'Panel of Experts as Independent Engineer' and send to EMPLOYER who shall appoint one of them as 'Independent Engineer' for the Contract.

The Expert would be designated as 'Independent Engineer' (IE) for the contract. Appointment of IE / Expert shall be finalized within Twenty-Eight (28) days from award of Contract.

(ii) The initial term of appointment of IE would be for a period of five (5) years or contract period whichever is lesser and may be further renewed on a year-on-year basis as may be mutually agreed between the Employer and the Contractor subject to the consent of IE and final approval by the Ministry of Power.

(iii) It will be mandatory for the IE to visit the site once in every two months to be constantly aware of the ongoing project activities and to have a fair idea of any situation that may lead to disagreement between the parties. Further, additional visits may also be undertaken as and when called upon to address issues of disagreements.

(iv) Employer or Contractor will not be able to change the IE in any case. In case of adverse finding about IE such as not performing duties or complaints of integrity, that Expert would be dropped by the Ministry from the panel itself and a new Expert would be selected by the Employer and Contractor jointly from the panel for performing the duties of IE.

### II Standard Operating Procedure (SOPs) for Independent Engineer (IE)

(i) IE shall act as per the Standard Operating Procedures (SOPs) attached at **Annexure-C**.

(ii) Resolution by IE shall commence when the claimant Party submits detailed information as per Standard Format (for Disagreement Case filing attached as **Annexure-D**) to IE for intervention along with the necessary documentary evidences. Demand for IE intervention will not be admissible without initial documentary evidence.

## Modified GCC Clause No. 8 - Settlement of Disputes

(iii) Necessary information sought by IE during the course of investigation shall be provided in a time bound manner by both the Parties and non-compliance of the same shall lead to imposition of penalties, as specified in Special Conditions of Contract (SCC).

(iv) IE will examine the issue (s) raised by the Parties concerned as mentioned at point number (ii) above by conducting inspections involving field measurements as may be required to further investigate and to also conduct hearing / mediation with both the parties.

(v) Based on the preliminary hearing of the parties, IE shall prescribe resolution timeline depending upon the number and nature of disagreements subject to a maximum duration of thirty (30) days or within extended timeline under extraordinary circumstances and for reasons to be recorded in writing.

(vi) There shall not be any conflict of interest and it shall be ensured that IE should not have been engaged for providing any other services to any of the parties i.e. either Employer or Contractor in the last three years. An Undertaking in this regard shall be furnished by the Contractor for the purpose of avoiding any conflict of interest, at the time of bidding and finalization of IE/Expert.

(vii) In the event of non-performance of obligations/ services by the IEs at any time during the duration of its contract, the Employer and the Contractor, on mutually agreed basis, shall have the right and discretion to terminate IEs contract by giving a termination notice of thirty (30) days to IEs.

(viii) The role of 'Independent Engineer' under the Contract is an impartial and fair exercise, where the 'Independent Engineer' has to act as a neutral third party facilitator. The decision of Independent Engineer shall not be binding on the parties unless the parties sign the written settlement agreement and the same is authenticated by IE. Such Settlement agreement would then be binding on the parties and both parties shall implement the same forthwith.

### **III Terms and Conditions for Payments to 'Independent Engineer'**

i) Retainership Fee: A retainer fee, as specified in Special Conditions of Contract (SCC), for 'Independent Engineer for a specific project shall be considered as payment in full for:

- a. being available on a notice of 2 weeks for all site visits and hearings,
- b. becoming and remaining conversant with all the project developments and maintaining relevant files;
- c. compensating all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and

The retainer fee of Experts, shall be increased annually by 10%. **IE shall be eligible for maximum two retainer ship fee i.e. he can be engaged in maximum two CPSEs (CPSE shall include its JV/subsidiaries also). Further, IE can be engaged in maximum 02 contracts /packages in each CPSE.** The duration of retainership shall be for such duration

## Modified GCC Clause No. 8 - Settlement of Disputes

as may be mutually decided by the Employer and Contractor but shall not, in any case, extend beyond 3 months after the completion of works as per the contract.

The retainership fee shall be shared by the Employer and the Contractor equally but shall initially be paid to the IE by the Employer.

(ii) Site Visit Fee: A daily visiting fee, as specified in Special Conditions of Contract (SCC), to either project site or project office, anywhere in India, limited to a maximum of 10 days in a month for Expert, shall be paid for hearing, preparing reports etc. initially by the Employer. The daily visiting fee of Expert shall be increased on yearly basis @10%.

(iii) Reimbursement of travel, boarding / lodging expenses incurred by Independent Engineer: The travel, boarding/ lodging expenses of the ' Independent Engineer ', as per entitlement of Executive Director of EMPLOYER, would be made initially by the Employer. If any expert of ' Independent Engineer does not receive payment of the amount due within 30 days after submitting claim, the expert shall be free to suspend his/ her services without notice until the payment is received.

(iv) Meeting Expenses: All the payments for holding the meeting would be initially borne by the Employer and shall be shared equally by the Employer and Contractor.

(v) Sharing of Expenses on Independent Engineer: All the payments for holding the meeting, site visits, reimbursement of travel, boarding/ lodging expenses and monthly compensation of Independent Engineer ' shall be shared equally by both the parties i e Employer and Contractor.

(vi) The Employer shall maintain an account of all the expenses incurred by it on 'Independent Engineer'.

Notwithstanding anything contained in any other law for the time being in force, the Independent Engineer and the parties shall keep confidential all matters relating to the Independent Engineer proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.

The parties shall not rely on or introduce as evidence in Mediation / Conciliation / Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Independent Engineer proceedings,—

- a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;
- b) admissions made by the other party in the course of the Independent Engineer proceedings;
- c] proposals made by the Independent Engineer; and
- d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Independent Engineer.

## Modified GCC Clause No. 8 - Settlement of Disputes

### 8.3 Mediation through Independent External Monitors (IEMs) (Applicable where Integrity Pact and IEM are applicable in the Contract)

If the parties fail to resolve a dispute or difference by mutual consultation and through Independent Engineer (if applicable) within a period specified at Cl 8.1 and 8.2 above, the dispute, if the parties agree, may be referred to the Panel of IEMs for Mediation.

Mediation through IEMs shall be applicable only, where Integrity Pact and IEM are applicable in the Contract.

The Mediation proceedings shall be completed in a time bound manner, in **not more than 45 days from the date of reference to IEMs for Mediation.**

The IEMs may conduct the Mediation proceedings in the manner, they consider appropriate. In case of 3-member Panel of IEMs, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, IEMs recommendations will be signed by all the members.

The fees for such meetings shall be as specified in the SCC. The travel and stay arrangement for such meetings shall be equal to that of Independent Board Member of Employer's Organization. However, not more than five meetings shall be held for a particular dispute resolution. The fees/ expenses on dispute resolution shall be equally shared by both the parties.

If decision of IEMs is acceptable to both the parties, a Settlement Agreement will be signed to the extent agreed by the parties within 15 days of acceptance by the parties and same shall be authenticated by all the IEMs.

Notwithstanding anything contained in any other law for the time being in force, the Mediator and the parties shall keep confidential all matters relating to the Mediation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.

The parties shall not rely on or introduce as evidence in Conciliation or Arbitral or Judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Mediation proceedings,-

- a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;
- b) admissions made by the other party in the course of the Mediation proceedings;
- c) proposals made by the Mediator; and
- d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Mediator.

# Modified GCC Clause No. 8 - Settlement of Disputes

## 8.4 Resolution of Dispute through Conciliation

If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and /or through Mediation (if applicable) within a period as specified at Cl. 8.1, 8.2 and 8.3 above, the dispute if the parties agree, may be referred to Conciliation.

(i) For cases where the disputed amount (Claim / Counter claim, whichever is higher) is upto Rs. 25 Cr. (excluding interest), the matter for conciliation shall be referred to Expert Settlement Council (ESC), constituted by Employer.

(ii) For cases where the disputed amount (Claim / Counter claim, whichever is higher) is above Rs. 25 Cr. (excluding interest), the matter for conciliation shall be referred to Conciliation Committee of Independent Experts (CCIE), constituted by Ministry of Power (MoP).

If the claim /Counter-claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee.

The Conciliation process shall be conducted as per Part III of the Arbitration and Conciliation Act, 1996.

### 8.4.1 Resolution of Dispute through Expert Settlement Council (ESC), constituted by Employer {For cases with Disputed amount (Claim/Counter claim, whichever is higher) upto Rs. 25 Crore excl. interest}

If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and / or through Mediation (if applicable) within a period specified at Cl. 8.1, 8.2 and 8.3 above , the dispute, if the parties agree, may be referred to Conciliation through Expert Settlement Council ( ESC ), in cases where the Disputed amount ( Claim / Counter claim, whichever is higher) is upto Rs. 25crore (excl. interest).

#### 8.4.1.1 Invitation for Conciliation through ESC

8.4.1.1.1 A party shall notify the other party in writing about such a dispute it wishes to refer wishes to refer for Conciliation within a period of **15 days** from the date of **failure to resolve the dispute through Mutual Consultation and Independent Engineer (if applicable) and / or through Mediation (if applicable) within a period as specified at Cl. 8.1, 8.2 and 8.3 above**. Such Invitation for Conciliation shall contain sufficient information as to the dispute to enable the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action.

8.4.1.1.2 Upon acceptance of the invitation to conciliate, the other party shall submit its counter claim, if any, within a period of 15 days from the date of the invitation to conciliate. If the other party rejects the invitation or Disputed amount (Claim / Counter

## Modified GCC Clause No. 8 - Settlement of Disputes

claim, whichever is higher) exceeds Rs 25 crore (excl. Interest), there will be no Conciliation proceedings through ESC.

There shall be no Conciliation where disputed amount (Claim / Counter claim, whichever is higher excl. interest) is only up to Rs 5 lakhs.

8.4.1.1.3 If the party initiating Conciliation does not receive a reply within fifteen (15) days from the date on which it sends the invitation, or within such other period of time as specified in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party.

### **8.4.1.2 Conciliation through ESC**

8.4.1.2.1 Where Invitation for Conciliation has been furnished under GCC sub clause 8.4.1.1, the parties shall attempt to settle such dispute through Expert Settlement Council (ESC) which shall be constituted by CMD/ Chairman of Employer.

8.4.1.2.2 ESC will be formed from experts comprising three members from the panel of Conciliators maintained by Employer. However, there will be single member ESC for disputes involving disputed amount (Claim / Counter claim, whichever is higher excl. interest) is up to Rs 1 crore.

CMD/ Chairman of Employer shall have the authority to reconstitute the ESC to fill any vacancy.

8.4.1.2.3 The ESC shall be amongst Civil Servants of Govt, of India retired from the level of Joint Secretary and above, Retired Judges, Officers retired from the level of Executive Director and above of any Maharatna / Navratna company in India, other than NTPC Ltd, Retired Independent Directors who have served on the Board of any Maharatna / Navratna company in India, other than NTPC Ltd.

### **8.4.1.3 Proceedings before ESC:**

8.4.1.3.1 The claimant shall submit its Statement of Claims (SOC) along with relevant documents to ESC members, and to the party(s) indicated in the appointment letter within 15 days of appointment of ESC. The respondent shall file its reply/Statement of Defence (SOD) and counter claim (if any) within 15 days of the receipt of the Statement of claims. Each party shall send a copy of such Statement along with relevant documents to the other party.

Parties may file their rejoinder/additional documents, if any in support of their Claim/Counterclaim within next 7 days. No documents shall be allowed thereafter, except with the permission of ESC.

8.4.1.3.2 The parties shall file their claim and counterclaim in the following format:

- a Chronology of the dispute
- b Brief of the contract
- c. Brief history of the dispute
- d. Issues

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SI No	Description of Claims / Counter claims	Amount (in foreign / 1NR)	Relevant Contract Clause

e. Details of Claim (s) / Counter Claim (s)

f. Basis/ Ground of claim (s) / counter claim (s) (along with relevant clause of contract)

Note: Statement of claims shall be restricted to maximum limit of 20 pages.

8.4.1.3.3 In case of 3 members ESC, 2 members will constitute a valid quorum and the meeting can take place to proceed in the matter after seeking consent from the member who is not available. However, ESC recommendations will be signed by all the members.

If required, meetings can be conducted through video conferencing / other digital means subject to the agreement between the parties and the ESC.

8.4.1.3.4 The parties shall be represented by their in-house employees. No party shall be allowed to bring any advocate or outside consultant /advisor /agent to contest on their behalf. Ex officers of Employer's Organization who have handled the subject matter in any capacity shall not be allowed to attend and present the case before ESC on behalf of contractor. However, ex-employees of parties may represent their respective organizations. Parties shall not claim any interest on claims/ counter claims from the date of notice invoking Conciliation till execution of settlement agreement, if so arrived. In case, parties are unable to reach a settlement, no interest shall be claimed by either party for the period from the date of notice invoking Conciliation till the date of ESC recommendations and 30 days thereafter in any further proceeding.

8.4.1.3.5 ESC will conclude its proceedings in maximum 05 meetings, and give its recommendations within 90 days from the date of reference to ESC. ESC will give its recommendations to both the parties recommending possible terms of settlement. CMD/ Chairman of Employer may extend the time/number of meetings, in exceptional cases, if ESC requests for the same with sufficient reasons and as agreed by the parties.

8.4.1.3.6 Depending upon the location of ESC members and the parties, the venue of the ESC meeting shall be either Delhi/Mumbai/Kolkata/Chennai or any other city whichever is most economical from the point of view of travel and stay etc. All the expenditure incurred in ESC proceedings shall be shared by the parties in equal proportion.

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### 8.4.1.4 Fees & Facilities to the Members of the ESC

The cost of Conciliation proceedings including but not limited to fees for Conciliator, Airfare, Local transport, Accommodation, cost towards conference facility etc shall be as provided herein below:

SI No	Fees/ Facility	Entitlement
1.	Fees	Lumpsum fee of Rs. 2,50,000 per conciliator irrespective of the no. of meetings. *
2.	Secretarial Expenses	Rs.10,000 lump sum (to 1 member only).
3.	Transportation in the city of the meeting	Car as per entitlement or Rs. 2,000 per day
4.	Venue for meeting	EMPLOYER'S conference rooms
Facilities to be provided to the out-stationed member		
5.	Travel from the city of residence to the city of Meeting	As per entitlement of Independent Directors. Executive class air tickets / first class AC train tickets/ Luxury car/ reimbursement of actual fare. However, entitlement of air travel by Business class shall be subject to austerity measures, if any, ordered by Govt of India.
6.	Transport to and fro airport/ station in the city of residence	Car as per entitlement or Rs. 3,000
7.	Stay for out stationed Members	As per entitlement of Independent Directors.
8.	Transport in the city of meeting	Car as per entitlement or Rs.2000 per day

\* Due to unavoidable circumstances, if there is requirement of more than 5 meeting to conclude the Conciliation proceedings, the same may be done at the discretion of ESC within the capping of fee of Rs 2.5 Lakhs per conciliator. However, logistic arrangements, including travel, etc. may be provided as per the extant Policy for such additional sittings.

Aforesaid fees is subject to revision by Employer from time to time and subject to government guidelines on austerity measures, if any. All the expenditure incurred in the ESC proceedings shall be shared by the parties in equal proportions. The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the ESC proceedings.

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8.4.1.5 If recommendations/ report of ESC is acceptable to both the parties, a Settlement Agreement under Section 73 of the Arbitration and Conciliation Act, 1996 will be signed to the extent agreed by the parties within 15 days of acceptance by the parties and same shall be authenticated by all the ESC members.

Parties are free to terminate Conciliation proceedings at any stage as provided under the Arbitration and Conciliation Act 1996.

8.4.1.6 Notwithstanding anything contained in any other law for the time being in force, the Conciliator and the parties shall keep confidential all matters relating to the Conciliation proceedings Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.

The parties shall not rely on or introduce as evidence in Arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Conciliation proceedings,—

- a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;
- b) admissions made by the other party in the course of the Conciliation proceedings;
- c) proposals made by the Conciliator; and
- d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Conciliator.

### **8.4.2 Resolution of Dispute through Conciliation Committee of Independent Experts (CCIE), constituted by Ministry of Power (MoP) {For cases with Disputed amount (Claim/ Counter claim whichever is higher) above Rs. 25 Crore excl. interest}**

If the parties fail to resolve such a dispute or difference by mutual consultation and through Independent Engineer (if applicable) and / or through Mediation (if applicable) within a period specified at Cl. 8.1, 8.2, 8.3 above, the dispute, if the parties agree, may be referred to Conciliation Committee of Independent Experts ( CCIE), in cases where the Disputed amount ( Claim / Counter claim whichever is higher) is above Rs. 25 crore excl. interest.

#### **8.4.2.1 Invitation for Conciliation through CCIE**

8.4.2.1.1 A party shall notify the other party in writing about such a dispute it wishes to refer for CCIE within a period of 15 days from the date of failure to resolve the dispute through Mutual Consultation and Independent Engineer (if applicable) and / or through Mediation (if applicable) within a period as specified at Cl. 8.1, 8.2 and 8.3 above. Such Invitation for Conciliation shall contain sufficient information as to the dispute to enable

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the other party to be fully informed as to the nature of the dispute, amount of the monetary claim, if any, and apparent cause of action.

8.4.2.1.2 If the party initiating Conciliation does not receive a reply within fifteen (15) days from the date on which it sends the invitation, or within such other period of time as specified in the invitation, it shall treat this as a rejection of the invitation to conciliate from the other party.

### **8.4.2.2 Conciliation Committee of Independent Experts**

8.4.2.2.1 Where Invitation for Conciliation has been consented to under GCC sub clause 8.4 2.1, the same shall be referred to the Conciliation Committee of Independent Experts (CCIE) within 30 days.

8.4.2.2.2 Conciliation Committees of Independent Experts (CCIE) have been constituted and notified by MoP for settlement of disputes arising in the Contract.

8.4.2.2.3 The Contractor may select three CCIEs, in priority order, from the list of CCIEs enclosed with the Special Conditions of Contract, for finalization by CEA.

There shall not be any conflict of interest for the members of the CCIE due to their past assignments. **Individuals CCIE members shall submit an undertaking in this regard to the Employer, prior to appointment.** It shall be ensured that they have not been engaged for providing any services to any of the parties i.e. either Employer or the Contractor in the last five years. An Undertaking in this regard, shall also be furnished by the Contractor for the purpose of avoiding any conflict of interest.

### **8.4.2.3 Proceedings before CCIE:**

8.4.2.3.1 The procedure of CCIE shall not be treated as alternate arbitration proceedings where both parties come with Statement of claims / defence, arguments/ counter arguments, rejoinders, written submissions etc, aided by their respective lawyers.

8.4.2.3.2 The parties shall be brief and to the point before the Committee with regard to their respective stance and view the exercise in the spirit of conciliation/ settlement.

8.4.2.3.3 The possibility of non-availability of any one of the members of CCIE in any proceedings cannot be ruled out. As such, the Committee comprising the other two members shall be competent to proceed in the matter. The proceedings of the Committee shall not be vitiated if one of the three members of CCIE is not present in the deliberations of the Committee. When the parties sign the settlement agreement, at

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least two members of CCIE shall authenticate the same Such conciliation proceedings shall be considered valid and the settlement agreement will be binding on the parties.

8.4.2.3.4 The parties shall be represented by their in-house employees No party shall be allowed to bring any advocate or outside consultant / advisor / agent to contest on their behalf Ex officers of EMPLOYER who have handled the subject matter in any capacity shall not be allowed to attend and present the case before CCIE on behalf of contractor. However, ex-employees of parties may represent their respective organizations.

8.4.2.3.5 The Conciliation proceedings shall be completed in each case through 5 sittings in a period of not more than three months from the date the reference made to the CCIE In exceptional cases, if any dispute so merits, the time period may be extended at the discretion of Conciliation Committee (with reasons to be recorded in writing), for a further period of three months.

8.4.2.3.6 The CCIE shall hold day to day sitting at a suitable place (preferably the headquarter of the Employer or New Delhi) and may hold as many sittings every month as it deems appropriate keeping in view the volume of work.

### **8.4.2.4 Fees & Facilities to the Members of the CCIE**

Each member of CCIE would be paid a sum of Rs 50,000 / as sitting fee per sitting. In addition, Rs 5,000/- per sitting will be paid for local transport charges for each day of proceeding.

In case, a particular dispute requires more than 5 sittings, the same may be held at the discretion of the CCIE but with a cap on payment of fee for 5 sittings only. The local transport charges shall, however, be paid as provided for each day of sitting beyond the 5 sittings.

All expenditure incurred on the conciliation proceedings including payment of fees to the Conciliators, office space, logistic, secretarial assistance and other incidental expenses etc shall be borne by the Employer initially. Thereafter it shall be shared equally by both parties on completion of the conciliation process.

8.4.2.5 The Parties shall maintain the account of expenditure and present to the other for the purpose of sharing on conclusion of the CCIE proceedings.

The Conciliation process shall be conducted under Part III of the Arbitration and Conciliation Act, 1996.

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In case of failure of the conciliation process at the level of the Conciliation Committee, the parties may withdraw from conciliation process and take recourse to **remedies as may be available to them under the applicable laws other than Arbitration.**

In the event of the conciliation proceedings being successful, the parties to the dispute would sign the written settlement agreement and the conciliators would authenticate the same. Such settlement agreement would then be binding on the parties in terms of Section 73 of the Arbitration and Conciliation Act, 1996.

After successful conclusion of proceedings, the Parties to the conciliation process, have to undertake and complete all necessary actions for implementation of the terms of settlement within a period of 30 days from execution of settlement agreement, unless a different timeline not exceeding 60 days is agreed upon in settlement agreement. All pending claims of parties, in connection with the dispute, before any other legal forum are to be withdrawn within the said 30 days in pursuance of the settlement agreement.

8.4.2.6 Notwithstanding anything contained in any other law for the time being in force, the Conciliator and the parties shall keep confidential all matters relating to the Conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.

The parties shall not rely on or introduce as evidence in Arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the Conciliation proceedings,—

- a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;
- b) admissions made by the other party in the course of the Conciliation proceedings;
- c] proposals made by the Conciliator; and
- d) the fact that the other party had indicated his willingness to accept a proposal for settlement made by the Conciliator.

### 8.5 Arbitration

8.5.1 If the process of mutual consultation and IE (if applicable) and/or Mediation (if applicable) and/or ESC fails to arrive at a settlement between the parties, Employer or the Contractor may, within Thirty (30) days of such failure, give notice to the other party, of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. The mechanism of settling the disputes through arbitration shall be applicable only in cases where the disputed amount (i.e. Claim/ Counter claim, whichever is higher, excluding interest) is **less than Rs. 10 crores.**

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If the claim/counter claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee.

In case the disputed amount (Claim/ Counter claim, whichever is higher, excl. interest) is **Rs. 10 Crores or above**, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party. There shall be no arbitration where the disputed amount (Claim/ counter claim, whichever is higher) is only up to Rs. 5 lakhs.

The parties at the time of invocation of arbitration shall submit all the details of the claims and the counter-claims including the Heads/Sub-heads of the Claims/Counter-Claims and the documents relied upon by the parties for their respective claims and counter-claims. The parties shall not file any documents/details of the claims and counter-claims thereafter.

The claims and the counter claims raised by the parties at the time of invocation of the arbitration shall be final and binding on the parties and no further change shall be allowed in the same at any stage during arbitration under any circumstances whatsoever.

**In case, multiple arbitrations are invoked (whether sub-judice or arbitral award passed) by any party under this contract, then the cumulative disputed amount (i.e. Claim/ Counter claim, whichever is higher, excluding interest) in all such arbitrations shall be taken into account while arriving at the total disputed amount for the subject contract. Disputes having cumulative value less than Rs 10 crores shall be resolved through arbitration. In case the disputed amount (Claim/Counter claim, whichever is higher, excluding interest) is Rs 10 crores and above, the parties shall be within their rights to take recourse to remedies as may be available to them under the applicable laws other than Arbitration after prior intimation to the other party.**

8.5.2 Any dispute in respect of which a notice of intention to commence arbitration has been given, in accordance with GCC Sub Clause 8.5.1, shall be finally settled by arbitration.

8.5.3 It is agreed between the parties that the Arbitration proceedings shall be conducted as per the provisions of Fast Track Procedure as provided under The Arbitration and Conciliation Act, 1996, as amended from time to time.

Any dispute or difference raised by a party to arbitration shall be adjudicated by an arbitral tribunal consisting of three arbitrators, in the following manner:

(a) A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving notice to the other party.

(b) The EMPLOYER and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator within 30 days, who shall act as presiding arbitrator of the arbitral tribunal. If the two arbitrators do

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not succeed in appointing a third arbitrator within 30 days of the latter of the two arbitrators has been appointed, the third arbitrator shall be appointed by the High Court of Delhi.

(c) If one party fails to appoint its arbitrator within 30 days after the other party has named its arbitrator, the party which has named its arbitrator may approach the High Court of Delhi to appoint the second arbitrator.

(d) If any member of the arbitral tribunal dies, resigns, becomes incapacitated or withdraws for any reason from the proceedings or his mandate is terminated by the Court, a substitute shall be appointed in the same manner as the arbitrator whose mandate has terminated as above. After substitution of new member, the arbitration tribunal shall proceed with reference from the stage where the mandate of the arbitrator has been terminated.

(e) Arbitrator tribunal shall be paid fees as per the Fee Schedule (presently Fourth Schedule) provided in 'The Arbitration and Conciliation Act, 1996' as amended from time to time. If the claim/ counter claim is in foreign currency, the SBI Bills Selling Exchange rate prevailing on the date of claim shall be used for the purpose of converting the claim in Indian Rupee which may be used for determining the arbitration fee.

(f) If after commencement of the Arbitration proceedings, the parties agree to settle the dispute mutually or refer the dispute to mediation or Conciliation, the arbitrator shall put the proceedings in abeyance until such period as requested by the parties. Where the proceedings are put in abeyance or terminated on account of mutual settlement of dispute by the parties, the fees payable to the arbitrator shall be determined as under:

(i) 40% of the fees if the pleadings are complete

(ii) 60% of the fees if the hearing has commenced

(iii) 80% of the fees if the hearing is concluded but the Award is yet to be passed

(g) Each party shall pay its share of arbitrator's fees in stages as under or as per the directions of Arbitrator:

(i) 40% of the fees on Completion of Pleadings.

(ii) 40% of the fees on Conclusion of the Final Hearing.

(iii) 20% at the time when arbitrator notifies the date of final award.

(h) The Claimant shall be responsible for making all necessary arrangements for the travel/ stay of the Arbitrator including venue of arbitration, hearings. The parties shall share the expenses for the same equally.

(i) The Arbitration shall be held at Delhi only.

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(j) The Arbitrator shall give reasoned and speaking award and it shall be final and binding on the parties.

(k) Subject to the aforesaid conditions, provisions of The Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof as amended from time to time, shall apply to the arbitration proceedings under this clause.

8.5.4 In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract (s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/ Organizations (excluding taxation matters), such disputes or difference shall be taken up by either party for resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) as mentioned in DPE Office Memorandum No. 4(1)/2013- DPE(GM)/FTS-1835 dated 22.05.2018 issued by Department of Public Enterprises, Ministry of Heavy Industries and Public Enterprises, Government of India and its further clarifications, modifications and amendments, issued from time to time.

***The limit on disputed amount as mentioned at clause 8.5.1 above*** shall not be applicable and matter may be referred to AMRCD irrespective of the amount involved in dispute, if the dispute could not be resolved through Mutual Consultation and IE (if applicable) as brought out at GCC Sub Clause 8.1 and 8.2 above.

8.6 Notwithstanding any reference to the Independent Engineer or Mediation or Conciliation or Arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree.

(b) the Employer shall pay the Contractor any monies due to the Contractor.

**Settlement of Dispute clause cannot be invoked by the Contractor, if the Contract has been mutually closed or 'No Demand Certificate' has been furnished by the Contractor or any Settlement Agreement has been signed between the Employer and the Contractor.**

**[C&M coordinator shall delete clause 8.5.1 to 8.5.3 above for contracts/tenders invited on DCB basis with cost estimate more than Rs. 1000 crore].**

## Annexure-C to General Conditions of Contract

**Standard Operating Procedures (SOPs) for IE**

Investigations by Independent Engineer for any contentious issue / disagreement shall be as per pre-defined Standard Operating Procedure (SOP). IE shall strictly follow the SOPs and will also document and maintain all the records. Following is a representation of the SOPs for IE for processing key tasks, roles and responsibilities and commensurate timelines.

Based on the preliminary hearing of the Parties, IE shall prescribe resolution timeline depending upon the number and nature of disagreements subject to a maximum duration of thirty (30) days.

Key Task	Stakeholder involvement	Activity Description	Proposed Timeline
<b>1</b> Disagreement Filing	Contractor Client	<b>Case Filing</b> – A disagreement case begins when claimant party submits a demand for intervention by IE in the prescribed format along with documentary evidence. Demand without initial documentary evidence will not be admissible for IE intervention.	<b>Day 0</b>
<b>2</b> Preliminary Hearing & Scheduling	Independent Engineer Contractor Client	<b>Preliminary hearing and scheduling process</b> - IE to organize a preliminary hearing with the parties and prescribe suitable timeline for resolution or settlement.	<b>Day 1 to Day 6</b>
<b>3</b> Finalisation of Issues	Independent Engineer	<b>Finalisation of Issues</b> – After due examination and diligence to finalise the issues requiring resolution.	<b>Day 3 to 9</b>
<b>4</b> Hearing/ Mediation	Independent Engineer Contractor Client	<b>Hearing / Mediation</b> –The parties and IE meet in person to conduct the Hearings.	<b>Day 4 to 12</b>
<b>5</b> Inspection	Independent Engineer	<b>Inspection</b> - IE conducts the inspections involving field measurements, if any, to further investigate evidence conferred to the IE by both parties during the hearing.	<b>Day 5 to 17</b>
<b>6</b> Post Inspection Briefs	Independent Engineer Contractor Client	<b>Post-Inspection Briefs</b> - After the inspection takes place; both the parties may come up with additional testimony, as permitted by the IE.	<b>Day 10 to 30</b>
<b>7</b> Closure	Independent Engineer	<b>Closure</b> - IE closes the report on the case and issues a decision, along with any claim settlement, if applicable.	<b>Day 10 to 30</b>

**Annexure-D to General Conditions of Contract**

**Standard Format for Disagreement Case Filing (Indicative)**

In line with the SOPs, an IE expert should follow a standard format provided below for disagreement case filing and further investigations.

Disagreement Documentation Report (to be filled by Independent Engineer)

<b>1. Name of Party</b>	<b>2. Disagreement Reporting Date</b>	<b>3. Has the documentary Evidence been Submitted</b>
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable
<b>4. Contract Reference number</b>	<b>5. Party Representative Name Reporting Disagreement</b>	
	Name: _____ Contact _____ Details: _____	
<b>6. Name of Independent Engineer(IE)</b>	<b>7. IE Contact details</b>	<b>8. Disagreement Reference Number Allocated by IE</b>
<b>9. Supplementary Note Recording the Disagreement</b>		
[Text] <span style="float: right;"><i>Documentary Evidences to be Annexed</i></span>		
<b>10. Critical Engineering Expertise Relevant to investigate the Disagreement ( Check All Required)</b>		
<input type="checkbox"/> Engineering Design	<input type="checkbox"/> Geology	<input type="checkbox"/> Civil Works
<input type="checkbox"/> Hydro Mechanical	<input type="checkbox"/> Electro Mechanical	<input type="checkbox"/> Electrical Switchgear
<input type="checkbox"/> Quality Assurance & Inspection		
<b>11. Record Notes of Preliminary hearing Organized by IE with the parties</b>		
[Text] <span style="float: right;"><i>Documentary Evidences by Parties along with MoM to be Annexed</i></span>		
<b>12. Brief Narration on discovery process - after Preliminary hearing &amp; listing of next step to examine the issues and procedural difficulties relating to the case</b>		
[Text] <span style="float: right;"><i>Documentary Evidences to be Annexed</i></span>		
<b>13. Record notes of Hearing/Mediation between the parties and IE</b>		
[Text] <span style="float: right;"><i>Documentary Evidences with Video Records to be Annexed</i></span>		
<b>14. Inspection Records with Field Measurements Conducted by IE</b>		
[Text] <span style="float: right;"><i>Documentary Evidences to be Annexed</i></span>		
<b>15. Record notes of Inspection Briefs by IE along with additional testimony by the Parties if any</b>		
[Text] <span style="float: right;"><i>Documentary Evidences &amp; Inspection Reports to be Annexed</i></span>		
<b>16. Closure Report by IE with Decision &amp; Claim settlement if applicable</b>		
[Text] <span style="float: right;"><i>Documentary Evidences to be Annexed</i></span>		
<b>Final Acceptance by All the Parties</b>		

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# NTPC SAFETY RULES

## FOR CONSTRUCTION AND ERECTION OF POWER PLANTS

### INTRODUCTION:

NTPC Limited is a Maharatna organization taking lead in realizing the power dreams of the Nation with a vision “To be one of the World’s largest and best power utilities, Powering India’s growth”. Safety is one of the prime concerns of NTPC and it always strives towards accident free construction, erection, commissioning, operation and maintenance of its power projects. In this process, NTPC has already formulated Safety policy and guidelines for smooth execution of all its project activities.

In order to strengthen the existing Safety Rules for Construction and Erection and thereby curbing the chances of accidents in Construction & Erection works at various projects of NTPC, the existing safety rules have been revised for strict implementation. These Safety Rules lay down the safety requirements for safe execution of project activities, responsibilities of the contracting agencies, and all concerned involved in Construction and Erection.

### **A. RESPONSIBILITIES OF CONTRACTORS FOR IMPLEMENTATION OF SAFETY RULES:**

The Safety Rules for Construction & Erection as outlined hereunder, while setting out a broad parameter of safety norms, are not exhaustive. The contractor and his agencies are advised to refer to the following statutory provisions as amended from time to time for details and strict compliance therewith.

#### ***FOR GREENFIELD PROJECTS:***

- (a) Building and Other Construction Workers (regulation of employment and conditions of service) Act, 1996 (briefly referred to as BOCW Act),
- (b) Building and other construction workers (regulation of employment and conditions of service) Central Rules, 1998 (briefly referred to as BOCW Rules) as adopted by the various State Governments,

#### ***FOR EXPANSION, MODIFICATION, ALTERATION AND, OR CONSTRUCTION ACTIVITY WITHIN AN EXISTING PLANT OPERATING AS PER APPROVED SITE PLAN UNDER THE FACTORIES ACT;***

- (a) Factories Act, 1948,
- (b) Factories Rules, as adopted by the various State Governments
- (c) BOCW Act
- (d) BOCW Rules

The contractor is also required to ensure compliance with all the relevant Acts/Rules in addition to above.

It shall be incumbent on the contractor to ensure that the requirements of safety, statutory or otherwise specified, are fully met. Thus the onus of implementation of the norms so prescribed shall squarely rest with the contractor concerned or, on his behalf, his sub-contractor or any other agency deployed by him, indemnifying NTPC from all the liabilities that may arise out of any failure to comply with the above mentioned Acts/Rules or any contravention thereof by the contractor or any other sub-agency on his behalf.

Safety cannot be ensured solely through Rules and Regulations or Codes. It is the responsibility of the Contracting Agency to ensure that basic safety principles are incorporated in the planning stage of their mobilization, execution, installation of machines, equipment, storage, etc., and initiate and maintain *safety programs*. It is desirable to have a planned programme and secure adequate cooperation of senior management, EICs, sub-contracting agencies, supervisory personnel and workers involved to ensure the implementation of the provisions of these Rules in true spirit so as to achieve the ultimate goal of *accident prevention*.

It shall also be the responsibility of the contracting agency to provide amenities and safety requirements on each construction job in order to reduce or to eliminate hazards of construction activities and also to provide necessary *first aid* facilities as well as Ambulance van (in case of major agencies) for prompt transportation of injured persons to a physician or hospital.

It is also mandated that the authorized representative of NTPC, namely, the Engineer-in-charge, may, at his convenience, exercise such superintendence, supervision and, or control as may be deemed necessary, but this shall not absolve the contractor of his basic responsibility for strict compliance with the norms, standards and, or legal provisions as applicable under the Factories Act/Rules and the Building and other construction (regulation of employment and conditions of service) Act/Rules.

**Section wise checklist of provisions of BOCW Act/Rules is given hereunder for ready reference of the contractor.** (This list has been prepared in chronological order with primary importance to Section of Act and secondary importance to Rules)

**S** - Refers relevant Sections in BOCWA

**R** - Refers relevant Rules in BOCWR

Sl. No.	ITEMS	RELEVANT SECTIONS / RULES IN BOCWA AND BOCWR AND RBOCWR
1	Registration of establishment	S – 7, R – 23 to 27
2.	Display of registration certification at workplace	R – 26 (5)
3.	Hours of work	S – 28 R – 234 to 237
4.	Register of overtime	S – 28; S – 29 R – 241(1) Form XXII
5.	Weekly rest and payment at rest	R – 235
6.	Night shift	R – 236
7.	Maintenance of workers registers and records	S – 30 R – 238
8.	Notice of commencement and completion	S – 46 R – 239
9.	Register of persons employed as building workers	R – 240
10.	Muster roll and wages register	R – 241(1) (a); Form XVI and XVII
11.	Payment of wages	R – 248
12.	Display of notice of wages regarding	R – 249
13.	Register of damage or loss	R – 241(1)(a); Form XIX, XX, XXI
14.	Issue of wages book	R – 241(2)(a); Form XXIII
15.	Service certificate for each workers	R – 241(2)(b); Form XXIV
16.	Display an abstract of BOCWA and BOCWR	R – 241(5)
17.	Annual return	R – 242; Form XXV
18.	Drinking water	S – 32
19.	Latrines and Urinals	S – 33 R - 243
20.	Accommodation	S – 34
21.	Creches	S – 35
22.	First-aid boxes	S – 36 R – 231 and Schedule III
23.	Canteens	S – 37 R – 244
24.	Food stuff and other items served in the canteens	R – 245
25.	Supply of tea and snacks in work place	R – 246
26.	Food charges on no loss no profit basis	R - 247
27.	Delhi BOCW welfare Board Rules	R – 250 to 296
28.	Safety committee	S – 38 R – 208

29.	Safety officer	S – 38 R – 209 and Schedule VII
30.	Reporting of accidents and dangerous occurrences	S – 39,R – 210
31.	Procedure for inquiry in to the causes of accidents	R – 211
32.	Responsibility of employer	S - 44 R – 5
33.	Responsibility of Architects, Project engineer and Designers	R – 6
34.	Responsibility of workmen	R – 8
35.	Responsibility for payment of wages and compensation	S – 45
36.	Penalties and Procedures	S – 47; S – 55
37.	Excessive noise, vibration etc.	R – 34
38.	Fire Protection	R – 35
39.	Emergency action plan	R – 36
40.	Fencing of motors	R – 37
41.	Lifting of carrying of excessive weight	R – 38
42.	Health, Safety and Environmental Policy	R – 39
43.	Dangerous and Harmful Environment	R – 40
44.	Overhead protection	R – 41
45.	Slipping, Tripping, Cutting, Drowning and Falling Hazards	R – 42
46.	Dust, Gases, Fumes, etc.	R – 43
47.	Corrosive substance	R – 49
48.	Eye Protection	R – 45
49.	Head Protection and other protection apparel	R – 46; R – 54
50.	Electrical Hazards	R – 47
51.	Vehicular traffic	R – 48
52.	Stability of structure	R – 49
53.	Illumination	R – 50; R – 124
54.	Stacking of materials	R – 51
55.	Disposal of debris	R – 52
56.	Numbering and marking of floors	R – 53
57.	Lifting appliances and gears	R – 55 to 81
58.	Runways and Ramps	R – 82 to 85
59.	Working on or adjacent to water	R – 86 & 87

60.	Transport and earthmoving equipment's	R – 88 to 95
61.	Concrete work	R – 96 to 107
62.	Demolition	R – 108 to 118
63.	Excavation and Tunneling works	R – 119 to 168
64.	Ventilation	R – 153
65.	Construction, repair and maintenance of step roof	R – 169 to 171
66.	Ladders and Step ladders	R – 172 to 174
67.	Catch platform and hoardings, chutes, safety belts and nets	R – 175 to 180
68.	Structural frame and formworks	R – 181 to 185
69.	Stacking and unstacking	R – 186 & 187
70.	Scaffold	R – 188 to 205
71.	Cofferdams and Caissons	R – 206 to 211
72.	Explosives	R – 212 & 213
73.	Piling	R – 214 to 222
74.	Medical Examination for building and other construction worker, Crane operator an Transport vehicle drivers	R – 81; R – 223(a)(iii) and Schedule
75.	Medical examination for occupational health hazards	R – 233(a)(iv)
76.	Charging of workers for Medical Examination	R – 223(b)
77.	Occupational health centres and Medical officers	R – 225 and Schedule X & XI
78.	Ambulance van & room	R – 226 & 227 and Schedule IV & V
79.	Stretchers	R – 228
80.	Occupational health service for building workers	R – 229
81.	Medical examination for occupational health hazards	R – 223(a)(iv)
82.	Emergency care services and emergency treatment	R – 232
83.	Panel of experts and agencies	Central Rule 250
84.	Power of inspectors	Central rule 251

## B. RESPONSIBILITIES AND DUTIES OF WORKERS

- (a) It shall be the responsibility of the worker to comply with the requirements of safety as laid down for him and the group of workers to which he belongs and fully cooperate in the discharge of the responsibility that has been assigned to the contractor.
- (b) If he discovers any defects in the lifting appliance, lifting gear, lifting device or those concerning any transport equipment or other construction equipment or tools as well as the physical work conditions, he will report such defects promptly to his employer or NTPC Engineer or other person in authority;
- (c) No building worker shall, unless duly authorized or in case of absolute necessity, remove or interfere with any fencing, guards, gangways, gear, ladder, hatch covering, life saving appliances, lighting or other things whatsoever required and provided for safety and health. If any of the aforesaid things is removed, the persons engaged in the work shall restore such thing at the end of the period during which its removal was necessary;
- (d) Every worker shall use only means of access provided in accordance with the approved norms and no person shall authorize or order another to use such means of access or method other than those approved;
- (e) Workers shall use such means of access and egress for going to and exiting from the workplace as provided.

## SECTION - I SAFETY MANAGEMENT

### 1.0 SAFETY MANUAL AND SAFETY POLICY:

- 1.1 The Safety policy of the contracting agency should reflect the commitment of the concerned agency towards safety and health of the workers specified for the particular site.
- 1.2 The Contractor shall have Safety Plan detailing the safety norms evolved through Safety Policy and Job Safety Analysis (JSA) or Hazard Identification & Risk Assessment (HIRA) of all package activities and constitute a Safety management program. Contracts shall also ensure POWRA (point of work risk assessment) before start of any activity.
- 1.3 The safety management programme in the form of Safety Manual shall give details of provisions proposed by the agency w.r.t. Job Safety Analysis (JSA) or Hazard Identification and Risk Assessment (HIRA) to ensure safety of the employees and elimination of health hazards. The Safety Manual including safety policy duly signed by the head/senior executive of the agency shall be submitted to the concerned Engineer-Incharge(EIC), NTPC before start of their project activities at site.
- 1.4 Each contracting agency shall have facilities for conducting the above safety management programme, commensurate with magnitude of the work under contract.

### 2.0 APPOINTMENT OF SAFETY OFFICER/SAFETY SUPERVISOR:

- 2.1 Each contracting Agency shall provide a sufficient number of qualified, suitable and experienced persons to manage all safety related matter on Site relating to the works. Irrespective of manpower employed by the agency whether temporary, casual, probationer, regular or permanent or on contract, Agency shall deploy a qualified Safety Officer/executive, responsible for carrying out the safety management programme before start of the work.
- 2.2 The safety officer shall create an organization, commensurate with the project activities, consisting of other staff as required for suitable deployment.
- 2.3 The schedule of requirement of safety personnel is given below.

No. of Workers	No. of Safety Supervisors	No. of Safety Officers
Up to 100	1	1
101 to 250	2	1
251 to 500	4	1
501 to 1000	6	2
1000 to 2000	6+ One additional supervisor up to every additional 250 workers	3
2000-3000	10+ One additional supervisor up to every additional 250 workers	4
3000-4000	14+ One additional supervisor up to every additional 250 workers	5

Above 4000	18 + One additional supervisor up to every additional 250 workers	5 + one safety officer up to addition 1000 workers
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2.4 The qualification and experience of the safety personnel should meet the following criteria.

- a) Safety Supervisor: (i) Possesses recognized degree in any branch of Engineering. OR  
(ii) Diploma in any branch of Engineering with at least one year construction experience.
- b) Safety Officer/Safety Executive: Qualification as given under BOCW Act/rules and minimum experience of three years.

2.5 In case contractor fails to employ the required safety professionals, the department may at the cost and risk of the contractor deploy additional/required safety professionals. The cost incurred towards this shall be deducted from contractor's bill at following the rates or actual whichever is higher.

- 1. Safety Engineer Rs. 1500/day.
- 2. Safety Supervisor Rs. 1000/day.

**3.0 MEETING FOR SAFETY AFTER AWARD OF THE CONTRACT:**

Representatives of contracting agency along with safety Officer/executive shall meet the concerned EIC of the particular activity prior to start of construction activities for the purpose of discussing safety standards and requirements applicable to the work under contract. The person representing the agency should be a responsible person for all their site activities.

**4.0 PERSONAL PROTECTIVE EQUIPMENT:**

4.1 The contracting agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization as specified in the Bidding Documents. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintain during the execution of the work. A PPE plan shall be prepared which gives fair idea regarding issue of PPEs to various personnel as per the following 'PPE Selection Matrix'.

4.2 **Mandatory PPEs:** Wearing of Safety Helmet, Safety Shoes and reflective jacket is mandatory for all work at site and it should be ensured that all employees and project visiting personnel shall invariably wear safety helmet, safety shoes & reflective jacket.

**PPE Matrix (apart from mandatory PPEs, i.e., Safety Helmet & Safety Shoes)**

Activity	Type of Protection						Remarks, if any
	Hand	Eye	Ear	Body	Respiratory	Others	
Gas Welding & Cutting	LG	WG	-	LA	*SCBA/ OLBA	-	* for confined space

Electric Arc Welding	LG	HMWS	-	LA	*SCBA/ OLBA	-	* for confined space
Rigging	CG	SG	-				--
Working at Height	-	SG	-	DLFBH	-	*FAS	* for vertical columns
Grinding & Chipping	CG	FS / SG	-	LA	-	-	--
Working in High Noise	-	-	EP / EM	-	-	-	--
Handling of Cement Concrete	RG	SG	-	-	DM	-	
Blasting	CG	SG	EP*	-	-	-	* at noise area
Excavation	CG	SG	-	-	DM	-	*Gum boot in place of Safety shoe for foot
Chemical Handling	PVCG	CSG	-	PVCA	-	-	*Full body rubber suit with hood
Electrical and C&I	ERG*	SG	-	-	-	-	*For high voltages
Sand/shot blasting	CG	-	EP/EM	CA	SAMH	-	

**ABBREVIATIONS:** FS: Face Shield, CSG: Chemical splash goggles, HMWS: Helmet mounted welder's shield, GB: gum boot, DLFBH: Double lanyard full body harness, SG: Safety goggles, DM: Dust mask, SAMH L Supplied air mask/hood, EP/EM: Ear plug/Ear Muff, CG: Cotton hand gloves, LG: Leather hand gloves, LA: Leather apron, RG: Rubber gloves, PVCG: PVC Gloves, PVCA: PVC Apron, SCBA: Self-contained breathing apparatus, WG: Welding goggles, ERG: Electrical Rubber Gloves. OLBA : Online breathing apparatus

**4.3** The above-mentioned PPEs should be made available with contractor at site and issued to the concerned workers on the day of employment. All PPEs shall comply with ISI standards with valid test certificates.

**4.4** At least two breathing apparatus sets (complying requirement as per IS: 10245) shall be provided at each site where excavation/tunneling works and Welding/ Cutting operations in confined areas are being carried out, to rescue the victims under exposure to harmful gases/vapors, if any.

## **5.0 SAFETY COMMITTEE:**

- 5.1** *Safety committee* shall be formed within each contracting agency comprising of worker representatives with equal no. of management representatives as per the provisions of BOCW Act/rules. This committee in each agency shall meet at least once in every month. The safety officer of the concerned agency shall coordinate these meetings. NTPC Safety officer shall be special invitee for Safety Committee meetings. The safety committee functioning shall be in line with the provisions of BOCW Act/Rules.
- 5.2** Apart from the above, each agency shall organize safety meetings every day before start of day's work to educate & motivate the workers about the necessity of safety. Case study of accident/ incident can be shared in these meetings.
- 5.3** The contractor shall also regularly organize safety meetings for all job supervisors/foremen.
- 5.4** Weekly meeting with agencies' Safety Officers to be organized by safety department of NTPC and minutes to be recorded, circulated and compliance status to be checked on regular basis.

## **6.0 SAFETY MESSAGE PROPAGATION:**

- 6.1** Contracting agencies shall arrange for display of safety hoardings depicting suitable safety cartoons/messages/ cautionary notices at appropriate places of project site to remind the workers to perform their duties safely. Minimum one safety message board/hoarding of appropriate size for every 10 workers to be provided and maintained by the concerned agency.
- 6.2** Apart from safety hoardings, each agency should maintain a safety bulletin board at all their work locations. Such safety bulletin boards should depict the activities being planned for the day, good practices, permit details etc.
- 6.3** Safety suggestion boxes shall be kept at each contractor's office at site for obtaining safety suggestions from the workers. Best suggestions should be implemented and may be rewarded suitably to encourage the workers for safety.

## **7. COMPETENCY OF EMPLOYEES:**

- 7.1** Throughout the course of the contract, persons employed by agency shall be physically fit, qualified/experienced to perform their assigned duties/ jobs.
- 7.2** Employees shall not, knowingly be permitted to work in a manner that their ability or alertness is so impaired because of fatigue, illness or any other reason, that it may expose them and or others to injury.
- 7.3** No worker, vehicle operator shall be less than 18 years of age. And the vehicle operator shall have a valid license as per requirements of Motor Vehicle Act.
- 7.4** Contractor shall comply with all applicable state/central laws and codes related to employment of operators for Hoist, Shovel, Crane, Tractor, Bull-dozer, any other howling heavy equipment/vehicle.

## 8.0 SAFETY INDUCTION AND TRAINING :

- 8.1** Each worker deployed by the agency shall be given 2-days induction training which shall include the medical examination and instructions related to particular job, fire fighting, first-aid and reporting of accidents. All employees shall be given safety training as per BOCW Act/Rules.
- 8.2** The contracting agency shall also impart job specific skill based safety training to all its employees (Minimum one day) on various related safety topics using internal/external safety professionals/consultants as per the matrix given below. Record of such trainings and attendance particulars shall be maintained in a register for ready reference to statutory authorities/engineer-in charge.

### TRAINING MATRIX:

Name of topic	Executives	Super visors	Skilled Workmen	Other Workers
Safety Induction	Y	Y	Y	Y
Accident_ Causes, factors, cost	Y	Y	Y	-
Industrial hazards & Accident Prevention	Y	Y	Y	-
Investigating, reporting, records	Y	Y	-	-
Personal Protective Equipment	-	Y	Y	Y
Construction Safety & Role of Supervisory personnel	-	Y	-	-
Permit to Work (PTW)	-	Y	Y	y
Statutory Provisions (BOCW Act/Rules, Factories Act 1948 etc.)	Y	Y	y	y
Material handling	-	y	Y	Y
Emergency Management	Y	Y	Y	-
Electrical Safety	-	Y	Y	-
Fire safety	Y	Y	Y	Y
First Aid & CPR (cardio pulmonary resuscitation)	-	Y	Y	Y (Selected)
Safety in Welding & Cutting	-	-	Y	-
Safety Audit	Y	Y	-	-
Safety in Lifting Tools & Tackles	-	Y	Y	y
Safety in Working at height	-	Y	Y	Y
Safety in Confined space work	-	Y	Y	Y
Defensive Driving	-	Y*	Y*	Y*

\*for construction vehicle operators, helpers & crane operators

Y=Yes

## **9.0 ID PASS**

- 9.1** CLIMS (Contract Labor Information Management System) will be the criterion for entering or gate pass system if implemented at site.
- 9.2** The contractor shall ensure that all personnel working at site having a photo Identity card before they are engaged for any work and properly mentioned details like validity, Category/designation and work area etc. This ID card should be issued only after ensuring their screening test, medical fitness and safety induction training. Id card gate pass shall be indicated with 3 nos. of offence marks. With each offence the gate pass of concerned workmen/ supervisor will be punched giving on the spot indication of persons indulging in unsafe actions.
- 9.3** Drinking of Alcoholic beverages is strictly prohibited. Employees under the influence of any intoxicants, even to the slightest degree, shall not be permitted to remain at work. Each contractor should maintain 'breath analyzer' to determine the intoxicated workers at site.

## **10 SAFETY AUDIT**

- 10.1** Internal Safety Audit once in every six months by the contracting agency and external safety audit as once in a year by third party shall be conducted, with prior intimation to EIC and NTPC Safety Deptt. The external auditing agency should be reputed safety institution or a certified Safety Auditor under any statutory legislation. The audit report along with time bound action plan should be submitted to Engineer-in-charge and NTPC Safety Dept.
- 10.2** Apart from above, Electrical Safety Audit shall be conducted quarterly by a team comprising of Electrical engineer, Safety representative of contractor and NTPC Electrical Erection representative covering the following and submit the report to EIC.
- i) Electrical incidents investigation findings and remedial measures implemented.
  - ii) Adequacy of power supply requirements
  - iii) Power distribution system in place
  - iv) Updated electrical single line diagram including the IP44 DBs arrangement.
  - v) Electrical protection devices – ELCBs, O/L protections etc.
  - vi) Earth or ground connection and earth pit maintenance details
  - vii) Education and training of electrical personnel undertaken
  - viii) Any other point appropriate to the site conditions.

## **11. SAFETY BUDGET**

Every contracting agency should clearly estimate and allocate a separate budget head for safety requirements every year and make the safety activity plan for the year and submit to NTPC EIC & Head of Safety. Budget allocations should be practically adequate to the site safety requirements and the details shall be intimated to the concerned EIC and safety deptt. before start of the work under the contract and subsequently, every year by 15th of April. Engineer-in Charge in consultation with Head of Safety shall review and monitor the effective utilization of allocated budget for safety related activities by the Contractor.

## 12. REPORTING AND INVESTIGATION OF ACCIDENTS AND DANGEROUS OCCURRENCES:

**12.1 Reporting of accidents:** Notice of any accident (the prescribed format is annexed to the manual) to a worker at the building or construction site that

- (a) Causes loss of life; or
- (b) Disables a worker from working for a period of **48 hours** or more immediately following the accident;

Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Messenger within **four hours** in case of **fatal accidents** and **72 hours** in case of **other accidents**, besides the Engineer-in-charge, to:

- I. The Regional Labour Commissioner (Central);
- II. The Board with which the worker involved was registered as a beneficiary;
- III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and
- IV. The next of kin or other relative of the worker involved in the accident;

**12.2** Further, notice of accident shall be sent in respect of an accident which

- (a) Causes loss of life; or
- (b) Disables the injured worker from work for more than 10 days to
  - (1) The Officer-in-charge of the nearest Police Station;
  - (2) The District Magistrate or, if the District Magistrate by order so desires, to
  - (3) The Sub-Divisional Magistrate;

**12.3** Where any accident causing **disablement that subsequently results in death**, notice thereof in writing of such death, shall be sent the Authorities mentioned above within **72 hours** of such death.

**12.4** In case of an accident causing minor injury, first-aid shall be administered and that resulting in disability of **48 hours or more**, the injured worker shall be given first-aid and immediately transferred to a Hospital or other place for medical treatment.

**12.5** All near-miss accidents shall be reported to NTPC Engineer In-charge and Safety Officer as per prescribed format.

**12.6 Reporting of dangerous occurrences:** The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:

- (a) Collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;
- (b) Falling of objects from height;
- (c) Collapse or subsidence of soil, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or means of access including formwork;
- (d) Contract work, excavation, collapse of transmission;

- (e) Explosion of receiver or vessel used for storage at a pressure than atmospheric pressure, of any gases or any liquid or solid used as building material;
- (f) Fire and explosion causing damage to any place on construction site where building workers are employed;
- (g) Spillage or leakage of any hazardous substance and damage to their container;
- (h) Collapse, capsizing, toppling or collision of transport equipment;
- (i) Leakage or release of harmful toxic gases at the construction site;
- (j) In case of failure of a lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;

**12.7** Every notice given for fatal accidents shall be followed by a written report to the concerned Statutory Authorities and the Engineer In-charge in the specified Form annexed as Schedule, under acknowledgement.

**12.8** Incident / injury statistics shall be maintained by all agencies cause wise.

**12.9 Investigation of accidents and dangerous occurrences**

Besides reporting, it shall be the responsibility of the contractor to constitute a team (members as per the gravity of the incident) of responsible person to thoroughly investigate all incidents involving near-miss accidents, lost-time and reportable accidents and dangerous occurrences with a view to finding out the causative factor, taking remedial measures and fixing responsibility, and make a copy of the investigation report along with action-plan, specifying a definite time-frame for implementation of the findings, available to the Engineer in-charge forthwith.

**13. MEDICAL AND FIRST AID AMENITIES:**

**13.1** It is the responsibility of each contracting agency to ensure the availability of suitable arrangements at their work site for rendering prompt and efficient First aid to injured persons.

**13.2** Arrange one trained and certified first aid for every twenty workers in each shift.

**13.3** Ambulance with proper equipment for prompt transportation of the injured persons to a physician or a hospital shall be provided before start of the work in cases where 500 or more than 500 workers are employed. For smaller contracts, where less than 500 workers are employed, Contractor shall have a tie-up with suitable Agency for providing Ambulance with proper equipment for prompt transportation of the injured persons to a physician or a hospital in case of an Accident / Emergency. Further, Contractor shall submit a proof of the same to EIC/Safety Officer of NTPC.

**13.4** Deploy one full time construction medical officer (qualification as per Schedule XI of BOCW Central Rules -1998) for cases where 500 or more workers are employed (upto one thousand workers) and one additional construction medical officer for additional one thousand

workers or part thereof. For smaller contracts, where less than 500 workers are employed, Contractor shall have a tie-up with suitable Hospital / Nursing home in the vicinity of the Project/Site where work is being executed, for providing adequate medical treatment by qualified medical officers and nursing staff, as and when required. Further, Contractor shall submit a proof of the same to EIC/Safety Officer of NTPC.

Notwithstanding anything stated above, Contractor/Agency shall strictly comply with the requirements of relevant BOCW Act/ BOCW Rules/ Factory Act/Factory Rules/ any other statutory Act/Rules/Law with regards to providing suitable medical facilities to the workers.

In case contractor fails to employ the required construction medical officer alongwith Additional staff, corresponding payment for the same shall not be made and/or necessary action as per provisions of the Bidding documents shall be taken by NTPC.

- 13.5 Additional staff including one nurse, one dresser-cum compounder, one sweeper-cum-ward boy with each construction medical officer for full working hours
- 13.6 The Telephone nos. of Medical officer, Hospital(s) or ambulance shall also be conspicuously displayed at each work site.
- 13.7 First-aid kits as approved by medical officer shall be provided at accessible points in the ratio of at least one kit for every 50 employees.
- 13.8 **Health Management:** The site manager shall implement health examinations for the working personnel on a regular basis.

Types of health examination	Target	Frequency
General health examination	All workers	Annual
Occupational health examination (Audiometric, PFT, Vision etc.)	Worker engaging in noise, dust, vibration, harmful light generating work	Annual
Occupational health examination (Vision)	Personnel involved in operation of Cranes, heavy vehicles	Annual
Occupational health examination (Vertigo/Height pass)	Workers engaged at Height Works	At the time of induction training and every year

**14. TESTING & EXAMINATION OF LIFTING, TOOLS, TACKLES, PRESSURE VESSELS AND OTHER EQUIPMENT:**

- 14.1 All the lifting equipment, tools, tackles, pressure vessels etc. shall be tested & examined as per BOCW or Factories Act and rules made there under.
- 14.2 The records & certificates of such testing & examination shall be maintained and readily available for reference to statutory authorities/engineer-in-charge.
- 14.3 Proper color coding system should be maintained and marking should be done accordingly on all lifting tackles.
- 14.4 Regular testing of ELCBs and RCCBs by competent electrician must be ensured by agencies and record should be maintained.

**15. EMERGENCY MANAGEMENT PLAN**

15.1 The contractor shall ensure that an Emergency Management Plan is prepared to deal with emergencies arising out of:

- a. Fire and explosion;
- b. Collapse of lifting appliances and transport equipment;
- c. Collapse of building, sheds or structure etc.;
- d. Gas leakage or spillage of dangerous goods or chemicals;
- e. Drowning of workers, sinking vessels, and
- f. Landslides getting workers buried; floods, storms and other natural calamities.

15.2 While arrangements shall be made for emergency medical treatment and evacuation of the victim in the event of an accident or dangerous incident occurring, the chain of command and the responsible persons of the contractor with their telephone numbers and addresses for quick communication shall be adequately publicized and conspicuously displayed in the workplace.

15.3 It is also required that there is a tie-up with the hospitals and fire stations located in the neighborhood for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.

15.4 It shall be the responsibility of the contractor to keep the Local Law & Order Authorities informed and seek urgent help, as the case may be, so as to mitigate the consequences of an emergency. Prompt communication to NTPC, telephonically initially and followed by a written report, shall be made by the contractor.

**16. ENFORCEMENT OF SAFETY CODE, SAFETY RULES & REGULATIONS:**

The Engineer-In charge shall ensure that the contractor is exercising at all times, reasonable and proper precautions for the safety of people at works and complying with the provisions of current safety rules and laws according to safety code and relevant statutes of state/central governments. In case of negligence or default, the agency shall be penalized suitably as per penal provisions of NTPC Safety Rules.

## **17. WORK PERMIT SYSTEM**

**17.1** The Contractor shall implement Work Permit system, which is a formal written system used to control certain types of work that are potentially hazardous. A work permit is a document, which specifies the work to be done, and the precautions to be taken. Work Permits form an essential part of safe systems of work for many construction activities. They start the work only after safe procedures have been defined and clearance taken from respective NTPC EICs. Permits to Work are usually required in high-risk areas as identified by the Risk Assessments.

**17.2** Examples of high-risk activities include but are not limited to:

- i) Entry into confined spaces
- ii) Cutting & welding
- iii) Working at Height along with checklist
- iv) Working on electrical equipment
- v) Heavy lifting operations
- vi) Removal of grating/ Handrail / floor opening
- vii) Material Shifting

The copies of recommended formats for reference is given in annexure-IV.

**17.3** The permit-to-work system should be fully documented, laying down:

- i) How the system works
- ii) The jobs it is to be used for;
- iii) The responsibilities and training of those involved; and
- iv) How to check its operation;

**17.4** A Work Permit authorization form shall be completed with the maximum duration period not exceeding 12 hours.

**17.5** A copy of each Permit to Work (PTW) shall be displayed near to work area (on PTW Display board) in close proximity to the actual works location to which it applies.

## **18. ACCESS TO AND FROM THE WORKPLACE**

**18.1** Safe, clean, well lit, unencumbered access and egress to and from work areas shall be maintained at all times in normal operating conditions.

**18.2** The number and location of accesses and egresses from and to the workplace shall be adapted to the number of people likely to be present at any time, and therefore to evacuate from the workplace in case of emergency.

**18.3** If access and egress to work areas are restricted due to operational conditions (e.g. access restricted due to pressure testing, etc.), alternative access and egress ways must be implemented, so far as is reasonably practicable. If this is not reasonably practicable, all concerned organizations and persons must be informed of the access restrictions, and work scheduling must be adapted in consequence.

**18.4** Temporary access to height or into ground openings shall be of purpose made material such as scaffolds, stair cases/towers and ramps, which incorporate guardrails .

## **19. INTERFERENCE WITH MOVING VEHICLES AND PEDESTRIANS**

- 19.1** The circulation of vehicles and pedestrians must be segregated by establishing restricted areas, one way routes where possible, pedestrian crossing zones and designated parking areas.
- 19.2** The appropriate measures must be implemented in order to prevent collision between pedestrians and vehicles at pedestrian crossings. This may include, but shall not be limited to:
- Mirrors;
  - Lighting;
  - Speed bumps before the crossing point.
- 19.3** Vehicle and pedestrian ways shall be physically separated with Hard-barriers, so far as is reasonably practicable, and be indicated with signs.



- 19.4** When it is not reasonably practical to implement a physical segregation, pedestrians must maintain safety distance of at least 2 meters from moving/operating vehicles at all times.
- 19.5** Traffic rules must be made visible through signage and traffic stops, consistent with those used on public
- 19.6** Roads as per road safety requirement.
- 19.7** All pedestrians on Project sites must wear high-visibility garments.
- 19.8** Pedestrians (including banksmen) must wear high-visibility garments in all areas where trucks and other vehicles (forklifts, cranes, etc.) maneuver. These areas must be clearly signaled / marked (floor painting, Hard-barriers, signs, etc.).Additional points:
- 19.9** Competent banksmen must be used for operations involving reversing or maneuvering where space or view is restricted.
- 19.10** Drivers must only operate vehicles they are competent to drive and must follow the established traffic routes and comply with all site rules.
- 19.11** The maximum driving speed on site is 15 km per hour.
- 19.12** Drivers and passengers must not get on or off moving vehicles.
- 19.13** When driving a forklift, forks must be lowered, the mast tilted back.
- 19.14** Smoking, eating, drinking, using a mobile phone or using earbuds or headphones when driving a vehicle is strictly prohibited.
- 19.15** When the vehicle is not in use, it must be ensured that:

- The engine is stopped and prevented from unauthorized use (e.g.: starter key removed), brake applied (and with wheels chocked for heavy vehicles);
- All raised parts are lowered to the ground or put in a safe position (cranes);
- It does not obstruct emergency exits, other routes, fire equipment or electricity panels.

## 20. HOUSEKEEPING

The contractor shall ensure that their work area is kept clean, tidy and free from debris generated by their activities. All debris/scrap should be stored in separate bins. The work areas must be cleaned on a daily basis and a full cleaning session of each area shall be conducted on a weekly basis. All equipment, materials and vehicles shall be stored in an orderly manner. Access to emergency equipment, exits, telephones, safety showers, eye wash stations, fire extinguishers, pull boxes, fire hoses, etc. shall not be blocked or otherwise disturbed, restricted or delayed.



## 21. STACKING AND STORAGE PRACTICE

Contractor Agency shall ensure stacked material is bonded on a stable and level footing capable of carrying the mass of the stack. Adequate clearances shall be provided between the sides of the stack and top to facilitate unimpeded access to service equipment like overhead wiring, cranes, forklifts and firefighting equipment, and hoses. Circular items shall be sufficiently choked with wedges not with odd bits of materials. Free-standing stacks of gunny bags and sacks such as Cement bags shall be stacked to prescribe safe stacking heights with layers formed for stable bonding, preventing slippage causing accidents. Stacking against walls shall not be permissible.

Contractor shall maintain the premises and surrounding areas in clean and clear manner with safe access and egress. There shall be sufficient and adequate storage racks, shelving, bins and pallets and material handling equipment to stack his construction materials such as Pipes, Structural and his construction enabling materials. Unwanted materials shall be promptly moved away for efficient material movement.

Any temporary store shed will be built in conformity with fire safety requirements. The stores must be provided with adequate lighting arrangement (Flame proof / intrinsically safe depending upon the Zone category) and must be equipped with sufficient fire extinguishing arrangement. "No Smoking" and other relevant signage must be displayed conspicuously at strategic locations and safety precautions must be strictly enforced.

All material should be kept at least 150mm above from the ground by providing wooden packing below. Maximum height of material stacking should not be greater than 3 meter. All loose material must be kept in wooden box or in sharp edge protected drum and material identification details to be displayed. Materials inside store room should be kept on scaffold rack.

Gas cylinder storage area must be 30m away from the hot work zone and separate storage facility must be available for empty and full cylinder with proper shed. Storage area must be design in a way that 6 meter distance between LPG/DA and oxygen maintained

## **22. CONFINED SPACES**

All Confined Spaces belonging to Subcontractor shall be identified and clearly signed posted as a confined space forbidden to unauthorized Personnel at every entrance. A method for preventing entry must be established and maintained for all Confined Spaces. Physical prevention system (such as locks) is preferred.

Before commencing work in a Confined Space, the Subcontractor must obtain a Permit to Work from the relevant authority.

The following requirements shall be met at any time:

- Only competent and trained workers can participate to work in confined spaces (as a minimum as per local Law). A Confined Space Entry Log (or equivalent) must be used to identify the person inside the Confined Space at any time;
- Air Analysis tests must be carried out to determine if the Confined Space is oxygen deficient and/or contains flammable substances, toxic agents, carbon monoxide and/or harmful physical agents. The air shall be analyzed before starting work, during work and after work. Adequate ventilation must be provided;
- Working in the confined space without a watcher is strictly forbidden. An adequate means of communication is required and shall enable easy and clear communication:
  - Between those inside the space,
  - Between those inside the space and those outside,
  - To summon help in case of emergency;
- Adequate emergency provisions must be in place. In particular, necessary rescue equipment must be ready, pre inspected and available. The arrangements need to be suitable and sufficient for the rescue of persons in the event of an emergency.

## **23. FIRE PROTECTION AND PREVENTION**

Routine hot works should be described in the contractor Risk Control Plan .Non-routine hot works are submitted to daily hot works permits given by the relevant authority.

Full and unrestricted access to emergency exits, fire-fighting equipment, fire control and emergency vehicles shall be maintained at all times. The Subcontractor shall provide, install and maintain their own temporary fire protection against hazards they introduce to the Site (work areas, storage areas, and temporary facilities under their responsibilities).

Fire extinguishers shall be inspected at least annually by a certified person and visually inspected monthly and documented by the Contractor.

#### **24. ELECTRICAL SAFETY**

Personal authorization must be issued by Contractor Management (or formally designed delegates) likely to perform or supervise electrical works.

Without such an authorization validated by EIC, no Contractor's employee shall undertake electrical works.

No live work on high voltage or medium voltage is allowed. All high voltage and medium voltage electrical works must be performed on isolated equipment and only after verification of absence of voltage with suitable equipment. Low voltage and very low voltage live work is only allowed for measurement tests and checks of equipment. The below measures will be taken:

- Work practices must protect against direct or indirect body contact by means of tools or materials and be suitable for work conditions and the exposed voltage level
- A Lockout and Tagout procedure must be applied prior to commencing any electrical work. Prior to commencing works on isolated equipment, a verification of absence of voltage with suitable safety test equipment must be performed.
- Energized panels will remain locked with a specific key or tool whenever they are unattended and tagged with the signs and warnings indicating the presence of danger. If not reasonably practicable, a restricted area delimited with physical barriers and supported by warning signs must be implemented around the opened equipment.
- Only qualified electrical Contractor Personnel may enter substations and/or transformer vaults and only after being specifically authorized by NTPC EIC.
- All joints (Both terminal and intermediate) in cable should be made using lugs and joint area should be crimped using crimping tools.
- All temporary connection should be provided through 30mA ELCB/RCCB using 3 core double insulated cable and only 3 pin industrial plug top will be used for connection.
- Zero energy verification needs to be ensured before any electrical operation using only VAV before working on a live circuit which has been isolated
- Only industrial type DB to be used for connection and weather protection shed needs to be provided for every DB and shed height should not be less than man height.
- Double earthing protection must be provided for every electrical equipment and earthing value should be less than 1 Ohm
- Deployment of trained, experienced & licensed electrician as well as licensed electrical supervisor must be ensured at site as per Rule-45 of the Indian Electricity Rules, 1956 ;
- EIC May perform screening/ competency test for all contractor electrical professions i.e. electrical engineers and helpers. Selection/ rejection of the personnel who appear for the screening is sole discretion of EIC
- Electrical helper who will be engaged in helping the electrician/ engineer must have minimum ITI certificate to be eligible for working with him

- All PPE's used while being involved in electrical work must be as per IS Standards available for electrical work

## **25. COMPRESSED GAS CYLINDERS**

Gas cylinders shall be securely stored and transported, and identified and used in line with the safety Requirements as per Gas Cylinder Rules -2106.

Hose lines shall be adequately protected, inspected and tested for leaks in line with the safety Requirements. Flash back arrestor /NRV must be used at both ends of the hoses and all hose should be free from damage and fixed properly preferably using crimping clamps. Leakage test must be done before every use by soap solution and physical inspection of hose must be carried out regularly. Only trolley attached with wheel will be used for cylinder transportation in which cylinders must be kept secured with chain. Only Industrial type regulator fitted with two stage double dial pressure gauge is allowed to be used.

## **26. LIFTING OPERATIONS**

The Contractor shall prepare a lifting plan, checked and submit for authorization by contractor's competent authorized persons prior to any lifting operation and formally communicated to all persons undertaking the work.

All persons preparing, issuing lifting plans and all persons involved in lifting operations must be subject to formal competence checks by the contractor to ensure necessary training, experience and qualification prior to commencing work. The Subcontractor must ensure that their nominated Lifting Leader has appropriate qualifications.

Contractor lifting plans include:

The lifting methodology, step by step

The risk analysis of the operation including consideration for weather conditions and work environments (e.g.: proximity of hazards and obstructions to the load, consideration for overturning, load integrity) where appropriate and consideration for simultaneous operations and the measures taken to avoid conflicting tasks in the lifting area

The identification of the designated lifting area, the fall zone and the control measures to prevent access such as barriers, signs, etc.

The description of the type, weight, size, shape and center of gravity of the load and the method used for slinging, attaching and detaching the load with the availability of approved lifting points on load when necessary

The list of the certified and inspected equipment and lifting accessories to be used

The composition of the team required to perform the task (crane driver, rigger, etc.) with the needed qualifications and description of their roles and responsibilities including the intended communication method

Any Heavy equipment (crane, winch machine, etc.) manufactured less than 15 years from the current year shall be only allowed to be used at our project Site's. Pre-safety Inspection of the equipment by safety deptt. shall be done before mobilizing the equipment at our project site.

The contractor must ensure that a competent operational leader is formally appointed to supervise each lifting operation. All lifting plans must clearly define the specific roles and responsibilities for each person involved (e.g.: crane drivers, lifting coordinators and riggers) and must be checked and issued prior to lifting operation. Clear communication channels must be formally established and maintained between everyone involved in a lift with only authorized person giving instruction to the operator.

Special permission needs to be taken from NTPC EIC for tandem lifting and for any non-routine lifting operations must strictly adhere to the guidelines described in corresponding Standard / Procedures / Directive.

No employee of the contractor shall be positioned under a suspended load or between a suspended load and fixed objects.

All lifting equipment and accessories must have valid manufacturers certificates or thorough examination records and be uniquely identified, marked with the safe working load, listed in a register and subject to formal regular inspection as per EHS requirements and shall have valid certificates from a competent authority. Inspection before use by the operator is mandatory. All lifting hooks must have latch. All cranes shall be fitted with Automatic Safe Load Indicator (ASLI) and Anemo Meter.

The contractor shall operate and maintain cranes and hoisting equipment in accordance with manufacturers' specifications and limitations and the safety Requirements. All defective, non-inspected or unidentified (safe working load / identification number) lifting equipment or accessories must be either removed from site or physically prevented from use.

## **27. LOCKOUT TAGOUT (“LOTO”)**

Prior to performing work on Machines or Equipment, the Subcontractor shall ensure that all energy sources are isolated and verify the absence of residual energy (e.g.: by using specific voltage detecting device for electricity).

At any time, the contractor shall follow the Site-specific LOTO and Permit to Work rules. The contractor must ensure that all of their affected Subcontractor Personnel receive the necessary training. Lockout/ Tagout must be implemented before servicing and maintenance is performed on Machines and Equipment, which could unexpectedly start-up, become energized, or release stored energy exposing persons to a risk of injury, unless the works undertaken are performed using alternative measures that provide effective protection.

Absence of residual energy must be verified using the suitable equipment or process adapted to the machine and the kind of energy to be checked before start of work. *The contractor must procure suitable VAV instrument for verification of absence of voltage before implementing LOTO all by themselves.*

When the contractor is in charge of LOTO, each authorized person must be issued with an individual lock with a unique key. The contractor shall secure areas where energy sources have been de energized, so as to prevent the access of unauthorized personnel and erect suitable signs. All affected Personnel shall be notified.

Once an item of electrical equipment has been energized, an item of mechanical plant and/or System has been erected and released for Commissioning, no work will be allowed on such

item of Equipment or System unless a valid Permit to Work (PTW) has been obtained from the relevant authority.

**28. MONTHLY SAFETY REPORT**

Agency has to submit the monthly safety activity report in the form of Lead-Lag indicator to NTPC Safety Deptt. Sample format attached as annexure –IV.

29. In case the Contractor doesn't adhere to any of the provisions of the NTPC Safety Rules for Construction and Erection of Power Plants, corresponding payment for the provisions not adhered, shall not be made and/or necessary action as per provisions of the Bidding documents shall be taken by NTPC.

## SECTION-II

### 1. Safety at workplace and equipment

#### 1.0 GENERAL PROVISIONS:

##### 1.1. Housekeeping:

- a. The contractor shall be primarily responsible for maintaining Good housekeeping and safety standards in the workplace;
- b. Loose materials that are not required for use shall not be placed or left behind so dangerously as to obstruct workplaces or passageways;
- c. All projecting nails shall be removed or bent to prevent injury;
- d. Equipment, tools and small objects shall not be left lying unattended or unsecured from where they could fall or cause a person to trip;
- e. Scrap, waste or rubbish shall not be allowed to accumulate in the site as these combustibles can create serious fire hazards and affect safe working;
- f. Workplaces and passageways that become slippery owing to spillage of oil or other causes shall be cleaned up or strewn with sand, ash or the like;
- g. Portable equipment shall be returned after use to their designated storage place.

##### 1.2. Means of access and egress shall consist of

- a. Adequate and safe means of access and egress shall be provided in all workplaces;
- b. The means of access and egress shall be maintained in a safe condition;

##### 1.3 Lighting and ventilation

- a. All practical measures shall be taken to prevent smoke, fumes etc. from obscuring any workplace or equipment at which any worker is engaged;
- b. Adequate and suitable artificial lighting shall be provided where natural lighting is not sufficient as per IS 3646 (Part II). The artificial lighting so provided shall not cause any incidental any danger, including that of producing glare or disturbing shadows;
- c. To prevent danger to health from air contamination by dust generated during grinding, cleaning, spraying or manipulation of materials as also to provide protection against dangerous gases, fumes, vapours, mist, etc. effective arrangements shall be made for ventilation;
- d. Workers shall be provided with suitable respiratory protective equipment, if it is not technically possible to have uncontaminated air. To this end, a study by a competent person shall be made to decide on the due protection. Sufficient illumination at all times for maintaining safe working conditions shall be provided where building workers are required to work or pass, and for passageways, stairways and landings such illuminations shall not be less a than 0.5 foot candles at the floor level;
- e. Where natural lighting is not adequate to prevent danger, adequate and suitable lighting shall be provided as per IS: 3646 – Part II;
- f. Artificial lighting shall not cause any danger due to a brightness greater than 10 foot candles per square inch, except where the angle of inclination from the eye to the source or the part

- of the fitting as the case may be exceeds 20°, including that of producing glare or disturbing shadows;
- g. Where necessary to prevent danger to health from air contamination by dust from the grinding, cleaning, spraying, or manipulating of materials or objects, arrangements shall be made to limit the concentration of the pollutants by thorough ventilation, and dust generated due to movement of earthmoving machinery and other construction equipment, by spray of water in the area from time to time;
  - h. Adequate ventilation by the circulation of fresh air shall be maintained in such places where the concentration of pollutants is likely to affect the health of the workers;
  - i. Special care shall be taken to ventilate the workplace where gas cutting, welding or other operations involving generation of dangerous fumes, vapours, mists, gases etc is likely;
  - j. Where it is technically not possible to eliminate dust or noxious or harmful fumes or gases sufficiently to prevent injury to the health of the workers, the contractor shall provide suitable respiratory equipment like dust mask or gas/fume mask or breathing apparatus or other suitable respiratory equipment.

#### **1.4. Dangerous and harmful environment:**

- a. When an internal combustion engine exhausts into confined space or excavation or tunnel or any other workplace where neither natural ventilation nor artificial ventilation system is adequate to keep the carbon monoxide content of the atmosphere below fifty parts per million, adequate and suitable measures shall be taken at such workplace in order to avoid exposure of building workers to health hazards;
- b. No building worker shall be allowed to enter any confined space or tank or trench or excavation wherein there is given off any dust fumes or other impurities of such nature and to such extent as is likely to be injurious or offensive to the building worker or in which explosives, poisonous, noxious or gaseous material or other harmful articles have been carried or stored or in which dry ice has been used as a refrigerant, or which has been fumigated or in which there is a possibility of oxygen deficiency, unless all practical steps have been taken to remove such dust, fumes or other impurities and dangers which may be present and to prevent any further ingress thereof, from such workplace or tank or trench or excavation;
- c. No worker shall be allowed to enter any such space unless a responsible person has certified it safe and fit for the entry of such building workers.

#### **1.5. Fumes/gases due to Welding and gas-cutting operations:** When welding or cutting operations are carried out in a confined space:

- a. Adequate ventilation, by means of exhaust fans or forced draught, as the condition may require, shall be constantly provided; otherwise enough quantity of air shall be circulated by means of air compressors to dilute the contaminant within permissible limits;
- b. Workers shall take necessary precautions to prevent unburned combustible gas or oxygen from escaping inside a tank or vessel or other confined space;

- c. Welding or cutting operations on any container that has held explosives or where inflammable gases may have been generated, shall be undertaken after the container has been thoroughly cleaned by steam or other effective means; and
- d. Gas-test shall be carried out ensure that the confined space is completely free from combustible gases and vapours.

#### **1.6. Dust, gases, fumes**

- a. Concentration of dust, gases or fumes shall be prevented by providing suitable means to control their concentration within the permissible limit so that they may not cause injury or create health hazard to a building worker;
- b. For protection against such hazardous substances, besides efficient and effective means of control, personal protective equipment like dust masks, breathing apparatus, other respiratory appliances, goggles, as the case may be, shall be provided.

#### **1.7. Excessive noise:**

- a. Adequate measures shall be taken against the harmful effects of an excessive noise;
- b. Use of earplugs/muffs and anti-vibration gloves shall be ensured to protect the workers from the impact of exposure to such dangers;
- c. The noise level in no case shall exceed as prescribed in the concerned Rules and exposure in excess of 115 dBA over the period of a quarter of an hour cannot be permitted:

#### **1.8. Corrosive substances:**

- a. All corrosive substances, including alkalis and acids, shall be stored and used by a person dealing with such substances at a building or other construction work in such a manner that it does not endanger the building worker and suitable protective equipment shall be provided by the employer to a building worker during handling or use of such substances at a building or other construction work and in case of spillage of such substances on the building worker, immediate remedial measures shall be taken;
- b. While protection of the body could be ensured by use of corrosion resistant apparel/overalls, suitable goggles, gloves, apron, gum boots etc. shall be made available to all concerned personnel;
- c. To deal with an accidental spillage of a corrosive substance on the body of a worker, the facility of eyewash fountain or water shower, as the case may be, shall be installed, within the easy reach of the workplace.

#### **1.9. Eye protection:**

- a. Suitable personal protective equipment for the protection of eyes shall be provided and used by the building worker engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause hazard to his eyes;

- b. Goggles or face shield or welding screen with suitable shade of glass/filters etc shall be provided for the protection of the eyes.

**1.10. Overhead protection:**

- a. It shall be ensured that at the building or other construction site, overhead protection is erected along the periphery of every building under construction that shall be of fifteen meters or more in height when completed;
- b. Overhead protection shall not be less than two meters wide and shall be erected at a height not more than five meters above the base of the building and the outer edge of such overhead protection shall be one hundred fifty millimeters higher than the inner edge thereof or shall be erected at an angle of not more than twenty degrees to its horizontal sloping into the building;
- c. It shall be also ensured that at the building and other construction work that any area exposed to risk of falling material, articles or objects is roped or cordoned off or otherwise suitably guarded from inadvertent entry of persons other than building workers at work in such area.

**1.11. Lifting and carrying of excessive weight:**

- a. No building worker lifts by hand or carries overhead or over his back or shoulders any materials, articles, tools or appliances exceeding in weight the maximum limits as set out in the following table unless aided by any other building worker or a mechanical device;
- b. No worker aided by other workers, lift by hand or carry overhead or over their back or shoulders any materials, articles, tools or other appliances exceeding in weight the sum total of the maximum limits as prescribed in the concerned Rules, unless aided by a mechanical devices:

**1.12. Protections against fall of persons –**

- a. All scaffolds/working platforms at height of two metres or more shall be fenced;
- b. All guard-rails for the fencing of floor openings, gangways, elevated workplaces shall be made of sound material, good construction and possess adequate strength and be between 1 m and 1.5 m above platform level, consist of two rails (two ropes or chains may be used if they are sufficiently taut) and supporting stanchions;
- c. Intermediate rails, ropes or chains shall be midway between the top and lower of edges of the top rail;
- d. Sufficient number of stanchions or standard poles or uprights shall be maintained to ensure the required stability and resistance;
- e. Guard-rails shall be free from sharp edges and be maintained in good repair;
- f. Floor openings through which persons could fall, shall be guarded by covering or fencing;
- g. If the means of protection is removed to allow the passage of persons or goods or other purpose, the same shall be replaced as soon as possible, while making temporary arrangements for reasonable degree of safety in the meanwhile;
- h. Covers for floor opening shall be safe to walk on and if vehicles operate thereon it shall be safe for the same. This will require the contractor to have prior assessment of expected loads;

- i. Cover for floor opening shall be secured by hinges, grooves, stops or other effective means against sliding, falling down or lifting out or any other inadvertent displacement;
- j. Covers for any openings shall not constitute any hindrance to traffic and, as far as practicable, be flush with the floor;
- k. If covers constitute as grids, the bars shall be spread not more than 5 cm apart;
- l. Elevated workplaces at more than 2 m above the floor or ground shall be protected on all open sides by guardrails. It is commonly observed that fragile barricade tapes are used as a substitute of a strong and dependable fencing. This practice is prohibited. The barricade tapes can be used as markers/route guide only;
- m. Elevated workplaces shall be provided with safe means of access and egress such as stairs, ramps or ladders according to suitability;
- n. Persons employed at elevated workplaces or other situations at more than 2m from which they may fall, shall be protected by means of adequate safety nets, or platforms, or be secured by safety belts with the lanyard properly anchored above the head level of the user. All possible effort shall be made to have strong and dependable mechanical arrangement.

**1.13. Protection against fall of objects and materials:**

- a. Materials and objects such as scaffolding materials, waste materials or tools shall not be thrown up or down from heights, as they are liable to cause injury;
- b. If materials and other objects cannot be safely lowered from heights, adequate precautions such as the provision of fencing, lookout men or barriers shall be provided to protect any person from injury.

**1.14. Protection against entry of unauthorized persons:**

- a. Construction zones in the site and built up areas alongside main traffic routes shall be barricaded;
- b. Unauthorized persons shall not be allowed access to construction sites and visitors shall be provided with the required protective equipment and it be ensured that they use them effectively.

**1.15. Head protection and other protection apparel:**

Every building worker who is required to –

- a. Pass through or working within the areas where there is hazard of his being struck by falling objects or materials, shall be provided with safety helmets of the type approved and tested in accordance with the national standards;
- b. Work in water or in wet concrete or in other similar work, shall be provided with suitable waterproof;
- c. Work in rain or in similar wet condition, shall be provided with waterproof coat with hat;

- d. Workers using or handling of alkalis, acid or other similar corrosive substances shall be provided with appropriate protective equipment in accordance with the approved standards;
- e. Every building worker engaged in handling sharp objects or materials at a building or other construction work, which may cause hand injury, shall be provided with suitable hand gloves in accordance with the approved standards.

**1.16. Stability of structures:**

- a. No wall, chimney or other structure or part of a structure shall be left unsupported in such condition that it may fall, collapse or weaken due to wind pressure, vibration or due to any other reason. Entry of persons into such locations where tall structures are being built shall be regulated without a let up.

**1.17. Safety of Structures and equipment and other safety concerns**

- a. Safety of structures like scaffoldings, platforms, gangways/walkways, towers, stairs, ladders, ramps, safety in excavation, formwork, falsework, demolition work, storage, handling and use of explosives, inflammable substances and hazardous materials, gas cutting and welding, use of electricity etc.; and equipment viz. construction machinery, crushers and batching plant, boiler and other pressure vessels, transport and material handling equipment, lifting appliances, vehicles etc., shall be operated and maintained as per approved norms and –
  - i. They shall be made of sound material and of good construction, free from patent defects, provided with adequate safe guards, properly maintained, periodically inspected and strong enough to withstand safely the loads and stresses to which they may be subjected;
  - ii. They shall carry enough factor of safety bearing in mind that the possibility of their abuse, which otherwise shall be prevented by constant and adequate supervision, cannot be ruled out altogether;
  - iii. It is incumbent on the contractor to ensure that only competent and authorized persons operate the equipment or attend to electrical and mechanical systems and repair of faults or breakdowns etc.
- b. Working in the confined space may involve certain serious hazards. Strict adherence to the conditions of Permit-to-work issued for the purpose is required;
- c. Control of energy sources shall be ensured through Log-out/Tag-out practices.

**1.18. Slipping, tripping, cutting, drowning and falling hazards:**

- a. The contractor shall keep all passageways, platforms and other places free from accumulations of dust, debris or similar material and from other obstructions that may cause tripping;
- b. Any sharp projections or protruding nails or similar projections which may cause any cutting hazard to a building workers shall be removed or otherwise made safe by taking suitable measures;
- c. No contractor shall allow any building worker at construction work to use the passageway, or a scaffold, platform or any other elevated working surface which is in slippery and dangerous condition and shall ensure that water, grease, oil or other similar substances which may cause

the surface slippery, be removed or sanded/saw-dusted or covered with suitable material to make it safe from slipping hazard;

- d. Wherever building workers are exposed to the hazard of falling into water, they shall be provided with rescuing arrangement from such hazard and if it is considered necessary, well equipped boat or launch manned with trained personnel shall be provided by the contractor at the site of such work;
- e. Every open side or opening into or through which a building worker, vehicle or lifting appliance or other equipments may fall at a building or other construction work shall be covered or guarded suitably to prevent such fall except where free access is necessary by reasons of their nature of the work;
- f. Wherever building workers are exposed to the hazards of falling from height while employed on such work they shall be provided by the employer with adequate equipment or means for saving them from such hazards, Such equipments or means shall be in accordance with the standards as laid down;
- g. Whenever there is a possibility of falling of any material, equipment or building worker at a construction site relating to a building or other construction work, adequate and suitable safety net shall be provided in accordance with the above stipulation;

## 2.0 SAFETY IN MATERIAL HANDLING AND WASTE DISPOSAL

### 2.1. GENERAL PROVISIONS:

- a. All building materials stored in tiers shall be stacked, racked, blocked, interlocked or otherwise secured safely to prevent sliding, falling or collapse and in an orderly manner to avoid obstruction of any passageway at the place of work. Piles of materials shall be stored or stacked in such a manner as to ensure their stability;
- b. Maximum safe load limits of floors within buildings and structures in kg/cm<sup>2</sup> shall be conspicuously posted in all storage areas, except for floor or slab on gradient. Maximum safe load shall not be exceeded. Material or equipment shall not be stored upon any floor or platform in such quantity as to exceed its safe carrying capacity;
- c. Ailes and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or persons. Such areas shall be kept in good repair;
- d. When a difference in road or working levels exist, means such as ramps, blocking or grading shall be used to ensure the safe movement of vehicles between two levels;
- e. Material stored inside buildings under construction shall not be placed within 2 m of any hoist way or inside floor openings nor within 3.2 m of exterior wall which does not extend above the top of material stored;
- f. Persons employed required to work on stored material in silos, hoppers and similar storage areas shall be equipped with lifelines and safety belts;
- g. Non-compatible materials shall be segregated in storage;
- h. Bagged materials shall be stacked by stepping back the layers and cross-keeping the bags at least every 10 bags high;
- i. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations;
- j. Bricks stacks shall not be more than 2.2 m in height. When a loose brick stack reaches a height of 1.3 m it shall be tampered back 5 cm in every foot of height above the 1.25 m level;
- k. When masonry blocks are stacked higher than 2 m, the stack shall be tapered back on half block per tier above the 2 m level;
- l. Material or equipment shall not be stored or placed so close to any edge of a floor or platform as to endanger the safety of persons below or working in the vicinity. Where stacking, unshackling, stowing or unstarving of construction material or article, or handling in connection therewith cannot be safely carried out unaided, reasonable measures to guard against accident or dangerous occurrences shall be taken by shoring or otherwise to prevent any danger likely to be caused by such handling;
- m. Stacking of material or article shall be made on firm foundation not liable to settle and such material or article and shall not overload the floor on which such stacking is made;

- n. The material or articles shall not be stacked against partition or walls of a warehouse or stores unless it is known that such partition or the wall is of sufficient strength to withstand the pressure of such materials or articles;
- o. The materials or articles shall not be stacked to such a height and in such a manner as would render the pile of such stack unstable and cause hazards to the building workers or the public in general;
- p. Where the building workers are on stack exceeding one point five meters in height, safe means of access to the stack shall be provided;
- q. All stacking or unstacking operations shall be performed under the supervision of a responsible person for such stacking or unstacking;
- r. The stacking of construction materials or articles shall not be made near the site of excavation, shaft, pit or any other such opening;
- s. Stacks that may lean heavily or become unstable or collapse are barricaded shall be avoided;
- t. Structural steel, poles, pipe, bar stock and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent sliding, spreading or tilting.

## **2.2. LUMBER:**

- a. Used lumber shall have all nails withdrawn before stacking;
- b. Lumber shall be stacked on level and solidly supported sills;
- c. Lumber piles shall not exceed 6 m in height provided that lumber is handled manually, shall not be stacked more than 5 m height;
- d. Lumber shall be so stacked as to be stable and self-supporting.

## **2.3. STACKING OF CEMENT AND BAGS CONTAINING OTHER MATERIALS:**

- a. The cement or other material in bags shall be stacked in a header and stature-wise in rows alternately in not more than 10 numbers and there will be circulation of space of at least 600 mm in between two such rows;
- b. While removing bags from the stack pile the stability of such stack pile shall be ensured;
- c. Bags containing cement or lime shall be stored on a firm ground;
- d. The materials like bricks, tiles or blocks shall also be stored on a firm ground;
- e. Reinforcing steel shall be stored according to its shape, size and length and stack of reinforcing steel kept as low as possible;
- f. No pipe shall be stored on rack or in stack where such pipe is likely to fall by rolling;
- g. The angle of repose shall be maintained where loose materials are stacked;
- h. When dust laden material is to be stored or handled, measures shall be taken to suppress the dust produced by such storing or handling and suitable personal protective equipment supplied to and used by the building workers working for such storing or handling.

#### **2.4. DISPOSAL OF DEBRIS AND WASTE MATERIAL:**

- a. It shall be ensured that debris is
  - i. Handled and disposed of by a method, which does not cause danger to the safety of a person and not allowed to accumulate so as to constitute a hazard;
  - ii. Kept sufficiently moist to bring down the dust under control;
  - iii. Not thrown inside or outside from any height of such building or other construction work;
- b. Brought down by suitable means/chutes provided for the purpose and on completion of work, leftover building material, article or other substance or debris shall be disposed off as soon as possible to avoid any hazard to any traffic or person;
- c. Whenever materials are dropped more than 6 m to any point lying outside the exterior walls of the building an enclosed chute of wood, or equivalent material shall be used;
- d. When debris is dropped through holes in the floor without the use of chutes, the area where the material is dropped shall be completely enclosed with barricades not less than 1.1 m high and not less than 1.9 m back from the edge of the opening above. Signs warning of the hazard of falling material shall be posted at each level;
- e. All scrap lumber, waste material and rubbish shall be removed from the immediate work area as the work progresses;
- f. Disposal of waste material or debris as per the guideline issued by CPCB in compliance of Rule 10 sub-rule 1(a) of C & D Waste Management Rules, 2016).
- g. All bio-degradable material shall be disposed off in the pit for making compost. Pellets can also be made from bio-degradable material
- h. All solvent wastes, oil rags and flammable liquids shall be kept in fire resistant covered containers until removed from the work site.

#### **2.5. HANDLING GAS CYLINDERS:**

- a. Gas cylinders shall not be lifted on bare slings. For lifting the cylinders, cage of suitable size shall be used and all cylinders shall be horizontally positioned in it. Such cage shall have fencing in such a way that there is no possibility of fall of cylinders from this cage.

#### **2.6. RIGGING EQUIPMENT FOR MATERIAL HANDLING:**

- a. Rigging equipment for material handling shall be inspected prior to use in each shift as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service;
- b. Rigging equipment shall not be loaded in excess of its recommended safe working load, as prescribed in the Indian standards;
- c. Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to persons engaged in the area;

- d. Special custom designed grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads shall be proof tested prior to use 125% of their rated load;
- e. Welded alloy steel chain slings shall have permanently affixed-durable identification standing size, grade, rated capacity and manufacturer.

## **2.7. FENCING OF MOTORS ETC**

- a. All motors, cogwheels, chains and friction gearings, flywheels, shafting and the other dangerous and moving parts of machinery (whether or not driven by mechanical power) and steam pipes shall be securely fenced and the fencing of dangerous parts of machinery not removed while such machinery is in motion or in use;
- b. No part of any machinery which is in motion and which is not securely fenced, shall be examined, lubricated, adjusted or repaired except by a person skilled and trained for such examination, lubrication, adjustment or repairs and machine parts cleaned only when such machine is stopped;
- c. When a machine is stopped for servicing or repairs, adequate measures shall be taken to ensure that such machine does not restart inadvertently and not only tag-out sign is required; it is also essential that an active system of isolating the power be applied.

## **2.8. PROTECTION AGAINST LIGHTNING**

- a. Where necessary, installations shall be protected against lightning, provided further that;
- b. No bare conductors or bare current-carrying parts of equipment be permitted to be installed unless adequate precautions are taken to prevent direct or indirect contact;
- c. Only flame-proof equipment and conductors shall be installed at places where explosives or inflammable substances are stored, handled or used or where explosive atmosphere exists;
- d. Persons competent and authorized only shall attend to electrical breakdowns and other operational faults and give or restore power to an equipment and such persons shall be easily identifiable by their dress or special helmet worn;
- e. It will constitute a standard practice to switch off portable tools while shifting from one place to another or while leaving them behind unattended;
- f. The contractor shall ensure that a system is in place to always keep tools well maintained.

## **2.9. VEHICULAR TRAFFIC**

- a. Whenever any building or other construction work is being carried on, or is located in close proximity to a road or any other place where any vehicular traffic may cause danger to building workers, it shall be ensured that such building or other construction work is barricaded and suitable warning signs and lights displayed or erected to prevent such danger and if necessary, a request in writing made to the concerned authorities to control such traffic;

- b. All vehicles used at construction site shall comply with the requirements of the Motor Vehicles Act, 1988 (59 of 1988) and the Rules made hereunder;
- c. The driver of a vehicle of any class or description operating at a construction site shall hold a valid driving license under the Motor Vehicles Act. 1988 (59 of 1988).

#### **2.10. USE OF SAFETY BELT OR OTHER FALL ARREST SYSTEMS:**

Wherever any work at a height of 3 m or more is carried out, use of a suitable fall arrest system is mandatory if the workplace has already not been provided with an otherwise reliable means of protection for preventing the fall of persons from that height, provided further that:

- a. Safety belt, lanyard, life lines and devices for the attachment of such life lines shall conform to the approved standards;
- b. Every building worker shall be supplied with safety belt and safety life lines for his protection and such building worker shall use such belts and life lines during the performance of his work;
- c. All building workers using safety belt and safety life lines shall have the knowledge of safe use and maintenance of such belts and life lines and shall be supplied with necessary instructions for its use;
- d. The responsible person for supervising the use of safety belts and safety lifelines shall inspect and ensure that such safety belts and lifelines are fit for use before taking them into use.

#### **2.11. SAFETY NET AND ITS USE**

- a. Every safety net shall be of adequate strength, made of sound material and suitable for use and conform to the approved standards;
- b. The responsible person for maintenance of safety nets and their use shall ensure safe fixing of such safety nets and provide such safety nets with suitable and sufficient anchorage so that the purposes for which such safety net is intended for use is served;
- c. Use of multi-layer safety net to be ensured to avoid fall of material/objects.

#### **2.12. STORAGE OF SAFETY BELTS AND NETS, ETC:**

- a. Proper arrangement shall be made for the safe storage of safety belts, safety lifelines and safety nets when they are not in use and are protected against mechanical damage, damages from chemicals and damages from biological agents.

#### **2.13. SAFETY HELMETS AND SAFETY FOOTWEAR**

- a. The Engineer in-charge may declare whole or part of a site as the hardhat area and in such an eventuality it shall be the responsibility of the contractor to provide safety helmet of the approved quality to all personnel engaged in construction and erection work, including the visitors to the site;
- b. Accordingly, wherever safety footwear is required for the safety of the personnel, the contractor shall provide the same of the approved type free of charge.

## **3.0 WELDING AND GAS CUTTING OPERATIONS**

### **3.1 GAS WELDING:**

#### **3.1.1 GENERAL PROVISIONS:**

- a. All welders shall be provided with fire resistant protective clothing and equipment, such as fire resistant gauntlets and aprons, helmets and goggles with suitable filter lenses and its usage shall be ensured;
- b. The welders shall not be allowed to wear clothing that is not free from grease, oil and other flammable material;
- c. Adequate precautions shall be taken to protect persons working or passing near welding operations from dangerous sparks and radiation;
- d. When welding or cutting is being done on materials containing toxic or harmful substances or liable to produce toxic or harmful fumes, adequate precautions shall be taken to protect workers from the fumes, either by
  - i) Exhaust ventilation, or
  - ii) Respiratory protective equipment;
  - iii) Arrangement shall be made so that welding sparks do not fall down on the persons working below or material, which are combustible in nature and may be damaged with such sparks.
- e. The oxygen pressure for welding shall always be high enough to prevent acetylene flowing back into the oxygen cylinder;
- f. Acetylene shall not be used for welding at a pressure exceeding 1 atmosphere gauge;
- g. Adequate precautions shall be taken to prevent:
  - i) Fire being started by sparks,
  - ii) Slag or hot metal; and
  - iii) Damage to fibre ropes from heat, sparks, slag or hot metal;
- h. Precautions shall be taken to prevent flammable vapours and substances from entering the working area;

#### **3.2. WELDING AT PLACES WITH FIRE RISKS:**

- a. Unless adequate precautions are taken, no welding or cutting operations shall be allowed near the place where combustible materials are stored, or near materials or plant where explosive or flammable dusts, gases or vapours are likely to be present or given off. If hot work permit system exists at the site, the same shall be followed;
- b. Combustible materials and structures that cannot be removed from the vicinity of welding operations shall be shielded by asbestos or protected by other suitable means.

#### **3.3. WELDING IN CONFINED SPACE:**

When welding or cutting operations are being carried out in a confined space;

- a. Adequate ventilation, by means of exhaust fans or forced draught as the condition may require, shall be constantly provided; otherwise enough quantity of air shall be blown in by means of compressors to dilute the pollutants;

- b. No blow pipe shall be left unattended inside a tank or vessel or other confined space during meal break or other interruption of the work;
- c. The worker shall take all necessary precautions to prevent unburned combustible gas or oxygen from escaping inside a tank or vessel or other confined space; and
- d. When necessary to prevent danger, an attendant shall watch the welders from outside.

#### **3.4. WELDING ON CONTAINERS FOR EXPLOSIVE OR FLAMMABLE SUBSTANCES:**

Welding or cutting operations on containers in which they are explosives or flammable substances shall not be allowed;

- i) Welding or cutting operations on any container that has held explosive or where flammable gases may have been generated, shall only be undertaken,
- ii) After the container has been thoroughly cleansed by steam or other effective means; and
- iii) Found by air tests to be completely free from combustible gases and vapours; or
- iv) After the combustible gas in the container has been completely replaced by an inert gas or by water;
- v) If an inert gas is used as laid down in clause 4.2.3, after the vessel has been filled with gas, the gas shall continue to flow slowly into it thorough out the welding or cutting operations;
- vi) Before starting any welding operations on, or otherwise applying heat to, closed or jacketed containers or other hollow parts, such containers or parts shall be adequately vented in suitable manner.

#### **3.5. GAS CYLINDERS**

- a. Gas cylinders shall be inspected, stored, handled and transported in conformity with the requirements of Gas Cylinders Rules, 1981;
- b. When in use, cylinders shall be held in upright positions by straps, collars or chains;
- c. Devices referred to in clause 6.2 shall be such that the cylinders can be rapidly removed in an emergency;
- d. Welders shall not temper with or attempt to repair safety devices and valves on gas cylinders;
- e. When acetylene cylinders are coupled, flash back arrestor shall be inserted between the cylinder and the coupler block, or between the coupler block and the regulator;
- f. Only acetylene cylinders or approximately equal pressure shall be coupled;
- g. No gas shall be taken from a cylinder unless a pressure reducing regulator has been attached to the valve;
- h. Only the right pressure reducing regulator shall be used for the gas in the cylinder;
- i. Cylinder valves shall be kept free from gases, grease, oil, dusts and dirt;
- j. Leaky cylinders charged with acetylene or liquefied fuel gas shall be taken into the open air at a safe distance from any open flame or sparks.

#### **3.6 HOSE**

- a. Only hose especially designed for welding and cutting operations shall be used to connect an oxy-acetylene torch to gas outlet;
- b. Hose lines for oxygen and for oxy-acetylene shall be of different colours and preferably of different size;
- c. Hose connections shall be sufficiently light to withstand without leakage a pressure twice the maximum delivery pressure of the pressure regulators in the system;

- d. Care shall be taken that hose does not become kinked or tangled, stepped on or run-over or otherwise damaged;
- e. Any length of hose in which a flashback has burned, shall be discarded;
- f. No hose with more than one gas passage shall be used;
- g. Only soapy water shall be used for testing hose for leaks.

### 3.7. TROCHES

- a. When torches are being changed, the gases shall be shut off at the pressure reducing regulators and not by crimping hose;
- b. Torches shall be lit with friction lighters or other safe source but not with matches.
- c. Electric welding equipment:
- d. Welding machines shall be controlled by a switch mounted on or near the machine framework that, when opened, immediately cuts off the power from all conductors supplying the machine;
- e. Welding circuit shall be so designed as to prevent the transmission of high potential from the source of supply to the welding electrodes;
- f. The maximum open circuit voltage shall be in accordance with Indian Standards;
- g. Electrode conductors or cables shall not be excessive in length and shall not be longer than necessary to perform the work;
- h. Return conductors shall be taken directly to work and securely connected mechanically and electrically to it or to the work bench, floor etc. and to an adjacent metallic object;
- i. Cable shall be supported so as not to create dangerous obstruction;
- j. Motors, generators, rectifiers and transformers in arc welding or cutting machines, and all current carrying parts, shall be protected against accidental contact with uninsulated live parts;
- k. Ventilating slots in transformer enclosures shall be so designed that no live part is accessible through any slot;
- l. Frames of arc welding machines shall be effectively earthed;
- m. In hand-operated arc welding machines, cables and cable connectors used in arc welding circuits shall be effectively insulated on the supply side;
- n. The outer surface electrode holders of hand-operated arc welding machines, including the jaw so far as practicable, shall be effectively insulated;
- o. Electrode holders of hand-operated arc-welding machines shall, if practicable, be provided with discs or shields to protect the operator's hands from the heat of the arcs;
- p. Only heavy-duty cable with unbroken insulation shall be used;
- q. Circuit connections shall be waterproof;
- r. When lengths of cable have to be joined, only insulated connectors shall be used on the earth line and the electrode holder line;
- s. Connections to welding terminals shall be made at distribution boxes, socket outlets, etc. by bolted joints;
- t. Welding terminals shall be adequately protected against accidental contact by enclosures, covers or other effective means;
- u. Electrode holder shall
  - i. Have adequate current capacity;
  - ii. Be adequately insulated to prevent shock, short-circuiting or flashovers.

### 3.8. OPERATIONS

- a. Arc welding and cutting operations that are carried on at places where persons other than the welders are working or passing shall be enclosed by means of suitable stationary or mobile screens;
- b. Walls and screens of both permanent and temporary protective enclosures shall be provided to absorb harmful rays from the welding equipment and prevent reflection, and if necessary, be painted or otherwise treated for the purpose;
- c. When arc welding is done in damp confined spaces;
  - i) Electrode holders shall be completely insulated; and
  - ii) The welding machines shall be outside the confined space;
- d. Welders shall take adequate precautions
  - i) To prevent any part of their body from completing an electric circuit
  - ii) To prevent contact between any part of the body and the exposed part of the electrode, or electrode when in contact with metal; and
  - iii) To prevent wet or damaged clothing, gloves and boots from touching any live part;
- e. Welding circuits shall be switched off when not in use;
- f. Electrodes shall only be inserted in the holder with insulating means such as insulating gloves;
- g. Electrode and return leads shall be adequately protected against damage;
- h. Live parts of electrode holders shall be inaccessible when they are not in use;
- i. Electric arc-welding equipment shall not be left unattended with current switched on.

## 4.0 SAFETY IN THE USE OF ELECTRICITY

### 4.1. GENERAL PROVISIONS

- a. Before commencement of any building or other construction work, adequate measures shall be taken to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuit which may cause electrical hazard during the course of his employment and suitable warning signs shall be displayed and maintained at conspicuous places in Hindi and in local language understood by the majority of the building workers;
- b. In workplaces where the exact location of underground electric power line is not known, the building workers using jack hammers, crow bars or other hand tools which may come in contact with a live electrical line shall be provided with approved insulated protective gloves and footwear;
- c. As far as practicable, no wiring or cable, which may come in contact with water or which may be mechanically damaged or which may result in electric shock shall be left on ground or;
- d. All electrical appliances and current carrying equipment used shall be made of sound material and adequately earthed;
- e. All temporary electrical installations shall be provided with earth leakage circuit breakers;
- f. It is required that all portable power-driven hand tools are provided with double insulation to secure a high degree of protection from electrical hazards;
- g. Electrical installations shall comply with the requirements of any law for the time being in force, especially the Indian Electricity Act/Rules in particular with specific reference to the following:
  - i) All parts of installations shall be of standard construction not lower, from the safety point of view, than the national standards, as applicable. All parts of electrical installations shall be so constructed, installed and maintained so as to prevent electrical fires, explosion and shock;
  - ii) Earthing of metal work of electrical equipment, other than the parts which carry current, shall be provided and will conform to Electricity Act and IS: 3042 – 1966 (code of practice for earthing);
- h. All parts of electrical installation shall be adequate size and characteristics for the work they may be called upon to do and in particular they shall:
  - i) Be of adequate mechanical strength to withstand working conditions in construction operations; and
  - ii) Be not liable to damage by water, dust or electrical, thermal or chemical action to which they are subjected to in construction operations;
- i. All parts of electrical installations shall be so constructed, installed and maintained as to prevent the danger of electric shock; fire and external explosion;
- j. It shall be made impossible for circuit breakers to be opened or closed inadvertently, by gravity or by mechanical impact;

- k. Before operation of OCBs, oil level must be checked and the event of short, extra quantity must be filled;
- l. Use of rubber gloves and rubber gum boots of tested quality where electric shock is likely to occur shall be provided, but these shall not be considered as providing adequate protection against the risk of electric shock in lieu of inbuilt safety arrangement in the system;
- m. First-aid boxes, instruction for restoration of persons affected by electric shock shall be made;
- n. Arrangement shall be made for sufficient number of CO<sub>2</sub>/chemical powder type fire extinguishers/sand buckets etc.;
- o. No electrical circuits shall ever be overloaded to the dangerous extent or beyond the rated capacity;
- p. In confined areas, only 24 volt supply shall be used for every equipment, including hand-held portable tools and hand lamps;
- q. All electrical appliances and outlets shall be clearly marked to indicate their purpose and voltage.

#### **4.2. FUSES**

- a. Fuses shall bear markings indicating their rated current, whether they are of the fast or slow-breaking type and, as far as practicable, and their rated breaking capacity. Fuses as per need and of correct rating shall be used in the circuit;
- b. Effective measures shall be taken to ensure that persons removing or inserting fuses will not be endangered, in particular by any adjacent live parts;
- c. In case of blow of fuses only after finding out and correcting of the fault, new fuses shall be provided in the circuit.

#### **4.3. SWITCHES**

- a. All switches shall be of enclosed type and so installed and earthed as to prevent danger in their operation;
- b. Use of switches, which may connect or disconnect circuit through gravity, shall not be used.

#### **4.4. MOTORS**

- a. All motors shall be equipped with a switch;
- b. When a motor can be cut off from more than one place, where practicable, a stopping device shall be installed in the immediate vicinity of the motor;
- c. Motors shall be so installed as to ensure that they can be adequately cooled;
- d. Motors shall be effectively protected against over current;
- e. Whenever the motors installed are in the open area where there is the possibility of fall of liquid corrosives or otherwise, it shall be suitably protected with covering;
- f. Earthing shall be connected to all motors, generators etc. as prescribed in the Indian Electricity Rules, amended from time to time.

#### **4.5. CONNECTIONS**

- a. At points where conductors are joined, branched or led into apparatus, they shall be:
  - i. Mechanically protected, and
  - ii. Properly maintained;

- b. Conductors shall be joined, branched or led into an apparatus through junction boxes, bushings, glands or equivalent connecting devices;
- c. Junction boxes or plug-out-socket couplings shall be used for joining cables wherever practicable;
- d. When parts of conductors are joined together, or conductors are joined to one another or to an apparatus, the attachment shall be made by screwing, clamping, soldering, riveting, brazing, crimping, or equivalent means. Loose connections shall not be provided in any case;
- e. Cable joints, junction boxes and connectors shall be protected as far as practicable, against traffic, fall of ground, water and other sources of damage;
- f. Whenever armoured cables are joined, the junction boxes shall be bridged by a suitably conductive bond between the armouring of the cables.

#### **4.6. TRANSPORTABLE AND PORTABLE ELECTRICAL EQUIPMENT:**

- a. The supply of electricity to portable apparatus shall not exceed 250v;
- b. Hand-held and portable machines shall be equipped with a built-in switch to switch off power in case of emergency;
- c. Hand-held electrically operated tools shall be provided with built-in switch to disconnect the circuit when the tool is not being used;
- d. Portable electrical tools, unless flameproof, shall not be used in flammable or explosive atmosphere;
- e. Only three-core cable shall be used for single-phase operated tools with the third core connected to earth

#### **4.7. HAND LAMPS**

- a. Hand lamps shall be equipped with strong cover of glass or other transparent material;
- b. Portable lamp holders shall have:
  - i) All current-carrying parts enclosed;
  - ii) Insulated handle; and
  - iii) They shall operate at 24 v;

#### **4.8. INSPECTION, MAINTENANCE**

- a. All electrical equipment shall be inspected before it is taken into use to ensure that it is suitable for its purpose of use;
- b. At the beginning of every shift every person using electrical equipment shall make a careful external examination of the equipment and conductors for which he is responsible, especially flexible cables;

- c. Periodic inspections, testing, maintenance of all electrical equipment is to be made and record of test of transformer oil and pit earthing shall be maintained;
- d. Electrical conductors and equipment shall be repaired by the electrician only as far as practicable, no work shall be done live conductors or equipment;
- e. Before any work is begun on conductors or equipment that does not have to remain live;
  - i) The current shall be switched off;
  - ii) Adequate precautions shall be taken to prevent the current from being switched on again;
  - iii) The conductors or the equipment shall be tested to ascertain that they are dead;
  - iv) The conductor and equipment shall be earthed and short-circuited; and
  - v) Neighbouring live parts shall be adequately protected against accidental contact;
- f. After work on conductors and equipment, the current shall only be switched on again on the orders of a competent person;
- g. Electricians shall be provided with adequate tools, and person protective equipment, such as rubber gloves, mats etc.;
- h. All conductors and equipment shall be considered to live unless there is certain proof to the contrary.

#### **4.9. WORK IN THE VICINITY OF ELECTRICAL INSTALLATION**

- a. When work is to be done in the neighborhood of electrical conductors or installations, the contractor shall ascertain the voltage carried and the works shall not be allowed to reach to unsafe distance from them;
- b. When any excavation is to be made or any bore-holed sunk, the contractor shall ascertain whether there are any underground conductors, in or in dangerous proximity to, the zone of operations;
- c. No work shall be done in dangerous proximity to a conductor or an installation until it has been made dead;
- d. Before work begins, work permit shall be obtained from the Engineer in-charge if live electricity lines/circuit are passing in close vicinity;
- e. Before the current is restored, the contractor shall ensure that no work remain on the work site;
- f. If conductor or an installation in the neighbourhood of which work is io be done can not be made dead, special precautions shall be taken and special instructions given to the workers so as to prevent danger by adequately enclosing or fencing;
- g. If mobile equipment has to be employed in the neighbourhood of conductors or installations that cannot be made dead, its movement shall be so controlled as to keep it as a safe distance from them.

## 5.0 SAFETY IN THE USE OF HAND TOOLS AND POWER-OPERATED TOOLS

### 5.1 GENERAL PROVISIONS

- a. All hands and power tools and similar equipment, shall be maintained in safe condition.
- b. When power operated tools are designed to accommodate guards, they shall be equipped with such guards, when in use;
- c. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains and other reciprocating, rotating or moving parts of the equipment shall be similarly guarded;
- d. Personnel using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapours, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazards;
- e. All hand-held powered platen sanders, grinders, grinders with wheels of 5 cm or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks of 0.5 cm wide or less shall be equipped with only a positive **on-off control**.
- f. All hand-held powered drills, tappers, fastener drivers, horizontal, vertical or angle grinders with wheels greater than 5 cm in diameter, disc sanders, belt sanders, reciprocating saws, saber saws and other operating powered tools shall be equipped with a momentary contact on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

### 5.2. HAND TOOLS

- a. The contractor shall not issue or permit the use of unsafe hand tools;
- b. Wrenches including adjustable pipe end and socket wrenches shall not be used when saws are sprung to the point that slippage occurs;
- c. Impact tools such as drift pins, wedges and chisels shall be kept free of mushroomed heads;
- d. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight on the tools.

### 5.3. POWER OPERATED TOOLS

- a. Electric power operated tools shall be either of the approved double-insulated type or shall be grounded;
- b. The use of electric cords for hoisting or lowering loads shall not be permitted;
- c. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected;
- d. Safety clips or retainers shall be securely installed or maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled;
- e. All pneumatically riveting machine staplers and other similar equipment provided with automatic fastener feed, which operate at more than 7 kg/cm<sup>2</sup> pressure at the tool a safety device on the

- muzzle to prevent the tool from ejecting the fasteners unless the muzzle is in contact with the work surface;
- f. Compressed air shall not be used for cleaning purposes except when the pressure is reduced to less than 2 kg/cm<sup>2</sup> and that too with effective chip guarding. The 2 kg/cm<sup>2</sup> pressure requirement does not apply to concrete form, mill scale and similar cleaning purposes;
  - g. The manufacturer's safe operating for hoses, pipes, valves, filters and other fittings shall not be exceeded;
  - h. Only personnel who has been trained in the operation of the particular tool shall be allowed to operate power-actuated tools;
  - i. The tool shall be tested each day before loading to see that the safety devices are in proper working condition. The method of testing shall be accordance with the manufacturer's recommended procedure;
  - j. Any tool found not in proper working order, or that which develops a defect during use, shall be immediately removed from service and not used until properly repaired;
  - k. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any other person. Hands shall be kept clear of the open barrel end;
  - l. Loaded tools shall not be left unattended;
  - m. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tiles, surface hardened steel, glass block, live rock, face brick or hollow tiles;
  - n. Driving into materials that can be easily penetrated shall be avoided unless backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side;
  - o. No fastener shall be driven into a palled area caused by an unsatisfactory fastening;
  - p. Only non-sparking tools shall be used in an explosive or flammable atmosphere;
  - q. All tools shall be used with the correct shield, guard or attachment as recommended by thee manufacturer.

#### **5.4. ABRASIVE WHEELS AND TOOLS**

- a. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation;
- b. Grinding machines shall be equipped with suitable safety guards;
- c. The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 90<sup>0</sup>, except that when the work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 120<sup>0</sup>. In either case, the exposure shall begin not more than 65<sup>0</sup> above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the bursting of the wheel;
- d. Floor and bench-mounted grinders shall be work-rests, which shall be rigidly supported and readily adjustable. Such work-rests shall be kept at a distance not to exceed 5 mm from the surface of the wheel;

- e. Cup type wheels used for external grinding shall be protected by either revolving cup guard or a band type guard;
- f. When safety guards are required, they shall be mounted as to maintain proper alignment with the wheel and the guard and the guard and its fastening shall be adequate strength to retain the fragments of the wheel in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180°;
- g. Portable abrasive wheel used for internal grinding shall be provided with suitable safety flanges;
- h. When safety flanges are required, they shall be used only with wheels designed to fit the flanges. Only safety flanges, of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of accidental breakage, shall be used;
- i. All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects;
- j. Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place;
- k. All employees using abrasive wheels shall be protected by suitable eye protection equipment.

#### 5.5. WOODWORKING TOOLS

- a. All fixed power driven woodworking tools shall be provided with a disconnect switch that can either be locked or tagged in the **off-position**;
- b. The operating speed shall be attached or otherwise permanently marked on all circular saws over 0.5 m in diameter or operating at over 3000 peripheral rpm. Any saw so marked shall not be operated at a speed other than that marked on the blade. When a marked saw is retensioned for a different speed, the marking shall be corrected to show the new speed;
- c. Automatic feeding devices shall be installed on machines wherever the nature of the work will permit. Feeder attachments shall have the feed rolls or other moving parts covered or guarded so as to protect the operator from hazardous points;
- d. All portable power driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

## 6.0 SAFETY IN THE USE OF LADDERS AND STAIRS

### 6.1. GENERAL ASPECTS OF SAFETY RELATED TO USE OF LADDERS

- a. Every ladder or step-ladder used in building or other construction work shall be of good construction, made of sound material and of adequate strength for the purpose for which such ladder or step-ladder is used;
- b. When a ladder is used as a means of communication, such ladder shall be lashed to a fixed structure so that while working on such ladder it does not slip;
- c. A ladder or step ladder shall not stand on loose bricks or other loose packing and have a level and firm footing;
- d. No ladder shall be used which has a missing or defective rungs or rungs, which depend for support solely on nails, spikes or other similar fixing.

### 6.2. MATERIALS FOR LADDERS

- a. Shall be constructed with upright of adequate strength and are made of straight-grained wood, free from defects and having the grain of such wood running length wise;
- b. Shall have rungs made of straight-grained wood free for defects and mortised or securely notched into the upright, reinforcing metal ties, if wedges shall not secure the tenors of such ladders;
- c. Where it is required, in case of use of fixed ladders, sufficient foot-hold and hand-hold shall be provided for use by the building worker;
- d. Every ladder shall be -
  - i. Secured so as to prevent undue swaying;
  - ii. Equally and properly supported on each of its upright;
  - iii. So used as not to cause undue sagging; and
  - iv. Placed as nearly as possible at an inclination of four in one;
- e. The use of all ladders and stepladders shall conform to the approved standards;
- f. Wooden ladders shall be constructed with uprights of adequate strength as well as rungs made of wood free from visible defects and having the grains of the wood in the ladders running lengthwise and rungs mortised or rebuted into the uprights;
- g. Uprights and rungs of metal ladders shall have a cross-section adequate to prevent dangerous deflection, shall be equal and not less than 25 cm or more than 35 cm;
- h. Rungs of metal ladders shall be kept clean so as to prevent them from becoming slippery;
- i. Portable ladders shall not exceed 9 m in length;
- j. Every ladder or run of ladders rising to a height exceeding 9 m shall be provided with an intermediate landing, providing further that the intervals between landings shall not exceed 9 m. The landings shall be of suitable size and protected by railings;
- k. Defective ladders that cannot be satisfactorily repaired shall be tagged Not Fit For Use and destroyed;
- l. Wooden ladders shall not be painted, but oiled or covered with clean varnish or other transparent preservatives;
- m. Metal ladders shall be protected against corrosion by being coated with rust-proof paint or by other means unless they are made of non-corrosive metals;

- n. Every ladder shall rise at least 1 m above the highest point to be reached and have one of the uprights continued to that height to serve as a hand-rail at the top;
- o. Ladders shall not stand on loose bricks or other loose packing but have a level and firm footing so that they are equally supported on each upright;
- p. Every ladder shall be securely fixed so that it cannot move from its top and bottom points of rest and if it cannot be secured at the top, it shall be securely fastened at the base and if fastening at the top is also impracticable, it shall have a man stationed at the foot holding the end to prevent it from slipping;
- q. Where a run of two or more ladders connects different floors, the ladders shall be staggered and a protective landing with the smallest practicable opening shall be provided at each floor;
- r. A ladder having only one upright or a missing or dangerously defective rung shall not be used;
- s. When a ladder is placed in position, the distance between the foot of a ladder and the base of the structure against which it rests shall be about one-quarter of its length;
- t. Workers using ladders shall leave at least one hand free for climbing up and down, face the ladder, avoid wearing slippery footwear and avoid carrying heavy or bulky loads;
- u. A ladder shall not be placed in front of a door that opens towards it unless the door is fastened or locked or guarded;
- v. A ladder shall not be placed against a window frame unless the ladder is fitted with a board at the top so that the applied load is safely distributed over the frame;
- w. Metal ladders shall not be used in the vicinity of live electrical equipment;
- x. Adequate means shall be provided to prevent displacement of the ladder set up in public thoroughfare or where persons, vehicles etc. may accidentally collide with it.

### **6.3. PORTABLE STEPLADDERS**

- a. The length of portable stepladders shall not exceed 6 m and their back legs shall be adequately braced;
- b. Stepladders exceeding 1.5 m in length shall have two or more cross-ties;
- c. The spread between the front and back legs shall be restricted by means of hinged metal flat bars or high-grade fibre or other effective means;
- d. When in the open position, treads of stepladders shall be horizontal.

### **6.4. PORTABLE TRESTLE LADDERS**

- a. The height of the trestle ladders shall not exceed 5.5 m;
- b. The spread between the front and back legs shall be restricted by means of hinged metal flat bars or high-grade fibre or other effective means;
- c. The front and back legs shall be joined at the top by bolted steel hinges of adequate dimensions or other effective means;
- d. Both legs of trestle ladders shall be equipped with sufficient number of steel crossties.

### **6.5. EXTENSION LADDERS**

- a. The length of extension ladders shall not exceed 15 m;
- b. Extension ladders shall be equipped with an effective lock and guide brackets by which the ladder can be extended, retracted or locked in any position;

- c. The rungs of overlapping sections shall coincide so as to form double treads and shall be equipped with one or more extension ropes;
- d. Extension ropes shall be securely anchored and run over suitable pulleys.

#### **6.6 MECHANICAL LADDERS**

- a. Mechanical ladder is that ladder, which is a mechanically extendable ladder, mounted on a wheeled frame;
- b. Mechanical ladder shall be equipped with guard-rails and toe-boards and a cage of heavy-gauge steel mesh;
- c. If mechanical ladder has no railed platform or cage, workers using it shall be secured by suitable safety belt;
- d. Mechanical ladders shall not be moved, while a person is on them, unless they have specially designed to ensure that perfect stability is maintained during movement.

#### **6.7. FIXED LADDERS**

- a. Uprights of fixed ladders shall be at least 40 cm and shall be set an angle of  $15^{\circ}$  to the vertical;
- b. Clearance at the back of the rungs shall be at least 15 cm and no obstruction within 75 cm of the face of the ladder;
- c. There shall be at least 7.5 cm clearance between the ladder and the nearest fixed object;
- d. When it is necessary for a ladder to pass closely through a hole in a platform or a floor, the edges of the hole shall be padded so as to prevent injury to the users;
- e. The length of the runs of fixed ladder shall not exceed 9 m;
- f. Landing platform shall be provided for each 9 m or fraction thereof;
- g. As far as practicable, runs shall be staggered;
- h. Runs from which a person could fall from more than 6 m shall be enclosed in a cage of heavy-gauge mesh or hoops;
- i. Fixed ladders shall be firmly bolted or welded in position.

#### **6.8. STAIRS**

- a. Stairs shall be of adequate strength to withstand safely the loads that they will have to carry;
- b. Stairs used for the purpose of construction work shall have a clear width of at least 60 cm;
- c. Stairs made of perforated material shall not have openings exceeding 1.2 cm in width;
- d. No step of a stairway shall depend for its support solely on nails, spikes, screws or other similar fixing;
- e. No stairway with missing or dangerously defective steps shall be used;
- f. Every stairway that is at an angle of less than  $30^{\circ}$  from the vertical shall be provided with a secure handhold at the top landing place, either by extending one upright for at least 1 m or by other effective means;
- g. Movable and removable stairs shall be adequately secured in the position of use;
- h. In all building structures permanent stairs shall be constructed as soon as practicable;
- i. When work on a building has progressed to a height of more than 18 m above the ground and it has not been practical to construct the permanent stairs, sufficient number of stairs shall be provided to ensure safe access to the working levels.

## 7.0 SAFETY IN THE USE OF LIFTING APPLIANCES & GEARS

### 7.1. CONSTRUCTION AND MAINTENANCE OF LIFTING APPLIANCES:

All lifting appliances, including their parts and working gear, whether fixed or movable, and any plant or gear used in anchoring or fixing of such appliances -

- a. Shall be of sound construction, sound material, and of adequate strength to serve the purpose for which these are to be used and all such appliances shall be free from patent defects, and
- b. Maintained in good repair and working condition;
- c. Every drum or pulley around which the rope of any lifting appliance is carried, shall be of adequate diameter and sound construction in relation to such rope;
  - i. Any rope that terminates at the winding drum of lifting appliance shall be securely attached to such drum and at least three dead turns of such rope remain on such drum in every operating position of such lifting appliance;
  - ii. The flange of a drum projects twice the rope diameter beyond the last layer of such rope and if such rope and if such projection is not available, other measures like anti-slackness guards shall be provided to prevent such rope from coming off such drum;
- d. Every lifting appliance shall be provided with adequate and efficient brakes which shall be:
  - i) Capable of preventing fall of suspended load (including any test load),
  - ii) Effectively controlling such load while it is being lowered, acting without shock and shall be attached with shoes that can be easily removed for running and which shall be simple and have easily accessible means of adjustment;
- e. Provided that nothing contained above shall apply to **steam-winch** that can be operated as safely as with brakes.

### 7.2. CONTROLS OF EVERY LIFTING APPLIANCE SHALL BE SO;

- a. Situated that the driver of such appliance at his stand or seat has ample room for operating and has an unrestricted view of building or other construction work, as far as practicable, and that he remains clear of the load and the ropes, and that no load passes over him;
- b. Positioned with due regard to ergonomic considerations for proper operation of such appliance;
- c. Located that the driver of such appliance remains above the appliance and shall have upon them or adjacent to them clear markings to indicate their purpose and mode of operations;
- d. Provided, where necessary, with a suitable locking device to prevent accidental movement or displacement and shall move, as far as practicable, in the direction of the resultant load movement;
- e. Wherever automatic brakes are provided, they shall automatically come to the neutral position in case of power failure.

### 7.3. TEST AND PERIODICAL EXAMINATION

**7.3.1 Test:** all lifting appliances including all parts and gears thereof, whether fixed or movable, shall be tested and examined by a competent person before being taken into use for the first time or after it

has undergone any alteration or repairs liable to affect its strength or stability or after erection on a site and also once at least in every five years, in the manner as specified;

**7.3.2. Examination:** all lifting appliances shall be thoroughly examined by a competent person at least in every twelve months and where the competent person making such examination forms the opinion that the lifting appliance cannot continue to function safely, he shall forthwith give notice in writing of his opinion to the contractor.

#### **7.4. AUTOMATIC LOAD INDICATOR**

- a. Cut-out shall be provided which automatically arrests the movement of the lifting parts of every crane if the load exceeds the safe working load, wherever possible;
- b. Wherever the above provisions cannot be applied and if it is not possible to install an automatic safe load indicator, in that case, provision of a table showing the safe working loads at the corresponding inclinations or radii of the jib on the crane shall be considered sufficient.

#### **7.5. INSTALLATION:**

Fixed lifting appliances shall be installed by a competent person in a manner that

- a. Such appliances cannot be displaced by the load, vibration or other influences;
- b. The operator of such appliance is not exposed to danger from loads, ropes or drums;
- c. The operator can either see over the zone of operation or communicate with all loading and unloading points by signal, or other communication system;
- d. Adequate clearance is provided between parts or loads of lifting appliances and between the fixed objects such as walls and posts, or electrical conductors;
- e. The lifting appliances; when exposed to wind loading, are given sufficient additional strength, stability and rigidity to withstand such loading safely;
- f. No structural alterations or repairs are made on any part of the lifting appliances that affect the safety of such appliances without obtaining the opinion of the competent person to this effect.

#### **7.6. WINCHES**

- a. Winches shall not be used if their control levers operate with excessive friction or play;
- b. Double gear winches shall not be used unless a positive means of locking the gearshift is provided;
- c. There shall be no load other than the fall and the hook assembly on the winch while changing gears on a two-gear winch;
- d. Adequate protection shall be provided to the winch operator against abnormal weather;

- e. Temporary seats or shelters for winch operators that may pose hazard to the winch operator or any other building workers shall not be allowed to be used;
- f. Control levers shall be secured in the neutral position and, whenever possible, the power shall shut off if the winch is left unattended.

#### **7.7. IN USE OF EVERY STEAM-WINCH**

- a. Measures shall be taken to prevent escaping steam from obscuring any part of the construction site or other workplace or from otherwise hindering or injuring any building worker;
- b. Extension control levers which tend to fall off their own weight shall be counter-balanced;
- c. Winch operators shall not be permitted to use the which control extension levers except for short handles on wheel type controls and that such levers shall be of adequate strength, secure and fastened with metal connections at the fulcrum and at the permanent control lever;
- d. In use of every electric winch, no building worker shall be permitted to transfer, alter or adjust electric control circuits in case of any defect in such winch;

#### **7.8. ELECTRIC WINCHES SHALL NOT BE USED FOR BUILDING WORK WHERE**

- a. The electromagnetic brake is unable to hold the load; or
- b. One or more control points either hoisting or lowering are not operating properly.

#### **7.9. BUCKETS:**

It shall be ensured that tip-up buckets are equipped with a device that effectively prevents accidental tipping.

#### **7.10. IDENTIFICATION AND MARKING OF SAFE WORKING LOAD:**

- a. Every lifting appliance and loose gear shall be clearly marked for its safe working load and identification by stamping or other suitable means;
- b. Every derrick (**other than derrick crane**) shall be clearly marked for its safe working load when such derrick is used either in single purchase with lower block or in union purchases in all possible block positions;
- c. The lowest angle to the horizontal, to which the derrick may be used, shall be legibly marked;
- d. Every lifting appliance having more than one working load shall be fitted with effective means to enable the operator to determine safe working load at each point under all conditions of use;
- e. Means to ascertain the safe working load for lifting gears under such conditions in which such gears may be used shall be provided to enable a worker using such gears and such means safely, which shall comprise:
  - i) Marking of the safe working load in plain figures or letters upon the sling or upon a tablet or ring of durable material attached securely thereto in case of chain slings; and

- ii) The means specified or notices so exhibited as can be easily read by any concerned building worker stating the safe working load for the various sizes of the wire rope slings used.

#### 7.11 LOADING OF LIFTING APPLIANCES AND LIFTING GEARS

- a. No lifting appliance, lifting gear or wire rope shall be used in an unsafe way and in such a manner as to involve risk to life of building workers and they are not loaded beyond their safe working load except for testing purposes under the direction of a **competent person** in the manner as specified in schedule;
- b. No lifting appliance and lifting gear, or any other material-handling appliance shall be used if the Inspector having jurisdiction under the Building and Other construction (regulation of employment and conditions of service) Act/Rules is not satisfied with reference to a certificate of test or examination or to an authenticated record maintained as provided under the Rules or if in his view the lifting appliance, lifting gear or any other material handling appliance is not safe for use in building or other construction work;
- c. No pulley block shall be used unless the safe working load and its identification are clearly marked on such block.

#### 7.12. OPERATOR'S CAB OR CABIN SHALL

- a. Be made of fire resistant material;
- b. Have a suitable seat, a foot rest and protection from vibration;
- c. Afford the operator an adequate view of the area of operation;
- d. Afford the necessary access to working parts in the cab;
- e. Afford the operator adequate protection against the weather;
- f. Be adequately ventilated; and
- g. Be provided with a suitable fire extinguisher.

#### 7.13. OPERATION OF LIFTING APPLIANCES:

Operator of every crane or lifting appliance shall possess adequate skill and training in the operation of the particular lifting appliances, provided further that

- a. No person under eighteen years of age shall be in control of any lifting machine, scaffold winch, or give signals to the operator;
- b. Precaution shall be taken by the trained operator to prevent lifting appliance from being set in motion inadvertently;
- c. The operation of lifting appliances shall be governed by signals in conformity with the approved standards;
- d. The operator's attention shall not be distracted while he is working;
- e. No crane, hoist, winch or other lifting appliance or any part of such crane, hoist, winch or other lifting appliance shall, except for testing purposes, be loaded beyond the safe working load;
- f. During the hoisting operation, effective precaution shall be taken to prevent any person from standing or passing under the load in such operation;

- g. Operator shall not leave lifting appliance unattended while power is on or the load is suspended to such appliance;
- h. No person shall ride on a suspended load of any lifting appliance;
- i. Every part of a load in course of being hoisted or lowered shall be adequately suspended and supported to prevent danger;
- j. Every receptacle used for hoisting bricks, tiles, slates or other material shall be suitably enclosed as to prevent the fall of any such material;
- k. The hoisting platform shall be enclosed when loose material or loaded wheel barrows are placed directly on such platform or lowering such materials or wheel barrows;
- l. No material shall be raised, lowered or slewed with any lifting appliance in such a way as to cause sudden jerks to such appliance;
- m. In hoisting a barrow, any wheel of such barrow shall not be used as a means of support unless adequate steps have been taken to prevent the axle of such wheel from slipping out of its bearing;
- n. Long objects like planks or girders shall be provided with tag line to prevent any possibility of danger while raising or lowering such objects;
- o. During the process of landing or material, a building worker shall not be permitted to lean out into empty space for finding out the loading and unloading of such material;
- p. When hoisting of load is done in an enclosed space, neither the lifting material nor the boom shall project outside the enclosed space;
- q. Adequate steps shall be taken to prevent a load, in the course of being hoisted or lowered from coming into contact with any object to avoid any displacement of such load and appropriate appliances provided and used for guiding heavy loads when raising or lowering heavy loads to avoid crushing of hands of building workers during such raising or lowering of loads.

#### **7.14. HOISTS**

- a. Hoist towers shall be designed according to the relevant national standards;
- b. Hoist shafts shall be provided with rigid panels or other adequate fencing at the ground level on all sides of such shafts and at all other levels on all sides of the access to such shafts while the walls of hoist shafts, except at approaches, extend at least two meters above the floor or platform of access to such shafts;
- c. Approaches to hoist shall be adequately lit and provided with gates that shall be guarded to maintain visibility at least of two meters height; and equipped with a device, which requires such gate to be closed before the platform of such hoist can leave the landing, and prevents the gate from being opened unless such platform is at the landing;
- d. The guides of hoist platforms shall offer sufficient resistance to bending and to bucking in the case of jamming, by providing a safety catch;
- e. Overhead beams and their supports are capable of holding the total maximum live and dead loads that such beams and supports will be required to carry, with a safety factor of at least five;

- f. A clear space shall be provided –
  - i. Above the highest stopping place of a cage or platform to allow sufficient unobstructed travel of such cage or platform in case of over-winding and
  - ii. Below the lowest stopping place of such cage or platform;
- g. Adequate covering shall be provided above the top of hoist shafts to prevent materials from falling into such shafts;
- h. Outdoor hoist towers shall be erected on adequately firm foundations and securely braced, guyed and anchored;
- i. A ladder way shall extend from the bottom to the top of every outdoor hoist tower in case no other ladder way exists within easy reach and such ladder way shall comply with the relevant national standards;
- j. The rated capacity of a hoisting engine shall at least be one and a half times the maximum load that such engine will be required to move;
- k. All gearing on a hoisting engine shall be securely enclosed;
- l. Steam piping of hoisting engine shall be adequately protected against accidental contact of such piping with a building worker;
- m. Electrical equipment of a hoisting engine shall be effectively earthed;
- n. A hoist shall be provided with suitable devices to stop a hoisting engine as soon as the platform of such hoist reaches its highest stopping place;
- o. A hoisting engine shall be protected by suitable cover against weather and falling objects;
- p. A hoisting engine set up in a public thoroughfare shall be completely enclosed;
- q. All exhaust steam pipes shall discharge steam in such a manner that the steam so discharged does not scald any person or obstruct the operator's view;
- r. The motion of a hoist shall not be reversed without first bringing it to rest to avoid any harm from such reverse motion;
- s. A hoist not designed for the conveyance of persons shall not be set in motion from the platform of such hoist;
- t. Pawls and ratchet wheels of a hoist, requiring disengagement of such pawls from such ratchet wheels, before the platform of such hoist is lowered, shall not be used;
- u. A platform of a hoist shall be capable of supporting such maximum load that such platform may carry with a safety factor of at least three;
- v. A platform of a hoist shall be equipped with suitable safety gear which can hold such platform with its maximum load in case its hoisting rope breaks;
- w. On platform of a hoist, the wheel barrows or truck shall be efficiently blocked in safe positions;

- x. A cage of a hoist or platform where the building workers are required to enter into such cage or to go on such platform at landing levels, shall be provided with a locking arrangement to prevent such cage or platform from moving during the time a worker enters or leaves such cage or platform;
- y. The sides of platform of a hoist which are not used for loading or unloading, shall be provided with toe-board and enclosures of a wire mesh or any other suitable means to prevent the fall of any part of a load from such platform, further provided that
  - i. The platform of a hoist, which has any probability of falling of any part of a load from it, shall be provided with an adequate covering to prevent such fall;
  - ii. The counter weights of a hoist consisting of an assemblage of several parts shall be so constructed that such parts shall be rigidly connected together;
  - iii. The counter weights of a hoist shall run between guides;
  - iv. At every level of work the building workers shall be provided with adequate platforms for performing such work;
  - v. A legible notice in Hindi as well as in a local language shall be displayed in a conspicuous place of the platform of a hoist and that such notice shall state the maximum carrying capacity of such hoist in kilograms on the hoisting engine;
  - vi. On a hoist authorized and certified for the conveyance of the persons on the platform or in the cage and such notice shall state the maximum number of persons to be carried on such hoist at one time;
  - vii. On a hoist carrying goods and other materials such notice shall state that such hoist is not meant for carriage of persons.

#### **7.15. FENCING AND MEANS OF ACCESS TO LIFTING APPLIANCES**

- a. Safe means of access shall be provided to every part of lifting appliances;
- b. The operator's platform on every crane or tip driven by mechanical power shall be securely fenced and provided with safe means of access and where access to such platform is by a ladder, the sides of such ladder shall extend to a height reasonable beyond such platform or some other suitable handhold shall be provided in the platform;
- c. The handling place on such platform shall be maintained free from obstruction and slipping; and
- d. In case the height of such ladder exceeds six meters, the resting platforms shall be provided on such ladder at every six meters of its height and where the distance between last platform so provided and the top end of such ladder is more than two meters then on such top end.

#### **7.16. RIGGING OF DERRICKS:**

Every derrick shall have current and relevant rigging plans and any other information necessary for the safe rigging of such derrick and its gear.

#### **7.17. SECURING OF DERRICK FOOT:**

Appropriate measures shall be taken to prevent the foot of a derrick from being lifted out of its socket or supports.

#### 7.18. CONSTRUCTION AND MAINTENANCE OF LIFTING GEAR

- a. Every lifting gear shall be –
  - i. of good design and construction, sound material and adequate strength to perform the work for which it is used;
  - ii. free from patent defects; and
  - iii. properly maintained in good repair and working order;
- b. Components of the loose gear, at the time of its use, shall be renewed if one of its dimensions at any point has decreased by ten per cent or more;
- c. A chain shall be withdrawn from use when it is stretched and increased in length which exceeds five per cent of its length or when a link of such chain is deformed or is otherwise damaged or defects in the welds have appeared on it;
- d. Rings, hooks, swivels and end links attached to a chain shall be of the same materials as that of such chain;
- e. The voltage of electric supply to any magnetic lifting device shall not fluctuate by more than **plus** or **minus** 10%.

#### 7.19. TEST AND PERIODICAL EXAMINATION OF LIFTING GEARS

- a. A lifting gear shall be initially tested for the manufacturer by a competent person in a manner specified as per schedule annexed before taking into use or after undergoing any substantive alterations which renders its any part liable to affect its safety and such gear after such test shall subsequently be retested for the use of its owner at least once in every five years;
- b. A lifting gear in use shall thoroughly examined once at least in every twelve months by a competent person;
- c. A chain in use shall be thoroughly examined at least once every month by a responsible person for its use;
- d. Certificates of initial and periodical test and examinations of loose gears shall be obtained in the form annexed.

#### 7.20. ROPES

- a. No rope shall be used for building or other construction work unless -
  - i) It is of good quality and free from patent defects; and
  - ii) In the case of wire rope, it shall be tested and examined by a competent person in the manner annexed;
  - iii) Every wire rope of lifting appliance or lifting gear used for building or other construction work shall be inspected by a responsible person for such use, once at least in every three month;

- b. Provided that after if any such wire is broken in such rope, the responsible person shall thereafter inspect it once at least in every month and ensure that;
- c. No wire rope shall be used for building or other constructing work if in any length of eight diameters of such wires, the total number of visible broken wires exceed ten per cent of the total number of wires in such rope, or such rope shows signs of excessive wear, corrosion or other defects which in the opinion of the person who inspects it, is unfit for use;
- d. Eye splices and loops of ropes for the attachment of hooks, rings and other such parts to wire rope shall be made with suitable thimble;
- e. A thimble or loop splice made in any wire rope sling shall conform to the following standards, namely:
  - i) Wire rope sling shall have at least three tucks with full strand of rope and two tucks with one-half of the wires cut out of each of such strand in all cases, such strands shall be tucked against the lay of the rope;
  - ii) Protruding ends of such strands in any splice of wire rope slings shall be covered or treated so as to leave no sharp points;
  - iii) A fiber rope or a rope sling shall have at least four tucks, tail of such tuck being whipped in a suitable manner; and
  - iv) A synthetic fiber rope or rope sling shall have at least four tucks with full strands followed by further tuck with one-half filaments cut out of each of such strand and final tuck with one-half of the remaining filaments cut out from such strands. Any portion of the splices containing such tucks, with reduced number of filaments, shall be securely covered with suitable tape or other materials;
  - v) Provided further that nothing contained above shall apply where any other form of splice, which may be shown to be as efficient as the splice with above standards, shall be used.

#### **7.21. HEAT TREATMENT OF LIFTING GEARS**

- a. All chains other than bridle chains attached to derricks and all rings, hooks, shackles and swivels used in hoisting or lowering of such derricks shall be effectively annealed under supervision of a competent person and at the following intervals, namely:
  - i) Such chains, rings, hoods, shackles and swivels which are not more than twelve and a half millimeter of length annealed at least once in every six months; and
  - ii) All other such chains rings hooks shackles and swivels shall be so annealed at least once in every twelve months;
- b. Provided that the clause (a) above shall not apply to -
  - i) Pitched chins, working on sprocket or sprocket wheels;
  - ii) Rings, hooks and swivels permanently attached to pitched chains, pulley blocks or weighing machines, and
  - iii) Hooks and swivels having ball bearings or other case hardened parts;

- c. A chin or a loose gear made of high tensile steel or alloy steel shall be plainly marked with a mark indicating that it is so made;
- d. No chain or loose gear made of high tensile steel or alloy steel shall be subjected to any form of heat treatment except where such treatment is necessary for the purpose of repair of such chain or loose gear and that such repair shall be made under the direction of the competent person;
- e. That the wrought iron gear, the past history of which is not traceable, shall be suspected of being heat treated at incorrect temperature shall be normalized before using it on any building or other construction work.

**7.22. CERTIFICATE TO BE ISSUED AFTER ACTUAL TESTING AND EXAMINATION ETC:**

A competent person shall issue a certificate after actual testing or examination of the apparatus specified and record of such test or examination shall be maintained for inspection.

**7.23. REGISTER OF PERIODICAL TEST, EXAMINATION AND CERTIFICATION THEREOF**

- a. A register in the form annexed shall be maintained and particulars of such test and examination of lifting appliances, lifting gears and heat treatment as required shall be entered in such register;
- b. Certificate in respect of each of the following shall be obtained from a competent person:
  - i) In cases of initial and periodical test and examination of the lifting appliances such as Winches, Derricks and their accessory gears, Cranes or Hoists and their accessory gears;
  - (ii) In case of test, examination and re-examination of loose gears;
  - (iii) In case of test and examination of wire ropes;
  - (iv) In case of heat treatment and examination of loose gears;
  - (v) In case of annual thorough examination of the loose gears, except where required particulars of such exemption have been enclosed in the register referred to in Form annexed and such certificates are attached to the register referred to as above and certificates kept at such construction site in case such register and certificate relate to lifting appliances, loose gear and wire ropes and
- c. Produced on demand and retained for at least five years after the date of the last entry made in such register;
- d. No lifting appliance or lifting gear in respect of which an entry is required to be made in register referred to above and certificate of test and examination are required to be attached in such register in the manner as specified, shall be used for building or other construction work unless the required entries have been made in such register and certificates.

**7.24. VACUUM AND MAGNETIC LIFTING GEAR**

- a. No vacuum lifting gear, magnetic lifting gear or any other lifting gear where the load on it is held by adhesive power, shall be used while workers are performing operations beneath such gear;
- b. A magnetic lifting gear used in connection with building or other construction work shall be provided with an alternative supply of power, such as batteries, which may come into operation immediately in the event of failure of the main power supply;

- c. No building worker shall work within the swinging zone of the lifting gear or load or building or other construction material suspended to such lifting gear.

#### **7.25. KNOTTING OF CHAINS AND WIRE ROPES:**

No chain or wire rope with a knot in it shall be used in building or other construction work.

#### **7.26. CARRYING OF PERSONS BY MEANS OF LIFTING APPLIANCES ETC.**

- a. No building worker shall be raised, lowered or carried by a power driven lifting appliance, except
  - i. On the drive's platform in the cage of a crane; or
  - ii. On as hoist; or
  - iii. On an approved suspended scaffold;
- b. Provided that a building worker may be raised, lowered or carried by a power driven lifting appliance:
  - i. In circumstances where the use of a hoist or of a suspended scaffold shall not reasonably be practicable, or
  - ii. On an aerial cableway or aerial ropeway, provided further that the following requirements are met:
  - iii. That the appliance referred to above can be operated from one position only and that
  - iv. Any winch used in connection with the appliance shall also comply with the requirements as laid down above.
- c. The appliance referred to above shall not carry any person except:
  - i. In a chair or cage,
  - ii. In a skip or other receptacle at least three feet deep which shall be suitable for safe carriage of a person and any such chair, cage, skip or other receptacle shall be made of good construction, sound material, and adequate strength and properly maintained with suitable means to prevent any occupant therein from falling out of it and shall be free from any material or tools which may interfere with the handhold or foothold of such occupant or otherwise endanger him; and
  - iii. Those suitable measures shall be taken to prevent the chair, cage skip or other receptacle from spinning or tipping in a manner dangerous to any occupant therein.

#### **7.27. HOISTS CARRYING PERSONS**

- a. No building worker shall be carried with the help of a hoist unless it is provided with a cage which:
  - i) Is so constructed as to prevent, when its gates are shut, any building worker carried by such hoist from falling out of it or from being trapped between any part of such cage and any fixed structure or other moving part of such hoist or from being struck by articles or materials falling down the hoist way on which such hoist is moving; and
  - ii) Is fitted on each of its side from which access is provided to a landing place with a gate which has efficient interlocking or other devices to secure so that such gate cannot be opened except when such cage is at a landing place and that such cage cannot be moved away from any such place until such gate is closed;

- b. Every gate in the hoist way enclosure of such hoist used for carrying persons shall be fitted with efficient interlocking or other devices to secure so that such gate cannot be opened except when the cage of such gate is at the landing place and that such cage cannot be moved away from the landing place until such gate is closed;
- c. In every hoist used for carrying building workers there are provided with suitable and efficient automatic devices to ensure that the cage of such hoist comes to rest at a point above the lowest point to which such gave may travel.

#### **7.28. ATTACHMENT OF LOADS**

- a. When a sling is used to hoist long materials, a lifting beam shall be used to space the sling legs for proper balance and when a load is suspended at two or more points with slings, the eyes of the lifting legs of such slings shall be shackled together and such shackled or eyes of the shackled slings shall be placed on the hook or the eyes of such lifting legs shall be shackled directly to the hoisting block, ball or balance beam, as the case may be;
- b. Every container or receptacle used for raising or lowering stone, bricks tiles, slates or other similar objects shall be so enclosed with the hoist as to prevent the fall of such objects;
- c. A loaded wheel barrows placed directly on a platform of a hoist for raising or lowering of such wheel barrows shall be so secured that such wheel barrows cannot move and such platform shall be enclosed to prevent the fall of the contents kept in such wheel barrows;
- d. Landings of hoists shall be so designed and arranged that building workers on such hoist be not required to lean out into empty space for loading and unloading on any material from such hoist

#### **7.29. TOWER CRANES**

- a. No person other than the operator trained and capable to work at heights shall be employed to operate tower cranes;
- b. The ground on which a tower crane stands shall have adequate bearing capacity;
- c. Bases for tower cranes and trucks for rail mounted tower cranes shall be firm and leveled and such cranes erected at a reasonably safe distance from excavations and operated within gradient limits as specified by the manufacturer of such cranes;
- d. Tower cranes shall be sited where there is a clear space available for erection, operation and dismantling of such cranes;
- e. Tower cranes shall be sited in such a way that the loads on such cranes shall not be handled over any occupied premises, public thoroughfares, railways or near power cables, other than construction works for which such cranes are used;
- f. Where two or more tower cranes are sited and operated, every care shall be taken to ensure positive and proper communication between operators of such cranes to avoid any dagger or dangerous occurrences;
- g. Tower cranes shall not be used for loading magnet, or demolition ball service, piling operation or other similar operations which could impose excessive load stresses on the crane structure of such cranes;

- h. The instruction of the manufacturer of a tower crane and standard safe practices regarding such cranes shall be followed while operating or using such cranes.

### **7.30. QUALIFICATION OF OPERATOR OF LIFTING WINCHES AND OF SIGNALER ETC.**

- a. No person shall be employed to drive or operate a lifting appliance whether driven by mechanical power or otherwise or to give signals to driver of operator of such lifting appliance or to work as an operator of a rigger or derricks unless he is
  - i) Sufficiently competent and reliable;
  - ii) Possesses the knowledge of the inherent risks involved in the operation of lifting appliance;
  - iii) Medically examined periodically as specified and
  - iv) Is above eighteen years of age.

## 8.0 SAFETY IN THE USE OF TRANSPORT, EARTHMOVING EQUIPMENT & OTHER CONSTRUCTION MACHINERY

### 8.1 EARTHMOVING EQUIPMENT AND VEHICLES

- a. All vehicles and earthmoving equipment shall be made of good material, proper design and sound construction and be sufficiently strong for the purpose for which such equipment are properly used in accordance with standard safe operating practices;
- b. Provided that the truck or trailer employed for transporting freight containers shall be of the size sufficient to carry the containers, without over hanging and provided with twist locks conforming to approved standards, at all the four corners of each of such use by an authority under the relevant law for the time being in force and is inspected by a responsible person, at least once in a month and record of such inspection shall be maintained:
- c. All transport or earth moving equipment and vehicles shall be inspected at least once a week by a responsible person and in case any defect is noticed in such equipment or vehicle it shall be immediately taken out of use;
- d. Power trucks and tractors shall be equipped with effective brakes, headlights and tail lamps and maintained in good repair and working order;
- e. Side stanchions on power trucks and trailers for carrying heavy and long objects shall be
  - i. Of sound construction and free from defects;
  - ii. Provided with tie chains attached to the top across the loads for preventing such stanchions from spreading out; and
  - iii. Kept in position while loading and unloading;
  - iv. Safe gangways provided for to and fro movement of building workers engaged in loading and unloading of lorries, trucks, trailers and wagons;
  - v. Trucks and other equipment shall not be loaded beyond their safe capacity and carry workers engaged in loading and unloading of lorries, trucks trailers and wagons in an unsafe condition;
  - vi. Handles of trucks shall be so designed as to protect the hands of the building workers working on such trucks, or such handles provided with knuckle guards;
  - vii. No unauthorized person shall ride the transport equipment employed in such work;
  - viii. A driver of a transport equipment shall maneuver such equipment under the direction of a signaler;
  - ix. Adequate precaution such as isolating the electric supply or erecting overhead barriers of a safe height shall be taken when earth moving equipment or vehicles are required to operate in dangerous proximity to any live electric conductor;
  - x. Vehicles and earth moving equipment shall not be left on a slope with the engine of such vehicles or equipment running;

- xi. All earth moving equipment, vehicles or other transport equipment shall be operated only by such person who are adequately trained and possess such skills as required for safe operation of such equipment, vehicle or other transport equipment.

## **8.2. POWER SHOVELS AND EXCAVATOR**

- a. A shovel or an excavator whether operated by steam or electric or by internal combustion, shall be constructed, installed, operated, tested and examined as per approved standards;
- b. Excavator equipped for use as a mobile crane shall be examined and tested in accordance with the requirements for such mobile cranes as laid down by the manufacturer; and
- c. Fitted with an automatic safe working load indicator;
- d. Buckets or grabs of power shovels shall be propped to restrict the movement of such buckets or grabs while being repaired or while the teeth of such buckets or grabs are being changed.

## **8.3. BULLDOZER**

- a. Operator of every such bulldozer before leaving the dozer shall take the following steps:
  - i) Apply the brakes;
  - ii) Lower the blade and sipper and
  - iii) Put the shift lever into neutral;
  - iv) Dozer left on level ground at the close of the work for which such bulldozer is used;
  - v) The blade of a bulldozer kept low when such bulldozer is moving uphill;
  - vi) The bulldozer blades not used as brakes except in an emergency.

## **8.4. SCRAPERS**

- a. A tractor and scraper shall be joined by safety line at the time of its operation;
- b. The scraper bowls shall be propped while blades of such scraper are being replaced;
- c. A scraper moving downhill shall not be left in gear.

## **8.5. MOBILE ASPHALT LAYERS & FINISHERS**

- a. A mixture elevator shall be located within a wooden or sheet metal enclosure with a window for observation, lubrication and maintenance;
- b. Bitumen scoops shall have adequate covers;
- c. When asphalt plants are working on public road, adequate traffic control shall be established on such road and the building workers working with such plant provided with reflective jackets;
- d. A sufficient number of fire extinguishers shall be kept in readiness at such workplace where fire hazards may exist;
- e. The materials shall be loaded on the elevator after the drying drain has warmed up of such elevator;
- f. No open light shall be used for ascertaining the level of asphalt;

- g. Inspection opening shall not be opened till there is a pressure in the boiler, which may cause injury to building workers.

**8.6. PAVERS:**

Pavers shall be equipped with guards suitable to prevent building workers from walking under the skip of such pavers.

- 8.7. Road rollers:** Before a road roller is used on the ground, such ground shall be examined for its bearing capacity and general safety, especially at the edges of slopes such as embankment on such grounds and shall not be moved downhill with the engine out of gear.

**8.8. GENERAL SAFETY IN RESPECT OF POWERED CONSTRUCTION MACHINERY**

- a. Every vehicle or earthmoving equipment shall be equipped with -
  - i) Silencers;
  - ii) Tail lights
  - iii) Power and hand brakes;
  - iv) Reversing alarm; and
  - v) Search light for forward and backward movement, which are required for safe operation of such vehicle or earthmoving equipment;
- b. The cab of vehicle or earthmoving equipment shall be kept at least one meter from the adjacent face of a ground being excavated;
- c. When cranes or shovel are traveling, the boom of such crane or shovel shall be in the direction of such travel and the bucket or scoop attached to such crane or shovel raised and without load except when such traveling is downhill.

## 9.0 SAFETY IN THE PROVISION OF RUNWAYS AND RAMP

### 9.1. USE OF RUNWAYS AND RAMPS:

- a. Runway or ramps shall not be less than 430 mm in width and constructed of not less than 25 mm thick planking or any other material of adequate strength to withstand the required load, supported substantially in relation to the span and braced with such runway or ramp, and design and construction of such runway or ramp shall be in accordance with the approved standards;
- b. Every runway or ramp located more than 3 m above the floor or ground shall be on open sides and provided with a guardrail of adequate strength and height of not less than 1 m.
- c. Use of runways and ramps by vehicles:
  - i. All runways and ramps shall be of sound construction, strength and securely braced and supported;
  - ii. Every runway or ramp for the use of transport equipment like trailers, trucks or heavier vehicles shall have a width of not less than 3.7 m and provide with timber curbs or any other material of adequate strength with not less than 200 mm by 200 mm in width placed parallel to, and secured to, the sided of such runway or ramp and such runways or ramps or ramps shall be designed in accordance with the approved standards.

### 9.2. SLOPE OF RAMPS:

Every ramp shall have a slope not exceeding one in four and the total rise of a continuous ramp used by building workers carrying material or using wheelbarrows shall not exceed 3.7 m, unless broken by horizontal landing of at least 1.2 m in length.

### 9.3. USE OF RUNWAYS OR RAMPS BY WHEELBARROWS, ETC.

- a. Every runway or ramp used for wheelbarrows and carts or hand trucks shall not be less than 1 m width and constructed of not less than 50 mm thick planking, and supported and braced suitably for such use;
- b. Every runway or ramp located more than 3 m above the floor or ground shall be provided on the open sides with suitable guardrails of adequate strength.

## 10. SAFETY IN HANDLING AND USE OF EXPLOSIVES

### 10.1 GENERAL PROVISIONS:

- a. The use of explosives shall be carried out in a safe manner to avoid injury to any person and under the direct supervision of a responsible person;
- b. No person other than authorized and competent one shall be allowed to handle and use explosives;
- c. Before using any explosive, necessary warning and danger signals shall be erected, at conspicuous places of such use to warn the building workers and the general public of the danger involved in such use.
- d. No person other than authorized and competent one shall be allowed to handle and use explosives.
- e. Smoke, open lamps, other type of hot or heat producing items and sparks shall be prohibited in or near explosives magazines or while explosives are being handled, transported or used.
- f. No person shall be allowed to handle or use explosives while under the influence of intoxicating liquors or dangerous drugs.
- g. The explosives shall be accounted for at all times. No explosives or blasting agents shall be abandoned.
- h. No fire shall be fought where the fire is in the imminent danger of contact with explosives. All employees shall be removed to a safe area and the fire area shall be guarded against intruders.
- i. Employees authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution including but not limited to visual and audible warning signals, flags, or barricades to ensure employee safety.
- j. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by induced voltage, lightning, adjacent power lines, dust storms, or other sources of extraneous electricity or otherwise. These precautions shall include:
- k. Short-circuiting of detonators in holes, which have been primed and shunted until wired into the blasting circuit.
- l. The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.
- m. The prominent display of adequate signs, warning against the use of radio transmitters, on all roads within 1000 ft of blasting operations. Whenever adherence to the 1000 ft distance would create an operational handicap, a competent and expert person shall be consulted to evaluate the particular situation, and an alternative provided, which are adequately designed to prevent any premature firing of electric blasting of caps. A description of any such blasting shall be reduced to writing and shall be certified as meeting the purposes of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection.

- n. Empty boxes and paper and fiber packing materials, which have previously contained high explosives, shall not be used again for any purpose, but shall be destroyed by burning at an approved location.
- o. Explosives, blasting agents and blasting supplies that are obviously deteriorated or damaged shall not be used.
- p. Delivery and issue of explosives shall only be made authorized persons into authorized magazines or approved temporary storage or handling areas.
- q. Blasting operations in the proximity of overhead power lines, communication lines, utility services, or other services and structures shall not be carried on until the operators and/or owners have been notified and measures for safe control have been taken. In such situations controlled blasting shall be restored to.
- r. All loading and firing shall be directed and supervised by competent persons thoroughly experienced in this field.
- s. Loaded boreholes shall not be left unattended after the end of the shift.
- t. Suitable and sufficient means of egress to ground level shall be provided in all cases of excavations, trenches, all other places where explosives are handled above or below ground level.
- u. At an appropriate time before the final blasting warnings, workers in the area shall be removed to a designated safe place.
- v. An unmistakable, audible, final warning shall be sounded one minute prior to the detonation of explosives; after completion, when the person in charge has established that safe conditions prevail, an "all clear" shall be sounded.
- w. To prevent persons entering any danger zone during blasting operations notices shall be given to all concerned.
- x. Notices referred above shall indicate:
  - i. that explosives are in use;
  - ii. the audible warning sound and the "all clear" and state when they will be sounded; and
  - iii. the warning flags in use, including an "all clear" flag.
- y. Precautions against lightning shall be provided in accordance with the Indian Electricity Act and Indian Explosives Act and Rules and regulations framed there under.
- z. Package containing explosives shall not be dragged, dropped or handled roughly.
  - aa. Non-sparking tools shall be used to open keys.
  - bb. The explosives shall not be carried in the box or otherwise on any individual.
  - cc. Nothing shall be inserted in the open end of the blasting cap except fuses.

dd. Deteriorated or damaged explosives shall not be used but shall be disposed or destroyed strictly in accordance with the approved methods and in the doing so the manufacturers or the appropriate authority's instructions shall be followed.

ee. lightning shall be in accordance with Indian Electricity Act/Rules

## 10.2. TRANSPORTATION OF EXPLOSIVES

- a. Keep safe distance and to use non-sparking tools while opening packages containing explosives;
- b. Stop the use of explosives and handling thereof while the weather conditions are not suitable for such use or handling;
- c. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by induced voltage, lightning, adjacent power-lines, dust storms or other sources of extraneous electricity or otherwise. These precautions shall include –
  - i. Suspension of all blasting operations and evacuation of persons;
  - ii. All warning signs shall be displayed within 200 m of blasting operations and in case putting up a sign at 200 m is impractical, the contractor shall consult the Engineer-in-charge for alternatives;
  - iii. All loading and firing shall be directed and supervised by competent persons thoroughly experienced in the field;
  - iv. To prevent persons entering any danger zone during blasting operations, notices shall be given to all concerned;
- d. In addition to these provisions, all measures and precautions that are required to be observed for use, handling, storing or transportation of explosives under the Rules framed under the Explosives Act, 1884 (4 of 1884) shall be observed;
- e. All the relevant statutory provisions, local laws and rules and regulations shall be complied with.
- f. Where the magazine is located near the construction site and blasting operation continues daily, actual requirement of explosives shall be drawn from the magazine and transported to the site. Any leftovers shall be returned to the magazine each time after the blast. In case of work at scattered places and for a small duration, portable magazines shall be used and kept within a fence in safe place and properly guarded.
- g. For carrying higher quantity (more than 5 kg of explosives) specially designed insulated containers shall be used. These containers shall be constructed of finished wood not less than 5cm thick or plastic not less than 6mm thick or pressed fibre not less than 10mm thick. There shall be no metal parts (not even nails, bolts, screws etc.) and the containers shall be provided with suitable non-conductive carrying device, such as rubber, leather or canvas handle or strap.
- h. Vehicles to be used for transportation explosives shall be in good working condition and shall have a tight wooded or non-sparking metal (copper, brass and the like) floor with sides and

ends high enough to prevent the explosives from falling off the vehicle. In open bodied vehicles, the explosives shall be covered with a waterproof and fibre tarpaulin.

- i. Electrical wiring in vehicle shall be fully insulated so as to prevent the danger of short-circuiting and at least two fire extinguishers of carbon dioxide type shall be carried. The vehicle shall be properly marked indicating adequate warning to the public in regard to the nature of cargo.
- j. No metals except approved metal truck shall be allowed to come in contact with cases of explosives, metal, flammable, or corrosive substance shall not be transported with explosives. As far as possible, transportation of any material along with explosives shall be prohibited.
- k. Smoking shall be prohibited in the vehicle carrying explosives.
- l. No unauthorized person shall be allowed in the vehicle, carrying explosives.
- m. Loading and unloading of explosives shall be done carefully.
- n. Explosives and detonators or blasting caps shall not be permitted to be transported in the same vehicle.
- o. Detonators and other explosives for blasting shall be transported to the site of work in the original containers or in securely locked separate non-metallic containers and shall not be carried loose or mixed with other materials.

### **10.3. STORAGE OF EXPLOSIVES AND BLASTING AGENTS**

- a. Explosives and related materials shall be stored in approved facilities.
- b. Blasting caps, electric blasting caps, detonating primers, and primed cartridges shall not be stored in the same magazine with other explosives or blasting agents.
- c. Smoking and open flames shall not be permitted within 50 feet of explosives and detonators storage magazine.
- d. No Explosives or blasting agents shall be permanently stored in any underground area until the area has been developed to the point where at least two modes of exit have been provided.
- e. Permanent underground storage magazine shall be at least 300 feet from any shaft or other active under ground working area.
- f. Permanent underground magazines containing detonators shall not be located closer than 50 feet to any magazine containing other explosives or blasting agents.

### **10.4. DRILLING AND LOADING**

- a. Before planning out the drilling operations for blasting purposes, nature of stratum and the over burden shall necessarily be examined to avoid possibilities of landslides after blasting.
- b. The face or rock shall be carefully examined before drilling to determine the presence of unfired explosives. No attempt shall be made to drill at a site if un-detonated explosives are suspected. In such case the boreholes shall be thoroughly cleaned before a cartridge is

- inserted. Wooden tamping rods (not pointed, but cylindrical throughout) shall be used in the charging the holes. The cartridge will be on the top.
- c. The borehole shall be carefully checked for length, presence of water dust, etc. with a wooden temping pole or a measuring tape before loading.
  - d. Surplus explosives shall not be stacked near working areas during loading/unloading.
  - e. The line of detonating fuse extending into a borehole shall be cut from the spool before loading the remainder of the charge.
  - f. A bore shall not be loaded with explosives after springing (enlarging the hole with explosives) or upon completion of drilling without making sure it is cool and it does not contain any hot smoldering material. Temperatures in excess of 65° C are dangerous.
  - g. A bore near another hole loaded with explosives shall not be sprung.
  - h. No force shall be used for inserting cartridges or any explosives into a bore hold or pass any obstruction in a borehole.
  - i. No force shall be used for inserting a blasting cap or an electric blasting cap into explosive. The cap shall be inserted into a hole made with a pickers designed for the purpose. A hitch of the electric blasting cap leading wire shall be made on the primer cartridge so as to prevent pulling out the electric blasting cap from the explosive charge. In case of fuse, the fuse shall be tied to the explosive cartridge so that the blasting cap is not pulled out. Care shall be taken so that the blasting cap is not pulled out. Care shall be taken so that the electric blasting cap, leading wire or the length of the fuse does not get damaged during loading of the charge.
  - j. No attempt shall be made to slit, drop, deform or abuse the primer.
  - k. Blasting caps or electric blasting caps shall not be connected to detonating fuse except by methods recommended by the manufacturers of caps.
  - l. Explosive cartridge shall not be cut, nor explosive removed from the cartridge for use.
  - m. Metallic devices of any kind shall not be used in tamping. Wooden tamping tools with not exposed metal parts except non-sparking metal connectors for jointed poled shall be used. Violent tamping shall be avoided. Primer shall not be tamped.
  - n. Care shall be taken to confine the explosives in the bore hold with sand, earth clay or other suitable combustible stemming material.
  - o. Kinking or injuring of fuse or electric blasting cap wires shall be avoided when tamping.

#### **10.5. ELECTRICAL SHOT-FIRING CIRCUIT**

- a. In deciding the sizes of wires, fuses, circuits, blasting switches, etc., instructions issued by the manufacturers of these articles shall be followed, if they do not contradict with Indian Explosives Act or framed under it.
- b. No person shall attempt to uncoil the wires and open out the short-circuited bare leading wires of the electric blasting cap during approach of dust storm or near any source of large

charge of static electricity or near a radio transmitter. The manufacturer of the cap or the Inspectorate of Explosives shall be consulted regarding the distance from the transmitter beyond which electric short firing shall be conducted.

- c. Firing circuit shall be kept completely insulated from the ground of the other conductors, such as wires, rails, pipes or other paths or stray current.
- d. There shall not be any electric live wires or cables of any kind near electric blasting caps or other explosives except at the time and for the purpose of firing the blast.
- e. All electric blasting caps shall be tested singly and also when connected in a circuit in series using only an approved type of circuit continuity tester or ohmmeter.
- f. No attempt shall be made to use in the same circuit either electrical blasting caps made by more than one manufacturer or electric blasting caps of different design or function even if made by the same manufacturers unless such use is approved by the manufacturers.
- g. No attempt shall be made to fire a circuit of electric blasting caps with less than the minimum current specified by the manufacturer of that electric blasting cap.
- h. Care shall be taken to ensure that all wire ends to be connected are bright and clean.
- i. The electric cap wires or leading wires shall be kept short circuited until ready to fire.
- j. When energy for blasting is taken from power circuits the voltage shall not exceed 220v. The wiring controlling arrangements shall conform to the following:
  - k. The blasting switch shall be strictly according to the specifications, externally operated double-throw switch, which when locked in the open position will short circuit and ground the leading wires. The switch shall be installed at the location where the firing is to be controlled.
  - l. A 'safety' switch of the same type as the blasting switch shall be installed between the blasting switch and the firing circuit and lead lines, at a distance not to exceed 180cm from the blasting switch.
- m. Both the safety switch and the blasting switch shall be locked in the open position immediately after the shot and before any person is permitted to return to the blasting area. Key to the switches shall remain in the possession of the blaster at all times.
- n. Rubber covered or other adequately insulated copper wires in good condition shall be used for firing lines and shall have solid cores of appropriate gauge. Sufficient firing line shall be provided to permit the blaster to be located at a safe distance from the blast. Single conductor lead lines shall be used.
- o. Blasting operations in the proximity of overhead power lines, communication lines, utility lines, or other structures shall not be carried on until the operator or the owner, or both of such lines as been notified and precautionary measures deemed necessary, have been taken.
- p. All holes loaded on a shift shall be fired on the same shift.
- q. As far as possible, blasting shall be carried out using suitable exploder with 25 per cent excess capacity. Electric power from the mains shall be used only when it is absolutely necessary.

#### **10.6. SHOT-FIRING WITH SAFETY FUSE**

- a. The fuse shall be carefully handled to avoid damaging the covering. In very cold weather the fuse shall be slightly warmed before using so as to avoid cracking the waterproofing.
- b. Short fuse shall not be used. The length of a fuse shall not be less than 120cm. The rate of burning of the fuse shall be known and it would be necessary to make sure that it will take sufficient time in burning so as to enable all persons to reach a place of safety. The burning rate of the fuse shall not be more than 60 cm/min.
- c. The fuse shall not be cut until the operation to insert the fuse into a blasting cap is ready. The fuse shall be cut off about 2.5 to 5 cm to ensure a dry end. It shall be cut squarely across with a clean and sharp blade. The fuse shall be seated lightly against the cap charge and care shall be taken to avoid twisting after it has been placed in position.
- d. Blasting caps shall not be crimped by any means except by a cap crimper designed for the purpose. It shall be necessary to make sure that the cap is squarely crimped to the face.
- e. The fuse shall be lighted with a fuse lighter designed for the purpose. If a match is used, the fuse shall be slit at the end and the match head held in then slit against the power core and then the match head rubbed against an abrasive surface to light the fuse.
- f. The fuse shall not be lighted until sufficient stemming has been placed over the explosives to prevent sparks of live match heads from coming into contact with the explosives.
- g. The explosives shall not be held in hands when lighting the fuse.

#### **10.7. UNDERGROUND WORK**

- a. Only permissible explosives and in the manner as specified by the appropriate authority shall be used.
- b. Excessive quantities of explosives shall not be taken underground at any time. Black blasting powder or pellet powder shall not be used with any other explosive in the same borehole.

#### **10.8. BEFORE AND AFTER FIRING**

- a. Before firing, sufficient warning shall be given to enable the people working in the area to get off the danger zone. The danger zone shall be suitable cordoned off and flag men posted at important points.
- b. No loose materials, such as tools, drilling implements etc. Shall be left on the rock surfaces to be blasted.
- c. Blasting in the open shall be carried out during the fixed hours every day or on fixed days in the week. This information shall be amply publicized and the following precautions observed:
- d. On the project sites, where blasting operations are carried out, daily blasting hours shall be clearly printed on the sign-boards on all the roads approaching that area.
  - i. Road closing barriers should be provided to close the traffic on these roads, at least 400 meters away when the firing is to take place.

- ii. The beginning of the firing shall follow loud sirens and similarly loud sirens shall succeed the completion of the firing.
- e. The shot-firer shall not be allowed to return to the blasting site after firing, until at least 5 min have elapsed. In case of electric shot firing, the shot holes shall be examined after firing and in case of misfire no person shall be allowed to approach the blasting site for at least 5 min. In case of shot firing with safety fuse, utmost care shall be taken to count the number to ensure that all the shots have fired and in the event of misfire, no person shall be allowed to approach the blasting site for at least 30 min. In any case, a careful inspection for the remaining un-detonated explosive shall be made after firing the shots. All misfired shot holes shall be cross-marked. No other person than those duly authorized shall approach the holes until one of the following operations has been performed in respect of each of the misfired holes:
  - f. If the misfire is due to a faulty cable or faulty electrical connection the defect shall be remedied and the shot fired.
  - g. The stemming shall be floated out by use of water or air jet from hose until the hole has been opened to within 60 cm of the charge, whereupon water will be siphoned or pumped out, then a fresh new charge placed and duly detonated. Or
    - i. A careful search shall be made of unexploded material in the debris of the charge.
    - ii. If a shift charge is unavoidable, the person in-charge of one shift before leaving the work shall inform the person relieving him for the next shift of any cases misfired and shall point out their position duly cross marked and also state clearly what action has to be taken in the matter.

Note: The rules are made considering statutory provisions and other National/International standards. However, if any statutory provision overruling these laws is made, the statutory provisions shall overrule the NTPC Rules.

## 11.0 SAFETY IN EXCAVATION & TUNNELING WORK

### SAFETY IN EXCAVATION

#### 11.1 GENERAL PROVISIONS

- a. Before undertaking any activity, the soil shall be tested and in case of availability of any explosive gas, necessary arrangements must be made to remove/dilute such gases and in case they are found to be toxic or poisonous, the workplace must be purged and continuous ventilation maintaining the contamination below the permissible level ensured;
- b. The position of underground installations such as sewers, water pipes and electrical cables shall be verified and in case of their existence, they must be isolated;
- c. If they cannot be isolated or removed or shutdown, they shall be fenced, hung up or otherwise protected. On every part likely to be visited by persons or where transport vehicles ply, the area shall be suitably fenced, guarded or barricaded to prevent fall of persons, vehicles or livestock into the excavated area;
- d. Warning signs shall be erected and the in the night hours the area shall be illuminated to warn pedestrians and vehicular traffic;
- e. Arrangements shall be made to prevent external vibrations due to rail/road traffic;
- f. Blasting shall be carried out in accordance with the norms applicable in this regard. Special care shall be taken to control the impact of vibrations/tremor caused by blasting to protect excavations from cave-ins;
- g. Arrangements shall be made to save other buildings/structures in the affected zone or in the vicinity of the area of excavation, from collapse;

#### 11.2 SHORING AND TIMBERING

- a. Site of excavations, where workers are exposed to danger from moving ground, shall be made safe by maintaining due slope not exceeding the angle of repose of different types of soil or otherwise by shoring, portable shields or other effective means;
- b. All trenches in the soil, other than rock or hard compact soil more than 1.5 m deep into which men enter, shall be securely shored and timbered under the supervision of a competent person and only the trained workers shall be allowed to substantially alter or dismantle the shoring or timbering;
- c. All struts, braces and walls in excavation shall be adequately secured so as to prevent their accidental displacement;
- d. In all excavations in soft or fissured rock or hard soil exceeding 2 m in depth, except those which are sloped to within 1.5 m of the bottom into which men enter, shall be securely shored and timbered;
- e. Where the sides of the excavations are sloped as outlined above, but not within the 1.5 m of the bottom, vertical sides shall be shored and the shoring shall extend at least 30 cm above the vertical sides. When open spaced sheathing is used, a toe-board shall be provided to prevent material rolling down the slope and falling into the excavated.

### **11.3. SHEATHING**

- a. The sheathing should be placed against the side of the trench so that length of each piece of sheathing is vertical. It should be held securely in place against the wales by ensuring that sheathing is kept firmly pressed against the wall of the trench. Where the trench excavated is loose, sandy or soft soil or soil which has been previously excavated or soil which is under hydrostatic pressure, each piece of sheathing shall be driven into the bottom of the trench so as to firmly hold it in place;
- b. Where two or more pieces of sheathing are used one above another, the sheathing shall be so arranged that the lower pieces of sheathing shall overlap the lowest wales supporting the piece of sheathing next above it. These pieces of sheathing shall be firmly driven into the soil and securely supported by wales and struts, as the trench is made deeper.

### **11.4. WALES**

- a. The wales shall be parallel to the bottom or the proposed bottom of the trench. Each wale shall be supported on cleats spiked to the sheathing or by posts set on the wales next below it and in the case of the lowest wale on the bottom of the trench itself. Where necessary, wedges may be provided between a wale and the sheathing it supports so that roughly uniformity is given to all individual pieces of sheathing.

### **11.5. STRUTS**

- a. Struts shall be horizontal and at right angles to the wales or sheathing supported thereby. Struts shall be cut to the proper length required to fit in tightly between the wales. Where necessary, the struts shall be held securely in place by wedges, driven between the struts and the wales;
- b. Struts shall be placed on cleats spiked or bolted to the posts supporting the Wales.

### **11.6. LOOSE SITE MATERIALS:**

No loose material shall be kept very close to the excavation creating possibility of its fall into the excavated area. A safe distance of at least 1 m shall be maintained.

### **11.7. PLANT & MACHINERY:**

Movement of vehicles and heavy equipment shall be kept at a distance least equal to the depth of the excavation or at least 6 m for excavation deeper than 6 m and the workers shall be provided with proper tools.

### **11.8. MEANS OF ACCESS**

- a. For trenches deeper than 1.5 m, safe means of access and egress shall be provided at intervals of every 15 m. Where it is not possible to provide safe means of access and egress as above, ladders shall extend from the bottom of the trench to at least 90 cm above the ground;
- b. Walkways, runways and sidewalks shall be kept clear of excavated materials or other obstructions and no side walls shall be undermined-undercut unless it is capable of carrying a minimum live load of 125 lbs per square feet;

- c. If planks are used for raising walkways, runways or sidewalks, they should be parallel to the length of the walk and fastened together against displacement;
- d. Lone worker shall not be allowed to work in the excavated area.

#### **11.9. INSPECTIONS:**

A competent person shall make inspections every day and necessary measures shall be taken to safeguard against possible cave-ins or slide or collapse of the excavations.

#### **11.10. NOTIFICATION OF INTENTION TO CARRY OUT EXCAVATION AND TUNNELING WORK**

- a. Within thirty days, prior to the commencement of such excavation or tunneling work, the contractor shall inform in writing the detailed layout plans, method of construction and schedule of such excavation or tunneling work to the Engineer in-charge of NTPC;
- b. In case compressed air is used in such excavation or tunneling work or any work incidental to or required for such excavation or tunneling work, the technical details and drawings of all man-locks and medical-locks together with names and addresses of all construction medical officers duly qualified and so appointed by such contractor for the purpose of such excavation or tunneling work shall be sent to the Engineer in-charge.

#### **11.11. PROJECT ENGINEER**

- a. The contractor undertaking any excavation or tunneling work shall appoint a Project Engineer for safe operation of such projects;
- b. Such Project Engineer shall exercise overall control of the operations and the activities at such project and be responsible for carrying out the activities safely.

#### **11.12. RESPONSIBLE PERSON**

- a. The contractor undertaking excavation or tunneling work at construction site of a building or other construction work shall appoint a responsible person for safe operation of such excavation or tunneling work;
- b. The name and addresses of such responsible persons shall be forwarded to the Engineer in-charge;
- c. Duties and responsibilities of the responsible person referred to above person shall include
  - i. To carry out smoothly such excavation or tunneling work;
  - ii. To inspect and rectify any hazardous situation relating to such excavation or tunneling work;
  - iii. To take remedial measures to avoid any unsafe practice or conditions relating to such excavation or tunneling work.

#### **11.13. WARNING SIGNS AND NOTICES**

- a. Suitable warning signs or notices, required for the safety of building workers carrying out the work of an excavation or tunneling, shall be displayed or erected at conspicuous places in Hindi

and in language understood by the majority of such building workers at such excavation or tunneling work;

- b. Such warning signs and notices with regard to compressed air working shall include:
  - i) The danger involved in such compressed air work;
  - ii) Fire and explosion hazards;
  - iii) The emergency procedures for rescue from such danger or hazards.

#### **11.14. REGISTER OF EMPLOYMENT**

- a. The contractor shall ensure that at a construction site of a building or other construction work where an excavation or tunneling work is being carried on, a register of employment of building workers carrying out such excavation or tunneling work is maintained and produced on demand;
- b. Periods of work of such excavation or tunneling work shall be maintained in a register on day-to-day basis and such register shall be produced on demand

#### **11.15. ILLUMINATION**

- a. All contractors carrying out excavation or tunneling work at a construction site of a building or other construction work shall provide for emergency generators on such construction site to ensure adequate illumination at all work places where such excavation or tunneling work is being carried out;
- b. In case of power failure, all workplaces where excavation or tunneling works are carried out shall be adequately illuminated

#### **11.16. PNEUMATIC TOOLS:**

Supply lines to pneumatic tools used within a tunnel are fitted with water trap or safety chain or safety wire, as the case may be.

#### **11.17. STABILITY OF STRUCTURE DURING GENERAL EXCAVATION & TUNNELING:**

The contractor shall ensure that where there is any doubt as to the stability of any structure adjoining the workplace or other areas to be excavated or where tunneling work is to be carried out –

- a. The Project Engineer shall arrange for measures like underpinning, sheet piling, shoring, bracing or other similar means to support such structure and to prevent injury to any building worker working adjacent to such structure or damage to property or equipment adjacent to such structure;
- b. Where any building worker engaged in excavation is exposed to hazard of falling or sliding material or article from any bank or side of such excavation which is more than 1.5 m above his footing, such worker shall be protected by adequate piling and bracing against such bank or side;

- c. The excavation and its vicinity shall be checked by a responsible person after every rain, storm or other occurrences carrying hazards and in case a hazard is noticed at such checking, adequate protection against slides and cave-in to prevent such hazard shall be provided;
- d. Temporary sheet piling installed for the construction of a retaining wall after excavation shall not be removed, except on the advice of the responsible person after an inspection carried out by such responsible person;
- e. Where banks of an excavation are undercut, adequate shoring shall be provided to support the material or article overhanging such bank;
- f. Excavated material shall not be stored at least 0.5 m from the edge of an open excavation or trench and the banks of such excavation or trench shall be stripped of loose rocks and other materials which may slide, roll or fall upon a building worker working below such bank;
- g. Adequate and suitable warning signs shall be put-up at conspicuous places at the excavation work to avoid any person falling into the excavations or trenches;
- h. The responsible person shall ensure at the excavation that no building worker is permitted to work where such building worker may be struck or endangered by the excavation machinery or material or article used in such excavation.

**11.18. SAFE ACCESS AND EGRESS:**

Ladders, staircases or ramps are provided, as the case may be, for safe access to and egress from excavation where the depth of such excavation exceeds one point 1.5 m and such ladders, staircases or ramps comply with the relevant national standards.

**11.19. TRENCHES**

- a. A trench or excavation shall be protected against falling of a person by suitable measures if the depth of such trench or excavation exceeds 1.5 m and such protection shall be an improved protection in accordance with the design and drawing of a Professional Engineer, where such depth exceeds 4 m;
- b. Where the depth of a trench requires two lengths of sheet piling, one above the other, the lower piling shall be set inside the bottom strings or wales of the upper piling and such sheet piling shall be driven down and braced as the excavation continues;
- c. All metal sheet piles used in excavation or a trench shall be welded end-to-end and secured by other similar means.

**11.20. POSITIONING AND USE OF MACHINERY:**

Any machinery used in excavation and tunneling work shall be positioned and operated in such a way that such machinery will not endanger the operator of such machinery or any other person in the vicinity.

**11.21. BREATHING APPARATUS:**

Suitable breathing apparatus shall be provided to a building worker while working in compressed air environment for his use at excavation or tunneling work and such breathing apparatus shall be maintained in good working condition at all times.

#### **11.22. SAFETY MEASURES FOR TUNNELING OPERATIONS**

- a. Where there is a danger of falling or sliding of material from the roof face or wall of a tunnel, adequate measures such as shoring, supporting by means of rock bolts, segments or steel sets shall be taken for the safety of building workers;
- b. The excavated areas shall be made safe by use of suitably designed and installed steel sets, rock bolts or similar other safe means;
- c. The responsible person shall examine and inspect the workplaces in a tunnel before the commencement of work in such tunnel and at regular intervals thereafter to ensure safety of the building workers in such tunnel;
- d. The portal areas of a tunnel with loose soil or rock, likely to cause injury to a person shall be adequately protected with supports.

#### **11.23. SURROUNDINGS OF A SHAFT**

- a. Surroundings of a shaft used in excavation or tunnel work shall be protected from being washed away by construction of sufficient height;
- b. Where a building worker is required to enter a shaft at an excavation or tunneling work, safe means of access shall be provided for such entry;
- c. Every shaft at excavation or tunneling work shall be provided with a steel casing, concrete piping, timber shoring or other materials of adequate strength for the safety of building workers working in such shaft;
- d. Such casing and bracing shall be provided to shafts at an excavation or tunneling work according to the appropriate design for such casing and bracing;
- e. A reinforced concrete raft and beam shall be provided around the opening of a shaft at an excavation or tunneling work if the ground surrounding such opening is unstable or unsafe.

#### **11.24. LIFT FOR SHAFT:**

Lift shall be provided for transport of building workers and materials or articles at an excavation or tunneling work required to descend more than 50 m in a shaft.

#### **11.25. MEANS OF COMMUNICATION**

Reliable and effective means of communication such as telephone or walkie-talkie shall be provided and maintained in working order for arranging better and effective communication at an excavation or tunneling work at the following locations, namely:

- i. Working chamber of an excavation;
- ii. Intervals of hundred meters along the tunnel;
- iii. Working chamber side of a man lock near the door of such man lock;
- iv. Interior or each chamber of a man lock;
- v. Location conspicuous lock attendant's situation;
- vi. A compressor plant;

- vii. A first-aid station, and
- viii. Outside the portal or the top of a shaft;
- ix. Such number of bells and whistles shall be made available at all times at the locations as are necessary for the safety of persons at such locations.

**11.26. SIGNALS:**

The standard audio or video signals shall be used in excavation or tunneling work and conspicuously located or displayed near entrance to the workplace and in such other locations as may be necessary to bring such signals to notice of all building workers employed in such excavation or tunneling work.

**11.27. CLEARANCES**

- a. The minimum lateral clearances of 0.5 m shall be maintained between any part of a vehicle and any fixture or any equipment used in an excavation or tunneling work after allowing the throw or swing of such fixture or equipment;
- b. The overhead clearance for a locomotive drive at excavation or tunneling work shall not be less than 1.20 m above the seat of such driver and not less than 2 m above the platform where such driver stands or of any other dimension in accordance with the approved standard.

**11.28. SHELTERS:**

The adequate number of shelters for the safeguard of the building workers are provided where, in the course of working, they are liable to be struck by a moving vehicle or other material handling equipment in a tunnel.

**11.29. USE OF INTERNAL COMBUSTION ENGINE:**

No internal combustion engine shall be used underground in excavation or tunneling work unless such engine is so constructed that the air entering the engine gets cleared before entry and the engine emits no fumes or sparks.

**11.30. INFLAMMABLE OILS:**

Inflammable oils with the flash point below the working temperature that is likely to be encountered in a tunnel shall not be used in excavation or tunneling work.

**11.31. COUPLING AND HOSES:**

All high-pressure hydraulic hoses and couplings shall be adequately protected against any possible damage in excavation or tunneling work.

**11.32. HOSE INSTALLATION:**

All hydraulic lines and plants working at a temperature exceeding 750 c shall be protected by adequate insulation or otherwise against accidental human contact in excavation or tunneling work.

**11.33. FIRE RESISTANT HOSES:**

No fire hydraulic hoses other than fire resistant hydraulic hoses are used when hydraulically activated machinery and equipment are employed in tunnels.

**11.34. FLAMEPROOF EQUIPMENT:**

Only flameproof equipment of appropriate type as per approved standards shall be used where there is a danger of flammable or explosive atmosphere being prevalent inside the tunnel.

**11.35. STORING OF OIL AND FUEL UNDERGROUND:**

All oils, greases or fuels stored underground in excavation or tunneling work shall be kept in tightly sealed containers and in fire resistant areas at safe distances away from explosive and other flammable chemical and appropriate flameproof installation shall be used in such storage areas.

**11.36. USE OF GASES UNDERGROUND**

- a. Petrol or liquefied petroleum gas or any other flammable substances shall not be used or stored inside the tunnel except with the prior approval of the Project Engineer;
- b. After the use of the petroleum or liquefied petroleum gas, or highly inflammable substances, all remaining petroleum or liquefied petroleum gas or highly inflammable substances shall be removed immediately from such tunnel;
- c. No oxy-acetylene gas shall be used in a compressed air environment in excavation or tunneling work.

**11.37. WATER FOR FIRE FIGHTING**

- a. Adequate number of water outlets shall be provided on excavation or tunneling work and readily made accessible throughout the tunnel for fire fighting purposes and such water outlets shall be maintained for effective fire lighting;
- b. All air locks shall be equipped with fire fighting facilities at excavation or tunneling work;
- c. An audible fire alarm shall be provided to warn the building workers whenever a fire breaks out on an excavation or tunneling work;
- d. Adequate number and types of fire extinguishers, in accordance with relevant national standards, shall be provided and made readily available to fight any outbreak of fire at an excavation or tunneling work;
- e. Fire extinguishers with vaporizing liquids and high pressure carbon dioxide shall not be used in tunnels or other confined spaces;
- f. The instructions regarding steps to be followed to fight outbreak of fire, at an excavation or tunneling work, written in Hindi or local language understood by the majority of the building workers employed on such excavation or tunneling work, shall be displayed at conspicuous and vulnerable places of such excavation or tunneling work.

**11.38. FLOODING**

- a. Water tight bulkhead doors shall be installed at the entrance of a tunnel to prevent flooding during a tunneling work where more than one tunnel is driven from a shaft;
- b. All necessary measures shall be taken to ensure that no building worker is trapped in any isolated section of a tunnel when any bulkhead door of such tunnel is closed;
- c. Where there is likelihood of flooding or water rushing into a tunnel during a tunneling work, arrangements shall be made for immediate starting of water pumps to take out water of such flooding or water rushing and for giving alert signals to the building workers and other persons to keep them away from danger.
- d. Airtight steel curtains shall be provided in areas liable to flooding at tunneling work and in case of descending tunnels, such curtains shall be provided in the top half of such tunnels to ensure the retention of pockets of air for rescue purpose.

#### **11.39. REST SHELTERS**

- a. Where building workers employed in a compressed air environment in a tunneling work are required to remain at the work site for one hour or more after de-compression from pressure exceeding one bar, adequate and suitable facilities shall be provided for such building workers to rest;
  - a. Every man-lock, medical-lock and any other facility inside these locks in a tunneling work shall be maintained in a clean state and in good repairs;
  - b. A first-aid room shall be provided and readily available at a construction site of a tunneling work;
  - c. Each man-lock attendant at the station shall be provided with a first-aid box.

#### **11.40. PERMISSIBLE LIMIT OF EXPOSURE OF CHEMICALS**

- a. The working environment in a tunnel or a shaft in which building workers are employed shall not contain any of the hazardous substances in concentrations beyond the permissible limits;
- b. The responsible person referred to shall conduct necessary test before the commencement of a tunneling work for the day and at suitable intervals as fixed by the Engineer in-charge, to ensure that the permissible limits of exposure are not exceeded and a record of such test shall be maintained and made available for inspection.

#### **11.41. VENTILATION:**

All working areas in a free air tunnel shall be provided with the approved ventilation system and the fresh air supplied in such tunnel shall not be less than 6 m<sup>3</sup> per minute for each building worker employed underground in such tunnel and the free air-flow movement inside such tunnel not less than 9 m<sup>3</sup> per minute.

#### **11.42. AIR SUPPLY INTAKE POINT:**

The air intake points for all air compression shall be located at places where such intake air does not get contaminated with dust, fumes, vapor and exhaust gases or other contaminants.

#### **11.43. EMERGENCY GENERATORS**

- a. Every compressed air system in a tunnel shall be provided with emergency power supply system for maintaining continued supply of compressed air in such compressed air system, which shall be capable of operating air compressor and ancillary systems of such compressed air system;
- b. The emergency power supply system shall be maintained and made readily available at all times.

**11.45. AIR MAINS:**

Every air-main supplying air to the working chamber, man-lock or medical-lock used at an excavation or tunneling work shall be protected against accidental damage and where it is not practicable to provide such protection, a stand-by air-main shall be provided.

**11.46. BULKHEAD AND AIR LOCKS**

- a. A bulk head or air tight diaphragms retaining compressed air, when used within a tunnel or a shaft, shall be constructed to withstand the maximum pressure at 1.25 the maximum working pressure of such bulk head or diaphragm and such bulk head or diaphragm shall be tested before its each use by a responsible person to ensure that such bulk head or diaphragm is in proper working order;
- b. Such responsible person shall keep the record of each test and such record shall be produced for inspection.
- c. The bulk head or diaphragm shall be made of sound material of adequate strength, which shall be able to withstand the maximum pressure on which they are subjected to at any time of their use;
- d. A bulkhead anchorage and air lock shall be tested at its work place at an excavation or tunneling work immediately after their installation at such place.

**11.47. DIAPHRAGM:**

All diaphragms, which are in the form of horizontal decks across a shaft used at excavation or tunneling work, shall be securely anchored

**11.48. PORTABLE ELECTRICAL HAND TOOLS:**

All portable electrical hand tools and inspection lamps used underground or in a confined space shall be operated at a voltage not exceeding 24 V.

**11.49. CIRCUIT BREAKER**

- a. Adequate numbers of differential ground fault circuit breakers shall be installed for every electrical distribution system and its sub-systems used at an excavation or tunneling;
- b. Work and the sensitivity of each of circuit breaker shall be adjusted in accordance with the requirement set out in accordance with the approved standards;
- c. No semi-enclosed fuse unit shall be used in underground place.

**11.50. TRANSFORMER:**

The contractor shall ensure no transformer is used in any section of a tunnel under compressed air unless such transformer is of the dry type and conforms to the approved standards.

**11.51. LIVE WIRES:**

There shall be no exposed live wire in working areas at an excavation or tunneling work which are accessible to building workers other than those authorized to work on such live lines.

**11.52. WELDING SETS:**

All welding sets used in a tunnel shall be of adequate capacity and of suitable type, duly approved.

**11.53. QUALITY AND QUANTITY**

- a. Every working chamber at an excavation or tunneling work where compressed air is used, the supply of such air shall be maintained at not less than 0.3 m<sup>3</sup> per minute per person working therein;
- b. A reserve supply of compressed air shall be made available at all times for man-locks and medical locks used at a tunneling work;
- c. The air supplied in a compressed air environment at a tunneling work shall be, as far as practicable, free from contaminants, namely, dust, fumes and other toxic substances.

**11.54. WORKING TEMPERATURE:**

The temperature in any working chamber at an excavation or tunneling work where building workers are employed shall not exceed 29<sup>0</sup> c and the arrangement shall be maintained for kipping records in which the temperatures measured by dry bulb and wet bulb inside such working chamber once in every hour and for producing such records for inspection on demand.

**11.55. MAN-LOCKS AND WORKING IN COMPRESSED AIR ENVIRONMENT**

- a. Man-locks used at a tunneling work shall be of adequate strength, made of sound material and designed to withstand any pressure, internal or external, to which it may be subjected in the normal use or in an emergency;
- b. Doors of man-locks at an excavation or tunneling work shall be made of steel and used at a tunneling work for keeping the work airtight and devices shall be provided for sealing the doors when such locks are under pressure. The anchorage of a man-lock used at tunneling work shall have adequate strength to withstand the pressure exerted by air on the man-lock. There shall be adequate room available for the workers for working in the man-locks;
- c. Where work is carried out in any compressed air tunnel, a Man-lock in accordance with the approved standards shall be used;
- d. Where a man-lock is used, safety Instructions in Hindi and in local language understood by majority of building workers employed there, shall be displaced at conspicuous places;
- e. Except in an emergency, compression and de-compression operations shall be carried out in a man-lock and in an emergency any material-lock may be used;
- f. A record of compression and de-compression shall be kept in writing and produced for inspection on demand;
- g. Material lock shall be used with the permission of the Engineer in-charge where it is impracticable to install both the man-lock and the material-lock at;
- h. The man-lock at tunneling work shall not be used for any purpose

- i. other than compression or de-compression of building workers;
- j. No de-canting of building workers at tunneling work shall be carried
- k. out without prior approval of the Engineer in-charge except in an emergency;
- l. In case a building worker collapses or is taken ill during his de-compression in a man-lock, the lock attendant of such man-lock shall raise the pressure to a level equal to the maximum pressure which that building worker was exposed to in the working chamber prior to such de-compression and such lock attendant shall immediately report the matter relating to such collapse to the medical lock attendant and medical officer on duty;
- m. A building worker who had previously received training with a trained building worker to work in a compressed air environment at tunneling work shall be employed to work independently in such a compressed air environment;
- n. A building worker who had undergone three de-compressions from a pressure exceeding one bar in a period of eight hours at tunneling work shall not be allowed to enter a compressed air environment except for the purpose of carrying out rescue work;
- o. A building worker employed in a compressed air environment for a period of eight hours in a day at tunneling work shall not be employed again in such environment unless he has spent not less than twelve consecutive hours of rest at atmospheric pressure;
- p. No building worker shall be engaged in a compressed air environment at a pressure, which exceeds three bars at a tunneling work unless prior permission, in writing, has been obtained from the Engineer in-charge;
- q. No building worker shall be employed in a compressed air environment for more than fourteen consecutive days in a month;
- r. A register of employment of all building workers in compressed air environment shall be maintained;
- s. An identification badge shall be supplied to a building worker employed in compressed air environment;
- t. The badge of a building worker shall contain particulars of his name, location of the medical-lock allotted to him for work, the telephone number of the Construction Medical Officer concerned for his treatment and the instructions in case of his illness of unknown and doubtful causes;
- u. Record of all identification badges supplied to building shall be kept in a register;
- v. Every building worker whose name appears in the register shall wear the badge supplied to him at all times during his duty hours;
- w. Suitable warning signs shall be displayed in the compressed air for the prohibition of the following, namely:
  - i) Use of alcoholic drinks;
  - ii) Use and carrying of lighters, matches or other sources of ignition;
  - iii) Smoking; and

iv) No entry to person who has consumed alcoholic drink

**11.56.SAFETY INSTRUCTION:**

All building workers employed in compressed air environment at tunneling work shall follow the instructions issued for their safety in the course of such employment.

**11.57.MEDICAL-LOCK**

- a. A suitably constructed medical lock shall be maintained at tunneling work where building workers are employed in a working chamber at a pressure exceeding one bar;
- b. Where more than one hundred building workers are employed in a compressed air working environment exceeding one bar at tunneling work, one medical-lock is provided for every one hundred building workers or part thereof and such medical lock shall be situated as near as possible to the main-lock used at such tunneling work.

## **12.0. SAFETY IN PILING WORK**

### **12.1. GENERAL PROVISIONS**

- a. All pile driving equipment shall be of good design and sound construction, taking into account the ergonomic principles and properly maintained;
- b. A pile driver shall be firmly supported on a heavy timber sill, concrete bed or other secured foundation;
- c. In case a pile driver is required to be erected in dangerous proximity to an electrical conductor, all necessary precautions shall be taken to ensure safety;
- d. The hoses of steam and air hammer shall be securely lashed to such hammer so as to prevent them from whipping in case of connection or break;
- e. Adequate precaution shall be taken to prevent the pile driver from over turning and hammer from missing the pile;
- f. A responsible person for inspecting pile-driving equipment shall inspect such equipment before taking it into use and takes all appropriate measures as required for the safety of building workers before commencing piling work by such equipment;
- g. Where there is any question of stability of a structure for its adjoining areas to be piled, such structure shall be supported, where necessary, by underpinning, sheet piling, shoring, and bracing or by other means to ensure safety and stability of such structure and to prevent injury to any person.

### **12.2. PROTECTION OF OPERATOR:**

The operator of every pile driving equipment shall be protected from falling objects, steam, cinders or water by substantially covering or otherwise or by other means.

### **12.3. INSTRUCTION TO AND SUPERVISION OF BUILDING WORKERS WORKING ON PILE-DRIVING EQUIPMENT:**

Every building worker working on a pile driving equipment shall be given instructions regarding safe work procedure to be followed in piling operation and shall be supervised by a responsible person throughout such work.

### **12.4. ENTRY OF UNAUTHORIZED PERSON:**

The contractor shall ensure at a construction site of a buildings or other construction work that all piling areas where pile-driving equipment is in use are effectively cordoned off to prevent entry of unauthorized persons.

### **12.5. INSPECTION AND MAINTENANCE OF PILE DRIVING EQUIPMENT**

- a. Pile-driving equipment shall not be taken into use until it has been inspected by a responsible person and found to be safe for such use;
- b. A responsible person for such inspection at suitable intervals to ensure safety to the building worker working on such equipment shall inspect pile driving equipment in use;

- c. All pile lines and pulley blocks shall be inspected by a responsible person before the beginning of each shift of piling operations.

#### **12.6. OPERATION OF PILE-DRIVING EQUIPMENT**

- a. Only experienced and trained building worker shall operate pile driving so as to avoid any probable danger from such operation;
- b. Pile-driving operations shall be governed generally prevalent and accepted signals so as to prevent any probable danger from such operations;
- c. Every building worker employed in pile driving operation or in the vicinity of such pile driving operation shall wear ear protection and safety helmet or hardhat and safety shoes;
- d. Piles shall be prepared at a distance, at least equal to twice the length of the longest pile, from the place of pile-driving operations;
- e. When a pile driver is not in use, the hammer of such pile driver shall be blocked at the bottom of the heads of such pile driver.

#### **12.7. WORKING PLATFORM ON PILING FRAMES:**

Where a structural tower supports the lead of a pile driver, leads at which it is necessary for the building workers to work and such platforms except on the hammer of such pile driver or lead sides of such platform and where such platforms cannot be provided with such railing and toe boards, a safety belt shall be provided to each such building worker.

#### **12.8. PILE TESTING**

- a. The testing of pile shall be conducted under the supervision of a responsible person for such testing;
- b. All practicable measures like displaying of warning notices, barricading the area and other similar measures shall be taken to protect the area where the pile testing is carried out;
- c. Entry to a pile testing area shall be prohibited to general public to ensure safety.

#### **12.9. PILING, SHORING AND BRACING**

- a. Planks used for sheet piling in excavation or tunneling work shall be of sound material with adequate strength;
- b. Shores and braces used in excavation or tunneling work shall be of adequate dimensions and so placed as to be effective for their intended purposes;
- c. Earth supported shores or braces used in excavation or tunneling work shall bear against a footing of sufficient area and stability to prevent the shifting of such shores or braces.

## **13.0. SAFETY IN THE ERECTION, USE AND DISMANTLING OF SCAFFOLDS**

### **13.1. SCAFFOLD CONSTRUCTION**

- a. Every scaffold and every component thereof shall be of adequate construction, made of sound material and free from defects and safe for the purposes for which it is intended for use;
- b. In case bamboo is used for scaffolding, such bamboo shall be of suitable quality, good condition, free from protruding knots and stripped off to avoid any injury to building workers during handling such bamboo;
- c. All metal scaffolds used in building or other construction work shall conform to the approved standards;

**13.2. SUPERVISION BY A RESPONSIBLE PERSON:** No scaffold shall be erected, added, altered or dismantled except under the supervision of a responsible person.

### **13.3. Maintenance**

- a. The scaffold used in building or other construction work shall be maintained in good repairs and the measures taken against its accidental displacement or any other hazard;
- b. No scaffold or part thereof shall be partly dismantled and allowed to remain in such a condition unless –
  - i) The stability or safety of the remaining portion of such scaffold has been ensured by a responsible person for the safety of such scaffolds;
  - ii) In case the remaining part of such scaffold cannot be used by the building workers, necessary warning notice written in Hindi and in a language understood by the majority of the building workers that such scaffold is unfit for use, shall be displayed at the place where such scaffold is erected.

### **13.4. STANDARDS, LEDGERS, PUTLOGS**

- a. Standards of a scaffold shall be plumb, where practicable, fixed sufficiently close together to secure the stability of such scaffold having regard to all the possible working situations and conditions for the intended use of such scaffold, spaced, as close as practicable, to ensure safety and stability of such scaffold;
- b. Adequate measures are taken to, prevent displacement of a standard of a scaffold either by providing sole plate or a base plate, as necessary;
- c. Ledgers of metal scaffold are placed at vertical intervals with due regard to safety and stability of such scaffold;
- d. Bamboo ledgers are kept as nearly as possible and are placed and fastened to the standards of a scaffold with due regard to the stability of such scaffold.

### **13.5. WORKING PLATFORM**

- a. Working platform shall be provided around the face or edge of a building adjoining at every upper most permanent floor of such building under construction and at any level where construction work of such building is carried out;
- b. A platform shall be designed to suit the number of building workers to be employed on each bay of a scaffold work on such platform and the materials or articles and tools to be carried with them in such bay;
- c. The safe working load and the number of building workers to be employed in each bay of a scaffold shall be displayed for the information of all the building workers employed at such construction site.

#### **13.6. BOARD, PLANK AND DECKING**

- a. Board, plank and decking used in the construction of a working platform shall be of uniform size and strength and shall be capable of supporting the load and number of building workers keeping in view the safety of such building workers;
- b. Metal decking, which forms part of a working platform, shall be provided with non-skid surface;
- c. No board or plank which forms the working platform shall be projected beyond its end support unless it is effectively prevented from tripping or lifting and board, plank or decking shall be fastened and secured;
- d. At any one time, not more than two working platforms per bay, shall be used to support building workers or materials or articles at such bay;
- e. Adequate measures shall be taken to prevent injury which may be caused by falling material and objects by using safety nets or other suitable means;
- f. Concrete, other debris or materials shall not be allowed to accumulate at any platform on a scaffold;
- g. Where a work is to be done at the end of a wall, working platform at such workplace shall be faced or, wherever practicable, at least 0.6 m beyond the end of such wall.

#### **13.7. REPAIR OF DAMAGED SCAFFOLD**

- a. No building worker shall be permitted to work on a scaffold that has been damaged or weakened unless adequate safety measures have been taken to ensure the safety of such building worker;
- b. Necessary warning signs shall be displayed at such places where repairs of scaffold are undertaken.

#### **13.8. OPENING**

- a. There shall be no opening in any working platform except for allowing access to such working platform;
- b. Wherever opening on a platform is unavoidable, necessary measures for protection against falling of objects or building workers from such platform shall be taken by providing suitable safety nets, belts or any other similar means;
- c. Access from one working platform to another platform on a scaffold, if required, shall be provided with suitable and safe ladder for the use of building workers working on such platforms;

- d. Every opening or shaft in the floor shall be provided with suitable means to protect the fall of a person or material by providing suitable fencing or railing of height not less than 900 mm.

**13.9. GUARDRAILS:** Every side of a working platform from which a person is liable to fall shall be provided with suitable and safe guardrails and toe board of adequate strength to prevent fall of any building worker, material or tools from such platform.

**13.10. SCAFFOLD USED BY BUILDING WORKERS OF DIFFERENT EMPLOYERS**

- a. Where a scaffold or a part of a scaffold is used, which has previously been used by another employer for his building workers, such scaffold or part thereof shall be used only after its inspection and examination by a responsible person for ensuring that such scaffold or part thereof is safe and fit for such use;
- b. If any rectification, alteration or modification in a scaffold or part thereof, needed to suit its use, shall be made in consultation with the responsible person.

**13.11. PROTECTION AGAINST ELECTRIC POWER LINE:**

The contractor shall ensure that all necessary and practical measures for protection are taken to prevent any building worker, working on a scaffold, from coming into contact with the electric wires or dangerous equipment.

**13.12. SCREENING NET AND WIRE NETS:**

Where a scaffold is erected in an area where the construction activities may pose hazards to pedestrians or vehicular traffic nearby from the falling of objects, wire nets or screening nets shall be used to envelope such scaffold.

**13.13. TOWER SCAFFOLD**

- a. The height of every tower scaffold used in building or other construction work shall not be more than eight times the lesser to the base dimension of such scaffold;
- b. A tower scaffold shall be lashed to a building or a fixed structure before being used by the building workers;
- c. Any tower scaffold which can be moved or castered shall be –
  - i) Constructed with due regard to the stability and, if necessary, adequately weighted at the base;
  - ii) Used only on plain and even surface; and
  - iii) Has casters provided with positive locking devices to hold such scaffold in position;
- d. No building worker shall remain on board scaffold or leave behind tools and material when it is being shifted from one position to another position.

**13.14. GEAR FOR SUSPENSION OF SCAFFOLD**

- a. Chains, ropes or lifting gears used for suspension of a scaffold shall be of adequate strength, made of sound material and suitable for the purpose of their use and maintained in good repairs;
- b. Chains, wires, ropes or metal tubes used for the suspension of a scaffold shall be:

- i) Properly and securely fastened to every anchorage point and to the scaffold ledgers of other main supporting members used for the support of such scaffold; and
- ii) So positioned as to ensure stability of the scaffold.

#### **13.15. TRESTLE SCAFFOLD AND CANTILEVER SCAFFOLD**

- a. No trestle scaffold shall be constructed with more than three tiers or if its working platform is more than 4.5 m above the ground or floor or other surface upon which such scaffold is erected;
- b. Trestle scaffold shall be designed by professional engineer and shall have the approval of the Engineer in-charge before being taken into use.
- c. No trestle scaffold shall be erected on a suspended scaffold;
- d. No cantilever or jib scaffold shall be used unless it is adequately supported, fixed and anchored on opposite side of its support and have out triggers of adequate length and, where necessary sufficiently, supported and braced to ensure safety and stability of such scaffold;
- e. No working platform resting on bearers let into a wall at one end and without other support shall be used unless such bearers are of adequate strength, braced through the wall and securely fastened on the other side.

#### **13.16. SCAFFOLD SUPPORTED BY BUILDING**

- a. No part of a building shall be used as support or part of a scaffold unless such part of the building is made of sufficient strength and made of sound material to afford safe support;
- b. Overhanging eaves gutters shall not be used for supporting scaffold;
- c. Suspended scaffold shall be made of in accordance with the approved standards before being used by the building workers.

#### **13.17. USE OF WINCHES AND CLIMBERS FOR SUSPENDED SCAFFOLD**

- a. No scaffold shall be raised or lowered by winches or climbers unless such scaffold is made of sound material, adequate strength and has been tested and certified safe for use of winches or climber by a competent person before being taken into use;
- b. All suspended scaffolds counter-balanced by counter weights shall be of approved types before being taken into use for building or other construction work;
- c. The working platform of a suspended scaffold shall be securely fastened to the building or structure as to be safe and to prevent such platform from swing;
- d. The safe working load that a suspended scaffold can carry, shall be displayed where such scaffold is being used

#### **13.18. SAFETY DEVICES FOR SUSPENDED SCAFFOLD**

- a. Every suspended scaffold, raised or lowered by the winches or climbers, shall be provided at each of its suspension point with a safety rope with automatic safety device mounted on each of such rope so that such safety rope with such automatic safety device support the platform of such

scaffold in the event of failure of the primary suspension wire ropes, winches, climbers or any part of the mechanism used for raising or lowering such suspended scaffold;

- b. Provided that the clause (a) shall not apply -
  - i) Where the platform of such scaffold is supported at two independent suspension wire rope at or near each end of such platform so that in the event of failure of one of such suspension wire rope, the other wire rope is capable of sustaining the weights of such platform and its load and prevent it from tilting; or
  - ii) Where a system is incorporated which operates automatically to support the platform of such scaffold and its load in the event of failure of the primary suspension wire rope of such scaffold.

## **14.0. SAFETY IN THE ERECTION OF STRUCTURAL FRAME & FORMWORK**

### **14.1. GENERAL PROVISION**

- a. The trained building worker under the direct supervision of a person, responsible for structural frame and formwork, shall be employed for erection of such structural frame or formwork, dismantling of building and structure and performance of and engineering work formwork, false work and shoring work;
- b. Adequate measures shall be taken to guard against hazards arising from any temporary state of weakness or unsuitability of a structure.

### **14.2. FORMWORK, FALSE WORK AND SHORING**

- a. Formwork and false work shall be so designed, constructed and maintained that such formwork and false work are able to support the load that may be imposed on them;
- b. Such formwork shall be so erected that working platform, means of access, bracings, means of handling and stabilizing could easily be fixed with such formwork.

### **14.3. ERECTION OR DISMANTLING OF STEEL AND PREFABRICATED**

- a. Erection or dismantling of any pre-fabricated structure shall be made safe against danger by using appropriate means such as ladders, gangways or fixed platforms, buckets, boatswains chair or other appropriate means suspended from lifting appliances, safety harness, life lines, catch nets or catch platforms, power-operated mobile working platforms etc.;
- b. The work of erection or dismantling of buildings or structures or formwork or false work or shoring or any other civil engineering work shall be carried out by trained building workers under the supervision of a person responsible for such work;
- c. Steel or prefabricated structures shall be so designed and made that such structures can be safely transported or erected; and weight of each unit of such structures shall be clearly marked on such unit;
- d. The design of each such part shall maintain stability of each part of the structures referred to in clauses above when erected, and to prevent danger, the design shall explicitly take into account –
  - i) The relevant conditions and methods of attachment in the operations of stripping, transport, storing and temporary support during erection of such parts;
  - ii) Safeguards, such as provision of railings with working platforms, and for mounting such railings and platforms easily on the structural steel or prefabricated parts;
- e. The hooks and softer devices built in or provided on the structural steel or prefabricate parts that are required for lifting and transporting such parts shall be so shaped, dimensioned and positioned to withstand the stresses to which such hooks or other devices are subjected;

- f. Prefabricated parts made of concrete shall not be stripped or erected before such concrete has set and hardened sufficiently to the extent provided for in the plans, and such parts are examined by the responsible person for any sign of damage before their use;
- g. Store-places shall be so constructed that –
  - i) There shall be no risk of structural steel or prefabricated parts falling or overturning;
  - ii) Storage conditions shall generally ensure stability and avoid damage having regard to the method of storage and atmospheric conditions; and
  - iii) Racks shall be set on firm ground and designed so that units cannot move accidentally in such store-places;
- h. Structural steel or pre-fabricated parts shall not be subjected to stresses prejudicial to their stability while they are stored or transported or raised or set down;
- i. Tongs, clamps and other appliances for lifting structural steel and prefabricated part shall be:
  - i) In such shape and dimensions as to ensure a secure grip without damaging and marked with the maximum permissible load in the most unfavourable lifting conditions; and
  - ii) Structural steel or pre-fabricated parts shall be lifted by such methods and appliances that prevent them from spinning accidentally;
- j. Structural steel or pre-fabricated parts shall be provided with railings and working platforms before raising such parts to prevent any danger of falling of building workers, materials or articles at the time of any work with such parts;
- k. All reasonably practical measures shall be taken to avoid injury to building workers, building structure or equipment while structural steel or pre-fabricated parts are handled or stored or transported or raised or lowered;
- l. Structures shall not be worked on during violent storms or high winds or any other such hazardous situation;
- m. The risk of falling to which building workers, moving on high or sloping girders, may be exposed is limited by all means of adequate collective protection or by the use of a safety harness which shall be well secured to a sufficiently strong supports;
- n. Structural steel parts, which are to be erected at a great height, shall, as far as practicable, be assembled on the ground;
- o. When structural steel or pre-fabricated parts are being erected, a sufficiently extended area underneath the workplace shall be barricaded or guarded;
- p. Steel trusses, which are being erected, shall be adequately shored, braced or guyed until they are permanently secured in position;
- q. Structural members shall not be forced into place by the hoisting machine while any building worker is in such a position that he is likely to be injured by such operation.

#### **14.4. FORMWORK**

- a. All formwork shall be properly designed keeping in view the safety of building workers, buildings or structures;
- b. A responsible person for structural frame and formwork shall –
  - i. Inspect and examine the material, timber, structural steel and scaffolding for its strength and suitability before being taken into use;
  - ii. Lay-down procedures to cover all stages of such structural frame and formwork;
  - iii. Supervise such structural frame and formwork;
  - iv. Take all necessary steps or measure to correct any situation with a view to prevent accident or dangerous occurrence during performances of such structural frame and formwork.

**14.5. DE-SHORING**

- a. When shoring is removed, sufficient props shall be left in place of such shoring to prevent any possible hazard; and
- b. Deshoring shall be adequately braced and tied together with support to prevent any hazard.

## 15.0. SAFETY IN CONCRETE WORK

### 15.1. GENERAL PROVISIONS REGARDING USE OF CONCRETE

- a. All construction with the use of concrete or reinforced concrete shall be based on plans including specification of steel and concrete and other material to be used in such construction –
  - i. Giving technical details regarding methods for safe placing and handing of such materials and indicating the type, quality and arrangement of each part of a structure of such construction; and
  - ii. Explaining the sequence of steps to be taken for completion of such construction;
- b. Formwork and shores used for concrete work shall be structurally safe and properly braced or tied together so as to maintain position and shape of formwork or shores;
- c. Formwork structure used shall have sufficient catwalks and other secure access for inspection of such structure if such structure is in two or more tiers;
- d. No machinery or any object should fall below by using wire nets, screen nets etc.

### 15.2. PREPARATION AND POURING OF CONCRETE AND ERECTION OF CONCRETE STRUCTURE

- a. A building worker handling cement or concrete shall –
  - i) Wear close-fitting clothing, gloves, helmet or hardhat, safety goggles, proper footwear and respirator or mask to protect himself from danger in such handling;
  - ii) Keep as much of his body covered as is required to protect himself from danger in such handling;
  - iii) Take all necessary precautions to keep cement and concrete away from his skin in such handling;
- b. Lime pits shall be fenced or enclosed and filled and emptied by such devices, which do not require workers to go into the pit;
- c. Moving parts of the elevators, hoists screens bunkers, chutes, grouting equipment used for concrete work and of other equipment used for storing, transport and other handling ingredients of concrete shall be securely fenced to avoid contact of building workers with such moving parts;
- d. Screw conveyors used for cement, lime and other dusty materials shall be completely enclosed.

### 15.3. BUCKETS

- a. Concrete buckets used with cranes or aerial cableways shall be free from projections from which accumulations of concrete could fall;
- b. Movements of concrete buckets shall be governed by signals necessary to avoid any danger by such movements.

#### **15.4. PIPES AND PUMPS**

- a. A scaffolding carrying a pipe for pumped concrete shall be strong enough to support such pipe at a time when such pipe is filled with concrete or water or any other liquid and carry the combined load of the all the building workers who may be on such scaffold at such time, safely;
- b. Every pipe for carrying pumped concrete shall be –
  - i) Securely anchored at its end point and at each curve on it;
  - ii) Provided near the top of such pipe with an air release valve;
  - iii) Securely attached to a pump nozzle by a bolted collar or other adequate means;
- c. The operation of concrete pumps shall be governed by standard signals;
- d. Building workers employed around a concrete pump shall wear safety goggles;

#### **15.5. MIXING AND POURING OF CONCRETE**

- a. The concrete mixture shall not contain any material, which may unduly affect the setting of such concrete, weaken such concrete or corrode steel used with such concrete;
- b. When dry ingredients of concrete are being mixed in confined spaces such as silos –
  - i) The dust shall be exhausted at the time of such mixing and
  - ii) In case the dust the dust cannot be exhausted, as specified, the workers shall wear respirators at the time of such mixing;
- c. When concrete is being tipped from buckets, building workers shall be kept out of the range of any kickbacks of such buckets;
- d. Loads shall not be dumped or placed on settling concrete.

#### **15.6. CONCRETE PANELS AND SLABS**

- a. All parts of a concrete panel or concrete slab shall be hoisted uniformly;
- b. Concrete panels shall be adequately braced in their final positions and such bracings shall remain in such positions until such panels are adequately supported by other parts of the construction for which such panels are used;
- c. Temporary bracings of concrete panels shall be securely fastened to prevent any part of such panels from falling when such panels are being moved.

#### **15.7. STRESSED AND TENSIONED ELEMENTS**

- a. Building workers shall not stand directly over jacking equipment while stressing of concrete girders and beams is being done;
- b. A pre – stressed concrete unit shall not be handled except at points on such unit and by the devices specified for such work by the manufacture of such devices;
- c. During transport, pre-stressed concrete girders or concrete beams shall be kept upright by bracing or other effective means;

- d. Anchor fittings for pre-tensioned strands of pre-stressed concrete girders of concert beams are kept in a safe condition in accordance with the instruction of manufacturer of such anchor fittings;
- e. Building workers shall not stand behind jacks or in line with tensioning elements and jacking equipment during tensioning operations of pre-stressed concrete girders of concrete beams;
- f. Building workers do not cut wires of pre – stressed concrete girders or concrete beams under tension before such concrete used of such girder or beams is sufficiently hardened.

#### **15.8. VIBRATORS**

- a. A building worker, who is in good physical condition, shall operate vibrators used in concreting work;
- b. All practical measures shall be taken to reduce the amount of vibration transmitted to the operators working in concreting work and
- c. When electric vibrators are used in concreting work
  - i) Such vibrators shall be earthed;
  - ii) The leads of such vibrators shall be heavily insulated; and
  - iii) The current shall be switched off when such vibrators are not in use.

#### **15.9. INSPECTION AND SUPERVISION**

- a. A person responsible for a concreting work shall supervise the erection of the formwork, shores, braces and other supports used for such concreting work, make a through inspection of every formwork to ensure that such formwork is safe, regularly inspect the formwork, shores, braces, reshores and other supports during the placing of concrete, keep all records of inspections referred to above at the workplace relating to such inspection and produce them for inspection upon the demand.
- b. Any unsafe condition, which is discovered during the inspections, shall be remedied immediately.

#### **15.10. BEAMS, FLOORS AND ROOFS**

- a. Horizontal and diagonal bracings shall be provided in both longitudinal and transverse direction as may be necessary to provide structural stability to formwork used in concreting work and shores used in such concreting work shall be properly seated on top and bottom and secured in their places;
- b. Where shores used in concreting work rest upon the ground, base plates shall be provided for keeping such shores firm and in level;
- c. Where the floor to ceiling height of a concreting work exceeds 9 m or where the formwork deck used in such concreting work is supported by shores constructed in two or more tiers, or where the dead, live and impact loads on the formwork used in such concreting work exceed 700 kilogram per m<sup>2</sup>, the structure of such formwork shall be designed by a professional engineer in the relevant field and the specifications and drawings of such formwork kept at such construction site and produced on demand.

- d. Where a professional engineer designs the structure of the formwork used in concreting work, such engineer shall be responsible for the supervision of construction and the stability of such structure.

**15.11. STRIPPING**

- a. Stripping of formwork used in concreting work shall not commence until the concrete on such formwork is fully set, examined and certified to this effect by the responsible person and record of such examination and certification is maintained;
- b. Stripped forms in concreting work shall be removed or stock piled promptly after stripping from all areas in which building workers are required to work or pass;
- c. Protruding nail, wire ties and other formwork accessories not required for subsequent concreting work shall be pulled, cut or otherwise made safe.

**15.12. RE-SHORING**

- a. Re-shoring used in concreting work shall be provided to a slab or beam for its safe support after its stripping or where such slab or beam is subjected to superimposed loads due to construction above such slab or beam;
- b. The provisions applicable to shoring in a concreting work shall also be applicable to reshoring in such work or pass.

## **16.0. SAFETY IN CONSTRUCTION, REPAIR & MAINTENANCE OF STEEP ROOFS**

### **16.1. WORK ON STEEP ROOFS:**

All practicable measures shall be provided to protect the building workers against sliding when carrying outwork on steep roofs.

### **16.2. CONSTRUCTION AND INSTALLATION OF ROOFING BRACKETS**

- a. Roofing brackets shall be constructed to fit the pitch of steep roof and such brackets shall be used to provide level working platform;
- b. Roofing bracket shall be secured in its place by nailing pointed metal projections attached to the underside of such bracket and securely driven into a steep roof on which it is used or secured by a rope passed over the ridgepole and tie of such roof.

### **16.3. CRAWLING BOARDS**

- a. All crawling boards used for work on steep roofs shall be of adequate strength, made of sound material and of the type approved for the purpose of their use;
- b. Crawling boards shall be kept in good repairs and inspected by a responsible person before being taken into use;
- c. Crawling boards shall be secured to a steep roof on which it is used by ridge hooks or other effective means;
- d. A firmly fastened lifeline of adequate strength shall be strung beside each crawling board throughout its length while using such crawling boards.

## 17.0. SAFETY IN CATCHES PLATFORMS, HOARDINGS & CHUTES

### 17.1. CATCH PLATFORM

- a. Catch platform shall not be used for storage of material or as a working platform;
- b. Catch platform shall at least be of 2 m wide and inclined so that the position of outer edge of such platform is 1500 mm higher than the inner edge;
- c. The open end of catch platform shall be properly fenced to the height not less than 1 m.

### 17.2. HOARDINGS:

Hoardings shall be constructed when the Registering Authority / Assistant Labour Commissioner considers it necessary for protection of building workers and directs such employer to construct such hoardings.

### 17.3. CHUTES, ITS CONSTRUCTION AND USE

- a. Wooden or metal chutes which are at an angle of more than 45<sup>0</sup> to the horizontal and used for the removal of materials shall be closed on all sides except at their openings used for receiving or discharging of materials or articles;
- b. All openings of chutes except their top openings shall be closed when not in use;
- c. Every chute –
  - i. Shall be constructed of sound material, adequate strength and suitable for the purpose it is intended for use;
  - ii. Exceeding 12 m in height shall be constructed in accordance with the design and drawings of professional engineer for such;
  - iii. A suitable warning notice shall be displayed at conspicuous locations, written in Hindi and in a local language, at the discharge end of every chute;
  - iv. Shall be cleared when debris has accumulated to a height, which can pose danger to building worker, but such clearance shall be done in no case less frequently than once a day.

## 18.0. SAFETY IN WORK ON OR ADJACENT TO WATER

### 18.1. TRANSPORT OF WORKERS BY WATER

- a. When any building worker has to proceed to or from any workplace by water for purposes of carrying on a building or other construction work, proper measures shall be taken to provide for his safe transportation and vessels used for such purpose shall be in charge of a responsible person, properly equipped for safe navigation and maintained in good condition;
- b. Maximum number of persons which can be safely carried in a vessel shall be marked plainly and conspicuously on such vessel and such number shall not be exceeded during use of such vessel for carrying persons;
- c. Adequate protecting shall be provided to the building workers in such vessel from inclement weather;
- d. Such vessel shall be manned by adequate and experienced crew;
- e. In case the bulwarks of such vessel are lower than 60 cm from the level of the deck of such vessel, the open edge of such bulwarks shall be fitted with suitable fencing to a height of at least 1 m above such deck and the post and stanchions and similar parts used in such fencing shall not be spaced more than 2 m;
- f. The number of life buoys on deck of such vessel shall at least be equal to the number of crew members of such vessel and shall not be less than two;
- g. All life buoys on deck of such vessel shall be kept in good state of maintenance and so placed that if such vessel sinks then they will remain afloat and one of such buoys shall be within the immediate reach of the Steersman of such vessel and another is situated after part of such vessel; and
- h. The position of the steersman of the vessel shall be such that he has a reasonably free view of all sides.

### 18.2. PREVENTION FROM DROWNING

- a. Where, on or adjacent to the workplace of any contraction site, there is water into which a building worker employed for work on such site, in the course of his employment, may fall and has the risk of drowning, suitable rescue equipment shall be provided and kept in an efficient state of ready use and measures shall be taken to arrange for the prompt rescue of such building worker from the danger of drowning and where there is a special risk of such fall from the edge of adjacent land or from a structure adjacent to or above the water, or from floating stage on such water, secure fencing shall be provided near the edge of such land, structure or floating stage, as the case may be, to prevent such fall, and such fencing may be removed or allowed to remain unerected for the time and to the extent necessary for the access of building workers to such work or the movement of material for such work;
- b. For handling rescue equipment, at least two persons knowing diving should be available at such sites.

## **19.0 SAFETY IN COFFERDAMS & CAISSONS**

### **19.1 EVERY COFFERDAM AND CAISSON SHALL BE**

- 19.1.1 Of good construction, sound material and of adequate strength, provided with adequate means for workers to reach safely at the top of such cofferdam or caisson in the event of an in rush of water and safe means of access to every place where workers shall be employed;
- 19.1.2 Work relating to construction, positioning, modification, dismantling of cofferdams or caissons shall be carried out under the supervision of a responsible person and inspected by the responsible person at the specified intervals;
- 19.1.3 A worker shall be allowed to work in a cofferdam or caisson after such cofferdam or caisson has been inspected and found safe by responsible person within such preceding period as approved and a record of such inspection maintained.

### **19.2 WORK IN COMPRESSED AIR IN A COFFERDAM OR CAISSON SHALL BE**

- 19.2.1 Carried out in accordance with the procedure laid down;
- 19.2.2 Carried out by such building workers who have completed eighteen years of age and are medically examined and found fit for the work;
- 19.2.3 Carried out under the supervision of a responsible person;
- 19.2.4 If the work in cofferdam or caisson is carried out in shifts, a record of the time spent by each worker in each such shift for carrying out the work shall be maintained in a register with particulars or time taken for the compression of such building worker, if any;
- 19.2.5 At every work site or project in a cofferdam or caisson, where workers are employed to work in compressed air environment, a construction medical officer assisted by a nurse or trained first-aid attendant, shall be available at all times and there shall be one standby reserve compressor to meet the emergency.

### **19.3 PRESSURE PLANT AND EQUIPMENT**

- 19.3.1 Pressure plant and equipment for which it is used shall be –
- 19.3.2 Properly maintained in good repairs and working condition and fitted with a suitable safety valve or other effective device to provide maximum safe discharge pressure from being exceeded at any time; a suitable pressure gauge with a dial range not less than 1.5 time and not exceeding twice the maximum working pressure, easily visible and designed to show at all times, the internal pressure in kilogram per square centimeter and marked with the maximum safe working pressure, a suitable stop valve or valves by which the pressure plant or the system of the pressure plant may be isolated from the source supply of pressure or otherwise;
- 19.3.3 Every pressure plant or equipment shall be thoroughly examined by the competent person, externally, once in every period of six months; internally, once in every period of twelve months; and by hydraulic test, once in a period of four years.

## 20. SAFETY IN DEMOLITION WORK

### 20.1 PREPARATION

- 20.1.1 All glass or similar material or article in exterior openings shall be removed before commencing any demolition work and all water, steam, electric, gas and other similar supply lines put off and suitably capped and the concerned department of the appropriate authority informed and permission obtained wherever required before commencing;
- 20.1.2 Wherever it is necessary to maintain water, gas or electric line or power during such demolition, such line shall be so located or protected with substantial coverings so as to protect it from damage and to afford safety to the building workers and the general public.

### 20.2 PROTECTION OF ADJACENT STRUCTURES

#### 20.2.1 Examination of walls etc. of adjacent structures –

- i) During demolition process, the contractor shall examine the walls of all structures adjacent to the structure to be demolished to determine the thickness, method of support to such adjacent structures and;
- ii) In case, such employer has reason to believe that any of such adjacent structure is unsafe or may become unsafe during such demolition process, he shall not perform demolition activity unless stability to such unsafe adjacent structure from collapsing has been taken. All roads and open spaces adjacent to the site of demolition work shall be closed or suitably protected by bracketing.

### 20.3 DEMOLITION OF WALLS, PARTITIONS, ETC.

- 20.3.1 Any demolition of walls or partitions shall be proceeded in a systematic manner as per the standard safe operating practices approved and all work above each tier of any floor beams shall be completed before the safety of the supports of such beam is impaired;
- 20.3.2 Masonry shall be neither loosened nor permitted to fall in such masses or volume or weight as to endanger the structural stability of any floor or structural supports;
- 20.3.3 No wall chimney or other structure or part of a structure shall be left unguarded in such a condition that it may fall, collapse or weaken due to wind pressure or vibration;
- 20.3.4 In the case of demolition of exterior walls by hand, safe footing shall be provided for the workers employed in, such walls or partitions, which are to be demolished by hand shall be not left standing more than one storey high above the uppermost floor on which persons are working.

20.4 **METHOD OF OPERATION:** The contractor shall ensure that debris, bricks and other materials or articles are removed by means of chutes, buckets or hoists and through openings in the floors.

#### 20.5 ACCESS TO FLOOR

- 20.5.1 Safe access to and egress from every building shall be provided at all times in the course of demolition by means of entrances hallways, stairways or ladder runs which shall be so protected as to safeguard the workers using such means from falling material or articles;

- 20.5.2 Demolition of structural steel etc. shall be demolished column by column and tier by tier and every structural member, which is being demolished, shall not be under any stress, and such structural member shall be suitably lashed to prevent it from any uncontrolled swinging, dropping or falling or falling;
- 20.5.3 Large structural members shall not be thrown or dropped from the building, but carefully lowered by adopting suitable safe method;
- 20.5.4 Where a lifting appliance like a derrick is used for demolition, the floor on which such lifting appliance rests shall be completely planked over or supported and such floor shall be of adequate strength to sustain bearing load for such lifting appliance and its operation.

#### **20.6 STORAGE OF MATERIAL OR ARTICLE**

- 20.6.1 No materials or articles shall be not stored or kept on platform, floor or stairways of a building being demolished, provided that this clause shall not apply to the floor of a building when such floor is of such strength as to support safely the load to be superimposed by storing such material or articles;
- 20.6.2 No access to any stairway or passageway shall be affected or blocked by storing any material or article;
- 20.6.3 Suitable barricades shall be provided so as to prevent materials or articles from sliding or rebounding into any space used by the workers.

#### **20.7 FLOOR OPENINGS:**

Every opening used for the removal of debris from every floor which is not closed to access, except the top or working floor, shall be provided with an enclosure from such floor to its ceiling, or such opening is so barricaded that no building worker shall access to within a horizontal distance of 6.0 m from such opening through which debris is being dropped.

#### **20.8 INSPECTION:**

A person responsible for demolition work shall make continuous inspections during demolition process so as to detect any hazard resulting from weakened or deteriorated floors or walls or loosened materials or articles, and that no building worker shall be permitted to work where such hazard exist unless remedial measures like shoring or bracing shall be taken to prevent such hazards.

#### **20.9 WARNING SIGNS, BARRICADES, ETC.**

- 20.9.1 Barricades and warning sign shall be erected along every side throughout the length and breadth of a building or other construction work to be demolished to prevent unauthorized persons from entering into the during demolition operations;
- 20.9.2 During the demolition of an exterior masonry wall or a roof from a point more than 12 m above the adjoining ground level of such wall or roof, if persons below such wall or roof are exposed to falling objects, suitable and safe catch platform shall be provided and maintained at a level not more than 6 m below the working level except where an exterior built-up scaffold is provided for safe and adequate protection of such persons;
- 20.9.3 Suitable and standard warning signs shall be displayed or erected at conspicuous places or position at the workplace;

#### **20.10 MECHANICAL METHOD OF DEMOLITION**

20.10.1 The following requirements shall be fulfilled in case the mechanical method of demolition like use of swinging weight, clamshell bucket, power shovel, bulldozer or other similar mechanical methods are used for the purpose of demolition namely –

- i) The building or structure or structure or remaining portion thereof shall be not more than 12 m in height;
- ii) Where a swinging weight is used for demolition, a zone of such demolition having a radius of at least 1.5 times the height of the structure of portion thereof being demolished shall be maintained around the points of impact of such swinging weight;
- iii) Where a clamshell bucket is being used for demolition, a zone of demolition shall be maintained within eight metres of the liner of travel of such bucket;
- iv) Where other mechanical methods are being used to affect total or partial collapse of a building or other construction work, there shall be maintained, in the area into which the affected portion of such building or other construction work may fall, a zone of demolition at least 1.5 times the height of such affected portion thereof; and
- v) No person other than building workers or other persons essential to the operation of demolition work shall be permitted to enter a zone of demolition, which shall be provided with substantial barricades.

## 21. FIRE EXTINGUISHERS & OTHER APPLIANCES OF FIRE FIGHTING

### 21.1 FIRE EXTINGUISHERS & OTHER MEANS OF PREVENTION AND PROTECTION

21.1.1 Every contractor shall have a fire protection and prevention plan developed and implemented keeping in view the following:

- i) The specific work practices requiring fire control measures;
- ii) Response measures to be taken in case of fire;
- iii) Equipment required;
- iv) Personnel requirements and responsibilities;
- v) Schedules of daily and weekly inspection;
- vi) Open flames and fires are prohibited in all underground construction;
- vii) Readily visible signs to be posted in the fire prone/inflammable/explosive areas prohibiting smoking use of open flames and other hot work.
- viii) A system of Permit-to-Work.

27.1.2 For the protection of the workers from the outbreak of fire, the contractor shall Provide, maintain and regularly inspect the Fire extinguishing equipment, which shall be sufficiently provided to extinguish any probable fire;

<b>Suitability of portable fire extinguishers</b>			
<b>Class of fire</b>	<b>Type of extinguisher</b>		
	<b>Water</b>	<b>DCP</b>	<b>CO<sub>2</sub></b>
<b>A</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>B</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
<b>C</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
<b>D</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
<b>Electrical</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

27.1.3 Ensure availability of an adequate supply of water at ample pressure;

27.1.4 Make available

- i. Adequate number of trained persons required to operate the fire extinguishing equipment;

- ii. Properly maintain Fire extinguishing equipment and inspect them at regular intervals of not less than once in a year by the responsible person and a record of such inspections maintained;
- 27.1.5 Portable fire extinguishers provided in the operator's cabin of earthmoving machinery, material handling systems, construction equipment etc. shall be regularly inspected, maintained and replenished/refilled;
- 27.1.6 The operators and the helpers of such equipment shall be trained in the methods operating the equipment and fighting the fire effectively;
- 27.1.7 All combustion engine power equipment shall be so located that the exhausts are well away from combustible material;
- 27.1.8 No smoking shall be allowed at or in the vicinity of operations, which constitute fire hazards and shall be conspicuously posted with No smoking or open flame **signs**;
- 27.1.9 In the flammable environment as described in IS: 9570, the electrical fittings and equipment shall be of flame proof type conforming to IS: 2206 & IS; 2148;
- 27.1.10 Arrangements shall be made to contain sparks generated during welding, cutting or other operations and spark shall not be allowed to fall down on combustible material kept below; All means of exit shall be kept free of obstruction at all times;
- 27.1.11 Appropriate type of fire extinguishers according to IS: 5698 shall be kept in fully charged condition at the places which have potential risk of fire;
- 27.1.12 The contractor shall educate his or his sub-contractors' men working in the vicinity of fire risk, on how to operate these equipment and know in particular circumstances which type of extinguishers is to be used;
- 27.1.13 The contractor shall take full responsibility for the upkeep and replenishment/refilling of the fixed and portable fire extinguishers.

# APPENDIX

## Annexure I

### IMPORTANT INDIAN STANDARDS RELATED TO SAFETY

#### Personal Protection

- IS: 1179-1967 Equipment for eye and face protection during welding
- IS: 4770-1991 Rubber gloves for electrical purposes
- IS: 8519-1977 Guide for selection of industrial safety equipment for body protection
- IS: 8520-1977 Guide for selection of industrial safety equipment for eye, face & ear protection
- IS: 8807-1978 Guide for selection of safety equipment for protection of arms and hands
- IS: 1224-1985 Safety shoes
- IS: 2925-1984 Safety helmets
- IS: 8940-1978 Code of practice for maintenance and care of industrial safety equipment eye and face protection
- IS: 8990-1978 Code of practice for maintenance and care of industrial safety clothing
- IS: 10667-1983 Guide for selection of industrial safety for protection of foot and leg
- IS: 816-1969 Code of practice for safety and health requirements in electric and gas welding and cutting operations
- IS: 818-1968 Code of practice for safety and health requirements in electric and gas welding and cutting operations
- IS: 7194-1994 Assessment of noise exposure during work for hearing conservation purposes

#### Civil Engineering Construction

- IS: 2750- 1967(Part II) Steel scaffolds
- IS: 875-1987 Structural safety of building: loading standards
- IS: 4014-1967 Code of practice for steel tubular scaffolding
- IS: 3696 Safety code of scaffolds and ladders
- IS: 4138-1977 Safety code for working in compressed air
- IS: 4912-1978 Safety requirements for floor and wall openings, railings and toe boards
- IS: 7293-1974 Safety code for working with construction machinery
- IS: 9944-1992 Recommendations on safe working load for natural and man-made rope slings
- BS: 1129 Portable timber ladders, steps, Trestles & lightweight staging
- BS: 1139 Metal scaffolds
- BS: 5973 Code of practice for access & working scaffolds
- BS: 5974 Code of practice for temporary installed scaffolds and access equipment
- BS: 5975 Code of practice for falsework

#### Fire Protection

- IS: 2190-1992 Code of practice for selection, installation and maintenance of portable first-aid fire extinguishers
- IS: 5896 Code of practice for selection, operation and maintenance of fire-fighting appliances

IS: 8433-1984 Code of practice for dissolved acetylene cylinders

### **Electrical**

IS: 3043-1987 Code of practice for earthing

IS: 5424-1969 Rubber mats for electrical purposes

IS: 3646 (Part II) Artificial lightings

IS: 2148 & IS: 2206 Flame proof electrical fittings

### **Machinery**

IS: 1860-1980 Code of practice for installation, operation and maintenance of electric passenger and goods lifts

IS: 1991-1987 Safety requirements for the use, care and protection of abrasive grinding wheels

IS: 5903-1970 Safety devices for gas cylinders

IS: 8216-1976 Guide for inspection of lift wire ropes

IS: 8964-978 Recommendations for safety conditions for woodworking machines

IS: 9474-1980 Principles of mechanical guarding of machinery

IS: 11461-1985 Code of practice for compressors safety

IS: 13367-1992 Code of practice for safe use of cranes

**BASIC STRUCTURE OF SAFETY PLAN**

- 01- Safety Policy
- 02- When was the Safety Policy last reviewed
- 03- Details of implementation procedure / methods to implement Safety Policy / Safety Rules
- 04- Qualification & Experience of Safety Officers
- 05- Review of Accidents analysis - Methods to ensure safety & health and steps identified for prevention of accidents
- 06- Unit/site Executive responsible for ensuring safety at various levels in the workplace
- 07- List of Employees trained in safety at the commencement of execution of the job; details of training – its module and contents
- 08- Safety Training Targets, Schedules, Methods to be adopted for providing safety training to all employees
- 09- Details of checklists for different jobs/ work & responsible persons to ensure Compliance
- 10- Regular Safety Inspection Methods and Periodicity and the list of members authorized
- 11- Risk Assessment, Safety Audit by professional agencies, their Periodicity
- 12- Implementation of recommendations of Audit / Inspections. - Procedures for implementation & follow-up
- 13- Provision for treatment of Injured persons at work site
- 14- Review of overall safety by top Management and Periodicity
- 15- System for implementation of statutory provisions.
- 16- Issue of PPE to employees, Periodicity / stock on hand, etc.

**Signature**  
**Head of Organization**  
**With Date & Stamp**

**Annexure - III**

**CONFINED SPACE WORK PERMIT**

Date of Work :		Initiator:		Permit No.:	
Description of work :					
Name of person supervising:			Dept./Function:		
Names of workmen involved in the job :					
1		2			
3		4			
Exact Location of Work:					
JSA Referance No.					
Job Instruction & Confirmation Sheet Ref. No					
Valid From : Time ..... Date: ..... To Time: ..... Date: .....					
Other relevant information (if any)					
Initiated by Engineer / Supervisor of Agency			Checked by Agency Safety Representative		
Name				Name	
Signature				Signature	
Date				Date	
Check list for Authorization of Work Permit					
Minimum and Mandatory Precautions					Y/ N / NA
1	Permit form filled in completely?				
2	Have wind, atmospheric, and work area conditions (e.g. cold, hot, snow, poor lighting & Ventilation etc.) been considered throughout the job so that work can be done safely?				
3	All necessary Personnel Protective Equipment like Breathing Set, Waist Rope, Light Mounted Helmet etc. is put on by all the workmen?				
4	A lifeline, a rope tied on the safety belt of the person entering the confined space is provided?				
5	All practicable measures are taken to ensure that the atmosphere inside is not deficient in oxygen and does not contain flammable vapors and no hazardous gases like H2S. (Open at least 2 manholes & keep for 2 hours)?				
6	One fully trained person is stationed at ground level/outside to assist the inside workers and emergency contact No's available?				
7	All the workers trained for emergency?				

8	Safe means of access and egress provided?	
9	Is the suitable fire extinguisher available at work location?	
10	Are they Using only 24V lamps & working tools inside the confined space?	
Following additional precautions need to be taken before the start of the work		
<b>Permit Issued By:</b>		
	Approved by Principal Agency work in charge	Endorsed by Principal Agency HSE Dept
Name		
Signature		
Date		
Permit Close Out by: Name & Signature (Principal Agency)		
Date :		Time :
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.		

### HOT WORK PERMIT

Date of Work :	Initiator:	Permit No.:
Description of work :		
Name of person supervising:		Dept./Function:
Names of workmen involved in the job :		
1	2	
3	4	
Exact Location of Work:		
JSA Reference No.		
Job Instruction & Confirmation Sheet Ref. No		
Valid From : Time ..... Date: ..... To Time: ..... Date: .....		
Other relevant information (if any)		
Initiated by Engineer / Supervisor of Agency		Checked by Agency Safety Representative
Name		Name
Signature		Signature
Date		Date
Exact location of work		
Relevant information		
Check list for Authorization of Work Permit		
Minimum and Mandatory Precautions		Y/ N / NA
1	Permit form filled in completely?	
2	Form filled in correctly and in full.	
3	Has the work area been inspected for any abnormalities - specify on wind, atmosphere, surroundings, etc.	
4	Are the necessary PPE provided and do the workmen know their use?	
5	Is the fitter, experienced and knowledgeable enough to carry out the job?	
6	Area has to be cleared of any flammables and combustible material.	
7	Electrical equipment to be protected and grounded.	
8	Are fire-fighting equipment - extinguishers, water, sand buckets etc, located nearby for ready in case of any mishap?	
9	Gas cylinders in upright state/ trolleys/ flash-back arrestors/ hose condition/ NRVs, etc.	
10	Is the area easily accessible?	

Additional precautions to be taken:		
This permit is valid only for one week. A fresh hot work permit has to be taken for continued works for the next week.		
<b>Permit Issued By:</b>		
	Approved by Principal Agency work in charge	Endorsed by Principal Agency HSE Dept
Name		
Signature		
Date		
Permit Close Out by: Name & Signature (Principal Agency)		
Date :		Time :
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.		

**PERMIT FOR LIFTING OF MATERIAL**

<b>Date of Work :</b>		<b>Initiator:</b>		<b>Permit No.:</b>	
<b>Description of work:</b>					
<b>Name of person supervising:</b>			<b>Dept./Function:</b>		
<b>Names of workmen involved in the job :</b>					
Exact Location of Work:					
JSA Reference No.					
Job Instruction & Confirmation Sheet Ref. No					
Valid From : Time ..... Date: ..... To Time: ..... Date: .....					
<b>Other relevant information: (If any)</b>					
<b>Initiated by Engineer / Supervisor of agency</b>			<b>Checked by Agency Safety Representative</b>		
Name			Name		
Signature			Signature		
Date			Date		
<b>Check list for Authorization of Work Permit</b>					
1	Details of type of crane(s) to be used?				
2	Name of Lift Co-ordinator, Rigger/Crane Operator?				
3	Adequate and suitable lifting gears available and in good condition				
4	Have soil, wind, atmospheric, and work area conditions (e.g. cold, hot , snow, poor lighting & Ventilation etc.) been considered throughout the job so that work can be done safely?				
5	Lifting Equipments, Lifting gears and Slings are tested and certified?				
6	Are all operators trained, competent and healthy (Having Licenses / Experience Certificate)?				
7	Are all the examinations and tests carried out on the equipment (Crane) and certified by competent persons?				
8	Is the safe working load (SWL) marked on all lifting tools & tackles?				
9	Lifting area cordoned off?				
10	Tag lines provided to control the swing of load?				
11	Load tied properly and secured against toppling and falling?				
12	Signalman/Rigger is provided and competent?				
13	Proper communication available between operator and rigger?				
14	Is the vehicle for transportation adequate for the load?				

<b>Following additional precautions need to be taken before the start of the work:</b>			
Permit Issue b By:			
<b>Approved by Principal agency work incharge</b>		<b>Endorsed by main agency HSE Dept</b>	
Name		Name	
Signature		Signature	
Date		Date	
Permit Close Out by: Name & Signature (Main agency)			
<b>Date :</b>		<b>Time :</b>	
<b>Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.</b>			

## WORKING AT HEIGHT PERMIT

Date of Work :	Initiator:	Permit No.:
Description of work :		
Name of person supervising:		Dept./Function:
Names of workmen involved in the job :		
1	2	
3	4	
Exact Location of Work:		
JSA Reference No.		
Job Instruction & Confirmation Sheet Ref. No		
Valid From : Time ..... Date: ..... To Time: ..... Date: .....		
Other relevant information		
Initiated by Engineer / Supervisor		Checked by Agency Safety Representative
Name		Name
Signature		Signature
Date		Date
Check list for Authorization of Work Permit		
Minimum and Mandatory Precautions		Y/ N / NA
1	Permit form filled in completely?	
2	Work area below is temporarily cordoned/barricaded	
3	The scaffold erected has pipes and clamps in good condition.	
4	Diagonal / lateral bracings pipes are provided to ensure stability	
5	Access ladder is provided to reach the work location	
6	Planks / sheet used in temporary platform are in good condition	
7	Planks / sheets are tied properly using binding wire	
8	Temporary platform is having temporary side railing	
9	Workers are wearing Helmet, Shoes & Safety belt in good condition.	
10	For Anchoring of safety belt at height rigid support / life rope line is provided	
11	Experienced workers are engaged for work	
12	Portable elect equip/fibre body checked for its healthiness including earthing	
13	The sling / pulley blocks / ropes are tested for fitness	

14	Workers are briefed on Safety Precautions to be taken	
	Power hand tools used at eight are connected through 30mA ELCB.	
Following additional precautions need to be taken before the start of the work		
<b>Permit Issued By:</b>		
	Approved by Principal Agency work in charge	Endorsed by Principal Agency HSE Dept
Name		
Signature		
Date		
Permit Close Out by: Name & Signature (Principal Agency)		
Date :		Time :
Note: All extra information on preparation and precautions to be provided on the reverse side of this PTW.		

## DEFINITIONS

1. **Building or other construction work:** means the construction, alteration, repairs, maintenance or demolition, of or, in relation to, buildings, streets, roads, railways, tramways, airfields, generation, transmission and distribution of power, water works, oil and gas installations, electric lines, tunnels, bridges, viaducts, pipelines, towers, cooling towers and such other work as may be specified.
2. **Building worker:** means a person who is employed by a contractor to do any skilled, semi-skilled or manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment be expressed or implied, in connection with any building or other construction work;
3. **Establishment:** means an establishment who or which employs building workers in any building or other construction work, and includes an establishment belonging to a contractor;
4. **Contractor:** means a person who undertakes to produce a given result for any establishment, other than a mere supply of goods or articles of manufacture by the employment of building workers or who supplies building workers for any work of the establishment, and includes a sub-contractor or any other agency engaged on his behalf;
5. **Employer:** in relation to an establishment, means the owner thereof that is the contractor himself.
6. **Competent Person:** means a person so approved by the Central Government who belongs to a testing establishment in India possessing adequate qualification, experience and skill for the purpose of testing, examination or annealing and certification of lifting appliances, lifting gears, wire ropes or pressure plant or equipment;
7. **Responsible Person:** means a person appointed by the employer to be responsible for the performance of specific duty or duties and who has sufficient knowledge and experience and the requisite authority for the proper performance of such duties;
8. **Danger:** means danger of accident or of injury or danger to health;
9. **Hazard:** means danger or potential danger;
10. **Hazardous substance:** means any substance, which due to its explosiveness, inflammability, radioactivity, toxic or corrosive properties and similar hazardous characteristics may Cause injury; or Affect adversely the human system; or Cause loss of life or damage to property or environment;
11. **Hazardous Process:** comprises roof work, steel erection, and work under and over water, demolition and work in confined space;

12. **National Standard:** means standards as approved by the Bureau of Indian Standards (BIS) and in the absence of such standards, the standards approved by the Central Government for a specific purpose;
13. **Lifting Appliance:** means a crane, hoist, derrick, winch, jack, pulley block or other equipment used for lifting materials, objects or building workers;
14. **Lifting gear:** means ropes, chains, hooks, slings and other accessories of a lifting appliance;
15. **Safe Operating Practice:** Means the practice followed in building and construction activities for the safety of workers and for safe operation of machinery and equipment used in such activities. Such practices shall conform to all or any of the following:  
Relevant Standards approved by  
BIS; National Building Codes;  
Manufacturer's instruction on safe use of equipment and machinery;  
Code of practice on safety in construction industry published by International Labour Organization  
.
16. **Safe working load:** in relation to an article of lifting gear or lifting appliance, means the load which is the maximum load that may be imposed on such article or appliance with safety in the normal conditions as assessed and certified by a competent person;
17. **Workplace:** means all places where building workers are required to be present or to go for work and which are under the control of an employer;
18. **Personal Protective Equipment (PPE):** are the protective devices made available for individual or collective use of the workers likely to be affected by the hazards of the workplace or process;
19. **Construction & Erection Manual (E&C) Rules:** all references to E&C Manual shall mean the  
Construction & Erection Rules that are detailed hereunder;
20. **Engineer in-charge:** All references to the Engineer in-charge shall mean the person in-charge of a building and construction of the NTPC.
21. **Interpretation of words not defined:** words and expressions not defined or used in this Manual shall have the same meaning as generally assigned in common engineering practices



**Policy for Debarment from Business Dealings**  
**(Rev-4 dated 05.05.2023)**

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# Policy for Debarment from Business Dealings

## 1. Introduction

- 1.1 NTPC Ltd. deals with Agencies, who are expected to adopt ethics of highest standards and a very high degree of integrity, transparency, commitments and sincerity towards the work undertaken. It is not in the interest of NTPC to deal with any Agency, which commits deception, fraud or other misconduct of whatsoever nature in the tendering process and/or execution. NTPC is committed for timely completion of the projects within the awarded value without compromising on quality.
- 1.2 Since banning of business dealings involves civil consequences for an Agency concerned, it is incumbent that adequate opportunity of hearing is provided and the explanation, if tendered, is considered before passing any order in this regard keeping in view the facts and circumstances of the case.

## 2. Scope

- 2.1 NTPC reserves its right to withhold or ban or suspend business dealings with any Agency, if such Agency is found to have committed misconduct or any of its action(s) fall into any such categories as laid down in this policy.
- 2.2 The procedure for (i) Withholding of Business Dealings, (ii) Banning of Business Dealings and (iii) Suspension of Business Dealings with any Agency, has been laid down in these guidelines. The terms 'withholding', 'suspension', 'banning' etc. convey the same meaning as that of debarment.
- 2.3 This policy comes into force from the date of its issuance.
- 2.4 The provisions of this policy will be effective on investigations conducted or misconduct/irregularities noticed on the part of any Agency in all contracts awarded on or after the date of implementation of this policy and in the contracts under execution or contracts not yet closed, on the date of the implementation of this policy.
- 2.5 The provisions of this Policy shall be applicable for Subsidiaries/JVs of NTPC as well.
- 2.6 Withholding / Banning / Suspension of business dealings with any agency shall be done Company wide only (entire NTPC including Subsidiaries and JVs).

### 3. Definitions

In these Guidelines, unless the context otherwise requires:

- i) **Agency** shall mean Contractor / Supplier / Applicant/ Purchaser / Bidder/ Seller/ Consultant/ Buyer/ NTPC approved Sub-contractor of a Contractor' to whom work has been awarded. It shall include, but not limited to, a public limited company or a private limited company, a firm whether registered or not, any individual, a cooperative society or an association or a group of persons engaged in any commerce, trade industry, or constituents of an unincorporated Joint Venture Company, Proprietor, Individual, Artificial Juridical person etc.
- ii) **Competent Authority** shall mean the following :-
  - a) **For Banning of Business Dealings pertaining to Contracts awarded/processed from Corporate Centre/ Site/ Region/ USSC/JVs/Subsidiaries of NTPC**

Functional Director of the concerned deptt. initiating the proposal for Banning shall be the '**Competent Authority**' for the purpose of these guidelines.

For cases pertaining to JVs / Subsidiaries of NTPC, the **Competent Authority** shall be the Chairman of the Board of the JV / Subsidiary provided the Chairman is a Functional Director of NTPC. In case the Chairman of the Board of the JV / Subsidiary is not a Functional Director of NTPC, competent authority shall be Director-In-Charge of CC&M dept. of NTPC.

CMD (NTPC) shall be the '**Appellate Authority**' for all cases.

- b) **For Withholding of Business Dealings pertaining to Contracts awarded/processed from:**
  - (i) Corporate Centre - Concerned RED/Functional ED and ED(CC&M)
  - (ii) Site/Region/USSC/JVs/Subsidiaries - Concerned RED and ED(USSC).
- c) **For Suspension of Business Dealings including issuance of show cause notice for Banning pertaining to Contracts awarded/processed from:**
  - (i) Corporate Centre – ED (CC&M)
  - (ii) Site/Region/USSC/JVs/Subsidiaries – ED (USSC).

- iii) **‘Investigating Department’** shall mean any Department or Unit of NTPC, investigating into the conduct of the Agency and shall include the NTPC Vigilance Department, Central Bureau of Investigation, the State Police or any other department set up by the Central or State Government having powers to investigate.
- iv) **List of Enlisted Agencies** –shall mean and include list of Enlisted Parties / Contractors / Suppliers / Bidders etc.
- v) **State** – includes the Government and Parliament of India and the Government and the Legislature of each of the States and all local or other authorities within the territory of India or under the control of the Government of India.
- vi) **Fraud Prevention Policy** – shall mean the policy related to prevention of fraud displayed on NTPC tender website <https://ntpctender.ntpc.co.in>.
- vii) **Contractor Performance Feedback and Evaluation System** – The guidelines outlined in relevant NTPC circular for evaluating the Contractor’s performance by the Screening Committee in respect of Contracts awarded by Corporate Contracts Services.
- viii) **Completion of Facilities** shall mean the term ‘Completion of Facilities’ as defined in the Contract.
- ix) **Standing Committee** shall mean a cross-functional Committee constituted for the purpose of these guidelines.
- x) **CC&M** shall mean “Corporate Contracts & Materials Deptt. of NTPC”.
- xi) **Integrity Pact-** shall mean the pact as displayed on NTPC tender website <https://ntpctender.ntpc.co.in> .

## 4. Withholding of Business Dealings

### 4.1 Grounds

The business dealing with the Agency may be withheld, if they are found to be in breach of the terms & conditions of the Contract, on account of the reasons attributable to them, which shall include, but not be limited to the following:

If the Agency

- a) Either fails to commence work on the Facilities in terms of contract or suspends the progress of Contract performance;
- b) Fails to achieve the ‘Completion of Facilities’ or execute the contract milestones within time schedule stipulated in the contract;

- c) Suspends/stops work on any unfounded pretext including seeking higher compensation;
- d) Fails to conduct the Guarantee test in the time limit stipulated in the contract;
- e) Diverts funds advanced to the Contractor for purpose other than the Contract;
- f) Does not deploy or withdraws the technical staff or equipment considered necessary as per the terms & conditions of contract;
- g) Fails to furnish the required documents / information as required under the terms & conditions of contract;
- h) Does not fulfill the obligations as required under the Contract;
- i) Violates terms & conditions of the contract;
- j) Does not Supply material /supplies material of inferior quality with respect to Technical Specifications under the Contract;
- k) On prima-facie scrutiny, work executed found to be of poor quality beyond acceptable limits stipulated in the Technical Specifications under the Contract;
- l) If a disaster / major failure / accident / collapse of a structure/ system caused during erection or during defect liability period *prima facie* appears to be due to negligence of contractor or design deficiency or poor quality of execution;
- m) Assigns, transfers, sublets or attempts to assign, transfer or sublet the entire Works or any portion thereof without the prior written approval of the Employer;
- n) Misbehavior or physical manhandling by the Agency or his representative or any person acting on his behalf with any official of the company dealing with the concerned contract;
- o) If NTPC prima-facie is of the view that the Agency is guilty of an offence involving corrupt, fraudulent practices including misrepresentation of facts as per NTPC Fraud Prevention Policy, moral turpitude in relation to the business dealings with NTPC;
- p) If the Central Vigilance Commission, Central Bureau of Investigation or any other Central Government investigation Agency or any other Central Government Department recommends such a course in respect of a case under investigation;

- q) If the security consideration, including questions of loyalty of the Agency to the state, so warrants ;
- r) The finished work either prematurely fails or fails to give the desired output/service during the defect liability period and the Agency fails to rectify it;
- s) On any ground as per which doing business dealings with the Agency is not in the public interest in the opinion of Competent Authority;
- t) If the Agency fails to comply with any of the statutory laws and regulations in force, in totality, even after completion of work;

#### **4.2 Procedure**

The concerned department at Site/Region/USSC/Corporate Centre on noticing any non/under performance and/or irregularities and/or misconduct and/or unethical practice as mentioned above, shall refer the matter to Convener of the Standing Committee along with relevant details. The Standing Committee shall analyze the referred case and if considered appropriate, shall put up the proposal for issuing Notice of Default for the purpose of withholding of business dealings with the Agency for approval of the Competent Authority. The above draft Notice of Default to be issued to the Agency should clearly indicate the charges based on the facts as can be proved.

In case the Standing Committee recommends waiver of withholding of business dealings with the Agency, the proposal along with reasons thereof shall be put up for approval of the CMD (NTPC).

#### **4.3 Notice of Default**

Once the proposal for issuance of Notice of default is approved by the Competent Authority, a 'Notice of Default' duly vetted by legal dept. shall be issued by the Competent Authority himself or by a person authorized for the said purpose to the Agency giving them a period of twenty eight (28) days to remedy the default.

If Agency fails to remedy or take adequate steps to remedy the default to the satisfaction of NTPC within the notice period mentioned above, then business dealings shall be withheld with the Agency after approval of the Competent Authority. The order of such withholding of business dealings (after vetting by legal dept.), shall be communicated by the Competent Authority himself or by a person authorized for the said purpose.

#### 4.4 Area of Operation

Withholding of business dealings with any agency shall be done **Company-wide only** (entire NTPC including Subsidiaries and JVs), for all cases including cases processed from NTPC, Subsidiaries and JVs.

#### 4.5 Effect of Withholding

The Agency, after issuance of the Order of Withholding of business dealings under this policy would not be allowed to participate in any future tender enquiry and if the Agency has already participated in another tender process and the price bids are not opened, its techno-commercial bid will be rejected and price bid will not be opened. Further, where the price bid of Agency has been opened prior to issuance of Withholding Order under this policy, the price bid of Agency shall be rejected. In case, such agency is the lowest evaluated bidder (L-1), next lowest evaluated bidder shall be considered as L-1.

No award shall be placed on any agency if Withholding Order for business dealings under this policy has been issued prior to award of contract.

Bid Security of such agency shall be returned after rejection of bids in these cases.

**Note-** Contracts concluded before the issue of the Withholding order shall, not be affected by the Withholding Order.

#### 4.6 Duration of Withholding

Duration of withholding of business dealings with the Agency shall be **for a period of one year**. Within this period, if the Agency rectifies the reason / ground on which business dealings with the Agency has been withheld, to the satisfaction of the Competent Authority, then on written representation of the Agency, the Competent Authority can review and, if satisfied, may revoke the order of withholding of business dealing. Provided further that, even till completion of one year of withholding period, if the Agency does not rectify, then the Competent Authority after reviewing the situation may issue order extending the period of withholding for one more year or advise initiation of action for banning of business dealings with Agency in accordance with the procedure prescribed in Para 5.2 below.

#### 4.7 Revocation of Orders

An order for withholding of business dealing passed for a certain specified period, including extension thereof, shall not be revoked automatically. Such withholding shall be revoked only after order in this respect is issued with the approval of Competent Authority.

## 5. Banning of Business Dealings

### 5.1 Grounds

Banning of business dealings can be initiated against Agency, on following grounds:

- a) If the Agency has abandoned or repudiated the Contract;
- b) If the Contractor is found to be non-performing in execution of contract by the Screening Committee (nominated as per NTPC established 'Contractor Performance Feedback and Evaluation System');
- c) If a disaster / major failure / accident / collapse of a structure / system is caused during erection or during defect liability period due to negligence of contractor or design deficiency or poor quality of execution under the contract;
- d) Misbehavior or physical manhandling by the Agency or his representative or any person acting on his behalf with any official of the Company dealing with the concerned contract is established;
- e) If the Director / Owner of the Agency, proprietor or partner of the Agency, is convicted by a court of law for offences involving corrupt and fraudulent practices including moral turpitude in relation to its business dealings with the government or NTPC or NTPC's group companies, during the last five years;
- f) If the proprietor of the Agency have been guilty of malpractices such as bribery, corruption, fraud, substitution of the tenders, interpolations, etc. in respect of participation in the bidding process for the contract and/or execution of the contract;
- g) If the Agency continuously refuses to return / refund the dues of NTPC or NTPC's group companies, without showing adequate reason and this is not due to any reasonable dispute which would attract proceedings in arbitration or court of Law;
- h) If the Agency employs a public servant dismissed / removed or employs a person convicted for an offence involving corruption or abetment of such offences ;
- i) If business dealings with the Agency have been banned by the Ministry of Power or Deptt. of Expenditure, Ministry of Finance and the ban is still in force;
- j) If it is established that Agency has resorted to corrupt, fraudulent practices including misrepresentation of facts in respect of participation in the bidding process for the contract and/or the execution of the contract;

- k) If the Agency uses intimidation/threatening or brings undue outside pressure on the NTPC or NTPC's group companies, or its official in acceptance / performance of the job under the contract;
- l) If the Agency indulges in repeated and / or deliberate use of delay tactics in complying with contractual stipulations;
- m) If the Agency is found to be involved in cartel formation during bidding for the tender;
- n) On willful indulgence by the Agency in supplying sub-standard material with respect to Technical Specifications under the Contract irrespective of whether pre-dispatch inspection was carried out by Company (NTPC) or not;
- o) Based on the findings of the investigation report of CBI/Police/or any other Central Government investigation Agency/Department against the Agency for mala-fide/unlawful acts or improper conduct on his part in matters relating to the Company (NTPC);
- p) If the Agency is declared bankrupt or insolvent or its financial position has become unsound, and in the case of a limited company, it is wound up or liquidated;
- q) Established litigant nature of the Agency to derive undue benefit;
- r) Continued poor performance of the Agency during execution under contracts pertaining to NTPC or its JV/Subsidiary companies;
- s) If the Agency violates Section-2 of the Integrity Pact provided in the bid/Contract;
- t) If the Agency commits fraud as defined under the Fraud Prevention Policy of NTPC;
- u) If the Agency has assigned or transferred the contract or engaged sub- contractor(s) without the prior approval of the Competent Authority in violation of the provisions of the contract;
- v) If the Agency misuses the premises or facilities of the NTPC forcefully occupies, tampers or damages the Company's properties including land, water resources, forests / trees, etc;
- w) If the security consideration, including questions of loyalty of the Agency to the state, so warrants;

**Note:** The examples given above are only illustrative and not exhaustive. The Competent Authority may decide to ban business dealing for any good and sufficient reason if it is established beyond any reasonable doubt.

## 5.2 Procedure

The concerned department on noticing any non/under performance and/or irregularities and/or misconduct and/or unethical practice as mentioned above, shall refer the matter to Convener of the Standing Committee along with relevant details. The Standing Committee shall analyze the referred case and if considered appropriate, shall put up the proposal for issuing Show Cause Notice for the purpose of banning of business dealings with the Agency for approval of the Competent Authority.

In case the Standing Committee recommends waiver of banning of business dealings with the Agency, the proposal along with reasons thereof shall be put up for approval of CMD (NTPC).

Besides the Standing Committee, Vigilance Department / Screening Committee (under Contractor Performance Feedback and Evaluation System) may also be competent to initiate the proposal for banning.

## 5.3 Show Cause Notice

Once the proposal for issuance of Show Cause Notice is approved by the Competent Authority, a 'Show Cause Notice' duly vetted by legal department shall be issued to the delinquent Agency, by the Competent Authority himself or by a person authorized for the said purpose.

The Agency shall be asked to submit the reply of Show Cause Notice within 15 days of its issuance. Further, the Agency shall be given an opportunity for Oral hearing with Standing Committee to present its case in person, if it so desires, and the date for Oral Hearing shall be necessarily indicated in the Show Cause Notice.

The purpose of issuing the Show Cause Notice is only that the Agencies concerned shall be given an opportunity to explain their stand before any action is taken. All that is required in such cases is that the grounds on which action is proposed to be taken shall be disclosed to the Agency inviting representation and after considering that representation, orders may be passed. Such orders require only the subjective satisfaction of the authority that passed the final orders.

If the Agency requests for inspection of any relevant document in possession of NTPC, necessary facility for inspection of documents may be provided.

During the conductance of oral hearing, only the regular employees of Agency will be permitted to represent the Agency and no outsider shall be allowed to represent the Agency on its behalf.

Reply to the Show Cause Notice given by the Agency and their

submissions in oral hearing, if any, will be processed by the Standing Committee for obtaining final decision of the Competent Authority in the matter.

In case, no reply to Show Cause Notice is received from the Agency within stipulated time, action for processing ex-parte against the concerned Agency shall be initiated.

#### **5.4 Speaking Order**

The speaking order shall be issued by the Competent Authority himself or by a person authorized for the said purpose.

#### **5.5 Communication to Agencies**

The decision regarding banning of business dealings taken after the issue of a Show Cause Notice and consideration of representation, if any, in reply thereto, shall be communicated to the Agency concerned along with a reasoned order. The fact that the representation has been considered shall invariably be mentioned in the communication. Also the fact that if no reply was received to the Show Cause Notice shall invariably be indicated in the final communication to the Agency.

#### **5.6 Period of banning**

The period for which the ban would be operative shall be mentioned in the order. The banning shall normally be for a period of six (6) months to two (02) years from the date of issuance of the speaking order. The period of banning shall be recommended by the standing committee on case to case basis depending upon the gravity of the default of the agency except in cases of bribery, corrupt, and fraudulent practices including misrepresentation of facts, where the banning period shall be for two (02) years.

However, in cases processed under provisions of Integrity pact or Contractor Performance Feedback and Evaluation System, the banning would be operative for a period as specified therein.

In case the information/documents submitted by Agency in competing for the tender is found to be false/forged then NTPC, without prejudice to any other rights or remedies it may possess, shall recover from Agency the cost incurred in carrying out physical assessment for establishing veracity of such information/documents. In case Agency refuses to reimburse such cost to NTPC then banning period of Agency shall be extended by another one year.

Notwithstanding para 5.1(a) above, in case an agency after having

been issued the Notification of Award / Letter of Award within the bid validity period, either “does not sign the Contract Agreement” or “does not submit an acceptable Performance Security”, business dealings with the agency shall be suspended for a period of six (06) months from the date of issuance of suspension order, in accordance with the procedure for suspension of business dealings as specified at para 6 of this Policy. However, in case the agency commits aforesaid transgression/default again in another tender of NTPC within three (03) years from the date of issuance of suspension order, business dealings with the agency shall be banned for a period of two (02) years from the date of issuance of speaking order.

### 5.7 Area of Operation

Banning of business dealings with any agency shall be done **Company-wide only** (entire NTPC including Subsidiaries and JVs), for all cases including cases processed from NTPC, Subsidiaries and JVs).

### 5.8 Effect of Banning

The Agency, after issuance of the Order of Banning of business dealings under this policy would not be allowed to participate in any future tender enquiry and if the Agency has already participated in another tender process and the price bids are not opened, its techno-commercial bid will be rejected and price bid will not be opened. Further, where the price bid of Agency has been opened prior to issuance of Banning Order under this policy, the price bid of Agency shall be rejected. In case, such agency is the lowest evaluated bidder (L-1), next lowest evaluated bidder shall be considered as L-1.

No award shall be placed on any agency if Banning Order for business dealings under this policy has been issued prior to award of contract.

Bid Security of such agency shall be returned after rejection of bids in these cases.

**Note-** Contracts concluded before the issue of the Banning order shall, not be affected by the Banning Order.

### 5.9 Process of reply

The Agency shall be separately advised of the decision taken regarding banning of business dealings, in reply to their representation, if any. As regards any further representation from the Agency, business dealings with whom have been banned, the same shall be processed by the concerned C&M department in consultation with Vigilance department, wherever applicable. If any reply is considered necessary to be sent to the Agency, the same shall be sent by the concerned C&M department.

### **5.10 Hosting at NTPC website**

The names of the Agencies with whom Business Dealings have been banned shall be hosted at NTPC website by CC&M.

### **5.11 Deleted**

### **5.12 Appeal against the Decision of the Competent Authority.**

The Agency may file an appeal against the order of the Competent Authority for banning of business dealings before Appellate Authority. Such an appeal shall be preferred within one month from the date of receipt of the order of banning of business dealing. Appellate Authority would consider the appeal and pass appropriate order which shall be communicated to the Agency as well as the Competent Authority.

### **5.13 Revocation of Orders**

- a) The banning under 'Contractor Performance Feedback and Evaluation System' shall not be revoked automatically. Such banning shall be revoked only after re-evaluation of the performance of the Agency by the Screening Committee as detailed under the 'Contractor Performance Feedback and Evaluation System'.
- b) In all other cases, an order for banning issued for a certain specified period shall be deemed to have been automatically revoked on the expiry of that specified period and it will not be necessary to issue a specific formal orders of revocation, except that an order of banning passed on account of doubtful loyalty or security consideration shall continue to remain in force until it is specifically revoked.
- c) An order for banning issued for the reasons mentioned under para 5.1 above, may be revoked with the approval of the Appellate Authority, if, in respect of the same facts, the direction/order/judgement of a Court of Law envisages revocation of banning.

Further, an order for banning issued for the reasons mentioned at para 5.1 (e) above may be revoked with the approval of the Appellate Authority, if, in respect of the same facts, the accused has been wholly exonerated by a Court of Law.

## 6. Suspension of Business Dealings

### 6.1 Grounds

The suspension of business dealings can be initiated against Agency, on following grounds:

- a) If fraud by agency has been established. The definition of fraud shall be as defined under the 'Fraud Prevention Policy' of NTPC / Bidding documents for a tender.
- b) If the agency has abandoned or repudiated the contract or fails to sign the Contract Agreement or fails to submit an acceptable Performance Security.

### 6.2 Deleted

### 6.3 Procedure

#### 6.3.1 In cases of fraud

- a) The concerned C&M deptt. shall put up the proposal for "Suspension of business dealings" and "issuance of Show Cause Notice" for banning of business dealings with the Agency for approval of the Competent Authority. After approval of Competent Authority, Suspension Order and Show Cause Notice shall be issued which must include the following:
  - i) the Agency is put on suspension list.
  - ii) why action should not be taken for banning the Agency for future business dealings.

The case shall be further processed for banning of business dealings with the Agency as per para 5 above.

- b) Suspension of business dealings with any agency shall be done Company-wide (entire NTPC including Subsidiaries and JVs), for all cases including cases processed from NTPC, Subsidiaries and JVs.
- c) The Suspension Order would operate initially for a period of not more than six (06) months. The recommendation for banning the Agency shall be concluded within the period of suspension. In exceptional circumstances, period of suspension can be further extended with the approval of the Competent Authority maximum up to three (03) months pending a conclusive decision to put the Agency on banning list. Also, a communication for extension of

suspension period by three months shall be communicated to the Agency during the subsistence of suspension order of Six (06) months, failing which the suspension order shall stand revoked.

- d) Show Cause Notice for banning & Suspension order shall be issued by Competent Authority himself or by a person authorized for the said purpose.
- e) The names of the Agencies with whom Business Dealings have been suspended shall be hosted at intranet of CC&M. During the period of suspension, no new business dealing shall be held with the Agency.
- f) Period of suspension shall be accounted for in the final order passed for banning of business dealings with the Agency.
- g) If it is decided not to ban the Agency after due process, the name of the Agency shall be removed immediately from the suspension list.
- h) The suspension of Agency shall be automatically revoked on the expiry of the period of suspension.

### **6.3.2 In cases of abandonment or repudiation of contract (except failure to sign the Contract Agreement or submit an acceptable Performance Security)**

- a) The concerned C&M deptt. shall put up the proposal for “Suspension of business dealings” and “issuance of Show Cause Notice” for banning of business dealings with the Agency for approval of the Competent Authority. After approval of Competent Authority, Suspension Order and Show Cause Notice shall be issued which must include the following:
  - i) the Agency is put on suspension list
  - ii) why action should not be taken for banning the Agency for future business dealings.

The case shall be further processed for banning of business dealings with the Agency as per para 5 above.

- b) Suspension of business dealings with any agency shall be done Company-wide (entire NTPC including Subsidiaries and JVs), for all cases including cases processed from NTPC, Subsidiaries and JVs.
- c) The Suspension Order would operate initially for a period of not more than six (06) months. The recommendation for banning the Agency shall be concluded within the period of suspension. In

exceptional circumstances, period of suspension can be further extended with the approval of the Competent Authority maximum up to three (03) months pending a conclusive decision to put the Agency on banning list. Also, a communication for extension of suspension period by three months shall be communicated to the Agency during the subsistence of suspension order of Six (06) months, failing which the suspension order shall stand revoked.

- d) Show Cause Notice for banning & Suspension order shall be issued by Competent Authority himself or by a person authorized for the said purpose.
- e) The names of the Agencies with whom Business Dealings have been suspended shall be hosted at intranet of CC&M. During the period of suspension, no new business dealing shall be held with the Agency.
- f) Period of suspension shall be accounted for in the final order passed for banning of business dealings with the Agency.
- g) If it is decided not to ban the Agency after due process, the name of the Agency shall be removed immediately from the suspension list.
- h) The suspension of Agency shall be automatically revoked on the expiry of the period of suspension.

### **6.3.3 In cases of failure to sign the Contract Agreement or failure to submit an acceptable Performance Security**

- a) The concerned C&M dept. shall put up the proposal for "Suspension of business dealings" with the Agency for approval of the Competent Authority. After approval of Competent Authority, Suspension Order shall be issued which must include the following:
  - i) the Agency is put on suspension list
  - ii) in case the agency commits aforesaid transgression/default again in another tender of NTPC within three (03) years from the date of issuance of suspension order, business dealings with the agency shall be banned for a period of two (02) years from the date of issuance of speaking order for banning.

In case the agency commits aforesaid transgression/default again in another tender of NTPC within three (03) years from the date of issuance of suspension order, process for banning of business dealings with the Agency shall be initiated as mentioned at para 5.6 above.

- b) Suspension of business dealings with any agency shall be done Company-wide (entire NTPC including Subsidiaries and JVs), for all cases including cases processed from NTPC, Subsidiaries and JVs.
- c) The Suspension Order would operate for a period of six (06) months and is to be communicated to Agency.
- d) Suspension order shall be issued by Competent Authority himself or by a person authorized for the said purpose.
- e) The names of the Agencies with whom Business Dealings have been suspended shall be hosted at intranet of CC&M. During the period of suspension, no new business dealing shall be held with the Agency.
- f) The suspension of Agency shall be automatically revoked on the expiry of the period of suspension.

#### 6.4 Effect of Suspension:

The Agency, after issuance of the Order of Suspension of business dealings under this policy would not be allowed to participate in any future tender enquiry and if the Agency has already participated in another tender process and the price bids are not opened, its techno-commercial bid will be rejected and price bid will not be opened. Further, where the price bid of Agency has been opened prior to issuance of Suspension Order under this policy, the price bid of Agency shall be rejected. In case, such agency is the lowest evaluated bidder (L-1), next lowest evaluated bidder shall be considered as L-1.

Further, in case such agency is the lowest evaluated bidder (L-1) and award recommendation on such agency has been put up for approval, or the award recommendation is approved prior to issuance of Suspension Order under this policy but award is yet to be placed, then award recommendation on such agency shall stand cancelled and the price bid of Agency shall be rejected. A revised recommendation has to be put up for approval considering next lowest evaluated bidder as L-1.

No award shall be placed on any agency if Suspension Order for business dealings under this policy has been issued prior to award of contract.

Bid Security of such agency shall be returned after rejection of bids in these cases.

**Note-** Contracts concluded before the issue of the Suspension Order shall, not be affected by the Suspension Order.

7. During the banning / withholding / suspension period, if it is found at any stage that Agency has participated in tender enquiry under a different name then such Agency would immediately be debarred from the tender/contract and its Bid Security/Performance Security would be forfeited. Payment, if any, made shall also be recovered.
8. Further in case of banning / withholding / suspension following would also be applicable:

**(i) Participation of Agency as an Associate/Collaborator of the Main Contractor**

The Agency, after issuance of the Order of Withholding/Banning/ Suspension of business dealings under this policy would not be allowed to participate as Associate/Collaborator of any bidders. In case the agency is proposed as Associate/Collaborator by any of the bidder and the price bids are not opened, its techno-commercial bid will be rejected and price bid will not be opened. Further, where the price bid of bidder has been opened prior to issuance of Withholding/Banning/Suspension Order under this policy, the price bid shall be rejected. In case, such bidder is the lowest evaluated bidder (L-1), next lowest evaluated bidder shall be considered as L-1.

Further, in case such bidder is the lowest evaluated bidder (L-1) and where award recommendation on such bidder has been put up for approval, or the award recommendation is approved prior to issuance of Withholding/Banning/ Suspension Order under this policy but award is yet to be placed, then award recommendation on such bidder shall stand cancelled and the price bid of bidder shall be rejected. A revised recommendation has to be put up for approval considering next lowest evaluated bidder as L-1.

Bid Security of such bidder shall be returned after rejection of bids in these cases.

**(ii) Participation of Agency as an approved Sub-Vendor of the Main Contractor**

After banning/ withholding/ suspension order, the banned/ withheld/ suspended Agency shall not be allowed to participate as Sub-Vendor in the tenders for supplying/manufacturing equipment (s)/component (s)/service if it has been banned on grounds of supplying sub-standard material / equipment / service.

Further, if the banned/withheld/suspended agency is an approved Sub- vendor under any Contract for such equipment/component/service, the Main Contractor shall not be permitted to place work order/Purchase order/Contract on the banned/withheld/suspended agency as a sub- vendor after the date of banning/withholding/suspension even though the name of the party

has been approved as a sub-vendor earlier.

**(iii) Procurement of spares/awarding of Contracts in operating stations**

There would be no bar on procuring the spares and awarding Contracts towards Annual Maintenance (AMC)/ O&M/ Repair works on Agencies pertaining to the packages for which business dealings have been withheld/banned/suspended with them provided the original Equipment has been supplied/manufactured by such Agency.

**9. Treatment in Tender/ Contracts of JVs/Subsidiaries of NTPC**

**(i) Tenders/Contracts of JVs/Subsidiaries, whose Pre-award and/ or Post award activities are handled by NTPC Corporate Centre**

The Tenders/Contracts of JVs/Subsidiaries, whose pre-award and/or post award activities are handled by NTPC Corporate Centre, the cases of non/under performance and/or irregularities and/or misconduct and/or unethical practice observed in such tenders/contracts may be processed in NTPC under the Policy and Procedure for Debarment from business dealings and/or Contractor Performance Feedback and Evaluation System. The Notice of Default or Order for Withholding of business dealings (under Para 4.3) / Show Cause Notice or Speaking Order for banning of business dealings (under Para 5.3, 5.4) / Suspension order for suspension of Business Dealings (Under para 6.3), after approval in NTPC, shall be forwarded to CEO of concerned JVs / Subsidiaries for issuance of such Notice or Order to the delinquent agency.

Further, the appeal of the Agency against the above Order (under Para 5.12) shall be reviewed by Appellate Authority in NTPC. Appellate Authority would consider the appeal and pass appropriate order which shall be communicated to the Agency as well as the Competent Authority and CEO of concerned JVs/Subsidiaries.

**(ii) The Tenders/Contracts which are handled by JVs/Subsidiaries themselves**

The procedure prescribed in the Policy shall appropriately be used by concerned JVs/Subsidiaries to deal with the cases of non/under performance and/or irregularities and/or misconduct and/or unethical practice observed in tenders/contracts handled by them.

F.No.6/18/2019-PPD  
Ministry of Finance  
Department of Expenditure  
Public Procurement Division

161, North Block,  
New Delhi  
23rd July, 2020

**Office Memorandum**

**Subject: Insertion of Rule 144 (xi) in the General Financial Rules (GFRs), 2017**

Rule 144 of the General Financial Rules 2017 entitled 'Fundamental principles of public buying', has been amended by inserting sub-rule (xi) as under:

*Notwithstanding anything contained in these Rules, Department of Expenditure may, by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions.*



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To,

- (1) Secretaries of All Ministries/ Departments of Government of India
- (2) Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi



F.No.6/18/2019-PPD  
Ministry of Finance  
Department of Expenditure  
Public Procurement Division

161, North Block,  
New Delhi  
23rd July, 2020

**Order (Public Procurement No. 1)**

**Subject: Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017**

Attention is invited to this office OM no. 6/18/2019-PPD dated 23<sup>rd</sup> July 2020 inserting Rule 144 (xi) in GFRs 2017. In this regard, the following is hereby ordered under Rule 144 (xi) on the grounds stated therein:

**Requirement of registration**

1. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annex I**.
2. This Order shall not apply to (i) cases where orders have been placed or contract has been concluded or letter/notice of award/ acceptance (LoA) has been issued on or before the date of this order; and (ii) cases falling under **Annex II**.

**Transitional cases**

3. Tenders where no contract has been concluded or no LoA has been issued so far shall be handled in the following manner: -
  - a) *In tenders which are yet to be opened, or where evaluation of technical bid or the first exclusionary qualificatory stage (i.e. the first stage at which the qualifications of tenderers are evaluated and unqualified bidders are excluded) has not been completed:* No contracts shall be placed on bidders from such countries. Tenders received from bidders from such countries shall be dealt with as if they are non-compliant with the tender conditions and the tender shall be processed accordingly.
  - b) *If the tendering process has crossed the first exclusionary qualificatory stage:* If the qualified bidders include bidders from such countries, the

entire process shall be scrapped and initiated *de novo*. The *de novo* process shall adhere to the conditions prescribed in this Order.

- c) As far as practicable, and in cases of doubt about whether a bidder falls under paragraph 1, a certificate shall be obtained from the bidder whose bid is proposed to be considered or accepted, in terms of paras 8, 9 and 10 read with para 1 of this Order.

#### Incorporation in tender conditions

4. In tenders to be issued after the date of this order, the provisions of paragraph 1 and of other relevant provisions of this Order shall be incorporated in the tender conditions.

#### Applicability

5. Apart from Ministries / Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, this Order shall also be applicable
  - a. to all Autonomous Bodies;
  - b. to public sector banks and public sector financial institutions; and
  - c. subject to any orders of the Department of Public Enterprises, to all Central Public Sector Enterprises; and
  - d. to procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings.
  - e. Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof

#### Definitions

6. "Bidder" for the purpose of this Order (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.
7. "Tender" for the purpose of this Order will include other forms of procurement, except where the context requires otherwise.
8. "Bidder from a country which shares a land border with India" for the purpose of this Order means

- a) An entity incorporated, established or registered in such a country; or
- b) A subsidiary of an entity incorporated, established or registered in such a country; or
- c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- d) An entity whose *beneficial owner* is situated in such a country; or
- e) An Indian (or other) agent of such an entity; or
- f) A natural person who is a citizen of such a country; or
- g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

9. "Beneficial owner" for the purpose of paragraph 8 above will be as under:

- (i) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

Explanation—

- a. "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;
- b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

- (ii) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

- (iii) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

- (iv) Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

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(v) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

10. "Agent" for the purpose of this Order is a person employed to do any act for another, or to represent another in dealings with third persons.

#### Sub-contracting in works contracts

11. In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 8 above. This shall not apply to sub-contracts already awarded on or before the date of this Order.

#### Certificate regarding compliance

12. A certificate shall be taken from bidders in the tender documents regarding their compliance with this Order. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.

#### Validity of registration

13. In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.

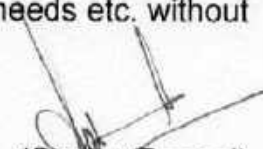
#### Government E-Marketplace

14. The Government E-Marketplace shall, as soon as possible, require all vendors/ bidders registered with GeM to give a certificate regarding compliance with this Order, and after the date fixed by it, shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

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Model Clauses/ Certificates

15. Model Clauses and Model Certificates which may be inserted in tenders / obtained from Bidders are enclosed as **Annex III**. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc. without making any reference to this Department.

  
(Sanjay Prasad)  
Joint Secretary (PPD)  
Email ID: [js.pfc2.doe@gov.in](mailto:js.pfc2.doe@gov.in)  
Telephone: 011-23093882

To

- (1) Secretaries of All Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.
- (2) Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect of Public Enterprises.
- (3) Secretary DPIIT with a request to initiate action as provided under Annex I
- (4) Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

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## Annex I: Competent Authority and Procedure for Registration

- A. The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)\*.
- B. The Registration Committee shall have the following members\*:
- i. An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;
  - ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;
  - iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.
- C. DPIIT shall lay down the method of application, format etc. for such bidders as stated in para 1 of this Order.
- D. On receipt of an application seeking registration from a bidder from a country covered by para 1 of this Order, the Competent Authority shall first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.
- E. The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.
- F. The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for a specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.
- G. Registration shall not be granted unless the representatives of the Ministries of Home Affairs and External Affairs on the Committee concur\*.
- H. Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by Central Government and its agencies/ public enterprises etc. but **also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.**

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- I. The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.
- J. For national security reasons, the Competent Authority shall not be required to give reasons for rejection / cancellation of registration of a bidder.
- K. In transitional cases falling under para 3 of this Order, where it is felt that it will not be practicable to exclude bidders from a country which shares a land border with India, a reference seeking permission to consider such bidders shall be made by the procuring entity to the Competent Authority, giving full information and detailed reasons. The Competent Authority shall decide whether such bidders may be considered, and if so shall follow the procedure laid down in the above paras.
- L. Periodic reports on the acceptance/ refusal of registration during the preceding period may be required to be sent to the Cabinet Secretariat. Details will be issued separately in due course by DPIIT.

[\*Note:

- i. In respect of application of this Order to procurement by/ under State Governments, all functions assigned to DPIIT shall be carried out by the State Government concerned through a specific department or authority designated by it. The composition of the Registration Committee shall be as decided by the State Government and paragraph G above shall not apply. However, the requirement of **political and security clearance as per para D shall remain and no registration shall be granted without such clearance.**
- ii. Registration granted by State Governments shall be valid only for procurement by the State Government and its agencies/ public enterprises etc. and shall not be valid for procurement in other states or by the Government of India and their agencies/ public enterprises etc.]

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## Annex II: Special Cases

- A. Till 31<sup>st</sup> December 2020, procurement of medical supplies directly related to containment of the Covid-19 pandemic shall be exempt from the provisions of this Order.
- B. *Bona fide* procurements made through GeM without knowing the country of the bidder till the date fixed by GeM for this purpose, shall not be invalidated by this Order.
- C. *Bona fide* small procurements, made without knowing the country of the bidder, shall not be invalidated by this Order.
- D. In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this Order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.
- E. This Order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.

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### Annex III

#### Model Clause /Certificate to be inserted in tenders etc.

(While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.)

#### Model Clauses for Tenders

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
  - a. An entity incorporated, established or registered in such a country; or
  - b. A subsidiary of an entity incorporated, established or registered in such a country; or
  - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
  - d. An entity whose *beneficial owner* is situated in such a country; or
  - e. An Indian (or other) agent of such an entity; or
  - f. A natural person who is a citizen of such a country; or
  - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
  1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

    - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

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- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
  3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
  4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
  5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.
- VI. *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Model Certificate for Tenders (for transitional cases as stated in para 3 of this Order)

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."*

Model Certificate for Tenders

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the*

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*Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

**Model Certificate for Tenders for Works involving possibility of sub-contracting**

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

**Model Certificate for GeM:**

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

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F.No.6/18/2019-PPD  
Ministry of Finance  
Department of Expenditure  
Public Procurement Division

161, North Block  
New Delhi  
23rd July, 2020

**Order ( Public Procurement No. 2)**

**Subject: Exclusion from restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017 –regarding.**

In Order (Public Procurement No. 1) dated 23rd July 2020, orders have been issued requiring registration of bidders from a country sharing a land border with India in order to be eligible to bid in public procurement.

2. Notwithstanding anything contained therein, it is hereby clarified that the said Order will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects.

3. Updated lists of countries to which lines of credit have been extended or in which development projects are undertaken are given in the website of the Ministry of External Affairs.



(Sanjay Prasad)  
Joint Secretary (PPD)  
Email ID: [js.pfc2.doe@gov.in](mailto:js.pfc2.doe@gov.in)  
Telephone: 011-23093882

To,

- (1) Secretaries of All Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.
- (2) Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect of Public Enterprises.
- (3) Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

F. No. DPE/7(4)/2017-Fin.  
Government of India  
Ministry of Finance  
Department of Public Enterprises

Block No. 14, CGO Complex,  
Lodi Road, New Delhi-110003  
Dated the 24<sup>th</sup> February, 2023

To,

Chief Executives of all CPSEs

Subject:- Restrictions under Rule 144(xi) of the General Financial Rules  
(GFRs), 2017 - regarding

Sir/Madam,

The undersigned is directed to reiterate the instructions as contained in  
Department of Expenditure O.M. No. 7/10/2021-PPD(1) dated 23<sup>rd</sup> February, 2023  
(copy enclosed) to all CPSEs for their information and strict compliance.

Encl : As stated

  
(Kailash Bhandari)  
Deputy Director  
Tel : 2436-6247

Copy to :- Shri Kanwalpreet, Director (PPD), Department of Expenditure, Room No.  
264-C, North Block, New Delhi.

No.F.7/10/2021-PPD (1)  
Government of India  
Ministry of Finance  
Department of Expenditure  
Procurement Policy Division

264-C, North Block, New Delhi.  
23.02.2023.

**Order (Public Procurement No. 4)**

**Subject: Restrictions under Rule 144(xi) of the General Financial Rules (GFRs), 2017.**

Attention is invited to Order (Public Procurement No. 1) issued vide F.6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No. 2) issued vide F.6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No. 3) issued vide F.6/18/2019-PPD dated 24.07.2020, Office Memorandum (OM) No. F.18/37/2020-PPD dated 08.02.2021, OM No. F.12/1/2021-PPD(Pt.) dated 02.03.2021 and OM No. F.7/10/2021-PPD dated 08.06.2021. In this regard, the following is hereby ordered under Rule 144(xi) (as amended vide OM No. F.7/10/2021-PPD dated 23.02.2023) on the grounds stated therein, in supersession to all of the above mentioned Orders/ clarifications:

**Requirement of registration:**

2. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annexure I**.
3. Any bidder (including an Indian bidder) who has a Specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annexure I**.
4. The requirement of registration for cases covered by paragraph 2 above has been applicable since 23.07.2020. The requirement of registration for bidders covered by paragraph 3 above will be applicable for all procurements where tenders are issued/ published after 01.04.2023.
5. In tenders issued after 23.07.2020 or 01.04.2023, as the case may be, the provisions of requirement of registration of bidders and of other relevant provisions of this Order shall be incorporated in the tender conditions.

**Applicability:**

6. Apart from Ministries/ Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, the Order shall also be applicable

- a) to all Autonomous Bodies;
- b) to all public sector banks and public sector financial institutions;
- c) to all Central Public Sector Enterprises;
- d) to all procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings; and
- e) Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof.

7. This order will not be applicable for cases falling under **Annexure II**.

**Definitions:**

8. "*Bidder*" for the purpose of the Order (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.

9. "*Tender*" for the purpose of the Order will include other forms of procurement, except where the context requires otherwise.

10. "*Transfer of Technology*" means dissemination and transfer of all forms of commercially usable knowledge such as transfer of know-how, skills, technical expertise, designs, processes and procedures, trade secrets, which enables the acquirer of such technology to perform activities using the transferred technology independently. (Matters of interpretation of this term shall be referred to the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade, and the interpretation of the Committee shall be final.)

11. "*Specified Transfer of Technology*" means a transfer of technology in the sectors and/ or technologies, specified in paragraph 15, occurring on or after 23.07.2020.

12. "*Bidder (or entity) from a country which shares a land border with India*" for the purpose of the Order means

- (a) An entity incorporated, established or registered in such a country; or
- (b) A subsidiary of an entity incorporated, established or registered in such a country; or
- (c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- (d) An entity whose beneficial owner is situated in such a country; or
- (e) An Indian (or other) agent of such an entity; or
- (f) A natural person who is a citizen of such a country; or

(g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

13. *Beneficial owner* for the purposes of Para 12 (d) will be as under:

(i) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

*Explanation:-*

- a. "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;
- b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

(ii) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

(iii) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

(iv) Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

(v) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

14. "*Agent*" for the purpose of the Order is a person employed to do any act for another, or to represent another in dealings with third persons.

[Note:

- i. A person who procures and supplies finished goods from an entity from a country which shares a land border with India will, regardless of the nature of his legal or commercial relationship with the producer of the goods, be deemed to be an Agent for the purpose of this Order.
- ii. However, a bidder who only procures raw material, components etc. from an entity from a country which shares a land border with India and then manufactures or converts them into other goods will not be treated as an Agent.]

**Sensitive Sectors/ Technologies** (relevant only for the provisions on ToT arrangements):

15. (i) Certain sectors and technologies have been identified as sensitive from the national security point of view. The sectors listed in Schedule I to this Order are considered Category-I sensitive sectors. The sectors listed in Schedule II to this Order are considered Category-II sensitive sectors. The technologies listed in Schedule III are considered sensitive technologies.

(ii) For Category-I sensitive sectors, bidders with ToT arrangement in any technology with an entity from a country which shares a land border with India shall require registration.

(iii) For Category-II sensitive sectors, bidders with ToT arrangement in the sensitive technologies listed in Schedule III, with an entity from a country which shares a land border with India shall require registration.

(iv) In Category-II sensitive sectors, the Secretary (or an officer not below the rank of Joint Secretary to Government of India, so authorized by the Secretary) of the Ministry/ Department of the Government of India is empowered, after due consideration, to waive the requirement of registration for a particular item/ application or a class of items/ applications from the requirement of registration, even if included in Schedule III. The Ministry/ Department concerned shall intimate the Department for Promotion of Industry and Internal Trade (DPIIT) and National Security Council Secretariat (NSCS) of their decision to waive the requirement of registration. Ministries/ Departments of the Government of India are not required to consult the DPIIT/ NSCS before deciding and are only required to intimate the decision to DPIIT/ NSCS. If any point is raised by DPIIT/ NSCS, it should be considered in future procurements; ongoing procurement for which the waiver was granted need not be interrupted or altered.

16. Based on security considerations, a Ministry/ Department in a Category II sensitive sector or other Ministries/ Departments may recommend to DPIIT inclusion of any other technology in the list of sensitive technologies, either generally or for their Ministry/ Department.

#### **Sub-contracting in works contracts**

17. In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 12 above. This shall not apply to sub-contracts already awarded on or before 23.07.2020.

[Note: Procurement of raw material, components, etc. does not constitute sub-contracting.]

### **Certificate regarding compliance**

18. An undertaking shall be taken from bidders in the tender documents (**Annexure III**) that the extant guidelines for participation in the tenders (which should include conditions for implementation of this Order) have been complied with. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for debarment and further legal action in accordance with law.

### **Validity of registration**

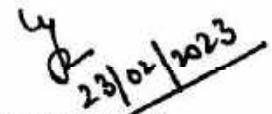
19. In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.

### **Government e-Marketplace (GeM)**

20. GeM shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

### **Model Clauses/ Certificates**

21. Model Clauses and Model Certificates which may be inserted in tenders/ obtained from Bidders are given at Annexure-III. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc.

  
(Kanwalpreet)  
Director(PPD)

Tel.No. 2309 3811; email: kanwal.irss@gov.in

To

1. Secretaries of all Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.
2. Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect to public enterprises.
3. Secretary, Department of Financial Services with a request to immediately reiterate these orders in respect to public sector and public sector financial institutions.
4. Secretary DPIIT with a request to take action as provided under Annexure I.
5. Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi.
6. CEO/ GeM with a request to ensure implementation of this order on GeM.

**List of Category-I Sensitive sectors:**

<b>Sr.No.</b>	<b>Sector</b>
(i)	Atomic Energy
(ii)	Broadcasting/ Print and Digital Media
(iii)	Defence
(iv)	Space
(v)	Telecommunications

**List of Category-II Sensitive sectors:**

<b>Sr.No.</b>	<b>Sector</b>
(i)	Power and Energy (including exploration/ generation/ transmission/ distribution/ pipeline)
(ii)	Banking and Finance including Insurance
(iii)	Civil Aviation
(iv)	Construction of ports and dams & river valley projects
(v)	Electronics and Microelectronics
(vi)	Meteorology and Ocean Observation
(vii)	Mining and extraction (including deep sea projects)
(viii)	Railways
(ix)	Pharmaceuticals & Medical Devices
(x)	Agriculture
(xi)	Health
(xii)	Urban Transportation

**List of Sensitive Technologies:**

<b>Sr.No.</b>	<b>Sensitive Technologies</b>
(i)	Additive Manufacturing (e.g. 3D Printing)
(ii)	Any equipment having electronic programmable components or autonomous systems (e.g. SCADA systems)
(iii)	Any technology used for uploading and streaming of data including broadcasting, satellite communication etc.
(iv)	Chemical Technologies
(v)	Biotechnologies including Genetic Engineering and Biological Technologies
(vi)	Information and Communication Technologies
(vii)	Software

**Competent Authority and Procedure for Registration**

- A. The Competent Authority for the purpose of registration under this order shall be/ continue to be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)\*. [This Committee was already constituted under Order (Public Procurement) No.1].
- B. The Registration Committee shall have the following members\*:
- i. An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;
  - ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;
  - iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.
  - iv. With effect from 01.04.2023, an officer (ordinarily not below the rank of Joint Secretary) representing the National Security Council Secretariat.
- C. DPIIT shall lay down the method of application, format etc. for such bidders as covered by the Order.
- D. On receipt of an application seeking registration from a bidder covered by Para 2 and 3 of this order, the Competent Authority shall first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.
- E. The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.
- F. The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for a specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.
- G. Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by the Central Government and its bodies specified in para 6 of this order, but also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.
- H. The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will

not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.

- I. For national security reasons, the Competent Authority shall not be required to give reasons for rejection/cancellation of registration of a bidder.

[\*Note:

(i) In respect of application of the Order to procurement by/ under State Governments, all functions assigned to DPIIT shall be carried out by the State Government concerned through a specific department or authority designated by it. The composition of the Registration Committee shall be as decided by the State Government. However, the requirement of political and security clearance as per para D shall remain and no registration shall be granted without such clearance.

(ii) Registration granted by State Governments shall be valid only for procurement by the State Government and its agencies/ public enterprises etc. and shall not be valid for procurement in other states or by the Government of India and their agencies/ public enterprises etc.]

**Special Cases**

- A. In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.
- B. This order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.
- C. This order will not apply to bidders (or entities) from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Updated lists of countries to which lines of credit have been extended or in which development projects are undertaken are given on the website of the Ministry of External Affairs.
- D. Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC)/ Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorized agents, shall be exempted from the requirement of registration.

**Model Clause/ Certificate/ Undertaking to be inserted in tenders etc.**

[While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.

The conditions relating to specified ToT (as shown in italics) should be incorporated only in the tenders which attract the restrictions due to specified ToT.]

**A. Model Clauses for Tenders (including tenders issued manually or any electronic portal including GeM):**

I. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority. *Further, any bidder (including bidder from India) having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India, shall also require to be registered with the same competent authority.*

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder (or entity) from a country which shares a land border with India" for the purpose of this Order means: -

- (a) An entity incorporated, established or registered in such a country; or
- (b) A subsidiary of an entity incorporated, established or registered in such a country; or
- (c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- (d) An entity whose beneficial owner is situated in such a country; or
- (e) An Indian (or other) agent of such an entity; or
- (f) A natural person who is a citizen of such a country; or
- (g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The beneficial owner for the purpose of (iii) above will be as under:

- 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. [To be inserted in tenders for Works contracts, including Turnkey contracts] The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

VII. The registration shall be valid at the time of submission of bid and at the time of acceptance of bid.

VIII. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution

#### **Model Certificate for Tenders:**

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

#### **Model Certificate for Tenders for Works involving possibility of sub-contracting:**

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any

work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

***Model additional certificate by Bidders in the cases of specified ToT:***

*"I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement. I certify that this bidder does not have any ToT arrangement requiring registration with the competent authority."*

OR

*"I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement. I certify that this bidder has valid registration to participate in this procurement."*

**B. Model Certificate for GeM (to be taken by the GeM from seller during registration on GeM. GeM should also obtain this certificate from all existing bidders as soon as possible):**

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country and does not have any specified Transfer of Technology (ToT) from such a country or, if from such a country or if having specified ToT from such a country has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

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