

<p>Office of The Executive Engineer (E), BSNL Electrical Division CTTC Complex Sundernagar-175002 Tel.No. 01907-263188, 01907-265588(Fax).</p>		<p>भारत संचार निगम लिमिटेड (भारत सरकार का उपक्रम) <b>BHARAT SANCHAR NIGAM LIMITED</b> (A Govt. of India Enterprise)</p>
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NAME OF WORK: - SITC of forced air ventillation system for Power Plant under GSM  
Phase VII+ project at TE Bldg. Sundernagar. (H.P)

Name of Agency :-

Date of Application :-

Date of issue of Tender Documents :-

Cost of Tender :- **Rs.569.00**

Date of Opening :- 28.05.2016

### **UNDERTAKING**

It is undertaken that we have gone through all the clauses /sub-clauses & terms & conditions of the BSNL EW-6 & BSNL EW -8 forms. We abide by that & we understand that the same shall be part & parcel of the agreement.

Signature of Contractor

Executive Engineer (E)  
BSNL Electrical Division  
CTTC Complex Sundernagar.

**SDE(E-P)**

**B**

**Name of Work :-** SITC of forced air ventilation system for Power Plant under GSM  
Phase VII+ project at TE Bldg. Sundernagar. (H.P)

<b>S.No</b>	<b>DETAILS</b>	<b>PAGE</b>
1	CORRECTION SLIP	1
2	WEB/PRESS NOTIFICATION (THROUGH PRESS)	2
3	WEB/PRESS NOTIFICATION	3 To 4
4	NIT (FORM BSNL EW – 6)	5 To 7
5	TENDER (FORM BSNL EW- 8 )	8 To 13
6	IMPORTANT NOTE TO CONTRACTOR	14 To 18
7	PERFORMA FOR EMD & PREFORMANCE GUARANTEE,	19 To 21
8	DECLARATION BY CONTRACTOR	22
9	SCHEDULE OF WORK	23
10	SPECIFICATIONS	24-31
11	LIST OF APPROVED MAKES	32 To 33
12	Annexure	34-35

This certified that this NIT contains ...35 (Thirty Five)... pages excluding pages A and B.

## **CORRECTION SLIP**

Addendum/Modification to BSNL EW -8 & BSNL EW -6 Forms Conditions of contract-Definitions:-

All reference to :-

- i) BSNL EW /Public work department/P&T Department./D.O.T. /B.S.N.L
- ii) D.G. works/ Additional Chief Engineer BSNL EW /Chief Engineer of Zone.
- iii) Administrative Head of BSNL EW /P&T Department.
- iv) BSNL EW Circles/Civil Circle.
- v) Ministry of works, Housing & supply.
- vi) Government.

In various clauses shall be taken to mean :-

- i) Bharat Sanchar Nigam Limited.
- ii) Chief Engineer (E), Bharat Sanchar Nigam Limited.
- iii) Administrative Head of Bharat Sanchar Nigam Limited.
- iv) Telecommunications Electrical Circle.
- v) Bharat Sanchar Nigam Limited (Ministry of Communications)
- vi) Bharat Sanchar Nigam Limited

**WEB NOTIFICATION**

The Executive Engineer (E) B.S.N.L., Electrical Division, CTTC Complex Sundernagar-175002 invites on behalf of Bharat Sanchar Nigam Limited sealed item rate tenders for the work of :- "SITC of forced air ventilation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P)"

**Last date of receipt of application up to 25.05.2016 (5.00 P.M.)**

For further details please visit our Web Site. [www.hp.bsnl.co.in](http://www.hp.bsnl.co.in)

**Executive Engineer (E)  
BSNL, Electrical Division  
CTTC Complex Sundernagar.**

## SHORT TENDER NOTIFICATION

The Executive Engineer (E) B.S.N.L., Electrical, Division, CTTC Complex Sundernagar-175002 invites on behalf of Bharat Sanchar Nigam Limited sealed item rate tenders for the work from the eligible contractors satisfying the following conditions as given below :-

Name of work	Estimated cost (Rs.)	Earnest Money Deposit (Rs.)	Time for completion
SITC of forced air ventilation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P)	Rs.1,53,934/-	Rs. 3079/-	Two Months

A) Eligibility Conditions

Average annual turnover during the last 3 years, ending 31<sup>st</sup> March of the previous financial year, should be at least Rs.46,180/=

AND

BSNL enlisted contractors in Electrical category of IV(E) or above

OR

Experience of having successfully completed similar works ( similar work means any work of air conditioning /ventilation system/air exhaust system having air handling capacity not less than 1440CFM ) in Central Government /State Government /Central Autonomous Body/ Central Public sector Undertaking during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following :-

Three similar successfully completed works costing not less than the amount equal to Rs.61,574/=

OR

Two similar successfully completed works costing not less than the amount equal to Rs.92,360/=

OR

One similar successfully completed work costing not less than the amount equal to Rs.1,23,147/=

The contractor shall also submit and confirm:

- Documentary proof of satisfying the eligibility conditions as per “A” above , copy of PAN card, copy of CA certificate for turnover, Original authorization of person quoting the tender from Directors/ Proprietor of the company, Near relative certificate from or on behalf of Directors/ Proprietor of the company.

(All the documents shall be self attested as well as certified by any BSNL Executive /Notary /Gazetted Officer of Central Govt).

**The firm should be registered under the Himachal Pradesh Value Added Tax Act 2005.** And should further have EPF and ESI registration certificates from appropriate Govt. authorities.

- The firms who claim to be exempted from the ESI & EPF registration need to submit an affidavit on Non-judicial stamp paper for the same as per performa at p.no. 34 (Annexure-IV).
- The contractor who are not registered under Himachal Pradesh Value Added Tax Act 2005 may bid for the contract however such contractors will have to get himself registered within 15 days from the date of issue of intimation from BSNL regarding intent to accept the tender, else their EMD shall be forfeited absolutely and the firm shall not be allowed to participate in the next tender for the same work. The firm shall give an affidavit as per performa at **page no.35** in this regard
- The Firm should have valid service tax registration.

**(Above Eligibility documents to be submitted in envelope – 1)**

- ◆ The tenderer shall submit the tenders in 2 sealed covers marked as cover 1st and 2nd. The first cover should contain the earnest money deposited in the shape of FDR/CDR/Demand Draft/ Pay order/BG from the scheduled Bank or Nationalized Bank/State Bank guaranteed by Reserve Bank of India drawn in favour of **ACCOUNTS OFFICER (Cash), BSNL Mandi** and the second cover should contain the tender documents. In case 1st cover is not annexed or earnest money is not in proper form, the 2nd cover containing tenders will not be opened at all.
- ◆ The tender documents and all other relevant information/condition can be had on all working day on payment of Rs. 500/- (Five hundred) +Trade Tax in DD/Cash (non refundable).
- ◆ In case Holiday is declared on the opening date tender will be opened at 3.30 P.M. on next working day.

**Note:- Tender documents can also be downloaded from the web site [www.hp.bsnl.co.in](http://www.hp.bsnl.co.in) The firm to quotes on the tender downloaded from web site shall strictly adhere to following procedure :-**

1. The tender shall be submitted in two envelope system.
  - A. First envelope shall contain tender application (if tender downloaded from WEB), tender fee , attested documents proving fulfillment of eligibility criteria as per the tender notice and EMD in proper form. DD should be attached for tender fee, & Bank Guarantee/DD for EMD on Nationalized bank.
  - B. Second envelope shall contain duly filled tender documents.

**The same shall be clearly written on the envelopes**

2. The 1<sup>st</sup> envelope containing tender fee, attested documents providing fulfillment of eligibility criteria and EMD in proper shall be opened first.

**In case if:-**

- i) Tender fee is not submitted in proper form.
- ii) EMD is not in proper form.
- iii) Firms fails to fulfill eligibility criteria on the basis of documents submitted in envelope.

**The second envelope shall not be opened.**

3. If any difference /discrepancies found between downloaded. Tender form, Viz a Viz, hard copy issued from Division office / the contents in Draft NIT issued form Div./Circle/CE (E)'s the hard copy /Draft NIT shall be final & binding.

Documentary proof of satisfying eligibility conditions and valid Income Tax clearance certificate or Chartered Accountant Certificate is to be furnished along with the application on printed letter /heads.

The tenders of contractors who do not deposit earnest money in the prescribed manner are liable to be rejected.

- ◆ **TENDER DOCUMENTS SHALL NOT BE SENT BY POST/COURIER.**
- ◆ **TENDERS RECEIVED BY POST/COURIER SHALL NOT BE OPENED /ENTERTAINED.**
- ◆ **CONDITIONAL TENDERS OR TENDERS WITH CONDITIONAL REBATES SHALL BE SUMMARILY REJECTED.**

<b>Last date of receipt of application</b>	<b>: 25.05.2016</b>	<b>[ 5.00 P.M.]</b>
<b>Last date of issue of tender document</b>	<b>: 26.05.2016</b>	<b>[ 4.00 P.M.]</b>
<b>Last date of submission of tender document</b>	<b>: 28.05.2016</b>	<b>[ 3.00 P.M.]</b>
<b>Date of opening of tender document</b>	<b>: 28.05.2016</b>	<b>[3.30 P.M.]</b>

- ◆ Validity of tender shall be for **90 days** from the date of opening of tender.

**Executive Engineer (E)  
BSNL, Electrical Division  
CTTC Complex Sundernagar.**

**BHARAT SANCHAR NIGAM LIMITED****B.S.N.L EW.- 6****SHORT NOTICE INVITING TENDER**

Item rate tenders are invited on behalf of the **Bharat Sanchar Nigam Limited** from eligible contractors for the work "SITC of forced air ventilation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P)

The work is estimated to cost **Rs.1,53,934/-**

(This estimate, however is given merely as a rough guide)

- 1- Tenders will be issued to eligible Contractors (refer eligibility conditions as mentioned in Web/Press Notification) .
- 2- Agreement shall be drawn with the successful tenderer on prescribed Form No. 8 which is available as a Govt. of India Publication; Tenderer shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
- 3- The time allowed for carrying out the work will be **Two Months** from the **10th day** after the date of written orders to commence the work or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any indicated in the tender documents.
- 4- The site for the work is available.

OR

The site for the work shall be made available in parts:-

5. Receipt of applications for issue of forms will be stopped by **17:00 Hrs. on 25.05.2016** issue of tender forms will be stopped by **16:00 Hrs. on 26.05.2016**.

Tender documents consisting of plans, specifications, the schedule of quantities of the various classes of work to be done and the set of terms and conditions of contract to be complied with by the contractor whose tender may be accepted and other necessary document can be seen in the office of the **E.E (E), B.S.N.L ELECTRICAL DIVISION, CTTC Complex Sundernagar-175002** between hours of 11.00 A.M. & 04.00 P.M. every day except on 2<sup>nd</sup> Saturday, Sunday and Public Holidays. Tender documents, excluding standard **EW- 8** will be issued from this office, during the hours specified above on payment of **Rs.569.00 inclusive of sale tax** (non- refundable) in cash/DD .

**Note:- Tender documents can also be downloaded from the web site**

[www.hp.bsnl.co.in](http://www.hp.bsnl.co.in)

**SDE(E-P)**

6- The tenders must produce a Chartered Accountant certificate in the revised form as modified under Ministry of Finance CBDT circular No. 153/191/2002-TPL dated 13-02- 2003 as amended from time to time before papers can be sold to him.

7 - The tender, which should always be placed in sealed envelope with the name of work and due date written on the envelopes, will be received by the **E.E (E), B.S.N.L. ELECTRICAL DIVISION, CTTC Complex Sundernagar-175002** upto 03.00 P.M. on 28.05.2016 and will be opened by him or his authorised representative in his office on the same day at 03.30 P.M.

8- The tender shall be accompanied by earnest money, (unless exempted) of **Rs. 3079/-** deposited in the shape of FDR/CDR/Demand Draft/ Pay order/BG from the scheduled Bank or Nationalized Bank/State Bank guaranteed by Reserve Bank of India drawn in favour of **ACCOUNTS OFFICER (Cash), BSNL Mandi** the amount being credited to Nationalized Bank.

The description of the work is as follows :- "SITC of forced air ventilation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P) Copies of other drawings and documents pertaining to the work will be open for inspection by the tenderers at the office of the above mentioned officer. Tenderer are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may requisite and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity, access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plants, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

10- The competent authority on behalf of the **B.S.N.L.** does not bind himself to accept the lowest or any other tender, and reserves to himself the authority to reject any or all the tenders received without the assigning any reason. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

**Conditional tenders or tenders with conditional rebate shall be summarily rejected.**

11- Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.

12- The competent authority on behalf of the **B.S.N.L.** reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.



- 13-** The contractor shall not be permitted to tender for works in the B.S.N.L Electrical Zone (Responsible for award and execution of contracts) in which his near relative is posted in any capacity in BSNL in that zone. He will also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any person employed in BSNL, in that zone. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of BSNL.
- 14-** No Engineer of gazetted rank or other gazetted officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as contractor for a period of two years after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractors' service.
- 15-** The tender for the works shall remain open for acceptance for a period of **Ninety (90)days** from the date of opening of tenders. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of the tender which are not acceptable to the B.S.N.L., then the B.S.N.L. shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid.
- 16-** The Notice Inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the accepting authority, shall within 15 days from the stipulated date of start of the work sign the contract consisting of :-
- (a) The Notice Inviting Tender, all the documents including additional conditions, Specifications and drawings, if any, forming the tender as issued at the time of invitation of Tender and acceptance thereof together with any correspondence leading thereto.
  - (b) Standard BSNL EW Form-8



I/ We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person, other than a person to whom I/We am/are authorised to communicate the same or use the information in any manner prejudicial to the safety of the State.

I/We agree that should I/we fail to commence the work specified in the above memorandum, an amount equal to the amount of the earnest money mentioned in the form of invitation of tender shall be absolutely forfeited to the B.S.N.L. and the same may at the option of the competent authority on behalf of the B.S.N.L. be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.

**Dated.....**

**Signature of Contractor**

**Postal Address:--**

**Witness:**

**Address:**

**Occupation:**

**ACCEPTANCE**

The above tender as modified by you (contractor) and as provided in the letters mentioned hereunder is accepted by me for and on behalf of the Bharat Sanchar Nigam Limited for sum of Rs.\_\_\_\_\_

(Rupees\_\_\_\_\_)

The letters referred to below shall form part of this contract Agreement:-

- a)
- b)
- c)

**For & on behalf of the B.S.N.L.**

**Signature \_\_\_\_\_**

**Dated.....**

**Designation \_\_\_\_\_**

**PROFORMA OF SCHEDULES**  
*(Operative Schedules to be supplied separately to each intending tenderer)*

**SCHEDULE 'A'**

Schedule of quantities (as per BSNL -8) As Per Page No. **23**

**SCHEDULE 'B'**

Schedule of material to be issued to the contractor.

S.No.	Description of item	Quantity	Rates of figures & works at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
1.	-----	<b>Nil</b>	-----	

**SCHEDULE 'C'**

Tools and plants to be hired to the contractor

S.No.	Description	Hire charges per day	Place of issue
1	2	3	4
		<b>NIL</b>	

**SCHEDULE 'D'**

Extra schedule for specific requirements/documents for the work, if any.  
----- **NIL**-----

**SCHEDULE 'E'**

Schedule of component of Materials, Labour etc. for escalation.

**CLAUSE 10CC**

Component of materials expressed as percent of total value of work. "X" = NIL

Component of labour expressed as percent of total value of work. "Y" = NIL

Component of P.O.L. expressed as percent of total value of work. "Z" = NIL

**SCHEDULE "F"**

Reference to General Conditions of contract.

**Name of Work:-** "SITC of forced air ventilation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P)"

Estimated cost of work: **Rs.1,53,934/-**Earnest money: **Rs. 3079/-**

**Performance guarantee:** 5% of Contract Value in the form of bank guarantees (of a Nationalized / Schedule Bank in a standard format)/CDR/FDR/DD within two weeks from the date of issue of award letter. The validity period of the performance bank guarantee shall be One Year from the date of actual completion of work.

**Security Deposit :** In addition to performance guarantee a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the Contract value of the work. The amount shall be refunded after One Year from the actual date of completion of work.

GENERAL RULES: Officer inviting tender

Executive Engineer (E)

& DIRECTIONS Maximum percentage for quantity of items of work to be executed **beyond** which rates are to be determined in accordance with Clauses 12.2 & 12.3.

**As per clause 12 of Important Note For Contractors (page 15)**

Direction :-

2(v)

Engineer-in-Charge

Executive Engineer (E)  
Bharat Sanchar Nigam Ltd.  
Electrical Division, SNR

2(viii) **Accepting Authority****E.E (E)**

**Bharat Sanchar Nigam Ltd.  
Electrical Division Sundernagar.**

10%

2(x) Percentage on cost of materials and labour to cover all overheads and profits.

2(xi) Department

Bharat Sanchar Nigam Ltd.

2(xii) Standard Schedule of Rates

DSR-2012

9 (ii) Standard CPWD Contract form

BSNL EW form 7/8 as modified  
& corrected upto date

**Clause 2**

Authority for fixing  
Compensation under clause 2.

Superintending Engineer (E.)

**Clause 5**

Time allowed for execution of work.  
Authority to give fair and reasonable  
Extension of time for completion of work

**Two Months**  
Superintending Engineer (E)

<b>Clause 7</b>	Gross work to be done together with net payment/ adjustment of advance for materials collected, If any, since the last such payment for being eligible to interim payment.	FIVE THOUSAND
<b>Clause 11</b>	Specifications to be followed for execution of work.	AS PER SPECIFICATION ATTACHED & CPWD
<b>Clause 12</b>		
<b>12.1(ii)</b>	Schedule of rates for determining rates for additional, altered or substituted items that cannot be determined under 12.1(i) & (ii)	DSR-2012
<b>12.1 (iii)</b>	Plus/minus the % over the rate entered in the schedule of rates.	-----do-----
<b>12.1(v) A</b>	Deviation Limit beyond which sub-clauses (i) to (v) shall not apply and clauses 12.2 & 12.3 shall apply	25% and can be extended up to 50% in urgent nature as per clause 12(a) & (b) Page15
<b>12.1(vi)B</b>		
<b>(a)</b>	Limit for value of any item of any individual trade beyond which sub-clauses (i) to (v) shall not apply and clauses 12.2 & 12.3 shall apply	-----do-----
<b>Clause 16</b>	<b>Competent</b> Authority for deciding reduced rates.	S.E.(E), B.S.N.L., Electrical Circle, Shimla
<b>Clause 36</b>		
<b>(i)</b>	Minimum Qualification & experience required for Principal Technical Representative.	
<b>(a)</b>	For works with estimated cost put to tender more than	
<b>(i)</b>	Rs. 10 Lacs for Civil work	Graduate or retired AE possessing at least recognised diploma.
<b>(ii)</b>	Rs. 5 Lacs for Elect./Mech. Works	
<b>(b)</b>	For works with estimated cost put to tender	
<b>(i)</b>	More than Rs. 5 Lacs but less than Rs. 10 Lacs for Civil Works.	Recognised Diploma holder.
<b>(ii)</b>	More than Rs. 1 Lacs but less than Rs. 5 Lacs for Elect./Mech. Works.	Elect / Mech
<b>(c)</b>	Discipline to which the Principal Technical Representative should belong.	Elect/ Mech
<b>(d)</b>	Minimum experience of works.	3 years.
<b>(e)</b>	Recovery to be effected from the contractor in the event of not fulfilling provision of clause 36(i)	Rs. 4,000/- p.m. for Graduate Rs. 2,000/- for diploma holder

**Clause 42**

- |   |   |                |
|---|---|----------------|
| <b>(i)</b>  | Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates ___ printed by C.P.W.D. | -----N.A.----- |
| <b>(ii)</b> Variations permissible on theoretical quantities. |   |                |
| (a) i)  | Cement for works with estimated cost put to tender not more than Rs. 5 Lacs.  | N/A.           |
| ii)   | for works with estimated cost put to tender more than Rs. 5 Lacs.   | N/A.           |
| (b)   | Bitumen all works.  | N/A            |
| (c)   | Steel Reinforcement and structural steel sections for each diameter, section and category.  | N/A.           |
| (d)   | All other materials.  | Nil            |

**RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION**

Sl. No.	Description of item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	less use beyond the permissible variation
1.	Cement		
2.	Steel Reinforcement		
3.	Structural Sections	----- N.A. -----	
4.	Bitumen issued free		
5.	Bitumen issued at stipulated fixed price.		

## **IMPORTANT NOTE FOR CONTRACTORS**

### **1.0 Tax and Duties:-**

- 1.1 All taxes, Levies, duties etc. in respect of this contract (**i/c service tax**) payable by the vendor & BSNL will not entertain any claim in respect of the same.
- 1.2 BSNL shall deduct statutory taxes and duties like income tax, works contract tax etc. from payment due to the firm as per rule of the State. Central Government. The Accounts Officer of the concerned SSA shall issue certificates for such deductions to the firm.
- 1.3 As per Govt. of India Service Tax (Determination of Value) Rules 2006, Service Tax for original works is applicable on 40% of the total amount charged for the works contract. At present, the rate of Service Tax is @14.5% and shall be applicable as being modified by Govt. Of India time to time.

### **2.0 Work Contract Tax:-**

The rates offered by the firm shall be inclusive of the works contract tax as applicable in the state. The Department shall deduct works contract tax from payments due to the firm as per rules of the state Government. Certificates for such deductions shall be issued to the firm by the Accounts Officer of the concerned SSA.

### **3.0 Octroi Certificate:-**

“No octroi exemption certificate will be issued by the department”.

### **4.0 Department reserves the right to accept the quantities in full or in parts.**

### **5.0 SPLITTING OF WORKS:-** No Splitting of work.100% work shall be awarded to the lowest tenderer.

### **6.0 (a) “SALES TAX AND OTHER TAXES”**

Tendered rates are inclusive of taxes and statutory levies payable under the respective statutes. However pursuant to the constitution (Forty Six Amendment) Act 1982, if any further tax or levy is imposed by statute after the date of receipt of tenders and the contractor (s) thereupon necessarily and properly pays taxes or levies the contractor (s) shall be reimbursed the amount also paid provided such payment if any is not in the opinion of SE (whose decision shall be final and binding) attributable to delay in execution of work within the control of the contractor (s).

6.0(b) The contractor (s) shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorised representative of Government and shall furnish such other information/documents as the Engineer-in -charge may require.

6.0(c) The contractor (s) shall within a period of 30 days of imposition of any further tax or levy pursuant to the constitution (Forty Six Amendment) Act 1982 give a written notice there of to the Engineer-in-charge that the same is given pursuant to this condition together with all necessary information relating thereto.

NOTE:- No additional condition whatsoever will be accepted for turnover tax/sales tax on works contract . In case of additional conditions for the payment of such claims by the contractor the tender may be liable to be summarily rejected by the accepting authority. (Standing order No. 258)



7. **EARNEST MONEY:-** Firm has option to deposit earnest money in the shape of FDR/CDR/Demand Draft/ Pay order/BG from the scheduled Bank or Nationalized Bank/State Bank guaranteed by Reserve Bank of India drawn in favour of **ACCOUNTS OFFICER (Cash), BSNL Mandi.**

8. **Performance Guarantee :**

As mentioned at page no. 86 of BSNL EW-8 under Schedule "F" of Performa of Schedule

9. **SECURITY DEPOSIT:**

In addition to performance guarantee a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the Contract value of the work. The amount shall be refunded after One Year from the actual date of completion of work

10. **TERMS OF PAYMENT:-**

- a) 80% of prorate of the approved price break-up of contract value on receipt of equipment at site.
- b) 10% of prorate of the approved price break up of contract value after successful installation
- c) 10 % of the approved contract value after successful completion of the testing and commissioning

11. **CURRENCY OF CONTRACT:-** The contract shall be **Two Months.**

12. **Deviation:-**

a) The ordering quantity can be increased/decreased up to the extent of 25%(deviation limit) without the consent of the firm within the currency of contract. The firm shall execute such quantities at the rate quoted in the tender without any change in terms and conditions of the contract.

b) In exceptional situation where the requirement is of an emergent nature and it is necessary to ensure continued supplies from the existing venders, the purchaser reserves the right to place repeat order up to 50% of the quantities of goods and services contained in the running tender/contract within a period of twelve months from date of award of work at the same rate or a rate negotiated (downwardly) with the existing venders considering the reasonability of rates based on prevailing market conditions and the impact of reduction in duties and taxes etc.

**13. Guarantee & Defects Liability Period**

The guarantee shall be valid for 24 (Twenty Four) months after successful installation testing and commissioning. The contractor shall guarantee that all the equipment shall be free from any defect due to the defective materials and/ or bad workmanship and also the equipment shall work satisfactorily with performance and efficiencies not less than the guaranteed values.

a) Any parts found defective during the guarantee period shall be replaced free of cost by the contractor. The services of the contractors personnel, if required during this period shall be made available free of cost to the department.

b) The representative of department and firm shall prepare a joint report regarding the nature of defect and remedial action required. Time schedule for such action shall be also finalized.

c) In case the contractor fails to depute his representative within 36 (thirty six) hours of notification of defects or fails to cause remedial measure within a reasonable time as decided during joint inspection, the department may proceed to do so at the contractor's risk and expenses without prejudice to any other right.

**14. COMPENSATION FOR DELAY**

If the contractor fails to maintain the required progress or complete the work and clear the site on or before the contract or extended date of completion, he has to pay the compensation for delay which is limited to 0.5% per week of work order value for the first 10 weeks and 0.7% per week for next 10 weeks and thereafter subject to a maximum of 12% of the work order value for the location where work is delayed and the firm is found responsible for the same. Flow chart of the procurement process/contract shall be supplied by the contractor and approved by Executive Engineer concerned.

**15:- Participation of near relatives of the BSNL employees**

All near relatives of BSNL Employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL., The detailed guidelines in this regard are given in the following paragraphs :-

I) The near relatives for this purpose are defined as:

- a) Members of a Hindu Undivided family.
- b) They are Husband and wife.
- c) The one is related to the other in the manner as father, mother, son(s) & son's wife (Daughter-in-law). Daughter (s) & daughter's husband (son-in-law). Brother (s) & brother's wife sister (s) & sister's husband (brother-in-law).

II)

As

per Government of India's CCS Conduct rule 4, no Government servant shall in the discharge of his official duties deal with any matter or sanction any contract to any company or for any other person if any member of his family is employed in that company or firm or under that person or if he or any member of his family is interested in such matter or contact to his official superior. This clause is applicable to all BSNL employees and in view to this as soon as any BSNL employee becomes aware of the above aspect, he must intimate this to the prescribed authority.

For non executive employees this authority is SSA Head/Circle Head/Chief Engineer/Chief Archt./ Corporate office under whom he is posted. For executive employees (at present some of them are called as Gazetted officers ) the prescribed authority for this purpose is Circle Head/Chief Engineer/Chief Archt. Corporate office under whom he is posted.

- III) (a) The company or firm or any other person is not permitted to tender for works in BSNL Units in which his near relative(s) is (are) posted. The unit is defined as SSA/Circle/Chief Engineer /Chief Archt. /Corporate office for non executive employees and all SSA in a circle including circle office /Chief Engineer/Chief Architect/Corporate office for executive employees (those called as Gazatted officers at present). Therefore, it has been decided by the competent authority that a clause must be added in the tender and other related documents that the tenderer should give a certificate that none of his /her such near relative is working in the units as defined above where he is going to apply for tender/work. In case of proprietorship firm certificate will be given by all the partners and in case of limited company by all the Directors of the company. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/security deposit will be forfeited at any stage whenever it is so noticed. The department will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.

**ANNEXURE-I**  
**MODEL FORM OF BANK GUARANTEE**

Whereas \_\_\_\_\_ (hereinafter called "the Contractor(s)  
"has submitted its Tender dated \_\_\_\_\_ for \_\_\_\_\_ )  
(Name of Work ) \_\_\_\_\_

KNOW ALL MEN by these presents that WE \_\_\_\_\_

\_\_\_\_\_ of \_\_\_\_\_ having our registered office at  
\_\_\_\_\_ (hereinafter called "the Bank") are bound unto \_\_\_\_\_  
\_\_\_\_\_ (hereinafter called "the B.S.N.L.") in the sum of  
\_\_\_\_\_ for which payment will and truly to be made of the said B.S.N.L., the Bank binds itself,  
its successors and assigns by the these presents.

**THE CONDITIONS** of the obligation are :

- 1- **If the Contractor(s) withdraws its tender during the period of Tender validity specified on the Tender Form, or**
- 2- **If the Contractor(s) having been notified of the acceptance of its Tender by Bharat Sanchar Nigam Limited during the period of Tender validity.**

**a) Fails or refuses to execute the Contract.**

**b) Fails or refuses to furnish Security Deposit in accordance with the conditions of Tender document.**

We undertake to pay to Bharat Sanchar Nigam Limited upto the above amount upon receipt of its first written demand, without B.S.N.L. having to substantiate its demand, provided that in its demand B.S.N.L. will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions specifying the occurred condition or conditions. The guarantee will remain in force as specified in the Tender Document upto and including Thirty (30) days after the period of the Tender validity, and any demand in respect thereof should reach the Bank not later than the specified date/dates.

**Signature of the Bank**

**Signature of the Witness**

**Name of witness**

**Address of witness**

**ANNEXURE-II**

**MODEL FORM OF PERFORMANCE GUARANTEE**

I) BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE FOR ELECTRICAL INSTALLATION/O & M/ AIR CONDITIONING, DIESEL ENGINE ALTERNATOR, LIFTS AND SUB-STATION WORKS etc.

\_\_\_\_\_ for \_\_\_\_\_  
\_\_\_\_\_ (Name of work) and

Whereas ----- (here in after called" the Contractor(s)" has submitted its Tender dated \_\_\_\_\_ for \_\_\_\_\_ (Name of work) and

Whereas----- (here in after called" the Contractor(s)" has been communicated the acceptance of its tender dated \_\_\_\_\_ for \_\_\_\_\_ (Name of work) vide letter No. \_\_\_\_\_ dated \_\_\_\_\_ BSNL.

KNOWN ALL MEN by these presents that We \_\_\_\_\_ of \_\_\_\_\_ having our registered office at \_\_\_\_\_ (here in after called "The bank") are bound up to \_\_\_\_\_ (here in after called "the BSNL") in the sum of \_\_\_\_\_ for which payment will and truly to be made of the said BSNL, the Bank binds itself, its successors and assigns by these presents.

- i) We (name of the bank) \_\_\_\_\_ do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the BSNL by reason of breach by the said contractor(s)' of any of the terms or conditions contained in the said Agreement or by reason of the contractor(s)' failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding \_\_\_\_\_.
- ii) We under take to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s)/supplier(s) shall have no claim against us for making such payment.
- iii) We (name of the bank) \_\_\_\_\_ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till \_\_\_\_\_ (office/Department) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS (as specified in the agreement) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

- iv) We (name of the bank)\_\_\_\_\_further agree with the BSNL that the BSNL shall have the further liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Contractor(s)and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
  
- v) This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s)/supplier(s).
  
- vi) We (name of the bank)\_\_\_\_\_lastly undertake not to revoke this guarantee during its currency expect with the previous consent of the BSNL in writing .

Dated\_\_\_\_\_ day of \_\_\_\_\_

For\_\_\_\_\_   
 (Indicate the name of bank)

**DECLARATION TO BE GIVEN BY CONTRACTOR**

I.....

S/o.....

R/o.....

hereby certify that none of my relative (s) as defined in the tender document is /are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect. BSNL shall have the absolute right to take any action as deemed fit/ without any prior intimation to me”.

**DATED: -----**

**Signature of contractor**

-----

-----



**SCHEDULE OF WORK**

**NAME OF WORK –SITC of forced air ventillation system for Power Plant under GSM Phase VII+ project at TE Bldg. Sundernagar. (H.P)**

Sr.No.	Description of item.	Quantity	Rate	Unit	Amount
1	Supply, Installation, testing and commissioning of single skin ceiling suspended Exhaust air Ventilation units with return air intake section with flange type opening for Exhaust air duct complete with following parts as described here under:- Fan section with DIDW centrifugal forward curved fan. Drive set with V-Belt and motor shall be suitable for 240 volts, 50 cycles, 1 phase AC supply. Damper at inlet and bird screen etc Static (mm WG) 35 and Air Qty 1800 CFM (M/S Edgetech / Zeco or Similar Superior Make)	2 Nos		Each	
2	Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal ducting complete with neoprene rubber gasket, hangers supports etc as per approved drgs and specifications of following sheet thickness as reqd.				
(a)	22 SWG	20 Sq.m trs		Sq. mtr.	
3	Supply, fabrication, installation and testing flexible connections constructed of fire resistance flexible double canvas sleeve as per the approved drawings.	2 Sq.m trs		Sq. mtr.	
4	<b>Power Cabling:</b>				
	Supply, laying testing and commissioning of 1100 volt grade PVC insulated and PVC sheathed multicore round (flexible) cables of size as below, on cable trays / walls with suitable clamps, saddles, hooks, bolts etc. complete all as required. The quoted rate shall include the cost of proper dressing of cables and also providing identification tags as required.				
(i)	3 core 2.5 sq. mm copper conductor	40 Mtrs		Mtr.	
5	Supplying & Fixing of Semi rigid uninsulated aluminium flexible duct 250mm dia etc. as required.	60 Mtrs		Mtr.	
		Total (A)			

Executive Engineer(E)  
BSNL Electrical Division  
CTTC Complex Sundernagar.

**SDE(E-P)**

# SPECIFICATION

## SHEET METAL DUCTING ETC.

### 1. Scope

This section sets out the general requirement for sheet metal ducting supply air outlets and return air fresh air intakes, their materials of construction, methods of installation and finishing requirements.

### 2. Design

The air velocity should be selected from the following ranges for an overall economy.

Application	Supply air ducts		Return air passage
	Main	Branch	
	(M/Mt.)	(M/Mt.)	(M/Mt.)
Technical rooms	350-500	250-300	280-400
Non technical Rooms	300-350	200-250	250-300

### 3. Ducting

- All ducts should be fabricated from class IV Galvanized steel sheets conforming to I.S. 277. Flanges, mating duct sections and stiffening angles should be of rolled steel angles. All nuts, bolts and washers should be of Zinc plated steel and all rivets should be galvanized or made of magnesium aluminium alloy. Self-tapping screws should not be used.
- Duct construction should generally conform to I.S. 655 "Specifications for Metal air ducts". Thickness of sheets for rectangular duct work should however be as follows

.....Longest side (mm)	Minimum G.S.S. (mm)	Sheet thickness Gauge
750 and below	0.63	24
751 to 1500	0.80	22
1501 to 2250	1.00	20
2251 to above	1.25	18

The thickness of all the four sides should be determined by the thickness required for the longest side of the duct from the above table:-

3. The rectangular ducts should be constructed by breaking the corners and approving the longitudinal seams.
4. The type of slips and transverse connections for various sizes of rectangular ducts should be chosen from the following.
  - i) S-Driver, pocket or bars in for ducts with maximum side upto 1000 mm.
  - ii) 40mm x40mm angle connections, or 40 mm pocket or 40mm bar slips with 35mm x 3mm bar reinforcing for ducts with maximum side above 2250 mm with center to center not exceeding 1000 mm.
5. Simple elbows and transformation sections should be formed with pittsburgh corner seams. Complicated fittings such as double compounded elbows should be constructed with double seam corners.
6. End seams may be used in place of S-slips if found essential. Where drive slips are used, the end slips may be applied on the narrow side of the duct and the drive slips on only the maximum side.
7. Ducts of size 600 mm and above should be reinforced between the joints but not necessarily at the joints. Where drive slips are used the angles should be riveted to the duct about 50mm from the slips.
8. The duct should be stiffened by cross breaking or beading at 300mm centers for ducts upto 600mm longest side and at 150mm centers for ducts above 600mm longest side in order to prevent vibration or ducting due to the all flow and accompany variations in internal pressure insulated ducts need not be cross broken.
9. Bracing's of M.S angles at an interval not exceeding 1200 mm for ducts with maximum size upto 1500 mm and at a distance not exceeding 600mm for ducts with maximum side above 1500 mm should be used. Angles of 25 x 25 x 3 mm may be used for ducts of upto maximum side of 1000mm whereas for bigger duct the angle should be of 40 x 40x 3 mm.
10. Bracings where used should be fixed to the sides of the duct by riveting. Flanged joints should be used at intervals not exceeding 2500mm. M.S. Flanges should be welded at corners first and then riveted to the duct.
11. All flanged joints should have at least 6mm thick felt lining between the flanges.
12. Long radius elbows and gradual changes in shape should be used so as to maintain uniform velocities accompanied by decreased turbulence, lower resistance and minimum noise. The ratio of the size of duct to the radius of elbow should be normally not less than 1: 1.5.
13. Suitable supply and volume control dampers should be provided in the branch ducts for balancing the air quantities. Suitable links, levers and quadrants should be provided for proper operation, control and setting of the dampers. Every damper should have indicating device clearly showing the damper position at all times.

14. For measurement purposes openings in ducts such as for branch ducts, grills etc. should not be deducted, however no measurements should be recorded for volume control dampers, guide vanes, louvers etc.
15. Fire dampers specified in the tender schedule and as shown in the tender drawings should be provided. The construction of fire damper should conform to the relevant codal requirement for local bylaws or fire regulations, if any. In absence of any such laws the fire damper design and material should conform to the details and material specifications shown in the figures 1 and 2. Fire damper casing may be either with 3.15 mm. Thick M.S. sheet with M.S. angle iron reinforcements.
16. All joints should be made airtight and all interior surfaces should be smooth. Bends should be made with radius not less than one half the width of the duct or with properly designed interior covered vanes.
17. An open able panel for access to the heaters should be provided in the duct. Any holes in the duct for electrical wiring should be provided with suitable bushes to avoid air leakage.
18. All ducts should be supported on angle iron supports 40mm x 40mm x 6mm in case of ceiling suspended ducts. Distance between supports should not be more than 2.5 mtrs in case of straight run and additional support should be provided wherever necessary such as bends etc. Necessary hangers and braces etc. should be provided by the contractor, where ducts can not be suspended from ceiling. Wall brackets or other suitable arrangement approved by Engineer-in-Charge should be adopted. A minimum of 6mm neoprene or other vibration isolation packing should be provided between the duct and angle iron support at critical points.
19. Where metal ducts or sleeves terminate in woodwork. Brick or masonry openings tight joints should be made by means of closely fitted heavy flanged collar.
20. Duct connections to the air handling units should be made by inserting a double canvass sleeve 100mm long. The sleeve should be securely bonded and bolted to the duct and the unit casing.
21. Where there is a fire hazard, asbestos cloth connections should be used on both inlet & outlet to all fans.
22. Doors should be provided in ducts and air plenums for access to pipes, dampers, heaters etc.

#### **4. Duct insulation**

1. The duct surface where the insulation is to be applied should be thoroughly cleaned with wire brush and rendered free from all dust and grease. The specified thickness of insulation should then be stuck to the duct with hot bitumen of suitable grade or any other compound recommended by the insulation manufacturers.

The insulation should be covered with polvethene taking care to seal all the joints. 19mm wire netting, butting all joints laced down with G.I. wire should then be applied around the insulated duct. The surface finish should be provided as specified in the following paras.

2. Insulation on supply ducts is finished with 0.63mm thick (24-gauge) G.I. sheet.
3. Supply air ducts running in technical rooms without return air boxing or false ceiling should be provided with required thickness or insulation covered with G.I. sheet.
4. Insulation provided for Return Air Boxing, false ceiling, return air masonry shaft and wall insulation in weather maker room should have vapor barriers on both sides of the insulation.
5. Vapour barrier should be of not more than 250-gauge polythene sheet.
6. Size of the frame work R.A. Boxing should be restricted to 1200 mm x 600 mm (4' x 2') to prevent sagging.

### **5 Supply Air Outlets and Return Air Intakes.**

1. All air outlets & intakes should be of sheet steel connections/aluminium connection as the case may be in accordance with schedule of works.
2. Square or rectangular side outlets/intakes should have a flanged with outside edge returned or covered 5 mm to 7mm and fitted with a suitable flexible gasket. Supply air register should have fixed front louvers parallel to the longer dimension. The outer frame (18 gauge) All extruded section. The louvers should be of not less than 0.63-mm gauge) Auminium louvers may be spaced 18mm.
3. Square and rectangular ceiling outlets and intakes should have a flange flush with the ceiling in to which it is fitted or be anti-smudge type. The outlets should comprise outer should with duct collar and removable diffusing assembly. The outer should not be less than 0.63-mm (24-gauge) steel.
4. Circular ceiling outlets and intakes should have anti-smudge outlet cones as required. Anti smudge stones should have the ceiling adjacent to the air outlet. The metal sheets used for construction should not be less than 1.25mm (18 gauge) steel sheets.
5. All supply air outlets should be so located or protected as to avoid any risk or condensate drops falling on equipment, particularly at the time of starting of the plant.
6. M.S. wood framework should be used for fixing the grills. It should be rigid in construction and present a neat appearance.
7. Free area of the grills and diffusers must not be less than the specified percentage of the face area given in the schedule of work.
8. All supply air outlets should be fitted with a volume control device which should be located immediately behind the outlets and should be fully adjustable from within the occupied space, without removing any access panel.

9. Volume Control Device for circular outlets should be opposed blade radial dampers or butterfly dampers in conjunction with equalizing grid. Opposed blade damper should be used for square and rectangular ceiling and wall outlets.

**6. Fresh Air Intakes.**

1. The fresh air intakes should be made of hot dipped galvanised steel sheet. Rolled steel channels and angles should be used for framework and for stiffening. All bolts nuts and washers used should be non-corrosive type.
2. A flanged frame should be provided on the front face to conceal the gap between the louvers and the adjoining wall face. Corners of frame should be reinforced with angles.
3. Louvers should be made in modular panel form for ease of handling these should be free from waves and buckles. Vertical blades should be truly vertical and horizontal blades should be truly horizontal. But joints in blades should not be accepted.
4. Additional intermediate equally spaced supports and stiffeners should be provided to prevent sagging and vibration of the louvers at not more than 750mm.
5. A bird wire screen made of 12mm mesh in 1.6-mm (16 gauge) steel wire held in angle or channel frame should be fixed to the rear face of the louver frame by screws.
6. No fixing device should be visible from the front face of the frame. Where louvers are to be fixed in masonry or concrete fixing should be with either expanding plags or rawl plugs. Where the louvers are to be fixed in steel or wood, non-ferrous screws or bolts should be used.

**7. Testing**

1. After completion of entire ducting system, the same should be tested for air leakages through joints etc.
2. The entire air distribution system should be balanced to supply the air quantities as required in various regions each grill/diffuser should be recorded and the record be submitted to the Engineer-in-Charge.

**8. Painting.**

1. Supply air outlets and return air/fresh air intakes should be provided with a with a decorative finish by spray painting matching the surroundings or as advised by the Engineer-in Charge.
2. The outer surface of R.A. Boxing/False ceiling should be cleaned, rendered dust free, applied with a layer or primer followed by two layers of oil bounded distemper/plastic emulsion paint of colour/shade in accordance with the environment and approved by Engineer-in –Charge.

## ELECTRICAL WORK

### 1.0 Scope

4.1 This section sets out the basic requirement for switchboards, electrical power wiring to individual motors and other equipment, control circuit wiring and earthing etc.

### 1.1 General

4.1.1 Unless otherwise specified particularly the entire equipment should be suitable for operation on 415 volts/240 volts, 50Hz earthed neutral, 3/single-phase alternating current system as may be required.

4.1.2 All components, accessories, raw material and finished parts used in manufacture and assembly of switch boards, power and control circuit wiring and earthing system should comply with the relevant Indian Standards amended upto date. Where Indian Standards do not exist British Standards should apply.

4.1.2 The entire work should comply with Indian Electricity rules and C.P.W.D. general specifications for electrical work. Particular care should be taken to ensure compliance to I, E rules 41, 45, 51 and 61.

### 2.2 Switch Board:

2.2.1 The switchboard should be floor mounted, front operated, free standing, totally enclosed. Compartmentalized cubicle type, rigid construction with not less than 1.6-mm thick (16-gauge) M.S. sheet or as specified in tenders with angle iron framework. All bolts, washers, nuts and screws should be adequately galvanized. The design should include all provisions for safety of operating and maintenance personnel.

2.2.2 Bus Bars should be of high conductivity Aluminum with adequate cross sectional areas (refer table below). The cross section of neutral busbar should be not less than the half the cross section of the phase busbar. Bus bar should be sleeved suitably. Bus bars should be adequately supported on insulators to withstand the maximum short circuit stresses likely be encountered. The insulating material should be resin cost non-carbonizing type and should be impervious to moisture.

#### TABLE

**Aluminum/Copper busbar section  
(Ref. Clause 7.1.2.2 of CPWD SPECIFICATIONS)**

Current Rating In amps. Up to	: Recommended rectangular cross section :-----			
	Aluminium		Copper	
	No. of strip Phase	: Size : In mm	No. of strip Phase	Size in mm
100	1	20 x 5	1	20 X 3
200	1	30 X 5	1	25 X 5
300	1	50 X 5	1	40 x 5
400	1	50 X 6	1	50 x 5
500	1	75 X 6	1	60 x 6

Note: -

- (i) With aluminium busbars, only aluminium wire/solid bar connections should be made for incoming /outgoing mountings on the switchboard.
- (ii) With copper busbars, only copper wire/solid bar connection should be made for incoming/outgoing mountings on the switchboards.

- 2.2.3 Clearance for air insulated bus bars and bus bar connections should be not less than 32 mm for phase to phase and 26 mm for phase to earth.
- 2.2.4 For tap off connections P.V.C. insulated wires may be used for current ratings upto 100 amps. For higher current ratings solid conductors/strip suitably insulated with P.V.C. sleeve/tape should be used.
- 2.2.5 The moulded case air circuit breakers should be conforming to relevant I.S.
- 2.2.6 Circuit breaker should be provided with handle and be complete with over load and no volt coil. The panel which houses air circuit breaker should be provided with indicating lamps for indicating ON AND OFF position of circuit breaker and voltmeter and ammeter of approximately 100mm x 100mm size with selector switches and control fuses for potential circuits and current transformers for ammeter. An arrangement should also be provided for termination of cables on to this circuit breaker panel. **Doors should not open during ON position of switches/breakers.**
- 2.2.7 In the case of cubicle type switchboards, cable chambers of adequate dimensions should be provided for entry of cables from different circuits. Connections from the individual components should be extended to the cable chamber so as to facilitate connecting up outgoing circuit to terminations from different components. The arrangement should be so provided that it would not be necessary to shut down any healthy circuit in the event of a maintenance work becoming necessary on a defective component/circuit. Such cubicle chambers should be of adequate dimensions to permit cables to be suitably clamped with adequate clearances. The physical layout of cable chambers should be decided mutually.
- 2.2.8 Flush mounting type voltmeter and ammeter with current transformers and selector switches should be provided in the main incoming feeders.
- 2.2.9 The voltmeter and ammeter should conform to I.S.1248 direct acting Electrical Indicating Instruments with higher than 1.5 class index.
- 2.2.10 Provision should be made for earthing of the switch board frame by 2 independent earthing plugs.
- 2.2.11 Adequate lifting facilities should be provided for each shipping section to facilitate handling and transport.

### **2.3 Power Wiring**

- 2.3.1 Power cables should be laid in racks or trays suspended with hangers as required. No trenches should be made in floors for this purpose. Where two or more cables are laid together, the cables should be properly de-rated.
- 2.3.2 When cables pass through pipes, wooden bushes should be provided at both the ends. When cables are required to pass through floors or walls, pipe inserts should be provided and openings sealed in approved manner.
- 2.3.3 The power cables should terminate at either end in squeezed gland with cable sockets. The cable conductors should be crimped in to the cable sockets.

### **2.4 Control Wiring**

- 2.4.1 Control circuit wiring should be carried out with 250 volts grade PVC insulated armored multi core copper conductor cables.
- 2.4.2 Control cables should be of adequate cross sections to restrict the voltage drop but each conductor should be not less than 1.5 sq. mm.
- 2.4.3 Runs of control wires within the switchboard should be neatly bunched and suitably supported/clamped. Means should be provided for easy identification of the control wires by means of labeled ferrules.
- 2.4.4 The control wiring should correspond to the circuit/ sequence of operations and inter locks as required for satisfactory performance of the plant.

### **2.5 Earthing**

- 2.5.1 In accordance with Rule 61 of IE Rules, metallic frame of all medium voltage equipment/supporting frames should in all cases be connected to 2 separate and distinct earth. The size of such earth wires should be not less than 4-mm G.I. wire.



2.5.2 The main double earthing will be extended by the department in the main incoming panel along with main incoming feeder and further looping of entire installation from main panel with G.I. strip/G.I. wire is to be done by the firm as per the instructions of the English-in-Charge.

## **2.6 Testing**

**2.6.1** Before commissioning, the installation should be subjected to the following tests.

2.6.2 An insulation resistance test with a 500 volts megger.

2.6.3 Earth resistance continuity test, and

2.6.4 Cables continuity test.

2.6.5 All results of such tests should be furnished to the English-in-Charge.

## **2.7 Painting**

Entire steel work should undergone process of degreasing, pickling in acid, cold rinsing, phosphatising, passivating, spread with a high corrosion resistant primer and than finally finished with two coats of approved colour and quality of synthetic enamel paint.

## LIST OF APPROVED MAKES- BSNL ELECTRICAL WING

S. No.	Item	Makes
1	Engine	Ashok Leyland /Cummins/ Cater pillar / KOEL/ Volvo Penta / Mahindra & Mahindra (up to 40 KVA) /Escorts (up to 30 KVA)/ Eicher (up to 20 KVA)
2	Alternator(Brushless)	Crompton Greaves (AL. series) / KEC / Leroy Somer / Stamford/Jyoti Ltd
3	Battery (Lead Acid / Mntc. Free)	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard
4	HV Switchgear (Vacuum Circuit Breaker/SF6 )	Biecco Lawrie / Crompton / Kirloskar / MEI / Jyoti Ltd
5	Transformer (Oil filled / Dry type)	ABB / Schneider Electric /Andrew Yule / Bharat Bijlee / Crompton / EMCO / Kirloskar /Siemens
	a) Above 400 KVA /	
	b) Up to 400 KVA	In addition to above makes, Uttam/Automatic Electric Gear(AEG)/Patson/Rajasthan Transformer and Switchgear
6	Air Circuit Breaker	L&T/ Schneider Electric / Siemens
7	MCCB(Ics=Icu)	L&T/ Schneider Electric / Siemens
8	SDF units	L&T/ Schneider Electric / Siemens/ HPL/Havells
9	Power Contactors	L&T/ Schneider Electric / Siemens/ Lakshmi(LECS)
10	Change Over Switch	HPL / Havells / H-H Elcon
11	Intelligent APFC Relay	L&T/EPCOS(Siemens)/ Schneider Electric / Neptune Ducati/Syntron/ABB
12	Bus Bar Trunking/ Sandwiched Bus Duct	Moeller/L&T/Schneider Electric/ABB/Legrand/Zeta
13	Power Capacitors (MPP/APP)	L&T/EPCOS(Siemens)/ABB/Crompton/ Schneider Electric/Neptune Ducati
14	Digital/ KWHr meter	Schneider Electric/ AE/ Digitron / IMP/ Meco / Rishabh / Universal/HPL/L&T/ABB
15	Cold shrink HT/LT Cable Joint	Denson / 3M(M-Seal) / Raychem
16	Rubber Matting	ISI mark
17	MCB/ Isolator/ELCB / RCCB/ Distribution Board	Crompton / Havells / Indokopp / MDS Legrand/ L&T / Schneider Electric/ Siemens / Standard/ C&S/ABB/HPL
18	MS/ PVC Conduit	ISI mark
19	Cable Tray	MEM/Bharti/Ratan/Slotco/Profab
20	HT/LT Cables	ISI mark
21	PVC insulated copper conductor wire	ISI mark

22	Centrifugal Pump	Amrut / BE / Beacon / Batliboi / Crompton / Jyoti / Kirloskar / KSB / Mather & platt / WASP/Grundfos
23	Submersible Pump	Crompton/Amrut / BE / Calama / Kirloskar / KSB
24	Motors	ABB/ Bharat Bijlee / Crompton Greaves /Schneider Electric / HBB / KEC / Siemens/Jyoti Ltd
25	Fresh Air Fans	GE / Khaitan/Almonard/Crompton
26	Starter	ABB / BCH / Schneider Electric / L&T / Siemens /
27	Single Phase Preventer	L&T / Minilec / Siemens / Zerotrip
28	GI/MS Pipe	ATC / ATL / BST / GSI / ITC / ITS / IIA /JST / Jindal /TTA / Tata/Zenith
29	Foot Valve	ISI mark
30	Gate Valve	Advance/Audco/Johnson Controls/Zoloto/Annapurna / Fountain / Kirloskar / Leader / Sant / Trishul
31	Compressors	Carrier/Emerson copeland/York/Danfoss (for chillers only)
32	Resin Bonded Glass wool	Fibre Glass / Pilkington / UP Twiga
33	Expanded Polystyrene	BASF(India) Ltd.
34	Gauge	Feibig / H.Guru / Pricol
35	Controls	FLICA / Honeywell / Indfoss / Penn- Danfoss / Ranco / Ranutrol / Sporland
36	Fine Filters	Anfiltra Effluent / ARW / Athlete/ Airtake/ Dyna / Kirloskar/ Puomatic/ Purafill/ Purolator / Tenacity
37	GI Sheet Essar/Notifier	HSU Jindal / National / Nippon Denro / Sail / Tata
38	Heat Detector	Appollo / Chemtron/ Edward / Fenwal/ Hochiki / Nitton /System Sensor/ Wormald/Honeywell
39	Ionization Detector	Appollo / Cerebrus / Edward/ /Fenwal / Hochiki / Nitton / System Sensor / Wormald
40	Photo Electric Smoke Detector	Appollo / Cerebrus / Edward / Fenwal/ Hochiki / Nitton / Wormald
41	Fire Panel (Microprocessor based)	Agni Instruments / Agni Devices/ Aruna Agencies/ Carmel Sensor / Ravel Elect./Honeywell Essar/Notifier/Navin Systems
42	Sprinkler/ Hose Reel & Hose Pipe	ISI mark
43	Fire Extinguisher	ISI mark
44	Lift	OTIS, Kone, Mitsubishi , Schindler,Johnson

**NOTE:-** Items which are approved from O/o PGM(E) BSNL New Delhi till last date of sale of tender, shall also be accepted.

ANNEXURE-IV

**PROFORMA FOR UNDERTAKING REGARDING EPF/ ESI PROVISIONS**

(To be submitted with Eligibility conditions in envelope – 1)

I.....son of.....

Resident of ..... hereby give an undertaking that:

(I) \* EPF and Miscellaneous provisions Act, 1952 (amended upto date) is not applicable to my / our establishment.

\* I / We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our Registration no. is .....We undertake to keep it valid during the currency of contract.

\* I / We shall produce EPF registration certificate within 15 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

(II) \* ESIC Act, 1948 (amended upto date) is not applicable to my / our establishment.

\* I / We have registered as per the ESIC Act, 1948 (amended upto date) and our Registration no. is ..... We undertake to keep it valid during the currency of contract.

\* I / We shall produce ESIC registration certificate within 15 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

In case at my stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit, without any prior intimation to me.

\* (Strike out whichever is not applicable)

(Dated Signature of contractor)

(Seal of the firm)

**ANNEXURE-V**

**PROFORMA FOR UNDERTAKING REGARDING SALES TAX CLEARANCE**

**(To be submitted with Eligibility conditions in envelope – 1)**

I.....son of.....

Resident of ..... hereby give an undertaking that:

I / We shall get registered under the Himachal Pradesh Value Added Tax Act 2005 by HP sales tax Department in the prescribed format within 15 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

(Dated Signature of contractor)

(Seal of the firm)