JIWAJI UNIVERSITY, GWALIOR

S. No./FJUEgg/2013/264  Dated: 26/4/2013

Tender Notice

Sealed tenders on form “B” invited by Jiwaji University, Gwalior from the eligible Contractors of M.P.P.W.D./C.P.W.D and other Central Government department for the following work: through the Regd. / speed post only. The courier not permitted.

<table>
<thead>
<tr>
<th>S.N</th>
<th>Name of Work</th>
<th>Estimated cost</th>
<th>Cost of tender</th>
<th>EMD</th>
<th>Period of completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design, Supply, Installation, Testing &amp; Commissioning of 8 passenger / goods elevator for ADM Building, Jiwaji University, Gwalior</td>
<td>Rs. 46,00,000/-</td>
<td>Rs. 10,000/-</td>
<td>Rs. 1,38,000/-</td>
<td>03 Month</td>
</tr>
</tbody>
</table>

Last date of submission: By regd. / speed post up to 5:00pm. 26/05/2013

Details term & conditions can be downloaded from university website: WWW.jiwaji.edu

The Eligibility Criteria:

1- Details of registration in state MPPWD/CPWD and other Central Government department.
2- “A Class valid electrical contractor License issued by M.P. Licensing board (Electrical Government of Madhya Pradesh)
3- Income Tax / Pan / Sale Tax / TIN clearance certificate.
4- List of Measure work of similar type executed during last five year.

Registrar
JIWAJI UNIVERSITY, GWALIOR

S. No./FJU/Egg./2013/ 264

Dated:26/04/2013

Tender Notice

Sealed tenders on form “B” invited by Jiwaji University, Gwalior from the eligible Contractors of M.P.P.W.D/ C.P.W.D and other Central Government department for the following work through the Regd. / speed post only. The courier not permitted.

<table>
<thead>
<tr>
<th>S.N</th>
<th>Name of Work</th>
<th>Estimated cost</th>
<th>Cost of tender</th>
<th>EMD</th>
<th>Period of completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Design, Supply, Installation, Testing &amp; Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior</td>
<td>Rs. 46,00,000/-</td>
<td>Rs.10,000/-</td>
<td>Rs. 1,38,000/-</td>
<td>03 Month</td>
</tr>
</tbody>
</table>

Last date of submission: By regd./ speed post 20-05-2013 up to 5:00pm.

Details term & conditions can be downloaded from university website: [WWW.jiwaji.edu](http://WWW.jiwaji.edu)

The Eligibility Criteria:-

1- Details of registration in state MPPWD/CPWD and other Central Government department/ Manufacturer or their authorized dealer Along with Certificate.

2- “A “Class valid electrical contractor License issued by M.P. Licensing board (Electrical Government of Madhya Pradesh)

3- Income Tex / Pan / Sale Tax / TIN clearance certificate.

Registrar
विश्लेषण शर्तें निम्नानुसार हैं:-

टेंडर फार्म के साथ निम्न दस्तावेज/जानकारी संलग्न करना आवश्यक है।

1. टेंडर फार्म की कीमत रूपये 10,000/- होनी जो केवल डिमांड ड्राफ्ट के रूप मे देय होगी। डिमांड ड्राफ्ट कुलसाधिक, जीवाजी विश्वविद्यालय, के नाम से देना होगा।

2. अन्नेस्ट मनी रूपये 1,38,000/- का डिमांड ड्राफ्ट जो कुलसाधिक, जीवाजी विश्वविद्यालय, न्यायिक के नाम देय हो। टेंडर फार्म के साथ देना होगा।

3. ठेकेदार का केंद्रीय लोक निर्माण विभाग, भारत सरकार अथवा लोक निर्माण विभाग, म.प्र. शासन, में ठेकेदार में पंजीयन की प्रति/ Manufacturer or their authorized dealer Along with Certificate।

4. ठेकेदार का पेन एवं टिन नंबर की प्रमाणित प्रति।

5. ठेकेदार द्वारा अभी तक किये गये कार्यों की सूची।

6. बिधुत कार्य ठेकेदारी का “A “Class valid electrical contractor License issued by M.P. Licensing board (Electrical Government of Madhya Pradesh की प्रमाणित प्रति।

7. ठेकेदार द्वारा किसी भी विभाग में अंधूरा कार्य/ निर्धारित गुणवत्ता का पूर्ण नहीं किया/ ब्लेक लिस्ट किया हो कि भी जानकारी देना आवश्यक है।

8. उपरोक्त सरल कं 1 से 7 तक की जानकारी सीलबंद लिफाफें में रखकर प्रस्तुत करना होगा, लिफाफें के उपर टेक्नीकल बिड अंकित होना चाहिए।

9. टेंडर फार्म में निर्धारित स्थान पर कार्य की दर अंकित कर टेंडर फार्म पर प्रत्येक पृष्ठ पर हस्ताक्षर कर टेंडर फार्म को एक पृष्ठ सिकाफें में रखा जाना होगा जिसके उपर स्पष्ट रूप से प्राइजबिड अंकित होना चाहिए। टेक्नीकल बिड एवं प्राइजे बिड के पृष्ठ-२ सील बंद लिफाफें को एक पृष्ठ सिकाफें में रखा जायेगा। जिस पर टेंडर प्राप्त होने की निर्धारित दिनांक/समय अंकित करना अनिवार्य होगा।

10. टेक्नीकल बिड एवं प्राइजे बिड अलग-२ सील बंद लिफाफें में रखी जायेगी तथा दोनो सीलबंद लिफाफें एक अन्य लिफाफें में रखें जायेंगे। उक्त बताये अनुसार सीलबंद टेंडर का लिफाफा स्पीड पोस्ट / रजिस्टर्ड पोस्ट से अनिवार्य रूप से दिनांक 20/05/2013 को 05:00 बजे तक विवि. में प्राप्त होना अनिवार्य होगा। अंतिम दिनांक एवं निर्धारित समय के उपरांत प्राप्त टेंडरों पर कोई विचार नहीं किया जायेगा।

12. कार्य की आवश्यकतानुसार माना घटाई व बढ़ाई जा सकती है।

13. विश्वविद्यालय के पास किसी भी टेंडर या समस्त टेंडरों को विना कारण बताये अस्वीकार करने का अधिकार सुरक्षित रहेगा।
14. **Schedule of quantity** (Anusar Vishavikshiyam) kisi bhi karya ko aapne aavasarkar aaya karane ke liyay swatantra hogaya. Vishavikshiyam ektaaaraa se tender mein darsheeyi maatra anusar karya ko karna liyay baddh nahi hogaya.

15. Yadi jaari karyaantraa mein darsheeyi karya ko samay sriina mein purn nahi kiya jata hain to tender shart (kalaaj 39) ki anusar darsheey pantaadi aadhi aapni jiyaogi. Vishavikshiyam karya ki gunauerata upyukt n hone ke karya ki samay sriina mein purn n hone per taakendaar dharra prasthuul deeyak rashii se pantaadii ka katora kiyi janaa ke liyay swatantra hogaya.


17. Taakeendar dharra karya purn karne ke uparaant m.pr.m.kri.vi. kampini li. vyayalir ke dharra karya ki test report ek karya ko hasataanta karnaa hogaya, jisaka vyay swaan taakeendar karna hogaya.

18. Taakeendar ko samasta karya ko purn karne ke uparaant karya ki dwaar karya ki garaanta ek swaan sva-stasheen ke rakh rakhaw ka karya karna hogaya. Dwaar karya ke andar kisi bhi prakaraa ke xarabhi ya durt— foot ko taakeendar ko swaan ke vyay per thik karnaa hogaya. Iss hetu taakeendar ko swaan karya ke ek prashaankhi taanki karmvii ko karmalipiine samay mein niyukt karna hogaya.

19. Taakeendar ke biloon se garaanta ke rup mein 05 pratisht rashi roke jiyaogi, jo garaanta abhide samataa hone ke uparaant hii vapaas ki jiyaogi.

20. Taakeendar ko bhumtaan ki rashi ka 05 pratisht rashi ekw. eam. di rashi ka bhumtaan do swaan samasta rakh—rakhaw safaltaapooruk purn karne ke uparaant hii kiya jiyaogi.

21. Contractor registered in appropriate category can participate but successful tender will have to submit company’s authorized certificate within 3 days after issue of acceptance letter and prior to entering agreement failing which his EMD shall be forfeited.

Kulsachariv
JIWAJI UNIVERSITY, GWALIOR

1. Name of tender / suppliers
   M/S, ........................................................
   ........................................................

2. Name of Work
   Design, Supply, Installation & Commissioning of 8 passenger and goods elevator for ADM Building,
   Jiwaji University, Gwalior

3. Approximate cost
   Rs. 46,00,000/-

4. Cost of tender form (in form of D.D.)
   (Enclosed with tender form)
   Rs. 10,000/-

5. Earnest money in form of D.D. in favour of Registrar, Jiwaji University, Gwalior
   Rs. 1,38,000/-

6. Time of Completion
   03 Month

7. Rate quoted
   Item rate

8. Date of received of Tender by Speed/Registered Post up to 20-05-2013 at 5:00 PM

9. All required civil work for fixing of lift example Brick work/R.C.C/ Cement plaster/walls granite work shall be carried out by the contractor on P.W.D. civil Building amendment SOR of M.P.P.W.D. 15-09-2012.

10. Contractors/ Tenderer are requested to inspect the site before submission of tender for calculating required civil/ electric and other work and verified/ check the size of well and machine room.

Registrar
APPENDIX 2, 10
(See Paragraph 2, 079)
DETAILED NOTICE INVITING TENDERS
(in Form B)
(For PWD and PHED)

Office of the Registrar Jiwaji University GWALIOR

1. N.I.T. Form issued to contractor __________________________________________

2. Tender invited On form “B” item rate tender

3. Due date of tender 20/05/2013 up to 05:00P.M. By Speed Post/Registered Post.

4. Name of work: Design, Supply, Installation, Testing & Commissioning of 8 Passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

5. Amount of estimate Rs. 46/- Lakhs

6. Amount of contract Rs. 46/- Lakhs

7. Amount of earnest money Rs. 1,38,000.00

8. Cost of tender Rs. 10,000/-

9. Time allowed for completion 3 month including rainy season.

10. Work to be done on item rate

11. Following materials will be supplied by the Department:

1. ___________________________________________________________________

2. __ Any Material, Electric & Water will not be provided by the department_

12. The following clauses of this N.I.T. are not applicable for this work As cross the clause

Date ________________ Signature of officer issuing N.I.T.
JIWAJI UNIVERSITY, GWALIOR

(in Form A, B and C)

DETAILED NOTICE INVITING TENDERS

Date of issue of N.I.T.  
S.No./FJU/Engg./2013/264  
Dt. 26 / 04 /2013

Date of Receipt of Tender  
20/05/2013  up to By Speed/Regd. Post only

Date of opening of Tender  
...................................................... on 3:00 pm

1. INTRODUCTION

1. Sealed tenders are invited on behalf of the Registrar for the following work in form “B” item Rate Tender and will be received at the office of the Registrar / University Engineer up to 05:00 P.M. on 20/05/2013. from the appropriate class of PWD/CPWD electrical contractors.

(1) Name of work: Design, Supply, Installation, Testing & Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

(2) Amount of estimate  Rs. 46/- Lakhs

(3) Probable amount of contract  Rs. 46/- Lakhs

(4) Amount of earnest money.  Rs. 1,38,000.00

(5) Time allowed for completion 03 Month including rainy season from the date of written order to commence the work.

1. The electrical work shall be executed only through the contractors who posses proper valid electric license from the Chief Electrical Adviser to the Government. He should also attach a copy of the license.

1. Not more than one tender shall be submitted by a contractor/by a firm of contractors.

1. Not two or more concerns in which an individual is interested, as a proprietor and/or partner shall tender for the execution of the same work. If they do so all such tenders shall be liable to be rejected.

1. The Registrar, Jiwaji university Gwalior shall be accepting officer hereinafter referred to as such for the purpose of this contract.

1. Application for issue of tender documents shall be submitted to Registrar, Jiwaji university Gwalior so as to reach the office not later than 20/05/2013.
7. Tender documents consisting of plans specifications, schedules, of quantities of the various classes of work to be done, the conditions of contract and other necessary documents together with addressed envelopes to be used for return of form and other documents, will be open for inspection and issued, for sale on payment of Rs._10,000/- on or before 20/05/2013 and up to _5.00 P.M.

1. 8. The copies of other drawings and documents pertaining to the work signed for the purpose of identification by the accepting officer or his accredited representative and samples of materials to be arranged by the contractor will be open for inspection by tenderness at the following office during working house between the dates mentioned in clauses – 1.7 above.

2. RATES :

2.1 The schedule of items :-

The schedule of main items of work to be executed is enclosed as Annexure – (F).

2.2 Item Rate tender in form “A” or “C”.or B

2.2.1. In respect of percentage rate tenders, contractor should quote his separate tender percentage rate above or below the following schedules of rates.

(a) Building work – The current schedule of rates issued by the E-in-C M.P. .P.W.D. Bhopal in force from 15-06-2009 and its amendments up to date 11-09-2012 issued up to date of N.I.T.

(b) Electric fittings – The current schedule of rates issued by the E-in-C M.P. .P.W.D. Bhopal in force from 01-04-2008 and its amendments up to date issued up to the date of issue of N.I.T.

(C) Water supply and sanitary fittings - The current schedule for rates issued by E - in-C M.P. .P.W.D. Bhopal in force from 15-06-2009 and its amendments up to date issued up to the date of issue of N.I.T.

(d) Road works - The current schedule of rate issued by the Engineer-in-chief M.P.P.W.D. Bhopal in force from I5th Apirl 2009 and its amendments issued up to the date of issue of N.I.T.

2.2.2. (For Form “A” only). The percentage of tender above/below or at par with the relevant schedule rates inclusive of amendments and correction slips issued up to the date of the notice inviting tenders should be expressed on the tender form itself both in words and figures in such a way that interpolation is not possible and all over writing should be neatly scored out and rewritten and the corrections should be duly attested prior to the submission of tender. Tenders not specifying percentage in words will summarily be rejected. Any amendments to the schedule
2.2.3. of rates after the date of issue of this tender notice or the date of issue of any amendments to the N.I.T. specifically notifying the said amendment to the current schedule of rates, shall not apply to this tender.

2.2.4. The percentage tendered by the contractor will apply to those rates which find place in the current schedule of rates mentioned in clause 2.2.1. or have been derived from the said current schedule of rates and not to other items of work.

2.2.5. The percentage tendered by the contractor shall not be altered by the contractor during the terms of contract. The deduction or addition as the case may be of the percentage will be calculated on the amount of the bill for the work done, after deducting the cost of materials supplied departmentally at rates specified in the agreement.

2.3.1 Item Rate Tenders in form – “B”. In respect of item rate tenders, contractor should quote his rates for the items mentioned in the schedule of item in Annexure F of this N.I.T. Only rates quoted shall be considered. The rates should be expressed in figures as well as words and the unit should be as given by the Department. The contractor will not have the freedom to change the unit. No percentage above or below the schedule be quoted.

2.3.2 The rates quoted in the tender for the various items of work will not be altered by the contractor during the term of contract.

2.4. Lead and lift of water – No lead and lift for carting of water will be paid.

2.5 Lead and lift of materials – No lead and lift for carting of materials shall be payable to the contractor except in case of such items for which specific lead and lift are provided in the current schedule of rate mentioned in clause – 2.2.1. of the N.I.T. or in the schedule of items in respect of item rate tenders.

2.6 Non-schedule items of works – During the execution of the work there is likelihood of such items of work, which do not find place in the current schedule of rates, referred to above in respect of percentage rate contracts or such items which are given in the schedule of items in respect of item rate contracts, for which contractor has not quoted his rates. Contractor will have to carry out these items of work.

Rates of such items of work which do not find place in the current schedule of rates referred to above, in respect of percentage rate contracts or such items in respect of item rate contracts shall be decided by the University Engineer and the decision of the Register shall be binding on the contractor. The quantum of such work will not exceed 10% of amount of contract unless accepted by the department and the contractor.

3. SUBMISSION OF TENDER:

3.1 Earnest money - No tender will be received without a deposit of earnest money of. Rs. 1,38,000.00 which will be returned to the unsuccessful tenderers on the rejection of their tenders or earlier as may be decided by the competent authority and no production of a certificate of ____________________ that all tender documents have been returned, and will be retained from the successful tenders as part of the security deposit.
3.2 Form of Earnest Money.

3.2.1 Where the amount of Earnest money is more than Rs.500/- the same shall be accepted only in the shape of Bank drafts of any schedule Bank in favour of Registrar, Jiwaji University, Gwalior.

3.2.2 the intending tenderer from other states may remit E.M. in the from of the Bank draft of any schedule bank to the Registrar Jiwaji University Gwalior.

3.3 Earnest Money is separate covers. The Earnest Money in one of the prescribed forms should be produced/sent separately and not kept in the covers containing the tender and if the earnest money is not found in accordance with the prescribed mode in the tender will be returned unopened to the tenderer.

3.4 Adjustment of Earnest Money – Earnest money, which has been deposited for a particular work, will not, ordinarily, be adjusted towards the earnest money for another work, but if the tender of contractor for a work in the same division has been rejected and the earnest money has not been refunded to him due to any reason, it may be so adjusted by the University Engineer.

3.5 Security Deposit – (a) The Security Deposit shall be recovered from Running bills, @ _5.00_______ per cent as per clause –I of the agreement read with para 3.5 of the N.I.T.

(b) The amount of the E.M. shall not be adjusted when value of work done reaches the limit of the amount of Contract of exceeds the Probable amount of the contract.

3.6 Implication of submission of Tender – Tenderers are advised to visit site sufficiently in advance of the date fixed for submission of the tender. A tenderer shall be deemed to have full knowledge of the relevant documents, samples, site, etc whether he inspects them or not.

3.7 The submission of a tender by a contractor implies that he has read the notice, conditions of tender and all other contract documents and made himself aware of the standard and procedure, in this respect, laid down in the National Building Code of India 1970/Indian Standards the scope and specification of the work to be done and the conditions and rates at which stores tools and plant etc. will be issued to him by the university has seen the quarries with their approaches, site of work etc, and satisfied himself regarding the suitability and availability of the materials at the quarries. The responsibility of opening new quarries and construction and maintenance of approaches there to shall lie wholly with the contractor / Tenderers.

3.8 Income Tax Clearance Certificate – A tenderer purchasing tender documents for works exceeding Rs. 200 lacs shall submit either an Income Tax Clearance Certificate in the form printed as Annexured or a certificate from the Income Tax
authority that the assessment is under consideration. No tender documents can be issued/sold to him unless such certificate is submitted.

3.9 **List of work in progress** - Tenders must be accompanied by a list of Contract already held by the tenderer at the time of submitting the tender, in the Department and elsewhere showing therein-

a. the amount of each contract.
b. Balance of work remaining to be done, and .
c. The amount of solvency certificate produced by him at the time of enrolment in the concerning department
d. detail of work where he with draw his offer or did not.

3.10 **Relationship** - The contractor shall not be permitted to tender for works in the university (responsible for award and Execution of contract ) in which his near relative is posted in university Account ant. He shall intimate the names of his near relative working in university. He shall also intimate the name of persons who are working with him in any capacity or subsequently employed by him and who are near relatives to any gazette officer in the university. Any breach of this condition by the contractor would render himself liable to be removed from the approved list of contractors of the W.D.

**Note** – By the term near relative is meant wife, husband, parents and son, grandson, brothers, sisters, brother-in-laws, father-in-law and mother-in-law.

3.11 The tender for the works shall witnessed by a contractor. Failure to observe this condition shall tender the tender of the contractor liable to rejection.

4. **OPENING AND ACCEPTENCE OF TENDER:**

4.1 **Place and Time of opening** - The tender shall be opened at time and place stated in para 1. by the U.E. in the presence of the tendered or their duly authorized agent who may choose to attend. The U. Engineer under unavoidable circumstance, May deput another officer in his absence to receive and open tenders on his behalf.

4.2 **Powers of University Engineer** - The U. Engineer does not bind himself to accept or recommend for the acceptance to the Registrar or other higher authority, the lowest or any tender or to give any reasons for his decision.

4.3 **Conditional Tender** - Conditional tender are liable to be rejected.

4.4 **Canvassing** – Canvassing for support in any form for the acceptance of any tender is strictly prohibited. Any tendered doing so will tender himself liable to penalize which may include removal of his name from the register of approved contractors or penal action under section –8 of the M.P. Vinirdishtta Bhrasta Acharan Nivaran Vidheyak 1982.
Execute the agreement, as well as where this contractors were rescinded in format in the duly certified by the concerned department

4.5 Unsealed Tender - The tenders shall be rejected, if not properly sealed.

4.6 Authority of University Engineer – The authority competent to accept a tender reserve the right of accepting the tender for the whole work or for a distinct part of it, or distributing the work between one or more tenderers.

4.7 Validity of offer – Tender shall remain open upto four months from the date of receipt of tender and in the event of the tenderer withdrawing the offer before the aforesaid date, for any reason whatsoever, earnest money deposited with the tender shall be forfeited by the U.E.

5. SPECIFICATIONS:

5.1 Brief Specification – A brief note on construction and specifications of the work is enclosed in Annexure – E.

5.2 Material of Construction – The materials of construction to be used in the work shall be governed by the provision of part-V of the National Building code of India, 1970 and the relevant Indian Standard specification with amendments and revisions issued up to the date of tender notice.

5.3 Workmanship- The work shall be carried out according to the specification referred to herein after and according to sound engineering practice. The decision of the U. Engineer, in respect of workmanship will be final.

5.4 Specification for Building Works – (Including water supply and sanitary fittings.)

5.4.1. The Contractor shall execute the work in conformity with the standards and procedure laid down in the National Building Code of India, 1970, and C.P.W.D. specification for works in force, or special specification whenever enclosed separately, and in accordance with the approved drawing.

5.4.2. Concrete – All concrete shall be mixed in hopper concrete mixers with mea rushing and compacted by mechanical Vibrators, Slump test shall be carried out during concreting and sample test cubes prepared and tested in due course the testing will be carried out by the Department.

The results of the tests shall conform with the required standard and it the Engineer-in-Charge considers that a structural test in necessary the same shall be carried out as instructed by the Engineer-in Charge at the contractor’s expense and should the result of this be unsatisfactory the contractors, will be bound to take down and reconstruct the particular portion of work which has given unsatisfactory test results.
5.4.3 Bricks – The contractor should use the bricks manufactured on the metric measures as far as possible. In case of non-availability of metric size bricks in particular time area the British size bricks shall be allowed by but mode of measurements and payment shall be made considering motive size bricks and extra brickwork shall be at the cost of contractor.

5.4.4 All timber used in the wood for all new works must be properly seasoned. In case of important building mechanical seasoning should be done in good seasoning plant.

In case the contractor does not procure good seasoned wood, he may be asked to get it seasoned in plant at his own expense but no certificate is required where no an additional rate is paid.

5.4.5 Maintenance of Roofs – Subject to the provision in the agreements, it will be the responsibility of the contractor to see that the building does not leak, during the period of the fittest rainy season in respect of tile and sheet roofing and two consecutive rainy seasons in respect of lime concrete and cement concrete terrace roof, after its completion and he will make good and replace all the defective work on this account.

5.5 Specification of Electrical Works.

5.5.1. The work will be carried out as per the approved drawing and as directed by the U.E.

The word will be governed by “General Specification” for the Electrical Works in Governments buildings in Madhya Pradesh in force from 1972. and CPWD department specification.

5.5.2. All samples of electrical accessories should be got approved from the Engineer-in-charge. Contractor will have to arrange and afford all facilities for their inspection and rectify the defects pointed out by them. A list of accessories is enclosed as Annexure – E.

5.5.3. The period of testing and refund of deposit will be 3 year after completion of work.

5.5.4. In case of supply of ceiling fan, table fan, exhaust fan, cabin fan, tube light fixtures will be made by the University as mentioned in the C.S.R. As such our rates only as per C.S.R. will be paid for fitting such items in position as per C.S.R.

5.5.5. The contractor should submit wiring diagram on tracing cloth showing the point position of switch, length of point, position of D.B. and main switch circuit No. in which points fall at the time of final bill. Otherwise deduction of ½ percent (halt percent) will be made from the bill.

5.6 Specification of works.
The road work and collection of materials for road works shall be carried out according to Maharashtra P.W.D. specifications, as adopted for the work or specification enforce, or special specifications wherever enclosed separately, or the relevant specification published by the Indian Road Congress.

5.7 Contradictions or amendments – In the event of contradictions between the stipulations of the current schedule or rates (vide part of this N.I.T.) and aforesaid specification vide para – 5.1 to 5.7 above the stipulations of the current schedule of rates shall gain precedence. In the event of contradictions, if any between different specifications and or codes of practice, referred to above, the decision of the U.E. shall be final subject to appeal in case of dispute before Registrar of University within one month of U.E.’S decision.

6. SUPPLY OF MATERIALS:

6.1 Material supplied by the Department – The following materials will be supplied by the department.

<table>
<thead>
<tr>
<th>Name of materials</th>
<th>Rate</th>
<th>Place of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Cement</td>
<td>Per bag.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Including cost of containers).</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.1.1 The Contractor shall be liable to return unused cement bags after due allowance of limit of variation prescribed in the C.S.R. to the stores of the University failing which cost of unused cement bags shall be recovered from contractor at double the agreement rates/issue rate whichever is more.

6.2 Return to Empty Cement Bags – It shall be compulsory on the apart of the contractor to preserve and return empty cement bags in sound conditions to the extent of at least 75 percent of the bags issued to him, to the ____________________ engineer in charge of work at the place of issue for which no transportation will be payable. The rebate for such bags will be as per rates fixed by D.G.S.&D. from time to time. In case the empty bags are not required by the University the contractor will have to sell these to the authorized collecting agents at the price fixed by the D.G.S. &D. from time to time and produce receipts in support.

6.3 Penalty for Non-Return of Bags- For each bag not so returned to the extent of issues, in sound condition a rate of Rs.__________________________ per bag.
will be charged. The decision of the Engineer-in-charge whether or not a bag is in sound conditions shall be final.

6.4 In case of the departmental supply of Iron/Steel to the contractor the lab our rate will be paid for cutting, banding and placing with binding wire as provided in C.S.R. (with due allowance for the percentage above or below C.S.R. tendered and accepted).

6.5 Delay in Supply – If the materials are not supplied in time, the contractor will not be allowed any claim for any loss, which may be caused to him, but only extension of time will be given at the discretion of the University Engineer and Registrar if applied for by the contractor before the expiry of the contract.

7. MISCELLANEOUS CONDITIONS:

7.1 Subletting – The contractor shall not, without the prior approval of the competent authority in writing, sublet or assign to any other party or parties, the whole or any portion of the work under the contract. Where such approval is granted, the contractor shall not be relieved of any obligation or duty or responsibility which he undertakes under the contract.

7.2 Taxes – All dues regarding taxes, including the sales tax, other duties etc. levied on the contractor’s work by Government and local bodies or private individual is will be payable by the contractor. The University Engineer will grant a certificate for the quantities actually used on the work but will not entertain any claim on this account.

7.3 Minerals extracted for works carried out on behalf of the Government of India from the quarries in possession of and controlled by the State Government is subject to payment of Royalty by the contractor to whom it shall not be refundable. The University Engineer shall not also issue nay certificate in respect of such materials extracted for Government of India work (Applicable to Government of India works only).

7.4 Rules of Lab our Camps – The contractor will be bound to follow the Madhya Pradesh Model rule relating to lay-out, water supply and sanitation on lab our camps (vide Annexure –A) and the provisions of the National Building Code of India, in regard to constructions and safety.

7.5 Fair Wages – The contractor shall pay not less than fair wages to labourers engaged by him on the works (rules enclosed vide annexure-B).

7.6 Work in the Vicinity- The University Engineer reserves the right to take up departmental work or to a work award on contract in the vicinity without prejudice to the terms of contract.
7.7 **Best quality of construction materials** – Material’s of the best quality will be used as approved by the University Engineer:

7.8 **Removal of undesired person** - The contractor shall on receipt of the requisition from the University Engineer at once remove any person employed by him on the work who, if in the opinion of the University Engineer is unsuitable or undesirable.

7.9 **Amount due from Contractor** – Any amount due to University from the contractor on any account concerning work may be recovered from him as arrear of land revenue.

7.10 **Tools and Plants** – The contractor shall arrange at his own cost tools and plant required for the proper execution of the work. Certain plants may however be issued to the contractor as a special case.

7.11 **Right to increase or decrease work** – The competent authority reserves the right to increase or decrease work.

The competent authority reserves the right to increase or decrease any item of the work during the currency of the contract and the contractor will be bound to comply with the order of the competent authority without any claim for compensation.

7.12 **Time Schedule** – The work shall be done by the contractor according to the time schedule fixed by the competent authority. Contractor shall furnish has programme of construction for execution of work within the stipulated time schedule together with methodology of construction of each type of work and obtain approved of engineer in charge prior to the execution / commitment of work.

7.13 **Time of contract** – Time allowed for carrying out the work as entered in the N.I.T. shall be strictly observed by the contractor and shall be reckoned from the date of work order to commence the work.

7.14 **Payment by Cheques** – The payment will be made by cheques on the Central Bank of India only. No Bank commission charges on realizing such payments will be done by the University.

7.15 **Transport of Materials** – The contractor shall made his own arrangement for transport of all materials. The University is not bound to arrange for priority in getting wagon or any other materials though all possible assistance by way of recommendation will be given if it is found necessary in the operation by the Engineer in charge. If it proves to be in effective, the contractor shall have no claim for any compensation on that account.
8. **SPECIAL CONDITIONS :**

To be inserted in the N.I.T. of a particular work if found necessary in the interest of the work.

8.1 **Agreement :-**

8.1.1 **Execution of agreement :-** The tenderer whose tender has been accepted here in after referred to as the contractor, shall produce an appropriate solvency certificate if so required by the U.Engineer and will execute the agreement in the prescribed form within a fortnight of the date of communication of the acceptance of his tender by competent authority. Failure to be so will result in the earnest money being forfeited to University and tender being cancelled.

8.1.2. (a) The contractor shall employ the following Technical Staff during the Execution of work :-

(i) One Graduate Engineer when the work to be executed is more than Rs.5 Lakhs.

(ii) One diploma Holder, Sub-Engineer when the cost of work to be executed is from Rs.2 lakhs or more but not more than Rs. 5 lakhs.

(b) The Technical Staff should be available at site whenever required by the Engineer-in-charge to take instructions.

(c) In case the contractor fails to employ the technical staff as aforesaid, the U.E. shall have the right to take suitable remedial measures.

(d) The contractor should give the names and other detail of the Graduate Engineer/Diploma Holder, Sub-Engineer whom he intends to employ or who is under employment on the work at the time he commences the work.

(e) The contractor should give a certificate to the effect that the Engineer/Diploma holder, Sub-Engineer is exclusively in his employment.

**Provided that :-**

(i) An Engineer or Sub Engineer may look after more than one work in the same locality but the total value of such work under him should not exceed Rs. 25 lakhs in the case of in Engineer and Rs. 5 lakhs in the cash of a Sub-Engineer.

(ii) It is not necessary for the contractor’s partners in case of firm/company who is himself an Engineer, Sub-Engineer to employ another Engineer, Sub-Engineer for the Supervision of work.
(iii) The Retired Assistant Engineer who is holding a Diploma may be treated at par with a Graduate Engineer are for the operation of the above clause.

In case the contractor fails to employ the Technical staff as aforesaid he shall be liable to pay the University sum of Rs.2,000 for each month of defaults in the case of graduate and Rs. 1000/- for each month of default in the case of Diploma Holder Sub-Engineer.

8.2 **Conditions Applicable for Contract** – All the conditions of the tender notice will be binding on the contractors in addition to the conditions of the contract in the prescribed form:-

Following documents annexed with this N.I.T. shall form a part of the contract.

Annexure – “A” Model Rules relating to lab our, water supply etc.

Annexure – “B” Contractor’s lab our regulations.

Annexure – “C” Sources of materials (not applicable for building work).

Annexure – “D” Form of Income Tax Clearance Certificate. (applicable to works costing more than Rs. 2.00 lakhs)

Annexure – “E” Brief specifications.

Annexure – “F” Schedule of items.

Annexure – “G” Form of Bank Guarantee,

8.3 **Test of Material**
ANNEXURE “A”

MODEL RULES RELATING TO LABOUR, WATER SUPPLY AND SANITATION IN LABOUR CAMPS

Note – These model rules are intended primarily for labour camps which are not of a permanent nature. They lay down the minimum desirable standard which should be adhered to. Standard in permanent or semi permanent labour camps should not obviously be lower than those for temporary camps.

1. Location- the camp should be located in elevated and well drawing ground in the locality.

2. Labour huts to be constructed for one family of 5 person each. The lay out to be shown in the prescribed sketch.

3. Hutting-The huts to be built of local materials. Each hut should provided at least 20 sq. meters of living space.

4. Sanitary facilities – Latrines and urinals shall be provided at least 15 meters away from nearest quarters separately for man and woman and specially to market on the following scale.

5. Latrine – Pit provided at the rate of 10 users or two families per seat, urinals as required as the privy can also be used for this purpose.

6. Drinking water – Adequate arrangements shall be made for the supply of drinking water. If practicable filtered and chlorinated supplies be arranged, when supplies is from intermittent sources overhead storage tank shall be provided with a capacity of five litres a person per day. Where the supply is to be made from a well it shall confirm to the sanitary standard laid down in the report of the Rural Sanitation committee. The well should be at least 30 metres away from any latrine or other source of pollution. If possible hand pump should be installed for drawing the water from well. The well should be effectively disinfected once every month and the quality of the water should be got tested at the Public Health Institution between each work of disinfecting.

7. Bathing and washing – Separate bathing and washing place shall be provided for men and women for every 25 persons in the camp. There shall be one gap and space of 2 sq. metres for washing and bathing. Proper drainage for the waste water should be provided.

8. Waste disposal – Dustbin shall be provided at suitable places in camp and the residents shall be directed to throw all rubbish into those dustbins. The Dustbins shall be provided with cover. The contents shall be removed every day and disposed off trenching.
9. **Medical facilities** – (A) Every camp where 1,000 or more persons reside shall be provided with whole time doctor and dispensary. If there are women in the camp a whole time nurse shall be employed.

(B) Every camp where less than 1,000 but more than 250 persons reside shall be provided with dispensary and a part time nurse/midwife.

(C) If there are less than 250 persons in any camp a first aid kit shall be maintained in charge of the worker, if any, free of cost.

All the medical facilities mentioned above shall be for all residents in the camp including a dependent of the worker, if any, free of cost.

**Sanitary Staff** – For each lab our camp there should be qualified sanitary inspector and sweepers should be provided in the following scales:

(1) For camps with strength over 200 but not exceeding 500 persons one sweeper for every 75 persons above the first 200 for which 3 sweepers shall be provided.

(2) For camps with a strength over 500 persons one sweeper for every 100 person above first 500 for which 6 sweepers should be provided.
ANNEXURE “B”

CONTRACTOR’S LABOUR REGULATIONS

The contractor shall pay not less than fair wage to labourers engaged by him in the work.

Explanation – (a) “Fair wages” means wages whether for time or piece work as notified on the date of inviting tenders and where such wages have not been so notified the wages prescribed by the S.E.P.W. department for the circle in which the work is done.

(b) The contractor shall not withstanding the provisions of any contract to the contrary, cause to be paid a fair wage to laborers indirectly engaged on the worked including in lab our engaged by his subcontractors in connection with the said work as if laborers had been immediately employed by him.

© In respect of all lab our directly or indirectly employed on the works or the performance of his contract, the contractor shall comply with or cause to be complied with the Lab our Act in force.

(d) The University Engineer shall have the right to deduct from the money due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of he conditions of the contract for the benefit of the workers, non payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of regulations.

(e) The contractor shall be primarily liable for all payments to be made under and for the observance of the regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractors.

(f) The regulations aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

(g) The contractor shall obtain a valid license under the contract (Regulation and Abolition) Act, in force and rules made there under by the competent authority from time to time before commencement of work, and continue to have a valied license until the completion of the work.

Any failure to fulfill this requirement shall attract the penal provisions of this contract arising out of the resulted non-execution of the work assigned to the contractor.
**ANNEXURE “C”**

**STATEMENT SHOWING THE LEAD OF MATERIALS**

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>DESCRIPTION</th>
<th>LEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>__________________________________</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>__________________________________</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>__________________________________</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>__________________________________</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>__________________________________</td>
<td></td>
</tr>
</tbody>
</table>

**Note** – This statement is only for guidance of the contractor. The tenderer should satisfy himself regarding the availability of the required quality and quantity of materials.

---

**ANNEXURE “D”**

**FORM OF CERTIFICATE IN INCOME TAX TO BE SUBMITTED BY CONTRACTOR TENDERING FOR WORKS CONSTATING Rs. 2.00 LAKHS OR MORE**

(i) Name and style (of the company, firm H.U.F. or individual) in which the applicant assessed to income tax and address for purpose of assessment.

(ii) The Income Tax Circle/Ward/ District in which the applicant is assessed of income-tax.

(iii) Following particulars concerning the last income tax assessment made:-

(a) Reference No. or (G.I.R.NO.) of the assessment.

(b) Assessment year and accounting year.

(c) Amount of total income assessed.

(d) Amount of tax assessed I.T., S.T., E.P.T., B.P.T.

(e) Amount of tax paid I.T., S.T., E.P.T., B.P.T.

(f) Balance being tax not yet paid and reasons for such arrears.
(g) Whether any attachment or certificate proceedings pending in respect of the arrears.

(h) Whether the company of firm of H.U.F. on which the assessment was made has been or is being liquidated, would up, dissolved, partitioned or being declared insolvent, as the case may be.

(i) the position about later assessments namely, whether returns submitted under section 22 (1) or (2) of the income tax act and whether tax paid under section 18-A of the act and the amount of tax so paid or in arrears.

(iv) In case there has been no income tax assessment at all in the past whether returns submitted under section 21 (1) or (2) and 18-A (3) and if so the amount of income tax returned or tax paid and the income tax circle/ward/District concerned.

(v) The name and address of branch (es) verified the particulars set out above and found correct subject to the following remarks.

Dated________________

Signature of I.T.O.

Circle/Ward/District
ANNEXURE-“E” – I & II & III

Design, Supply, Installation, Testing & Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

ANNESURE-“E”

E-I

Name of work: Design, Supply, Installation, Testing & Commissioning of 8 passenger / goods elevator for ADM Building, Jiwaji University, Gwalior

List of approved material

S.No. Name of item make
1. Passenger Elevator of make OTIS, Thyssen krupp.
2. All the electrical materials and accessories should be approved by the engineer in charge or his authorized site incharge before execution of work.
3. Quantity can be increased or decreased as per site conditions and instruction of engineer in charge.
4. The engineer in charge can instruct to use particular make of material which are in list of material and contractor bound to use that make in the work on non availability of any make of approved list engineer in charge can allow to use the material from the PWD approved make list.

Registrar, Jiwaji University
Gwalior

ANNEXURE : E-II

SPECIAL CONDITION OF CONTRACT FOR ITEM RATE TENDER ON FORM ‘B’

1. The installation shall be tested on completion of the work by the contractor in the presence of the Assistant Engineer E/M or his authorized representative and his remark recorded in the completion certificate. The completion certificate will be given by the contractor or his authorized agent to the Executive – Engineer E/M The certificate shall be in the form set out in Appendix-D mentioned in specification for electrical installation in government buildings.
2. Equipment be dispatched to Gwalior directly from the manufacturing factory or their authorized distributor / dealer.
3. The work shall be carried as per PWD specification in force from 15-02-1972. IS specification shall be followed for items where PWD specification are not available. IS specification shall also be referred to where ever required by Registrar, Jiwaji University, Gwalior, superseded PWD specification.
4. The contractor should bring all the required material for work at site and got them checked by Registrar, Jiwaji University, Gwalior.
5. If the head quarter of the successful tenderer is at a place, other than Gwalior, they shall have a duly authorized agent in Gwalior from the commencement of the work, until the work is taken over by the department.

6. The successful tenderer shall make his own arrangement for supply of material and electricity power at their expense as required for the execution of work.

7. The work “as described” as specified “as shown” as directed” “as approved” or “as required” shall mean, as described in specification schedule of quantities and other tender documents and as directed or approved by the Registrar, Jiwaji University, Gwalior of work.

8. The tenderers shall extent all reasonable facilities and co-operation to the various other agenciens and contractors working at the site, simultaneously so the entire work can be proceeded smoothly to successful completion.

9. The successful tenderer shall submitted drawing of work to the Chief electrical advisor to government of M.P. if required approval of these drawings shall be obtained from competent authority of M.P. licensing board by the contractor.

10. The successful tenderer shall submit the test reports of the requirement to the supplied drawing of approval to the Registrar, Jiwaji University, Gwalior E/M before supplying the equipment.

11. The tenderer shall have to arrange all facilities for the inspection of the work and to arrange for the approval of the work from authority’s government agencies.

12. The successful tenderer shall make his own arrangements for transport of all materials.

13. The special conditions will be bidding on the contractor and shall from the agreement to be executed by the contractor, in addition to the condition of the contract in the prescribed form.

14. Guarantee of the two year for whole installation, (shall be given by the contractor from the date of completion / commissioning. All defect noticed during the said period shall be make good by the contractor at his cost and risk. The earnest money and S.D. shall be refund after guarantee period.

15. The tender shall fill in his / their / tendered rate and price for all item of works described in the quantities. The tendered rate of item against which no rate or price in entered by the tenderer will be taken as zero and price of the same shall be deemed to have been covered by the other rate and price of the schedule of item indicated in.

Annexure –‘F’

1. If the quoted rate of successful tenderer, serious, unbalanced front loaded in the opinion of the employer. The employer my require the tender to produce detailed price analysis for any or all item of the bill of quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis taking into consideration, the schedule of estimated contract, payments, the employer may require the amount of the performance security be increase at the expanse of the Bidder to a level sufficient to protect the employer against financial loss in the event of default of the successful Bidder under the contract.

2. In case where the aggregate of expected contract payments would at any time exceeds due to actual work performed as compared to the sentioned estimate than the amount of
security deposit specified in clause -3.5 of N.I.T. such security shall be increased accordingly at the expense of the successful tenderer upto a limit / level motioned above.

3. RATE OF ADDITIONAL QUANTITIES OF ITEM OF WORK : Variation of quantities of work in the schedule of item shall not vitiate the contract. The rate quoted for the individual items shall apply for the quantities of the work increase by not more than thirty percent for each of item. Should the quantities of work actually involved under any item vary by more than thirty percent the rate of additional quantities of such item of work shall be paid on the basis of S.O.R. Rate.

4. अनुबंधानुसार समय सीमा के अन्तर्गत पूर्व न होने की स्थिति में समयवृद्धि होने से पूर्व ठेकेदार को कोई पुनर्निर्णय नहीं किया जावेगा।

5. कार्य की दो वर्ष की पूर्ण गारंटी ठेकेदार की होगी, इस हेतु ठेकेदार की ई.एम.डी. एवं एस.डी. की राशि दो वर्ष की गारंटी अवधि पूर्ण होने पर ही बाधित की जावेगी।

Registrar, Jiwaji University, Gwalior
ANNEXURE E-III
COMMERCIAL AND ADDITIONAL CONDITIONS

1.0 General
1.1 This specification cover manufacture, testing as may be necessary before dispatch, delivery at site, at preparatory work, assembly and installation, commissioning 20 putting into operation of Lift & Escalators.
1.2 Location The Lifts / Escalators will be, installed at ADM Building, Jiwaji University, Gwalior
1.3 The work shall be executed as per CPWD General Specification for Electrical Works (Part-II Lifts & Escalators-2003) as per relevant IS an as per directions of Registrar, Jiwaji University, Gwalior. These additional specifications are to be read in conjunction with above and in case of variation, specification given in this additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications & conditions as the same are to be read along with schedule of quantities or the work.
1.4 The tenderer should in this own interest visit the site site and familiarizes himself with the site condition before tendering.
1.5 No T & P shall be issued by the Department and nothing extra shall be paid on account of this.

2.0 Commercial Conditions.
2.1 Type of contract The work to be awarded by this tender shall be treated as indivisible works contract to be tenders in tender documents. The technical-cum-commercial part will have to be submitted by the tenderers complete with the following :
   (i) Complete tender document (Part-I), as purchased from PWD duly signed for acceptance of all terms and conditions.
   (ii) Complete technical particulars of all equipments & materials as per list attached.
2.2.3 The tenderers are advised not to deviate from the technical specification / items, commercial terms and conditions of NIT like terms of payment, guarantee, arbitration clause, escalation etc.
2.2.4 The technical cum commercial bid shall be opened first on the due date and time, as specified in the presence of tenderer or their authorized representative who wish to remain present.
2.2.5 The part-II of the tender i.e. price bid will be opened by the Registrar, Jiwaji University, Gwalior. in the presence of the representative of the tenders who wish to be present.
2.2.6 The contractor shall be required to submit the price bid in a sealed envelop containing two separate sealed envelopes as under :
   (i) First envelope : Earnest money amounting to Rs. 1,38,000/- in prescribed manner. The name of work and the words “EMD amount” should be written on top of this sealed cover. EMD should be in shape of DD or day order of a schedule/ nationalized bank guarantee by RBI and drawn in favor of Registrar, Jiwaji University, Gwalior.
   (ii) Second envelope Price Bid (Part-II of tender). The name of work and the words “Price Bid” should be written on top of the sealed cover, it shall contain “Price bid (Part-II of tender) as issued by the department duly filled & signed”.
2.2.7 The tenderers will hav to fill up their rates only in the price bid (Part-II tender) downloaded by the department website. Tenders in which the price bids are given in any other format are liable to be rejected.
2.2.8 The officer opening the tender shall first open the envelope containing earnest money. If the earnets money is found to be in order, only then the officer shall
2.2.9 In the price bid, there shall be no conditions whatsoever. In case any tenderer mentions any condition including conditional rebates in their price part, tender shall be rejected forthwith.

2.2.11 Necessary clarifications shall have to be furnished by the successful tenderer as and when required by the department. The tenderer may have to depute his representative to discuss with the officer(s) of the department as and when desired. In case in the opinion of the department a tenderer is taking undue long time in furnishing the desired clarifications or producing fake or fraudulent information or data, hid bid will e rejected without making any reference.

2.2.12 After obtaining clarifications from the successful tenderer the department may modify the technical & commercial conditions/specifications if required, and will intimate the tenderer. However, such modifications shall be such in nature that they will not impress extra budgetary loading on the contractor and the contractor shall not claim any extra cost for the same 22.

2.2.13 The department reserves the right to reject any or all the price bids and call for fresh prices/tenders as the case may be without assigning any reason.

3.0 Terms of payment:
The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

3.1 75% after initial inspection and delivery at site in good condition of pro-rate basis.

3.2 15% after completion of installation in all respect.

3.3 Balance 10% will be paid after testing, commissioning trail run & handing over to the department for beneficial use.

3.4 Security Deposit: Security Deposit shall be deducted from each running bill and the final bill to the extent of 5% of the gross amount payable subject to maximum limit of 5% of the tendered value or work. The security deposit shall be released on the expiry of guarantee period stipulated in the contract.

4.0 Rates.

4.1 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (including works contract taxes), duties and levies and all charges for transporting, packing forwarding, insurance freight and delivery, installation, testing, commissioning etc. at site i/c temporary constructional storage, risks, over head charges general liabilities / obligations and clearance from local authorities.

4.2 The (contractor has to carry out routine & preventive maintenance for 24 months from the date of handing over. Nothing extra shall be paid.

4.3 Octroi duty shall not be paid separately but octroi exemption certificate can be furnished by the department on demand. However, the department is not liable to re-imburse the octroi duty in case exemption certificates are not honored by the concerned authorities.

5.0 Completeness of tender:
All sundry equipment, fillings, unit assemblies, accessories, hardware, items, foundation bolts termination jugs Tor electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespectively of the fact whether such items are specifically mentioned in the tender documents or not 23.

6.0 For item / equipment requiring initial inspection at manufacturers work’s the contractor will intimate the date of testing o equipments at the manufacturer’s works before dispatch. The department also reserves the right to inspect in fabrication job of factory and the successful tenderer has to make the arrangement for the same. The successful tendered shall give sufficient advance notice regarding the dates proposed for such tests /
inspection to the department’s representative(s) to facilitate his Presence during testing/fabrication. The Registrar, Jiwaji University, Gwalior at his discretion may witness such testing/fabrication. The cost of the Engineer’s visit to the factory will be borne by the Department. Also equipment may be inspected at the manufacturer’s premises, before dispatch to the site by the contractor.

7.0 **Storage and custody of materials:**
The lift machine room may be used for storage of sundry materials and erection equipments if “available: or else the “agency has to make his own arrangement. No separate storage.: accohmpdation sha. H‟be provided by the department. Watch and ward of life’ stores and.”their safe custody shall be the responsibility of the contractor till the final takirigpyer of the installation by the department.

8.0 **Care of the Building:**
Care shall be taken by the contractor while handing and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost he shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work:

9.0 **Completion of period:**
The completion period of 4 months indicated in the tender documents is for the entire work of planning, designing, supplying, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Registrar, Jiwaji University, Gwalior.

10.0 **Performance Guarantee:**
10.1 The tender shall guarantee among other things, the following –
(a) Quality”, strength and performance of the materials used.
(b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
(c) Satisfactory operation during the maintenance period. 24
10.2 The successful tenderer shall submit, an irrevocable performance guarantee of 5% of the tendered amount in addition to the deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within 15 days of issue of work order his guarantee shall be in the from or government securities of fixed deposit receipts or guarantee bounds of any scheduled bank or the State Bank of India in the specified format. The performance guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond. This bank guarantee kept valid till the recording of completion certificate for the work by the competent authority.

11.0 **Guarantee**
11.1 All equipments shall be guaranteed for a period of 24 months from the date of taking over the installation by the department against nsatisfactory performance “and / or break down due to defective: design, workmanship of material. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the Registrar, Jiwaji University, Gwalior. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final.

12. **Power Supply**
Electric service connection of 415V, 3 phase, 4 wire, 50 Hz, Ac supply shall be provided by the department for installation purpose free of charge.

13. **Water Supply**
Water supply shall be made available by the department at one point.
14. Data manual and Drawing to be furnished by the tenderers:
14.1 With Tender: The tenderer shall furnish along with the tender, detailed technical literature, pamphlets and performance data for appraisal and evaluation of the offer.
14.2 After Award of work.
   (i) The successful tenderer would be required to submit the following drawings within a month of award of work for approval before commencement of installation.
   (a) All general foundations for the equipment, load data, location etc. of various assembled equipment as may be needed generally by other agencies for purpose of their work. The data will include breaking load on guides, reaction of buffers on lift pits, reaction on support points in machine room, lift well etc.
   (b) Complete layout dimensions for every unit/group of units with dimensions/required for erection purposes.
   (c) Any other drawing/information not specifically mentioned above but deemed to be necessary for the job by the contractor.
15.0 The successful tenderer should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustment, operation and maintenance i/c preventive maintenance & troubleshooting together with all the relevant data sheets, spare parts catalogue and workshop procedure for repairs, assembly and adjustment etc. all in triplicate.
16.0 Extent of work
16.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department. The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender document in connection with this contract.
16.2 Minor building works necessary for installation of equipment, foundation, making of opening in walls or in floors and restoring to their original condition, finish and necessary grouting etc. as required.
16.3 Defects liability (Guarantee) Period for one year from date of completion and handing over.
16.4 The work is turnkey project. Any item required for completion or the project but left in advertently shall be executed within the quoted rates.
17.0 Inspection and testing:
17.1 Copies of all documents of routine and type test certificates of the equipment carried out at the manufacturers premises shall be furnished to the Registrar, Jiwaji University, Gwalior and consignee.
17.2 After completion of the work in all respect the contractor shall offer the installation for testing and operation.
18.0 Validity tenders shall be valid for acceptance for a period of 90 days from the date of opening of price bid.
19.0 Compliance with Regulations and Indian standards.
19.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specifications. In particular, the equipment and installation will comply with the following:
   (i) Factories Act,
   (ii) Indian Electricity Rules.
(iii) I.S. & BS standards as applicable.
(iv) Workmen’s compensation Act.
(v) Statutory norms prescribed by local bodies like local Municipal Corpn etc.
(vi) Relevant Lift Act(s).

19.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

19.3 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety code in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs. 50/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

20.0 Indemnity The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the department shall not be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipments under, the supervision of the successful tender in so far as the latter is responsible. The successful on the shall 27 also provide all insurance including third party insurance as may be necessary to over the risk. No extra payment would be made to the successful tenderer due to the above.

21.0 Erection Tools No tools and tackies either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

22.0 Cooperation with other agencies The successful tenderer shall co-ordinate with other contractors and agencies engaged in the construction of building, if any, and exchange freely all technical information so as to make the execution of this works contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the successful tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the successful tenderer himself.

23.0 Mobilization Advance No mobilization advance shall be paid for this work.

24.0 Insurance and Storage All consignments are to be duly insured up to the destination from warehouse to warehouse at the cost of the supplier. The insurance cover shall be valid till the equipment is handed over duly installed, tested and commissioned.

25.0 Verification of correctness of Equipment at Destination The contractor shall have to produce all the relevant records to certify that the genuine equipment from the manufacturers has been supplied and erected.

26.0 Painting This shall include cost of painting of entire exposed iron work complete in the installation. All equipments works shall be painted at the works before dispatch to the site.

27.0 Training 28 The scope of works includes on job technical training of two persons at site. Nothing extra shall be payable on this account.

28.0 Maintenance
28.1 Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of one year from the handing over of the installation.

28.2 The maintenance, routine as well as preventive for one year from the date of taking over the installation as per manufacturers recommendation shall be carried out and the record of the same shall have to be maintained.

29.0 Interpreting Specifications in interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:
(a) Schedule of quantities.
(b) Technical specification
(c) Drawing (if any)
(d) General Specifications
(e) Relevant IS or other international code in case IS code is not available.

30.0 If required a separate supplementary agreement shall be made with the successful tenderer for comprehensive maintenance for 5 Years after guarantee period of 2 years. The payment for comprehensive maintenance shall be made quarterly after the end of each quarter.

Registrar
Jiwaji University, Gwalior

ANNEXURE – IV
GENERAL

1.0 Scope:
These general specifications cover the details of equipment to be supplied, inspection as may be necessary before dispatch, delivery at site testing, commissioning and handing over in working condition of Electrical, Hydraulic, Service Lifts and Escalators.

1.1 Related documents:
These technical specifications shall be read in conjunction with the General conditions of contract with all correction slips, as well as” schedules and drawing. In the event of any discrepancy between these specifications and inter-connected contract document, the technical requirements as per the tender specifications shall be followed and deem to be having over-riding value.

1.2 Definition of terms:
The definition of terms used in these general specifications is given in following description/chapters.

2.0 Requirement, quantity and location number, speed, capacity and type of lifts for particular usage and their location in a particular building shall be decided in accordance with the Recommendations of IS: 14665 (part – 1) 2000. However, certain general points regarding the requirements, quantity and location of lifts are given in the following paragraphs.

2.1 Requirement
The passenger lifts shall normally be provided only when the number of floors to be served exceeds four or the height of the building exceeds 14.5 metres. However, lifts for
special purposes such as hospital lift, goods lift and VIP lift may be provided to serve even a lesser number of floors depending upon the particular requirements.

2.2 Number of lifts

2.3 The number of lifts for a particular building shall be decided keeping in view any probable future expansion. It is important to have a thorough investigation of quantity and quality of service desired.

2.4 Location and layout

2.4.1 The passenger lift shall be so placed as to be easily accessible from various entrances to the building. For maximum efficiency they should be grouped and located suitably in the building. Goods lifts shall also be similarly placed for achieving least horizontal movement of goods. The ideal arrangement of lifts depends upon the particular use in the respective building and shall be determined in every individual case. In selecting location for lift installation in any building particular attention shall also be taken to the fire rescue aspect in conformity with the local municipal bylaws and prevention of water entry into the pit.

2.5 Passenger Lift

Residential buildings – When the number of flats per floor is not many the lift may be conveniently placed near a staircase. However, if the number of flats in each floor is substantial the lift may conveniently be located in a shaft adjoining the building.

2.5.2 Office building and hospital – It is generally found convenient to have bank of two or more lifts at one or more convenient points in the building with one or more banks near the stair case. Traffic pattern in various parts of the building shall also be taken into account while locating lift bank.

2.5.2.1 Shops and Departmental stores – Lifts in these buildings shall be so placed as to secure convenient and easy access to each floor.

2.6 Goods Lifts

2.6.1 The location of goods lifts in office building, factories, warehouses etc., shall be planned to suit the progressive movement of goods throughout the building having regard to the nature of the process carried out in the building, the position of loading platforms, railway sidings etc. The placing of lifts nature, or dust-laden atmosphere and where it may be exposed to extreme temperature shall be avoided wherever possible. Where such an installation” is Unavoidable the equipment should be of suitable design and construction to suit the environmental conditions.

2.6.2 Hospital Lifts.

Hospital lifts shall be situated near the wards, operation theatre and such other areas where patients are required to be taken.

3.0 Conformity with statutory acts, Rules, regulations, standards & Safety Codes. The installation shall be carried out in conformity with the local lifts Act & Rules. For ex. The Bombay lifts Act for Bombay, the West Bengal lifts, and Escalators Act for West Bengal, the Bombay lifts Act as extended to Delhi for Delhi etc. At other places where no local lifts act is in force the Bombay-lift Act shall be followed. The installation shall also conform to requirements of Local Municipal Bylaws.

3.1 Indian Electricity Act and Rules :

All electrical works in connection with installation of electric lifts shall be carried out in accordance with the provisions of Indian Electricity Act 1910 and the Indian Electricity Rules 1956 amended up to date. The electrical works shall also conform to PWD General Specification for Electrical Works (Internal end) 31

3.2 Safety Codes & labor regulations
The contractor shall at his own expenses arrange for the safety provisions as per the statutory regulations, IS recommendations, regulations under factory act etc. where applicable and instructions issued from time to time in respect of all labor employed by him directly or indirectly for the installation of the lift.

The contractor shall provide necessary barriers, warning signs and other safety measures etc, wherever necessary so as to avoid accident in addition all safety procedures as outlined in Fire Safety requirements shall be complied with. In case of default the department shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor. He shall also indemnify PWD/CPA against claims for compensation arising out of his negligence in this regard.

3.3 Fire Regulations.

The installation shall be carried out in conformity with the local fire regulations, and rules there under wherever they are in force.

4.0 Works to be done by the Department

The department shall be responsible for the following works only and these are excluded from the scope of the successful tenderer.

4.1 Provision of 3 phase, 4 wire, 50 Hz, 415 Volts A.C. power supply terminated in the lift machine room separately for each lift with suitable sized TP & N switch fuse with double earth for electric traction lifts.

4.2 Provision shall also be made for suitable size TP & N switch fuse at the ground floor for each electric traction lift.

4.3 Provision of single phase 50 Hz, 230 V A.C. power supply terminated with suitable sized SP & N switch fuse for lighting in the machine room and lift well. 4.4 Free water & power supply during installation, testing & commissioning periods.

4.5 Properly ventilated machine room with exhaust fans, lift well & water proof pit.

4.6 Provision of suitable storage space.

4.7 Provision of adequate lighting in the machine room rand at all landings.

4.8 Necessary flooring in the lift well portion in the machine room to cover the open 32 areas after installation of machine.

4.9 Architrave work at lift entrances.

4.10 Stair cases from the top most landing or terrace to machine room.

5.0 Works to be done by the contractor.

In addition to the manufacture, supply, installation, testing and commissioning of the lift including all auxiliary equipment, following works shall be deemed to be included within the scope of the work to be done by the contractor.

5.1 All minor building work necessary for installation of equipment such as making of openings in walls/floors, either of RCC or brick masonry etc. and restoring them to original condition and finish. The scope of minor building work includes all grouting of foundation concrete pads to be formed or made as base for supporting RS joists etc. grouting and anchoring of all boards clamps supports foundation bolts, installation in position of RS joists in the machine room lift well or in the pit. Such works shall exclude cutting of marble work’ and construction of partition wall wherever involved.

5.2 Supply of necessary RS joists or angle iron supports brackets etc” for installation of the lift, either in the machine room or at other place as” may be necessary including their installation in position.

5.3 All electrical works except bringing in main connection and earth connection to the machine room terminated on suitable switch fuse unit/board. All electrical works including inter-connection from this switch/board and loop earth from the earth bar to be provided in the machine room shall be done by the successful contractor.
5.4 Responsibility to ensure safety of lift materials against pilferage and subsequently the installation is handed over to the consignee.

5.5 All scaffolding as may be necessary in the lift well during erection work and subsequently removed.

5.6 Temporary barricades with caution boards at each landing to prevent accident during execution of work.

5.7 Supply and installation of landing fascia plates made of steel, car apron plates sill support angles with necessary clamps, foundation bolts supports etc, as are necessary in connection with the installation of lift.

5.8 Steel ladder to be provided for access to lift pit wherever required under 33 regulations.

6.0 Coordination with other agencies.

The successful contractor shall coordinate lift installation work with other contractor/agencies engaged in construction of building if any and exchange freely all technical information so as to make the execution of works contract smooth.

7.0 Completeness of tender

All fittings, equipments, units assemblies and accessories, Hardware foundation bolts, terminal for electrical connection, cable glands in connection box and items which are useful and necessary for efficient assembly in operation and installation shall be deemed to have been included in the scope of work the installation shall be complete in all details whether such details have been mentioned in the specifications or not.

8.0 Information to be supplied by contractor after award of work

With a period of 4 weeks from the date of receipt of letter of acceptance the contractor shall provide the department his programme bar chart for submission of preliminary drawing, manufacturing of equipment, installation, testing commissioning and handing over. This should be correlated with the building completion programme. The contractor shall be required to submit in triplicate the following drawing and information with the above 4 weeks period for approval of the department before the commencing the work.

(a) All general arrangement drawings.

(b) Details of foundations for equipments, load data location etc. of various assembled equipments as may be needed generally other agencies for purpose of their work. The data will include breaking load on guides, reaction of buffers en lift pits, reaction on support points in machine room, lift well etc.

(c) Complete layout dimensions for every unit/group of units with dimensions required for erection purposes.

(d) Any other drawing/information not specifically mentioned above but deemed to be necessary for the job by the contractor.

(e) List of items to be carried out by the department in accordance with the tender accepted.

9.0 Commencement of work

As soon as the preliminary drawings are approval, the contractor should commence work. The contractor shall send 7 sets of final drawing to the department who shall return one copy.

Registrar
Jiwaji University, Gwalior
ANNEXURE – V
TERMINOLOGY

1.0 For the purpose of these specifications following definitions shall apply:

1.1 Bottom Car Run by
The distance between the car buffer striker plate and the striking surface of the car buffer when the car is in level with the bottom terminal landing.

1.2 Bottom Counter Weight Run by
The distance between the Counterweight buffer striker plate and the striking surface of the counterweight buffer when the car is in level with the bottom terminal landing.

1.3 Buffer
A device designed to stop a descending car or counterweight beyond its normal limit of travel by storing or by absorbing & dissipating the kinetic energy of the car or counterweight.

1.3.1 Oil Buffer
A buffer using oil as medium which absorbs and dissipates the kinetic energy of the descending car or counterweight.

1.3.1.1 Oil buffer stroke
The oil – displacing movement of the buffer plunger or piston, excluding the travel of the buffer plunger accelerating device.

1.3.1.2 Spring buffer
A buffer which stores in a spring the kinetic energy of the descending car or counterweight.

1.4 Call Indicator 35
A visual and audible device in the car to indicate to the attendant the lift landings from which calls have been made.

1.5 Car Bodywork
The enclosing bodywork of the lift car which comprises the sides and roof and is built upon the car platform.

1.6 Car frame:
The supporting frame or sling to which the platform of the car, its safety gear, guide shoes and suspension ropes are attached.

1.7 Car platform the part of the lift car which forms the floor and directly supports the load.

1.8 Clearance

1.8.1 Bottom Car Clearance
The clear vertical distance from the pit floor to the lowest structural or mechanical part, equipment or device installed beneath the car platform ‘aprons or guards located within 300mm, measured horizontally from the sides of the car platform when the car rests on its fully compressed buffers.

1.8.2 Top Car Clearance
The shortest vertical distance between the top of the car crosshead, or between the top of the car where no crosshead is provided, and the nearest part of the overhead structure or any other obstruction when the car floor is level with the top terminal landing.

1.8.3 Top Counterweight Clearance
The shortest vertical distance between any part of the counterweight structure and the nearest part of the overhead structure or any other obstruction when the car floor is level with the bottom terminal landing.
1.9 Control
The system governing starting, stopping, direction of motion, acceleration, speed and retardation of moving member.

1.9.1 Single-Speed Alternating Current Control
A control for a driving machine induction motor which is arranged to run at a single speed.36

1.9.2 Electronic Devices
A system of control which is accomplished by the use of electronic devices for driving the lift motor at variable speed.

1.9.3 Alternating Current Variable Voltage Variable Frequency (ACVVF) Control
A system of speed control which is accomplished by varying the voltage and frequency of the power supply to the driving machine induction motor.

1.9.4 Solid-State D.C. Variable Voltage Control
A solid – state system of speed control which is accomplished by varying the voltage & direction of the power supply to the armature of driving m/c D.C. motor.

1.10 Counterweight
A weight or series of weights to counter – balance the weight of the lift car and part of the rated load.

1.11 Deflector Sheave
An idler pulley used to change the direction of a rope lead.

1.12 Door
1.12.1 Door, Centre Opening Sliding
A door which slides horizontally and consists of two or more panels which open from the centre and are usually so interconnected that they move simultaneously.

1.12.2 Door, Mid-Bar Collapsible
A collapsible door with vertical bars mounted between the normal vertical members.

1.12.3 Door, Single Slide
A single plane door which slides horizontally.

1.12.4 Door, Two Speed Sliding
A door which slides horizontal and consists of two planes, one of which moves at twice the speed of other.

1.12.5 Door, Vertical Bi-Parting
A door which slides vertically and consists of two panels or sets of panel that move away from each other to open and are so interconnected that they move simultaneously.

1.12.6 Door, Vertical Lifting 37
A single panel door which slides in the same plane vertically up to open.

1.12.7 Door, Swing
A swinging type single panel door which is opened manually and closed by means of a spring closer, when released.

1.12.8 Door, telescopic
A door which slides, horizontally with one of its part moving in to other, like a smaller tube of a telescope moving in the bigger rube suitable for narrow doors.

1.13 Door Closer
A device which automatically closes a manually – opened door.

1.14 Door Operator
A power operated device for opening and closing doors.
1.15 Car door Electric Contract
An electric device, the function of which is to prevent operation of the driving machine by the normal operating device unless the car door is in the closed position.

1.16 Electrical & Mechanical Interlock
A device provided to prevent simultaneous operation of both up and down relays.

1.17 Electro-Mechanical Lock
A device which combines in one unit, electrical contact and a mechanical lock jointly used for the landing and/or car doors.

1.18 Emergency Stop Push or Switch.
A push button or switch provided inside the car designed to open the control circuit to cause the lift car to stop during emergency.

1.19 Floor Leveling Switch
A switch for bringing the car to level at slow speed in case of double speed or variable speed machines.

1.20 Floor-Selector
A mechanism forming a part of the control equipment, in certain automatic lifts designed to operate controls which cause lift car to stop at the required landings.

1.21 Floor-Stopping Switch
A switch or combination of switches arranged to bring the car to rest automatically at or near any pre-selected landing.

1.22 Gearless Machine
A lift machine in which the motive power is transmitted to the driving sheave from the motor without intermediate reduction gearing and has the brake drum mounted directly on the motor shaft.

1.23 Goods Lift
A lift designed primarily for the transport of goods, but which may carry a lift attendant or other persons necessary for the loading or unloading of goods.

1.24 Guide Rails Fixing
The complete assembly comprising the guide rails bracket and its fastenings.

1.25 Guide Rails Shoe
An attachment to the car frame or counterweight for the purpose of guiding the lift car or counterweight-frame.

1.26 Landing Call Push
A push button fitted at a lift landing either for calling me lift car, or for actuating the call indicator.

1.27 Landing Door
The hinged or sliding porting of a lift well enclosure, controlling access to a lift car at a lift landing.

1.28 Landing Zone
A space extending from “a horizontal plane 40 cm below a landing to a plane 40 cm above the landing.

1.29 Leveling Devices.
1.29.1 Leveling Device, Lift Car
Any mechanism which either automatically or under the control of the operator, moves the car within the leveling zone towards the landing only, and automatically stops it at the landing.

1.29.2 Leveling Device, One-way Automatic
A device which corrects the car level only in case of under-run and over-run, and maintains the level during loading and unloading.
1.29.3 Leveling Device, Two-way Automatic, Maintaining
A device which corrects the car level on both under-run and over-run, and maintains the level during loading and unloading.

1.29.4 Leveling Device, Two-way Automatic Non-maintaining
A device which corrects the car level on both under-run and over-run but will not maintain the level during loading and unloading.

1.30 Leveling Zone
The limited distance above or below a lift landing within which the leveling device may cause movement of the car towards the landing.

1.31 Lift
An appliance designed to transport persons or materials between two or more levels in a vertical or substantially vertical direction by means of a guided car or platform.

1.32 Lift Car
The load carrying unit with its floor or platform, car frame & enclosing body.

1.33 Lift Landing
That portion of a building or structure used for discharge of passengers or goods or both into or from a lift car.

1.34 Lift Machine
The part of the lift equipment comprising the motor and the control gear therewith, reduction gear (if any), brake (s) and winding drum or sheave, by which the lift car is raised or lowered.

1.35 Lift Pit
That space in the lift well below the level of the lowest lift landing served.

1.36 Lift Well
The unobstructed space within an enclosure provided for the vertical movement of the lift car (s) and any counterweight (s), including the lift pit and the space for top clearance.

1.37 Lift Well Enclosure
Any structure which separates the lift well from its surroundings.

1.38 Lifting Beam
A beam, mounted immediately below the machine room ceiling, to which lifting tackle can be fixed for raising or lowering parts of the lift machine.

1.39 Operation
The method of actuating the control of lift machine.

1.39.1 Automatic Operation
A method of operation in which by a momentary pressure of a button the lift car is set in motion and caused to stop automatically at any reqd. lift landing.

1.39.2 Non-Selective Collective Automatic Operation
Automatic operation by means of one button in the car for each landing level served and button at each landing, wherein all stops registered by the momentary actuation of landing car buttons are made irrespective of the number of buttons actuated or of the sequence in which the buttons are actuated. With this type of operation the car stops at all landings for which buttons have been actuated making the stop in the order in which the landing are reached after the buttons have been actuated but irrespective of its direction of travel.

1.39.3 Selective Collective automatic Operation
Automatic operation by means of one button in the car for each landing level served and by up and down buttons at the landings, wherein all stop’s registered by the momentary actuation of the car made as defined under non-selective collective automatic operation, out wherein the stops registered by the momentary
actuation of the landing buttons are made in the order in which the landings are reached in each direction of travel after the buttons have been actuated. With this type of operation, all ‘up’ landing calls are answered when the car is traveling in the down direction, except in the case of the uppermost or lowermost calls which are answered as soon as they are reached irrespective of the direction of travel of the car.

1.39.4 Single Automatic Operation
Automatic operation by means of one button in the car for each landing level served and one button at each landing so arranged that if any car of landing but on has 41 been actuated, the actuation of any other car or landing operation button will have no effect on the movement of the car unit the response to the first button has been completed.

1.39.5 Group Automatic Operation
Automatic operation of two or more non-attendant lifts equipped with power operated car and landing doors. The operation of the cars is co-ordinated by a supervisory operation system including automatic dispatching mean whereby selected cars at designated dispatching points automatically close their doors and proceed on their trips in a regulated manner. It includes one button in each car for each floor served and up and down buttons at each landing (single buttons at terminal landings). The stops set up by the momentary actuation of the car buttons are made automatically in succession as a car reaches the corresponding landings irrespective of its direction of travel or the sequence in which the buttons are actuated. The stops set up by the momentary actuation of the landing buttons may be accomplished by any lift in the group, and are made automatically by the first available car that approaches the landing in the corresponding direction.

1.39.6 Car Switch Operation
Method of operation by which the movement of lift car is directly under the operation of the attendant by means of handle.

1.39.7 Signal Operation
Same as collective operation, except that the closing of the door is initiated by the attendant.

1.39.8 Double button (continuous pressure) Operation
Operation by means of buttons or switches in the car and at the landings any of which may be used to control the movement of the car as long as the button or switch is manually pressed in the actuating position.

1.40 Operating Device
A car switch, push button or other device employed to actuate the control.

1.41 Over head Beams
The members, usually of steel, which immediately support the lift equipment at the top of the lift well. 42

1.42 Over-Speed Governor
An automatic device which brings the lift car and / or counterweight to rest by operating the safety gear in the even of the speed in a descending direction exceeding a predetermined limit.

1.43 Passenger Lift
A lift designed for the transport of passengers.

1.44 Position and / or Direction Indicator
A device which indicates on the lift landing or in the lift car or both, the position of the car in the lift well or the direction or both in which the lift car is traveling.
1.45 Rated Load
The maximum load, for which the lift car is designed and installed, to carry safely, at its rated speed.

1.46 Rated Speed.
The means of the maximum speed attained by the lift car in the upward and downward direction with rated load in the lift car.

1.47 Retiring Cam
A device which prevents the landing doors from being unlocked by the lift car unless it stops at a landing.

1.48 Roping Multiple
A system of roping where, in order to obtain a multiplying factor from the machine to the car, multiple falls of rope are run around sheaves on the car or counterweight or both. It includes roping arrangement of 2 to 1, 3 to 1 etc.

1.49 Safety Gear
A mechanical device attached to the lift car or counterweight or both, designed to stop and to hold the car or counterweight to the guides in the event of free fall or if governor operated of over speed in the descending direction.

1.50 Sheave
A rope wheel, the rim of which is grooved to receive the suspension ropes but to which the ropes are not rigidly attached and by means of which power is transmitted from the lift machine to the suspension ropes.

1.51 Slack Rope Switch
Switch provided to open the control circuit in case of slackening of rope(s).

1.52 Suspension Ropes
The ropes by which the car and counterweight are suspended.

1.53 Terminal Slow Down Switch
A switch when actuated shall compulsorily cut off the high speed and switch on the circuitry to run the elevator in leveling speed before reaching on terminal landings.

1.54 Terminal Stopping’s Switch Normal
Switch for curling all the energizing current in case of car travelling beyond the top or bottom landing or a switch which cuts off the energizing current so as to bring the car to a stop at the top and bottom level.

1.55 Terminal Stoppings Device final
A device which automatically cause the power to be removed from an electric lift driving machine motor and brake independent if the functioning of the normal terminal stopping device, the operating device or any emergency terminal stopping device, after the car has passed a terminal landing.

1.56 Total Headroom
The vertical distance from the level of the top lift landing to the bottom of the machine room slab.

1.57 Travel
The vertical distance between the bottom and top lift landing served.

1.58 Geared Machine
A machine in which the power is transmitted to the sheave through worm or worm and spur reduction gearing.

Registrar
Jiwaji, University, Gwalior
ANNEXURE – VI
TECHNICAL

1.0 Scope
This section deals with technical requirements of lift installation, its components; and safety devices various types of controls and methods of operation. The selection of a particular type of control and method of operation will be guided by the requirements in individual case such as nature of building, uses, occupancy, traffic pattern etc. and has to be decided in individual cases.

2.0 Drive Machinery
2.1 Electric Supply
Three phase, 50c/s, 415V electric supply shall be made available. The entire lift equipment should be suitable for operation at +10% to -20% of the rated supply voltage.

2.2 Gearless Machine
The gearless machine shall consist of a motor, traction sheave and brake drum or brake disc completely aligned on a single shaft Gearless shall be AC gearless with VWF drive.

2.3 Geared Machine
The lift machine shall be of worm gear reduction type with motor, brake, worm, gearing and driving sheave and suitable for type of control specified.

2.4 Sheave
Sheaves and pulleys shall be of hard alloy, cast iron, SG iron or steel and free from cracks, sand holes and others defects. They shall have machined rope grooves The; traction sheave shall, be grooved to produce proper traction and shall be of sufficient dimension to provide for wear in the groove. The deflector sheave shall be grooved so as to provide a smooth bed for the rope. The deflector or secondary, sheave assemblies where used shall be mounted in proper alignment with the traction sheave. Such deflector sheaves shall have grooves larger than rope diameter as specified in clause 8 of IS 14665 (part – 4-Sec 3) 2000. The size of all the sheaves shall be in accordance with clause 8.4 of IS 14665 (part-4 – Sec 3): 2000. Wherever necessary suitable protective guards may be provided.

2.5 Shaft Keys
Shaft which supports sheaves, gears, coupling and other members which transmit torque shall be provided with tight fittings keys of sufficient strength and quantity. 45

2.6 Brake
The lift drive machinery shall be provided with an electro-magnetic brake or motor operated Brake normally applied by means of springs in compression when the operating device is in off position. The brake shall be suitably curved over the brake drum or brake disc and provided with fireproof friction lining. The operation of brake shall be smooth, gradual and with minimum noise. The brake shall be designed to be of sufficient size and strength to stop and hold the car at rest with rated load. The brake should be capable of operation automatically by the various safety devices, current failure and by the stopping of the car. The brake shall be released electrically. It shall also be possible to release the brake manually, such releases requiring the permanent application of manual force 30 as to move the lift car in short stops. For this purpose suitable brake release equipment wherever necessary shaft be supplied with each lift installation and the same shall be kept in safe custody to prevent misuse.

2.6.1 Hand winding wheel or handle
At times of lift stoppage due to any reasons, it shall be possible to move the lift car to the nearest landing manually. The manual operation shall be by means of
winding wheel or handle mounted on the end of the motor shaft. The up or down direction of the movement of the car should be clearly marked on the motor or at suitable location. A warning plate written in bold signal red colour advising the maintenance staff to switch off the mains supply before releasing the brake and operating the wheel is to be prominently displayed.

2.7 **Bearings**

Bearings shall be either of the anti-friction metal sleeve type with oil reservoirs, self lubrication, oil gauges, capped filler openings and drains of the ball roller or sintered type subject to oil flood lubrication or grease lubrication. Grease lubricated bearings shall have grease gun connection and drain plugs. The bearing and lubricant reservoir’s shall be dust tight and shall incorporate affective seals to prevent leakage. The other end of the bearings shall be closed with a removable oil type plate. Thrust bearing shall be of the ball or roller type shall have two sets of ball or rollers arranged to minimum backlash for efficient working.

3.0 **Types of Controls:**

3.1 **Single Speed Alternating Current Control 46:**

A control for a riving machine induction motor which is arranged to run at a single speed.

3.2 **Variable Voltage Variable Frequency:**

Incoming mains AC power is first rectified DC and then inverted to provide controlled AC current to the elevator drive. Precision monitoring of motor speed and car direction, position and load enable the pulse width of the AC power supplied to motor to be adjusted to ensure that elevator speed is maintained very accurately to an ideal profile. Thus in VVVF controlled pulse width modulation control of AC motors had following advantage compared with the older servo controlled elevators.

(a) Total control at all stages of the motion cycle.

(b) A consistent fully adjustable smooth ride.

(c) Better leveling accuracy under all conditions.

(d) A higher power, fact or,

(e) Lower starting currents.

(f) Energy saving through reduced power consumption.

4.0 **Installation aspects.**

4.1 **Installation in machine room**

Lift machine room to accommodate the drive machinery, controller etc. shall as far as possible be located on top of the lift shaft. The layout of equipment there should be such as to allow free movement of maintenance personnel inside. Machine room shall not be used for storage purpose.

4.1.1 Ventilation of machine room – Machine room shrill be provided with natural air and mechanical ventilation to avoid over heating of the electrical equipments and to ensure proper operation of the controller. Entry of dust etc. shall also be suitably prevented.

4.1.2.1 Vibration isolation – Vibration and isolation arrangement shall be provided to prevent transmission of vibration to the building and structure.

4.2 **General Illumination of Lift well:**

Suitable light points shall be provided in the lift well at a spacing of not more than 10 meters in between, starting at the ground floor. All the points should be group controlled from the machine room. The wiring shall be carried out in surface conduit 47 as per PWD specification. One socket outlet shall be provided in the shaft for use by “maintenance personnel at a level slightly above the ground floor landing.

5.0 **GUIDE RATES**
Guide rails shall be in accordance with clause 3 of IS 14665 (part 4 – Sec 2) 2000. Only machined guide rails shall be permitted for cars for passengers and hospital lifts formed sheet metal rails shall be used up to speeds of 1.75 mps for counter weight applications. In the case of goods lifts, un-machined guides rails shall be permitted for the counterweight for all speeds and for the cars only up to a speed of 0.5 mps. The guide rails shall be continuous throughout the entire travel and shall withstand without any deformation the action of safety gear with a fully loaded car. Generally the guide rails shall be supported by brackets secured to the hoist way-frame at each floor. The rails shall be securely fastened to the brackets or other supports by approved heavy fail clamps. All necessary guide rails packing or additional supports shall be provided to prevent guide rail deflection and stresses exceeding the prescribed limits. The stresses on the guide rail due to the horizontal forces imposed on it during loading, unloading and running calculated without impact, shall not exceed 1100 kg/sc/cm based up on the class of loading and the deflection shall not exceed 5mm. The guide rail brackets, their fastenings and supports shall be capable of resisting the horizontal forces mentioned above, with the total deflection at the point of support not in excess of 3mm. Guide rails shall extend from pit floor to the underside of concrete slabs or shimming at top of the lift well. They shall be erected in plumb and parallel with a maximum deviation of 3mm. All shimming required shall be of metal securely held in place. Jointing plates shall be so located as not to interfere with supporting clamps and brackets. The bolts shall be used with spring lock washers. The guide rail anchorage at pit floor must be made without puncturing the waterproofing. The expansion joints in the guide rails shall be so designed as to avoid jerks in the lift car. Machined guide rails shall hive finished surfaces which shall be coated with corrosion preventive compound which shall be maintained till the commissioning of the installation. Before the car is placed in operation, the preventive coating shall be removed and the guide rails thoroughly cleaned and smoothened.

6.0 Lift Car
6.1 Car Frame 48
The car frame shall be in accordance with clause 4 of IS 14665 (part 4 Sec 3): 2001 made of sheet steel of rigid construction to withstand without permanent deformation the operation of safety gear. The car shall be so mounted on the frame that vibration noise transmitted to passengers inside in minimized.

6.2 Car Platform
6.2.1 The car platform shall be of framed construction and designed on the basis of rated load evenly distributed. The dimensions shall conform to IS: 14665 (pan 1) 2000 unless otherwise specified. The flooring shall be smooth and of anti-skid surface. The flooring for goods lift shall be strong enough to take the rated load without any deformation or damage.
6.2.2 A load plate along with overhead alarm, giving the rated load and permissible maximum number of passengers should be fitted in each lift car in a conspicuous position.

6.3 Car body
The car shall be enclosed on all sides by a metallic enclosure. The enclosure including the door shall withstand without deformation a thrust of 35kg applied normally at any point and as per IS: 14665 (part 4 sec 3) 2001. Ventilation openings if specified shall be as per IS: 14665 (part 4 sec 3) 2001.
6.3.1 Stretcher guards/trolley guards made of PVC/Rubber extrusion housed in a stainless steel beading shall be fitted at suitable level(s) to rear/side panels for bed lifts/goods lifts.
6.3.2 Lift car door shall have a fire resistance rating of one hour.
6.3.3 Grounding switch(es), at ground floor level, shall be provided on all the lifts to enable the fire service to ground the lifts.

6.4 Car roof
The roof of the caff shall be solid type capable of supporting a weight of at least 140kg and as per IS: 14665 (Part 4 Sec 3) 2001.

6.5 Car Thresholds
Car entrance shall be provided with metal threshold having a grooved surface. Thresholds for lifts having horizontally sliding car doors or gates shall have machined extruded guide grooves. 49

6.6 Toe Guard Aprons
The toe guard apron of gauge not less than 1.6mm sheet steel may be provided extending at least 15mm beyond entrance jambs at each side. The guards shall have a straight vertical face extending below the level of the finished car floor and not less than the depth of the leveling zone plus 7.5mm. The bottom of guard shall extend 700mm for lifts up to speed of 1.5mps & 1000mm for lifts above speed of 1.5 Amps below vertical face and beveled at 15° angle from the vertical. It shall be seamed to car platform construction and be reinforced and braced.

6.7 Clearance
The clearance between the top of the car and the soffit of the lift shaft roof, bottom of the car and the pit floor, the buffers etc. and the clearance between the car and lift well, between the car and the landing sill, between two lift cars in the same shaft etc. shall be provided as per IS: 14665 (part 1,2 & 4) and relevant lift rules mentioned below – The bottom Run by for cars and counterweights shall be not less than following:
(a) 15cm where oil buffers are used.
(b) Where spring buffers are used
(1) 15cm for following controls
(i) Variable voltage of control (Generator field control).
(ii) Electronics devices
(iii) Alternating current variable voltage (ACVV)
(iv) Alternating current variable voltage variable frequency
(v) Solid state d.c. variable voltage control.
(2) Not less than the following for single speed & two speed Alternating Current Control and Rheostat control.
Rated Speed Run by
(m/s) (cm)
Upto 0.125 7.5
0.125 to 0.25 15
0.25 to 0.50 22.5
0.50 to 1.00 30
50
Maximum bottom runby – In no case shall the maximum bottom runby exceed 60 cm for cars and 90 cm for counterweights. Top Car Clearance.
The vertical clearance between the car crosshead and the nearest overhead obstruction within 500mm measure horizontally to the nearest part of crosshead when the car platform is level with the top landing, shall be not less than the sum of the following:
(a) The bottom counterweight runby
(b) The stroke of the counterweight buffer used
(c) One half of the gravity stopping distance based on
(1) 115% of the rated speed where oil buffers are used and no provision is made to prevent the jump of the car at counterweight buffer engagement and
(2) Governor tripping speed where spring buffers are used. Note- The gravity stopping distance based on the gravity retardation from any initial velocity may be calculated according to the following expression.
\[ S = 5.1V^2 \]
Where \( S \) = free fall in cm (gravity stopping distance)
\( V \) = Initial velocity in mps
(c) 600mm

Where there is a projection below the ceiling of the well and the projection is more than 500mm, measured horizontally from the line of the crosshead, but over the room of the car, a minimum vertical clearance not less than that calculated/above shall also available between the roof of the car and projection. Provided that the vertical clearance between any equipment mounted on top of the car and the nearest overhead obstruction shall be not less than the sum of the three items (a), (b) and (c) as calculated above plus 1 50mm.

Top counter-weight Clearances
The top counter-weight clearance shall be not less than the sum of the following four items:
(a) The bottom car runby
51
(b) The stroke of the car butter used.
(c) 15 cm and
(d) One-half the gravity slopping distance based on:
(1) One hundred and fifteen percent of the rated speed where oil buffers are use and no provision is made to prevent jump of the counterweight at car buffer engagement and
(2) Governor tripping speed where spring buffers are used.

6.8 Car Apron, Landing Thresholds and Sills
An apron shall be fined to the car platform such that no dangerous gap exists at any lime, when the landing door is opening. Thresholds and sill plates shall be provided at the landings also. The distance between landing sill and the sill on car platform shall not be more than 30mm.

6.9 Inter-communication system
6.9.1 Though Para 8:4:3 of IS: 14665 (part 2/sec 1) 2000 recommends for provision of either an emergency signal or a telephone inside the car but us a general experience; it is seen that over a period of time these devices become inoperative due. To one’ reasons or the other. Therefore, in order to have at least one year or communication functioning at all the times, as an alternative, arrangement, provision of both i.e. telephone with minimum two connections one at the operator’s room and other at guard room and the emergency signal with rechargeable batteries as source of supply shall be made in the lift cars.
6.9.2 The device used for emergency signals should incorporate a feature that gives immediate feedback to the car passengers that the device has worked properly and the signal has been passed on toe the intended agency. This shall be achieved by pressing of button from control room, which shall give audio signal to the passengers in the car.
6.9.3 Provision of group indicator panel in the control room shall be made to indicate working of lifts.

6.9.4 Emergency Power Supply for lift car
This shall include suitable secondary battery with trickle boost charge arrangement and inverter power pack with necessary contactors for supplying the light fixtures in the lift car. The same battery shall also feed the alarm bell and communication equipment.

6.10 Ratings and Instructions
Inside the lift car, the lift supplier shall also provide a stainless steel metallic plate indicating the rated load and detail instructions for the passengers. This shall be mounted at a suitable place.

6.11 Lift car interior Finish
The side, Tear and fascia panel shall be of scratch free stainless steel sheet. The flooring shall be with 3mm thick PVC tiles for passenger lift and chequered aluminium sheet for goods lifts and goods passenger lifts. The false ceiling in the lift car shall be grafted from mild steel powder-coated to suitable colour with CFL lamps and fans diffuse(s) in different colours.

6.11.1 Operating panel inside the car
The car-operating panel shall be of metal, flush mounted and duly finished to match the car interior décor and shall contain all the device as may be specified depending up on the type of operation required. In addition separate illuminated panel for indicating the floor and direction may be provided on the top or the doorway. All switches shall be fade proof and the device shall be of suitable quality. Each device and its operating position shall be legible fade proof and

7.0 Car and Landing Entrance
The car and landing doors shall be of flush type sheet steel only for power operation the flush type doors may further be of single sliding, centre opening or two-speed construction. Power operated car and landing doors shall be so designed as not to injure any person during their closure by means of provision of a safety pressure switch which shall cause the doors to reopen on the slightest pressure in case of power-operated doors, it shall be possible on power failure to open them from the car side. All the openings for passenger lifts shall be 2000mm clear in height. For goods lift vertical bi-parting doors or collapsible gates as specified shall be used. The door opening and closing shall be accomplished smoothly and quickly without undue noise, vibration and shock and their movements shall be cushioned and checked at both limits.

7.1 Car Doors
7.1.1 The car door shall be hung from the top M.S. fabricated track and means shall be provided to prevent the door from jumping off the track. The doors shall be provided with two point suspension sheave type hangers suitable for the types of doors operation specified. The hangers shall be securely fastened on bearing mounted on a malleable iron or steel bracket. Arrangement shall be provided for vertical and lateral adjustment of car doors. The sheaves shall move on a MS fabricated track so shaped as to permit free movement of sheave with regard to vertical adjustment of sheave bracket or housing.

The car door shall be center opening horizontal sliding stainless steel scratch proof (moon rock finish) for office, residential & goods and application whereas telescopic horizontal sliding stainless scratch proof surface (moon rock finish) for hospitals or as required.
7.1.2 A potential cause of accidents could be the attempts made to open the landing door lock of lower floor in case the car stops away from floor level due to power failure. Since the car door can be opened in case of power failure so as to improve the ventilation and avoid claustrophobic situation etc. as outlined in IS: 14665 (part 2/sec 1) 2000 Para 10.9.1, there is tendency among trapped passengers to make attempt to open any accessible landing door which can be opened by a electromechanical latch in the landing doors as the lock is accessible through open car doors. This attempt in panic may result in accidental fall in to the lift pit. In order to ensure that the trapped passenger do not attempts opening the landing door, the electromechanical latch should be so designed that it is inaccessible or invisible to passengers in the car.

7.1.3 In order to avoid accidental closure of doors, while boarding or alighting the car, a tamper proof infrared curtain covering almost the entire height of the door should be provided in the lift doors.

7.2 Provision as per Barrier Free requirements

7.2.1 Wherever lift is required as per by-laws provision of at least one lift shall be made for the wheel chair user with the following cage dimensions of lift recommended for passenger lift of persons capacity by Bureau of Indian Standards.
Clear internal depth 1100mm
Clear internal width 2000mm
Entrance door width 700mm

7.2.2 A hand rail not less than 600mm long at 900mm above floor level shall be fixed adjacent to the control panel

7.2.3 The time of an automatically closing door should be minimum 5 seconds and the closing speed should not exceed 0.25 mps.

7.2.4 The interior of the cage shall be provided with a device that audibly indicate the floor the case has reached and indicate that the door of the cage for entrance exit is either open or closed.

7.3 Landing doors
Each landing door shall be complete with locks, headers, sills, frames, rims, hanger supports with cover plates, fascia plates etc. The finished work shall be strong rigid and neat in appearance. Plain surface shall be smooth and free from warp or buckle;
Molded surfaces shall be clean out straight and true. Fastenings shall be concealed from the face side of the material, steel sills shall be provided with a suitable nosing of approximately 25mm depth on the shaft side. The openings for the landing gates or doors shall not be wider than of the lift car. In the case of biparting type steel doors, the locking of the two leafs locking of the doors should be positive.

7.4 Car Landings

7.4.1 The entire lift car landing shall be well lit to an illumination level of 150 lux and shall be free from obstructions. The control for landing lights and the sign lights shall be tamper proof. Wherever stand by power supply is available, these lights shall be connected to stand by circuits also.

7.4.2 For the purpose of identification, the lift number should be displayed outside the landing door, inside the car and in the machine room. This numbering may be used: as reference for the purpose of routine/preventive maintenance, for operating from machine rooms and reporting of any incidents etc.

7.4.3 Detailed instructions as specified for guidance of passengers shall be prominently displayed inside and outside the car by contractor at all landing. The Braille
signage will be posted by the contractor outside lift lobby at all landing for the lift meant for the barriers free requirement as given in 7.2.

7.4.4 It is seen generally, that though the instruction on Do’s and Don’ts, as per provision of the relevant IS, are displayed in lift cars but the some are either displayed in inconspicuous location, or are very small in size or are in one language only. To make these instructions serve the intended purpose and not a mere compliance of relevant IS clause; that these instructions should be displayed conspicuous locations with larger and understandable script and should be written in Hindi, English and regional 55 language if any.

8.0 Leveling
All lift(s) shall be incorporated with suitable floor leveling devices, in case of lifts with automatic power operated doors and with AC VVVF controller a separate level device for automatic leveling with leveling accuracy of ± 5mm shall be incorporated.

9.0 Counterweight
The counter weight for lift cars shall be in accordance with clause 6 of IS: 14665 (part 4 sec 3) 2001 and shall be designed to balance the weight of empty lift car plus approximately 50% of the rated load, it shall consist of cast sections firmly secured in relative movement by at least two numbers steel to rods having lock nuts / split pips at each beyond and passing through each section and housed in a rigid steel frame work. Cracked and broken sub weights shall not be accepted.

9.1 Counter Weight Guards
Guards of wire metal/mesh shall be provided in the lift pit to a suitable height above the pit floor to eliminate the possibility of injuries to the maintenance personnel.

10.0 Guide shoes.
Two numbers of guide shoes at the top and two numbers at the bottom shall be personnel provided on the lift car and counter weight.

10.1 Type of shoes
10.1.1 For passenger lifts and bed-cum-passenger lifts
(a) For speed up to 1.5 mps sliding guide shoes shall be used. Sliding guide shoes for car shall be always flexible and for counterweight solid guide shoes can be used upto 1.0 mps.
(b) For speeds more than 1.5 mps roller guide shoes, shall be used for car and counterweight.

10.1.2 For goods lifts solid shoes can be used.

10.2 Flexible type/solid type sliding guide shoes.
The car shall be provided with solid or spring loaded swiveling guide shoes with renewable liners, where the lift car speeds are up to and including imp. The cars with speeds beyond 1 mps shall be provided with spring loaded guide shoes with 56 renewable liners or the guide shoes shall be of roller type.

10.3 Roller type Guide Shoes.
Each roller type shoe shall e of an approved type consisting of roller assembled on a substantial, metal base and mounted as to provide continuous contact of all rollers with the corresponding guide rail surface under all conditions of load and operation! The rollers shall run on the three finished guide rail surfaces and shall operate quietly.

10.3.1 Mounting of guide shoes: Guide shoes be provided with adjustable mountings and shall be rigidly secured in accurate alignment at the top and bottom on each side of the car sling and counterweight frame construction. When oil buffers attached to the bottom of counterweight are used, additional guide shoe shall be provided on each side of the buffer frame. The design of the guide shoes and car
safety device shall be coordinated so as to ensure the provision and installation of equipments with clearance specified in clause 5.

11.0 Lift ropes: 15: 14665 (part 4/sec 8) – 2001
Round strand steel wires ropes made from steel wire ropes having a tensile strength not less than 12.5 tones per sq.cm. and of good flexibility shall be used for lifts. Lubrication between the strands shall be achieved by providing impregnated hemp core. The lift ropes shall confirm to IS: 14665 (part 4/sec 8) 2001 and the following factor of safety shall be adhered to. The minimum diameter of rope for cars and counterweight of passenger and goods lift shall be 8mm.

Rope Speed of passenger & goods lifts (m/s) Factor of safeties

<table>
<thead>
<tr>
<th>Speed Range</th>
<th>Factor of Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeding 0.5 to 1.0</td>
<td>8.6</td>
</tr>
<tr>
<td>Exceeding 1.0 to 2.0</td>
<td>10</td>
</tr>
<tr>
<td>Exceeding 2.0 to 3.3</td>
<td>11</td>
</tr>
<tr>
<td>Exceeding 3.5 to 3.8</td>
<td>12</td>
</tr>
</tbody>
</table>

11.1 Rope fastenings:
The ends of lift ropes shall be properly secured 10 me car and counterweight hitch plate as the case may be with adjustable rope shackles having individual tapers habits sockets, or any other suitable arrangement. Each lift rope shackle shall be 57 fitted with a suitable shackle spring seat washer, shackle nut & lock and shackle nuts split pin.

11.2 Guards for lift ropes
Where lift ropes, run round a sheave or sheaves on me car and or counter weight of eared gearless machine suitable guards shall be provided to prevent injury to maintenance personnel.

11.3 Number & size of ropes
The contractor must indicate the number and size of lift ropes and governor ropes proposed to be used, their origin, type, ultimate strength and factor of safety. The contractor should furnish certificate- of ropes from the rope manufacturers issued by competent authority.

12.0 Safety Equipments
Every lift installation shall necessarily be provided with me following:

12.1 The safety gear shall be provided in accordance with IS: 14665 (part 4 / sec 4) 2001 each type of car safety shall be actuated by a speed governor.

12.2 Governor – The car safety – shall be operated by speed governor located overhead and driven by governor rope suitably connected to the car and mounted on its own pulleys. The rope shall be maintained in tension by means of weighted or spring loaded tension sheaves located in the pit. Governor shall be provided for lifts with a travel of more than 5.5 meters. The governor rope shall be not less than 6mm in dia and shall be made of steel or phosforbronze. These shall be in accordance with IS-14665 (part 4 / sec 4) 2001. Governor for car safety gears shall be adjusted to actuate safety gear at following speeds.
(a) For rated speeds up to 1 mps maximum governor tripping speed shall be either 140% of rated speed or 0.88mps, which ever is higher. For rated speed above 1mps maximum governor tripping speed shall be 115% of the rated speed plus 0.25 mps.
(b) Minimum governor tripping speed shall be 115% of the rated speed.

12.2.1 The governor shall be “V” groove wheel design and only wheel is stopped to actuate the car safety up on a pre-determined over speed downward without damaging the rope.

12.3 The governor, rope and sheave shall be so located so as to minimize danger of 58 accidental injury to the equipment.
12.3.1 The governor sheave and tension sheave shall be according to clause 2.4 and the sheave bearing shall be according to clause 2.7 above.

12.3.2 The requirements for field tests on car safety and governor and for drop tests to sliding type car safeties shall be as specified in ‘Testing of Installation’.

12.4 **Terminal limit switches**

12.4.1 **Terminal Switches** – These shall stop the car automatically at terminal, floors within the top and bottom permissible over travel. They shall act independently of the operating devices, the ultimate limits switches and the buffers. They shall be in accordance with clause of IS : 14665 (part 3 Sec 1) 2000.

12.4.2 Terminal stopping devices located in shaft or in the car and operated by cams shall be fined with rollers having a rubber or other approved composition to provide silent operation when actuated by the cam. When the lift car cross head is 60cm from the nearest obstruction above it, no projection on the car shall strike any part of the overhead structure.

12.4.3 Lifts with speeds over 1.25 mps shall have the normal terminal slopping device located on the car or on the guide rails or in the machine room.

12.5 **Ultimate Terminal Switches**

These shall be provided in accordance with the statutory requirements and standing practices when provided these shall arrange to stop the car automatically within top and bottom clearances independently of the normal terminal switches but with the buffers operative. These shall be in with clause 8 of IS 14665 (part 3 sec 1) – 2000.

12.6 **Buffers [IS : 14665 (part 4 sec 1) – 2001]**

Buffers shall be oil resistant rubber pad type for speeds up to 0.25 mps and spring / oil type for speeds; up to 1.5 Amps and only oil type for speeds higher than 1.5 mps. Buffers shall be suitable for installation in the space available Buffer anchorage at pit floors shall be installed avoiding puncturing of waterproofing oil buffers of the car and counter weight shall be of the spring return type or of gravity type. The partial compression of spring return oil buffers when the car is in level with terminal landing will not be acceptable.

All buffers shall be tested at manufacturers works and a copy of the test report shall be submitted. When the lift car rests on fully compressed buffers there shall be at least, 60 cms, clearance between the lowest point in its car frame and any 59 obstruction in the/pit exclusive of buffers and their supports. Similarly when the lift car cross head is 60cm from the nearest obstruction above it, no projection on the car shall strike any part of the overhead structure. The contractor must indicate the name of buffer manufacturers, buffer stroke and certified maximum loads.

12.7 **Door Locks:-**

Electro-mechanical door, lock shall be provided for all the landing doors and they shall be such that the doors can not open unless the car is at rest at the particular landing. It shall not be possible to move the car unless all the landing doors and the car door are closed and locked. This requirement however does not apply when the lift car is provided with automatic leveling devices and in such cases, it shall be permitted to move the car with both the doors open in the leveling zone for the purpose of leveling.

I the locks and contacts shall conform to IS: 14665 (part 1 sec 6) 2001 shall be positive and pass the prescribed endurance and reliability test from a recognized testing laboratory. They shall be so located as to be inaccessible to un-authorized personnel. The
electromechanical latch should be so designed that it is inaccessible or invisible to the passengers in the car.

12.8 **Other safeties:**

Besides these safety devices mentioned above, motor operated electromechanical brake (clause 2.6) counter weight guards (clause 9.1) alarm bell, emergency door lock release operating key and associated safety and other safety requirements shall also be included promptly. The system shall be so arranged that when the cars are idle, normally one car will be parked/at the lower main landing with its doors closed or open and the other car shall be free car parked with the doors closed or open to the landing where it answered its last call, and shall be the one two attend to the nearest call. Each car shall always respond to calls registered its own car call button. When either car is parked out of the service for any reason the other car shall function as single car (simplex) selective collective. Besides the control system shall also be arranged for independent service from inside the car. By-pass button (non-stop) shall also be provided inside the car to enable the attendant to by-pass button (non-stop) shall also be provided inside the car to enable the attendant to by-pass any landing if the car is full or if otherwise so required. Two lifts shall be arranged with or without attendant operation and shall function as described using single car selective collective operation. When the transfer switch is in the attendant position the operation of the cars shall be identical with that 60 described for automatic operation except that:

(a) Closing of doors and starting of cars shall be initiated by the car buttons.
(b) Buzzers & directional lights in the car are operative
(c) Landing by-pass shall be effective.

The pressing of an up or down lauding call shall illuminate appropriate direction indicator in the car panel, which is to answer that call and if the doors are opened shall also sound buzzers as a signal to the attendant. If both cars are parked at the lower landing the above signals shall be given to the car which has been at the floor for longest time.

13.2 **Automatic Group Supervisory Control**

13.2.1 General operating Principal – The calls registered inside the car as well as the landings are answered in the sequence in which the floors are reached irrespective of the sequence in which the button have been pressed. Only one car will stop in response to any one landing call and will be the nearest car traveling in the corresponding direction of the call. While this car is stopping at this landing, the call will be automatically cancelled to prevent other cars stopping against the same call.

13.2.2 Automatic Selection of Traffic Programme – The group supervisory control continuously examines traffic control condition in the building and automatically puts in to operation the program which can best cope with the demand at any particular time. This is fully automatic and requires no supervision or attendant. To suit the traffic demand in the building suitable traffic programme can be selected for inclusion in this control. The followings are the traffic program available.

(a) Up peak program
(b) Down peak program
(c) Up down interflow program And
(d) Night program

(a) **Up peak program** – The group supervisory control responds to the increasing influx of passengers at the main landing in the morning hours,
at the start of work, by automatically switching on the up peak program. The cars dispatched from the main landing automatically at the predetermined interval after the previous dispatched car. The ‘leaves first’ signal is transferred instantaneously from the car dispatched to another car 61 at the main landing. The car answers, the registered in the natural sequence of the floors and return directly to main landing after last passenger has been discharged. At the main landing they are kept for a predetermined time for taking new passengers. However, a car starts it’s up travel the moment it becomes fully loaded, without waiting for the dispatch interval to lapse.

(b) **Down peak program** – An intense traffic flow from the upper floors towards main landing will automatically switch on the down peak program. “Die cars when fully loaded at upper floors, travel directly to the main landing and after discharging the passengers immediately startup to answer further down landing calls. The down landing calls which have been bypassed get a priority over other down calls, which ensures equal service to all floors.

(c) Up down inter floor program – A steady traffic between main floor and upper floor, and between floor to floor causes automatic switching on of the inter floor program. Specific cars are assigned to answer specific calls by traffic analyzer so that the calls are handled most efficiently. The cars are so well distributed that every call gets equal service with short. As soon as the number of calls drops to occasional calls only such as at night the cars get automatically parked their assigned zones to give personalized service with, minimum lift travel, if no calls are registered for some time the motor generator sets are automatically switched off.

(d) Night program – When the traffic ceases to occasional calls only, the supervisory control automatically switch over to night program. AH cars remain parked at the main landing with doors closed, but are at all time ready for operation. One of the lifts has its ‘leave first’ single lighted on pressing of call button at the main landing, the doors of this particular lift open and the passengers can travel with the lift. The same lift also responds to landing calls from above. The moment this car leaves the main landing ‘leave first’ signal is transferred to a second lift; Further passenger entering main lobby will take this second lift. This second lift also responds to landing calls from above if one lift can no longer cope with the demand. After these lifts have answered their calls, the one reaching the main landing last will, retain the ‘leave first’ signal. Thereby, the service is particularly confined to one lift along and motor generator sets of the 62 remaining lifts remain switched off. If no calls are registered for some time, the motor generator of the stand by lift also automatically be switched off. The motor generator will start up again, the moment the calls received. The number of lifts going in to action is automatically regulated to just so many as are necessary to cope with the occasional traffic surge. In ease where more than three lifts are installed in a bank, a better utilization of these can be obtained by two additional program to deal with heavier traffic in each direction in difficult time. These are (I) Heavier ‘up program’ (ii) Heavier ‘down programme’
(i) **Heavier up program** – This shall require the cars to make more stops in the up direction, necessitating more time for the up travel. For this purpose the automatic traffic analyzer shall dispatch cars from both terminals at automatically adjusted time intervals so that the cars are equally spaced. Thus reducing passengers waiting interval (this program caters for the traffic which is likely to be in both direction but predominantly in the up direction e.g. immediately after the morning peak or after lunch).

(ii) **Heavier down program** – This shall require the cars to make more stops in the down direction and the dispatch time shall be adjusted accordingly by the analyzer. If any of the in the group develops any defects it shall be automatically disconnected from the group control until it is rectified. In the event of failure automatic dispatch system the lifts shall function by auxiliary means to avoid any disruption of service. Audio visual indication shall be provided to bring such failures to notice. The lifts shall be designed for attendant operation as described under single (simplex) selective and collective operation car except as follow –

(a) The indicating lights in car shall be operative to inform the attendant when to start loading a car at a terminal and when to leave terminal.

(b) Landing call bypass switch and car reversal switch and switches shall be effective and load weighing devices shall be inoperative.

(c) Call above signal shall be illuminated whenever a call is registered at a landing above the car location indicating to attendant that the car is to proceed upwards. When the highest call has been answered the light shall be extinguished indicating to the attendant that when the car is started it will proceed down wards.

14.0 **Controlling Equipments:**

The movement of the car shall be electrically controlled by means of a controller located in the machine room.

14.1 **Control Circuits:**

The control circuit shall be designed to the type of lift specified for safety operation. It shall be possible to start the car unless all the cars and landing doors are fully closed and landing doors locked. The circuit shall have an independent fuse protection for fault and overloads and be arranged so that earth fault or an open circuit shall not create unsafe conditions. The circuit shall be so arranged that for die stoppage of the car at specified landing or for actuation of a contactor by emergency switches or operation of safety gears the system shall not depend up on the completion or maintenance of an electrical circuit to cut off power supply and apply the brakes. This requirement is not applicable to dynamic braking and speed control device.

14.2 **Terminal Boards:**

All wiring for external control circuits shall be brought to a terminal board with means of identification of each wire. Metallic/Plastic identification tags shall invariably be provided. All connections to wires to terminal boards shall be adequately clamped or screwed.

14.3 **Auxiliary Switches:**

14.3.1 Emergency stop Switches On top of the lift car an emergency stop switch shall be provided for use by maintenance personnel. Stop switch shall be provided in the
machine room. Operation, of these switches/buttons shall cancel all the registered
calls and landing call for the particular lift.

14.3.2 Maintenance switch on top of the car – For purpose of inspection and
maintenance, maintenance switch shall be provided on top of the car. The
control circuitry shall be so arranged that in the event of the operation of this
switch (a) the car speed shall be less than the rated speed not exceeding 0.85 mps
(b) the car movement shall be possible only on the application of the continuous
pressure on a button. It shall be so mounted to prevent any inadvertent operation.

14.3.3 Fireman’s switch – Fireman’s switch with glass to break for access shall be
provided at ground or main floor for all the lifts. The operation of this switch shall
isolate/or cancel all calls to all the lifts and the lifts will stop at the next if
traveling upwards. The doors will not open at this landing and the lift will start
traveling to ground floor. If these were already traveling down, they will go
straight to ground floor direct without stopping enroute.

14.3.4 Inspection facility – An inspector’s change over switch and set of test burtons
shall be provided in the controller. Operation of the inspector’s change over
switch shall make both the car and landing burtons inoperative and permit the lift
to be worked in either direction from machine room for test purposes by pressing
the corresponding test buttons in the controller. It shall not however interfere with the
emergency stop switches inside the car or on top of the car.

14.3.5 Safety line indicators – If specified visual tell tale lights may be provided to
monitor the conditions of faults in the safety line of the lift for easier fault finding.
These indicators will remain lit when safety circuits are normal. One indicator
shall be provided for each safety on the controller/ if any indicators fail to light up
as the lift proceeds in its sequence of operation, there shall be visual indication of
the safety line open circuit and also its location for easier fault finding.

14.4 Control Wiring

14.4.1 Wiring in Machine Room

Power wiring between the controller and main board controller to various
landings shall be done in heavy gauge conduit or metal duct & shall
conform to I.E. Rules 1958 and PWD specifications for electrical works.

Following general principles shall be followed in wiring –

(a) (i) Control cables carrying DC and power cable carrying AC shall not be run in
the same conduit or metal duct and they shall be laid as per I.E. rules.
(ii) Metal duct with removable inspection cover shall be preferred. (iii) In case of
control cables also the harness shall be separate as far as feasible for separate
functions and laid separately in suitably dimensioned metal doctor in a separate
conduit such as the signaling, locking, lamp indication and safeties. Control
cables for different voltages in the lift installation works should be laid as per IE
rules.

(b) At least 5% with a minimum of 5 unconnected spare wires shall be available put
of all the lines to be provided in the wiring harness from the midway junction box
to the machine room.

(c) There shall be master isolating switch fuse associated with the controller heavy
duty load break quick make quick break type TP&N preferably 65 interlocked
with controller cabinet door. Isolator handle shall have provision all relays shall
be suitable for lift service and shall incorporate adequate contact wipe for reliable
operation. Relay shall operate satisfactorily between – 80% to 110% of their
voltage.
Main motor contactors shall be suitable for AC duty. Tenderer shall be suitable for AC duty. Tenderer shall be required to furnish full detail of make type, applicable standard, voltage and current rating, duty class, type and routine tests done etc on contractors and relays. Copies of type rests certificate and other test certificate shall also be furnished by the successful tenderer.

All cables shall be with copper conductors and flame retardant or PVC insulated of appropriate size. The cables feeding motor and in heavy current flow paths shall be so selected that the size matches the protecting fuses and will not result in more than 2% voltage drop from the main board to the terminals of motor. Control cable shall not be less than 0.5 sq. mm. or equivalent if stranded when installation of heavy gauge conduit present. Difficulties, short lengths of flexible conduits will be permitted but effective electrical continuity and earth Bonding shall be ensured. Ferrules shall be slipped at the ends of all cables as per standard control wiring practice. All terminal blocks shall be suitably marked.

14.4.2 **Trailing Cables**

A single trailing cable for lighting control and signal circuit is permitted, if all the contractors of this trailing cable are insulated for maximum voltage running through any one conductor of this cable. The lengths of the cables shall be adequate to prevent any strain due to movement of the car. All cables shall be properly tagged by metallic/plastic tags for identification.

Trailing cables shall run from a junction box on the top of the car to a junction box located in the shaft near mid-point of travel and from these junction boxes conductors shall be run to the various locations.

Trailing cables exceeding 30m in length shall run so that the strain on individual cable conductors will be reduced to a minimum and the cables are free from contact with the car counterweight, shaft walls or other equipment.

Trailing cables exceeding 30m in length shall have steel supporting fillers and shall be suspended directly by them without rubbing over other support. Cables less than 30m in length shall have no metallic fillers and shall be suspended by looping cables around supports of porcelain spools type or equipment 5% of the total capacity subject to a minimum of 5 wires shall be available unutilized in the trailing cable everywhere suitably distributed between various functions.

14.4.3 **Earthing**

Metal frames and all metal work of the lift, controller frame etc shall be earthed with double earth leads taken to the earth bar. Looping shall be permitted if such routing is feasible. All other individual metallic framework of components etc shall be loop earthed.

14.5 **Miscellaneous**

Principle of segregation function wise shall be accepted as far as possible in the general arrangement of components. All terminal blocks shall be of 650V grade.

14.6 **Controller Casing**

The controller unit comprising of the main circuit breaker adjustable overload and phase reversal and phase failure protection all the circuit elements transformer, rectifier for DC control supply, invert of power pack, terminal blocks etc shall be enclosed in an insect proof, sheet steel floor or wall mounted cabinet with hinged doors at front or at both front arid rear. Proper warning boards and danger plates.
shall be provided on both sides of the controller casing. Sheet steel used for controller cabinet shall not be less than 18 gauge and shall be properly braced where necessary. Suitable gland plates shall be provided for cable entry. The battery for the charger unit shall be suitably placed in the machine room. All sheet steel work shall be painted with two coats of synthetic enamel paint of suitable shade both inside and outside over two coats of zinc primer.

15.0 **Lift rope compensation**
The lift rope compensation for lift travel shall be provided for lift travels beyond 40 m in all cases.

16.0 **Automatic Rescue Devices (ARD)**
The automatic rescue devices meant for the purpose of bringing the lift car to the nearest landing doors, are being used selectively and is generally restricted to commercial buildings having heavy traffic. However frequent power failures being the common phenomenon, the provision of ARD shall be made in all the lifts in public buildings. The ARD shall have the following:

16.1 ARD should move the elevator to the nearest landing in case of power failure during normal operation of elevator.

16.2 ARD should monitor the normal power supply in the main controller and shall activate rescue operation within 10 seconds of normal power supply failure. It should bring the elevator to the nearest floor at a slower speed than the normal run. While proceeding to the nearest floor the elevator will detect the zone and stop. After elevator has stopped. It automatically opens the doors and parks with door open. After the operation is completed by the ARD the elevator is automatically switched over to the normal operation as soon as normal power supply resumes.

16.3 In case normal supply resumes during ARD in operation the elevator will continue to run in ARD mode until it reaches the nearest landing and the doors are fully opened. If normal power supply resumes when the elevator is at the landing, it will automatically be switched to normal power operation.

16.4 All the lift safety devices shall remain active during the ARD mode of operation.

16.5 The battery capacity should be adequate so as to operate the ARD at least seven times a day provided the duration between usage is at least 30 minutes.

Registrar, Jiwji University
Gwalior

**ANNEXURE – VII**

**TESTING OF LEFT INSTALLATION**

1.0 Tests at site

(a) Leveling test: Accuracy of the floor leveling shall be tested with the lift empty fully loaded. The lift shall be run to each floor while traveling both in up wards and down wards direction and the actual distance of the car floor above/below landing floor shall be measured. In each case their shall not be any appreciable difference in these measurements for leveling at the
floors when the car empty and when it is fully loaded. The tolerance for leveling shall be as specified in Para ‘leveling’ in ‘Technical’.

(b) Safety gear tests: Instantaneous safety gear controlled by the governor should be tested with contract load and a contract speed the governor being operated by hand. Two tests should be made, however, with wedge clamp” or flexible clamp safety on with contract load in the car and the other with 68 kg (equivalent to one person) in the car. The stopping distance obtained should be compared with the specified figures and the guides, car platform and safety gear should be carefully examined afterwards for sign of permanent distortion. Counterweight safety gear should be tripped by the counterweight governor and the stopping distance noted in this case, however the governor tripping speed should exceed that of the car safety governor but by not more than 10%. During the safety gear test, car speed (from the governor or the main sheave) should be determined at the instant or tripping speed with that state in IS. The governor jaws and rope should be examined for undue wear.

(c) Contract Speed: This should be measured with contract load in the car, with half load with no load and should not vary from the contract speed by more than 10%. The convenient method is by counting the numbers of revolutions, made by the sheave or drum in a known time, chalk mark on the sheave or drum and a stop switch will facilitate timing but care must be exercised to ensure that no acceleration or retardation periods are included. If the roping is 2 to 1 the sheave speed is twice the car speed. Alternatively the speed can be measured by a tachometer applied directly to shaft immediately below the sheave.

(d) Lift balance: After the above test, some of the weight shall be removed until the remaining weights represent the figures specified by the tenderer with this condition car at half way travel the effort required it move the jiff car in either direction with the help of winding wheel shall be as nearly as” can be judged by the same.

(e) Car and landing doors inter locks: The lift shall not move with any door open. The car door relay contact and the retiring release cam must be tested. The workings of the door operation and the safety edges and light equipment if any provided shall also be examined.

(f) Controllers: The operation of the contactors and interlocks shall be examined and it shall be ascertained whether all the requirements laid down in the specifications have been met.

(g) Normal terminal stopping switches: These shall be tested by letting the car run to each terminal landing in turn, first with no load and then with contract load and by taking measurements, top and bottom over travels can be ascertained:

(h) Final terminal stopping switches: The normal terminal stopping switches shall be disconnected for this test. It shall be ensured that these switches operate before the buffers are engaged.

(i) Insulation Resistance: This shall be measured (after removing the electrons PCB’s and their connection) between power and control lines and earth and shall not be less than 5 mega-ohms when measured with DC voltage of 500 volts. The test shall be carried out with contactors so
connected together as to ensure that all parts of every circuit are simultaneously tested.

(j) Earthing: All conduits, switches, casing and similar metal work shall have earthing continuity.

(k) Ropes: The size number construction and fastenings of the ropes should be carefully examined and recorded.

(l) Buffers: The car should be run on to its buffers at contract speed and with contract load in the car to test whether there is any permanent distortion of the car of buffers. The counter weight buffers should be tested similarly.

2.0 Tests at Manufacturer’s works

(a) High voltage test: The dielectric or electrical apparatus (excluding motors, generators and instruments which are tested in accordance with the appropriate Indian Standard wherever they exist) shall be capable of withstanding a test voltage of ten times the working voltage with a maximum of 2000 volts when applied

(i) Between the live parts and case of frame with all circuits completed.

(ii) Between main terminals or equipments parts with all circuits open.

(iii) Between any live parts of independent circuits. Owing to the impracticability of applying tests (ii) and (iii) mentioned above on controllers and similar apparatus after controller wiring has been completed, these tests may be made at convenient stages of manufacture.

(b) (i) Method of applying high voltage: The test shall be made with alternating voltage of any convenient frequency, preferably between 49 and 60 cycles per second. The test voltage shall be of approximately sine wave form and during the application of voltage with peak value as would be determined 49 spark gap be cyclograph or by any other approved method shall not be more than 1.45 times the rms value. The rms value of the applied voltage shall be measured by means of a volt meter used with a suitably calibrated potential transformer or by means of volt meter used in connection with” a special calibrated voltmeter winding or testing transformer by any other suitable voltmeter connected to the output side of the testing transformer. (ii) Duration of high voltage test: The test shall be commenced at a voltage of about one third of the test voltage which shall be increased to the full test voltage as rapidly as is consistent with the value being indicated by the measuring instrument. The full test voltage shall be maintained for one minute. At the end of this period the test voltage shall be maintained for one minute. At the end of this period, the test voltage shall be rapidly diminished to one third of its full value before switching off. The oil buffers are examined after the above tests have been made determine if there has been any oil leakage or distortion and to ensure that the buffers return to their normal positions.

(c) Buffer Test: A copy of the rest report shall be intimated after testing at works performance test. This test if meant for passenger lifts and is conducted to watch the performance of lift installation in terms of passenger handling capacity and waiting interval as obtained at site vis-à-vis design data & conducted as below:

(i) Waiting interval – ‘T’ – This can be worked out by taking the average of several round trip times as observed physically and then dividing it by the number of lifts in that bank,
(ii) Handling capacity
\[ H = \frac{(300 \times Q \times 100)}{T \times P} \]
Where \( H \) = Handling capacity as the percentage of the peak population handled during 5 minutes.
\( P \) = Total population to be handled during peak morning period.
It is related to the area for which particular bank of lifts served
\( Q \) = Average number of passenger carried in a car.
\( T \) = Waiting

(iii) Service Temperature Test.
A continuous run of one hour should be made with number of starts and stops to reproduce as nearly as practical the anticipated duty in service. The standards duty cycle is for 90 to 180 start/hour. It is very difficult in practice to carry out this test with alternate starts at full load & no load and it is necessary therefore to simulate these cycles. A suitable test for all motors except squirrel cage motors is to run the car up from the bottom landing with contract load & stop at each floor. From the top floor a non-stop run is made to the lowest floor & the upward journey with stop is then repeated. The time intervals between stops & starts at the floors should be uniform & such as to give about 150 starts in one hour. At the end of this run the temperatures of the armatures & fields of the motor & generator are recorded. The temperature rise should, not exceed 550°C or 750°C for class A or B insulation respectively.

Registrar, Jiwaji University
Gwalior

ANNEXURE – VIII

CHECK LIST FOR JOINT INSPECTION
(Ref.: Testing of installation)
1. Place of Inspection
2. Date of Inspection
3. Name of Firm
4. Verify visually particulars as per agreement description and completeness of work to be executed as per contract.
5. Verify lay-out as per drawing & record discrepancies.
6. Whether a plate with word LIFT & instruction to be Displayed/provided on each landing & in the car
   (a) Depth of pit & whether ladder provided if reqd.
   (b) Arrangement for lighting in the pit.
   (c) Arrangement for lighting in the lift shaft.
   (d) Whether adequate tie rods provided for counterweights
   (e) Whether all wiring has been in conduit pipes/troughs Properly fixes and earthed.
   (f) Guard for counterweights in the pit.
(g) Prov. Of check nut & split pins in rope fastenings and terminations
(h) Whether rope tension equal for all ropes.
(i) Whether buffers symmetrically positioned.
(j) Top car clearance.
(k) Bottom car clearance
(l) Top counterweight clearance
(m) Bottom car run by
(n) Bottom counter-weight run by
(o) Any other

7. Machine room check provision for
   (i) Arrangement for hand lamp with flexible cord
   (ii) A plug and socket
   (iii) Adequate ventilation
   (iv) A danger plate on door
   (v) Trap door
   (vi) Main switch
   (vii) Circuit diagram on wall
   (viii) Any other

8. Earthing
   Whether machine body controller, car frame, limit switches.

9. Machine and Controller
   (i) Oil leakage if any
   (ii) Abnormal temp rise of oil bearing & motor
   (iii) Abnormal noise or vibrations
   (iv) Whether fly wheel marked with ‘up’ & ‘down’
   (v) Whether rubber pads provided under machine & its bed plates
   (vi) Whether control circuits have independent fuses
   (vii) Whether protection against breakage of rope or taps for rope selector provided
   (viii) Whether cable ferrules marked
   (ix) Gap between the car & landing sill
   (x) Any other

10. Operation
    (i) Operation : of all floor buttons in the car in either direction
    (ii) operation of car by calls from either direction
    (iii) Operation of door ‘close’ & ‘open’ buttons
    (iv) Emergency alarm
    (v) Light and fan
    (vi) Emergency stop
    (vii) Emergency key opening
    (viii) Emergency light
    (ix) Operation on type of control (as per agreement)
    (x) Operation of car top safety switches to make the lift inoperative form within car & speed of operation.
    (xi) Door locking as checked from each floor.
    (xii) Any abnormal noise/vibration/jerk
    (xiii) Sideway play if any in the car
    (xiv) Working of position & direction indicators in the car and at each landing
    (xv) Functioning of sensitive reopening arrangements on moving edge of doors
(xvi) Smooth sliding movement of car & landing doors
(xvii) Whether car is stopped in between the floor and whether doors can be opened manually from inside
(xviii) Opening of landing or car/door when lift is in operation To see that the movement of lift stops.
(xix) Operation of fireman switch
(xx) Check for brake release device & hand winding provisions 11 safety devices
(i) Functioning of protection for single phasing & phase reversal
(ii) Function of protection for automatic power cut off
(iii) Function of over load relays
(iv) Operation of safety gear & also see for undue deformation of guide rails & stopping distance.
(v) Check operation of switches
(vi) Operation of upper limit switch & positions.
(vii) Operation of lower lima switch & positions.
(viii) Operation of electrical protection against opening of emergency door
(ix) Any other

12. Checking of rope slip after 3 complete trips by putting a reference mark on the sheave & rope 60mm/12mm, 60mm/20mm.

13. Test to see that the lift does not start in up ward direction on no load and down direction on full load & on single phasing.

14. Check application of brake on full load in down direction at full speed by switching off the power supply & for over heating.

15. Load test – Lift Number :
   No load full load
   Up Down Up Down
   Starting current: AC (amp)
   Running current: AC (amp)
   Travel (meters)
   Speed (m/sec)

16. Any other test
   (i) Size of the lift well
   (ii) Internal depth of car platform
   (iii) Size of the car door.
   (iv) Rope protection against breakage have been carried out & test results are found
   (v) Insulation resistance test & high voltage test have also been tested. I.R. is found M ohm. (reqd. 0.5 M ohm Minimum) 7 HV test with stood/not withstood.

Registrar, Jiwaji University
Gwalior

ANNEXURE – E-IX

FIRE SAFETY REQUIREMENTS
General requirements of lifts shall be as follows
1. Walls of lift enclosures shall have a fire rating of 2 hours. Lifts shafts shall have a vent at the top of area not less than 0.2 sq. meters.

2. Lift motor room shall be located preferably on top of the shaft and separated from the shaft by the floor of the room.

3. Landing doors in lift enclosures shall have fire resistance of not less than 1 hr.

4. The number of lifts in lift bank shall not exceed 4. Individual shafts in a bank shall be separated by a wall of 2 hrs. fire rating.

5. Lift ear door shall have a fire resistance rating of 1 hour.

6. For building 15 m in height or above, collapsible gates shall not be permitted for lifts and shall have solid doors with fire resistance of at least 1 hour. If the lift shaft and lobby is in the core of the building, a positive pressure between 25 and 30 Pa shall be maintained in the lobby & positive pressure of 50 Pa shall be maintained in the lift shaft. The mechanism for pressurization shall act automatically with the fire alarm; it shall be possible to operate this mechanically also.

7. Exit from the lift lobby, if located in the core of the building shall be through a self closing smoke stop door of half an hour fire resistance.

8. Lift shall not normally communicate with the basement. If however, lifts are in communication the lift lobby of the basements shall be pressurized as in (6) with self closing door as in (7).

9. Grounding switch (es), at ground floor level, shall be provided on all the lifts to enable the fire service to ground the lifts.

10. Telephone or other communication facilities shall be provided in lift cars for building of 30m in height and above. Communication system for lifts shall be connected to fire control room for the building.

11. Suitable arrangements such as providing stopes in the floor of lift lobby shall be made to prevent water used during fire fighting etc. at any landing from entering the lift shafts. A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the locations of the stairways. Alternate source of power supply shall be provided for all the lifts through a manually operated changeover switch.

12. Fire Lifts- All lifts shall be provided with fireman’s switch and shall be termed as fire lifts.

13. In case of fire only fireman shall operate fire lifts. In normal course, it may be used other person.

Registrar, Jiwaji University
Gwalior

ANNEXURE – “F”

Name of work: Design, Supply, Installation, Testing & Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

Description of item Qty. Unit Rate Amount 01. Supply, installation, testing & commissioning of Passenger 8 passenger lift 544 kg., lift having contract speed of 0.75 MPS serving different floor in the lift shaft as detail specification as mentioned below :

(1) Type of elevator – Passenger Elevator.
(2) No. of persons – 8 Passenger
(3) Load 544 kg.
(4) Drive – A.C. VVVF close loop geared.
(5) Travel –
   (a) Travel 4 landing
   (b) Travel 4 stop
(6) Door opening – All floor at same side.
(7) Well size – 1600 mm width × 2400 mm depth
(8) Car size – 110 mm × 1300 mm
(9) Entrance – 700 mm
(10) Machine – General placed directly above the Hoistway.
(11) Power supply – 400 Volts, 3 Phase, 50 Hz alternating current 78
(12) Control-AC Variable Voltage variable frequency.
(13) Operation – Simplex fully collective (with/without attendant).
(14) Car Enclosure – Stainless steel car in hairlines finish.
(16) Hoist way Entrance – Protected by Opening stainless steel doors in Hairline finish. Clear Opening about 700mm × 2000mm high.
(17) Door Operation – Automatic with Multirary Electronic Door Detector & V.F.
(18) Signal – Combined Hall button and Digital Hall position indicators at all floors. Car Operating panel with Luminous buttons. Digital Car position indicator in car, Battery operated Alarm Bell and Emergency light. Fireman’s switch.
(19) Power Failure – Suitable invertors with required batteries for emergency automatic rescue operation.
(20) Voice announcement system in the car to announcement the position of the elevators in the hoist way as the car passes or stops at a floor served by the elevator.
01 Job E.Job
Note: All signal fixtures in stain

ANNEXURE “F”

SCHEDULE OF ITEMS TO BE EXECUTED

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Particulars of items</th>
<th>Unit</th>
</tr>
</thead>
</table>

ENCLOSED

University Engineer
ANNEXURE “G”

GUARANTEE BOND

(To be used by approved scheduled banks)

1. In consideration of the Jiwaji University Gwalior (hereinafter called the University) having agreed to exempt ____________ (hereinafter called the said contractors) from the demand under the terms and conditions of an agreement dated ________________ made between ___________________________ and ____________________ for __________________, herein after called the said Agreement) of earnest money deposit for the due fulfillment by the said contractor(s) of the terms and conditions contained in the said agreement on production of a Bank Guarantee for Rs.______________________(Rs.___________________________________ Only). We ___________________________ Bank Limited (hereinafter referred to as “The Bank”) do hereby undertake to pay to University an amount not exceeding Rs.________________________ against any loss or damage caused to or suffered or would be caused to or suffered by the University by the reason of any breach by the said contractor(s) of any terms or condition contained in the said agreement.

2. We ___________________________ Bank Limited, do hereby undertake to pay the amount due and payable under this guarantee without any demur merely on a demand from the University stating that the amount claimed is due by way of loss or damage caused to or suffered by the University by reason of any breach by 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 regard the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.________________________.
ANNEXURE “H”

Special Condition

1. The Tenderer of/supplier should have a place of business in the state of M.P. from where the goods would be supplied to various destinations in the state and also should hold a registration Certificate under the M.P. Vanijayack Kar Adhiniyam.

2. The Tenderer/supplier shall also submit the Clearance Certificate as provided under section 36 of the MP Vanijayak Kar Adhiniyam.

3. Work Programme and Methodology of Construction - Contractor shall furnish his programme of construction for execution of the work within due stipulated time schedule together with methodology of construction of each type of work and obtain approval of the Engineer - in - Charge prior to execution/commencement of work.

4. Revised programme of work in case of sleep page - In case of slee page from the approved work at any stage, the contractor shall furnish revised programme to make up the sleep page within the stipulated time schedule and obtain approval of Engineer-in-charge to the revised programme.
ANNEXURE “I”
Testing of Materials and Methodology

ANNEXURE - JD
List of Instruments for Field Testing Laboratory

Field Testing Instruments.

1. Steel tapes - 3m.
2. Vernier calipers
3. Micrometer screw 25mm gauge.
4. A good quality plumb bob.
5. Spirit level minimum 30cm long with 3 bubbles for horizontal vertical.
6. Wire guage (circular type) disc.
7. Foot
8. Long nylon thread.
9. Rebound hammer for testing concrete.
10. Dynamic penetrometer.
11. Magnifying glass.
12. Screw driver 30cms long
13. Ball Pin hammer 100 gms.
15. Moisture meter for timber.
16. Earth Resistance tests for I
17. Meggar I Electrical Division
APPENDIX 2.14
(See Paragraph 2.091)

FORM “B”
JIWAJI UNIVERSITY, GWALIOR
ITEM RATE TENDER AND CONTRACT FOR WORKS
General Rules and Direction for the Guidance of Contractor

32 All works proposed for execution by contract will be notified in a form of invitation to tender, posted in public places and signed by the University Engineer.

This form will state the work to be carried out as well as the date for submitting and opening tenders and the time allowed for carrying out the work: also the amount of the earnest money to be deposited with the tender and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. It will also state whether refund of quarry fees, royalties, octroi duties and ground rents will be granted. Copies of specifications, drawings and a schedule of quantities and rates of the various descriptions of work and any other documents required in connection with the work, signed for the purpose of identification by the University Engineer shall also be open for inspection by the contractor at the office of the University Engineer during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately by each member thereof, or in the event of the absence of any partner it must be signed on his behalf by a person holding a power of attorney authorizing him to do so. Such power of attorney should be produced with the tender and it must disclose that the firm is duly registered under the Indian Partnership Act.

3. Any person who submits a tender shall fill up the usual printed form stating at what rate he is willing to undertake each item of work. Tenders which propose any alteration in the work specified, in the said form of invitation to tender, or in the time allowed for carrying out the work or which contain any other conditions of any sort, will be liable to rejection. No single tender shall include more than one work but contractors who wish to tender for two or more Works shall submit a separate tender for each, tender shall have the name and number of the work to which they refer written outside the envelope.

4. The University Engineer or his duly authorized assistant, Will open tenders in the presence of any intending contractor(s) who may be present at the time and will enter amounts of the several tenders in a comparative statement in a suitable form. Receipts
for earnest money will be given to all tenderers except those whose tenders are rejected and whose earnest money is refunded on the day that the tenders are opened.

5. The office competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.

6. The receipt of a clerk for any money paid by the contractor will not be considered as any acknowledgement of payment to the University Engineer and the contractor shall be responsible for seeing that he procures a receipt signed by the University Engineer or any other person duly authorized by him.

7. The memorandum of work tendered for, and the schedule of material to be supplied by the University, and their issue rates shall be filled in and completed, in the office of the University Engineer before the tender form is issued, if a form issued to an intending tenderer without having been so filled in and completed, he shall request the office to have this done before he completes and delivers his tender.

**TENDER FOR WORK**

I/We hereby tender for execution for the V.C., of Jiwaji University Gwalior of the work specified by in the underwritten memorandum within the time specified in such memorandum at the rates specified therein and in accordance in all respects with the specifications. Designs, drawings and instructions in writing referred to in rule I here of and in clause 12 of the annexed condition, and with such materials as are provided for by and in all other respects in accordance with such conditions so far applicable.
MEMORANDUM

1. *(a) General Description:  Design, Supply, Installation & Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

   (b) Estimated cost  Rs.46,00,000/-

   (c) Earnest Money  Rs 1,38,000/-

   ** (d) Security deposit  5%

   ***(e) Percentage if any, to be deducted from bills 05%

   (f) Time allowed for the completion of work from the date of written order 03 month including rainy season.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item of work</th>
<th>Unit</th>
<th>Per</th>
<th>Rate Tender in figures</th>
<th>Rate tendered in words.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
</tbody>
</table>

Separate list enclosed

Should this tender be accepted I/We hereby agree to abide by and fulfill all terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the V.C. of Jiwaji University, Gwalior of his successor in office the sums of money mentioned in the said conditions.

The sums of Rs. 1*( .......................................) is, herewith, forwarded in currency notes as earnest money (a) 2* the full value of which is to be absolutely forfeited to the V.C. of Jiwaji University, Gwalior. Or his successors in office, should I/We not deposit the full
amount of security deposit specified in the above memorandum, in accordance with clause 1 (A) of the said condition of contract, otherwise the said sum of Rs. ................................................ Shall be retained by Government as on account of such security deposit as aforesaid, or (b) 3* full value of which shall be retained by Government on account of the security deposit specified in clause 1 (B) of the said condition of contract. Dated the .................................................19....................................................

Signature of Contractor before Submission of tender
Name & Address..................................................

..............................................................................

.............................................................................

..........................................................................

..........................................................................

4* Witness ......................................................
Occupation ..................................................
Address .....................................................
The above tender is hereby accepted by me on behalf of V.C. of Jiwaji University, Gwalior
Dated ........................................ day of .......................................1999 ............................

Signature of the Officer by whom tender accepted.

* If several sub-works are included, they should be detailed in a separate list.

** This deposit will vary from 1 present to 10 percent of the estimated cost of the work according to the requirements of the case.
This percentage where no security deposit is taken, will vary from 5 percent to 10 percent according to the requirements of the case. Where security deposit is taken, see note to clause 1 of the condition of contract.

1.* Give particulars and numbers:

2.* Strike out (a) if no cash security deposit is to be taken.

3.* Strike out (b) if any cash security deposit is taken.

4.* Signature of witness to contractor’s signature.

**Conditions of Contract**

**Clause 1. – Security Deposit** – The person/persons whose tender may be accepted (hereinafter called the contractor which expression shall unless excluded by or repugnant to the contract include his heirs executors, administrators, representatives and assigns) shall:

(A) (within one day for a contract of Rs. 1000/- or less, two days or one of Rs. 2000/- or less, and so on up to a limit of ten days of the receipt by him of the notification of the acceptance of his tender) deposit with the University Engineer in cash. Or Government securities endorsed to the University Engineer (if deposited for more than 12 months) a sum sufficient with amount of the earnest money deposited by him with his tender to make up the full security deposit specified in the tender) or

(B) (permit V.C. at the time of making any payment to him of work done under the contractor to deduct such sum as will amount to percent of all moneys so payable. Such deductions. Be held by V.C. by way of security deposit), provided always that in the event of the contractor depositing a lump sum by way of security deposit as contemplated at (A) above. Than and in such case if the sum so deposited shall not amount to

percentage of the total estimated cost of the work, it shall be lawful for V.C. at the time of making any payment to the contractor for work done under the contract to make up the full percentage of Percent by deducting a sufficient sum from every such payment as last aforesaid. All compensation or other sums of money payable by the contractor to V.C. under the terms of his contract may be deducted from or paid by the sale of sufficient part or his security, or form the interest arising their form, or from any sum which may be due or may become due to the contractor by V.C. on any account whatsoever, and in the event of his security deposit being reduced by reason of any such deduction of sale as aforesaid, the contractor shall within ten days thereafter make good in cash or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or raised by sale of his security deposit or any part thereof. The security deposit referred to when paid in cash,
May, at the cost of the depositor, be converted into interest bearing securities provided that the depositor has expressly desired this in writing.

**Note:** Any sum deposited in cash by the contractor under (A) or amount of deductions made under (B) may if the contractor so desires, be converted into one of the recognized forms of interest bearing securities to be approved by the officer sanctioning the contract, provided the amount to be converted is not below Rs. 1000/- (One Thousand) and the period of contract warrants such conversion. Such securities should be endorsed to the University Engineer.

The security deposit would also be converted in the shape of Bank Guarantee in recognized Form with prior approval of the authority sanctioning the contract.

* Strike out “A” or “B” as that case may be
** This will be same percentage as that in the tender at OF THE
*** This percentage (not exceeding 10 percent) will be fixed in every case to suit requirements, e.g. if it is fixed at 8 percent and the security deposit only amounts to 5 percent of the estimated cost of the work, than 3 percent should be deducted from every payment. If the percentage is fixed at 10 percent and the security deposit only amount to 6 percent then 4 percent should be deducted and so on.

**Compensation for Delay**

**Clause 2.** - The time allowed for carrying out the works as entered in the tender shall be Strictly observed by the contractor and shall be reckoned from the date on which the order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be of the essence of the contract on the part of the contractor) and the contractor shall pay as compensation an amount equal to one percent or such smaller amount as the Engineer may decide. On the amount of the estimated cost of the whole work as shown by the tender for every day that the work remains uncommented. Or unfinished, after the proper dates. And further, to ensure good progress during the execution of the work, the contractor shall be bound. In all cases in which the time allowed for any work exceeds on month to complete on fourth of the whole of work before one fourth of the whole time allowed under the contract has elapsed: one half of the work before one half of such time has elapsed and three fourth of work, before three fourth of such time has elapsed. In the event of the contractor failing to comply with this condition he shall be liable to pay compensation an amount equal to one percent or such small amount as the University Engineer / V.C. may decide on the said estimated cost of the whole work for every day that the due quantity of work remains incomplete. Provided always that the
entire amount of compensation be paid under the provision of this clause shall not exceed eight percent on the estimated cost of the work as shown in the tender.

3. **Action when the contractors becomes liable for levy penalty.**

**Clause 3** - In any case in which under any clause or clauses of this contract the contractor shall have rendered himself liable to pay compensation amounting to the whole of the security deposit (whether paid in one sum or deducted by installments) or committed a breach of any terms contained in clause 24 or in the case of abandonment of the work owing to the serious illness or death of the contractor or any other cause. U.E. on behalf to the V.C. Jiwaji University, Gwalior shall have power to adopt any of the following courses, as he may deem best suited to the interest of University.

32. To rescind the contract, (of which recession notice in writing to the contractor under the hand of the University Engineer shall be conclusive), and in which case the security deposit of the contractor shall stand forefeited, and be absolutely at the disposal of University.

(b) To employ labour paid in the P.W.D. or by employing department machinery and to supply materials to carry out work, or any part of the work, debiting, the contractor with the cost of the labour of hire charge of departmental machinery and the price of the materials (of the amount of which cost and price a certificate of the U.E. shall be final and conclusive against the contractor) and crediting him with the value of the work done. In all respects in the same manner and the same rates as if it had been carried out by the contractor under the terms of this contract, or the cost of the labour and the price of the materials as certified by the U.E. which ever is less, the certificate of the U.E. as to the value of the work done shall be final and conclusive against the contractor. This does not qualify the contractor to any refund if the work is carried out at lower rates than the rates quoted by contractor, saving, if any, will go to the University.

To measure up the work of the contractor, and to take such part there of as shall be unexecuted out of his hands, and to give it to another contractor to complete in which case any expense which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount of which excess the certificate in writing of the U.E. shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any money due to him by University under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or a sufficient part there of, if the work is carried out at lower rates to contractor shall not be entitled for any refund. On the account saving, if any which shall go to the University.
In the event of any of the above courses being adopted by the U.E. The contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any material or entered into any engagements or made advances on account of, or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provisions aforesaid, the contractor shall not be entitled to recover or to be paid any sum for any work theretofore actually performed under this contract, unless and 75eali the U.E. will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

**Contractor remains liable to pay compensation if action not taken under clause 3**

Clause 4 – In any case in which any of the powers conferred upon the U.E. by clause 3 hereof, shall have become exercisable and the same shall not constitute a waiver of any of the condition hereof and such power shall not notwithstanding be exercisable in the event of any further case of default by the contractor for which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit, and the liability of contractor for past and future compensation shall remain unaffected.

In the event of the U.E. putting in force either of the power either of the power under clause (a) or (c) vested in him under the preceding clause he may, if he so desires, take possession of all or any tools, plant, materials, and stores, in or upon the work, or the site thereof or belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates, or in case or these not being applicable, at current market rates to be certified by the U.E. whose certificate thereof shall be final, otherwise the U.E. may by notice in writing to the contractor or his clerk of the clerk of the works., foreman or other authorized agent require him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice).

Power to take possession of or require removal of or sell contractor’s plant. In the event of the contractor failing to comply with any such requisition, the University Engineer may remove them at the contractor’s expense or shall them by auction or to private sale on account of the contractor and at his risk all respects and the certificate of the U.E. as to the expenses of any such removal and the amount of the proceeds and expense of any such sale shall be final and conclusive against the contractor.
Clause 5 – Extension of time – If the contractor shall desire an extension of the time for completion of the work on the grounds of his having been unavoidably hindered in its execution or any other ground he shall apply in writing to the U.E. within thirty days of the date of the hindrance on account of which he desires such extension as aforesaid, and the U.E. shall, if in his opinion (which shall be final) reasonable grounds, be shown therefore authorizes such extension for a period not exceeding three months. Any further extension of time shall be subjected to the previous sanction of the Registrar.

Clause 6 – Final certificate – On completion of the work, the contractor shall be furnished with a certificate by the U.E. (hereinafter called the Engineer-in-charge) of such completion: but no such certificate shall be given. Nor shall the work be considered to be completed until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials and rubbish and cleaned off the dirt from all wood work, doors, windows, walls, floors or other part of any building or structure in upon or about which the work is to be executed. Or of which he may have had possession for the purpose of the execution thereof nor until the work shall have been measured by the Engineer-in-charge / University Engineer whose measurement shall be binding and conclusive against the contractor. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus material and cleaning of dirt on or before the date fixed for the completion of the work the Engineer-in-charge may at the expense of the contractor remove such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid; and the contractor shall forthwith pay the amount of all expenses so incurred. And shall have no claim in respect of any such scaffolding or surplus materials as 76ealize76e except for any sum actually 76ealize76 by the sale thereof.

Payment of intermediate certificate to be regarded as advance.

Clause 7 – No payments shall ordinarily be made for work estimated to cost less than rupee one thousand till after the whole of the work shall have been completed and a certificate of completion given; but if intermediate payment during the course of the execution of works is considered desirable in the interest of work, the contractor may be paid at the discretion of the Engineer-in-charge But in the case of works estimated to cost more than rupees one thousand, the contractor shall on submitting the bill thereof be intimated to receive a monthly payment proportionate to the part thereof than approved and passed by the Engineer-in-charge whose certificate of such approval and passing of the sum so payable shall be final and conclusive.
against the contractor, but all such intermediated payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed. And shall not preclude the requiring of bad, unsound, and imperfect or unskillful work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the contract or any part thereof, in any respect or the accruing of any claim, nor shall it conclude. Determine or effect, in any way. The powers of the Engineer-in-charge under these condition or any of them as to the final settlement and adjustment of the account or otherwise any other way very or effect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for completion of the work otherwise the Engineer-in-charge’s certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties.

**Bill to be submitted monthly**

Clause 8 – A bill shall be submitted by the contractor each month on or before the date fixed by the Engineer-in-charge for all work executed in the previous month and the Engineer-in-charge shall take or cause to be taken the requisite measurements for the purpose of having the same verified, and the claim as far as admissible, adjusted, if possible before the expiry of ten days from the presentation of the bill.

If the contractor does not submit the bill within the time fixed, as aforesaid, the Engineer-in-charge may depute a subordinate to measure up the said work in the presence of the contractor whose countersignature to the measurement list will be sufficient warrant, and the Engineer-in-charge may prepare bill from such list which shall be binding on the contractor in all respects.

**Bill to be in Printed Forms**

Clause 9 – The contractor shall submit all bills on the printed forms to be had on application at the office of the Engineer-in-charge. And the charges in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in tender and the rates hereinafter provided for such work.

**Receipt to be signed by partners or persons having authority to do so.**

Clause 10 – Receipts for payment made on account of a work when executed by a firm must also be signed by the several partners except where the contractors are described in their
tender as a firm. In which case the receipts must be signed in the name of the firm by one of the partners. Or by some other person having authority to give effectual receipts for the firm.

**Store Supplied by Government**

Clause 11 – If the specification or estimate of the work provides for the use of any special description of materials to be supplied from the Engineer-in-charge’s store or if it is required that the contractor shall use certain stores to be provided by the Engineer-in-charge (such materials and stores, and the prices to be charged thereof as hereinafter mentioned being so for as practicable for the convenience of the contractor, but not so as in any way to control the meaning or effect of this contract specified in the schedule of memorandum, hereto annexed, the contractor shall be supplied with such materials and stores as required form time to time to be used by him for the purposes of the contract only and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule or memorandum may be set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise; or against or from the security deposit or the proceeds of sale thereof; if the same is held in Government securities the same or sufficient portion thereof being in this case sold for the purpose.

All materials supplied to the contractor shall remain the absolute property of University, and shall not on any account be removed from the site of the work, and shall at all times be open to inspection by the Engineer-in-charge. Any such materials unused and in perfectly good condition at the time of the completion or determination of the contract shall returned to the Engineer-in-charge’s store, if by a notice in writing under his hands he shall so require; but the contractor shall not be entitled to return any such materials unless with such consent, and shall have no claim for compensation account of any such material so supplied to him as aforesaid being unused by him, or for any wastage in or damage to any such materials.

**Works to be executed in accordance with specification**

**Drawings Orders etc.**

Clause 12 – The contractor shall execute the whole and every part of work in the most substantial and workman like manner and both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also confirm exactly, fully and faithfully to the designs, drawing and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office, and to which the contractor shall be entitled to have access at such office or in the site of the work for the purpose of inspection of during office hours, and the contractor shall if he so requires, by entitled at his own expense to
make or cause to be made copies of the specifications, and of all such design, drawings and instruction as aforesaid.

**Alteration in Specification and Designs**

The Engineer-in-charge shall have power to make any alteration in, omissions from additions to or substitution for, the original specifications, drawings, designs instructions, that may appear to him to be necessary or advisable during the progress of the work, and the contractor shall be bound to carry out the work in accordance with any instruction which may be given to him signed by the Engineer-in-charge and such alterations omissions, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same condition, in all respects on which he agreed to do the main work and at the same rates as are specified in the tender for the main work.

**Extension of time in consequence of alterations** – The time for the completion of the work shall be extended in the proportion that altered, additional or substituted work bears to the original contract work and the certificate of the Engineer-in-charge shall be conclusive as to such proportion.

**Rates for works not in estimate of schedule of rates of the district.** – And if the altered additional or substituted work includes any class of work, for which no rate is specified in this contract, then such class of work shall be carried out at the rates entered in the schedule of rates of the district, which was in force at the time of the acceptance of the contract, and if such class of work is not entered in the said schedule of rates then the contractor shall within seven days of the date of his receipt of the order to carry out the work inform the Engineer-in-charge of the rate which it is his intention to charge for such work; and if the Engineer-in-charge does not agree to this rate he shall, by notice in writing be at liberty to cancel his order to carry out as he may consider advisable, provided always that if the contractor shall commence work or incur any expenditure in regard there to before the rates have been determined as lastly hereinbefore mentioned then and in such case he shall only be entitled to be paid in respect of the work, carried out or expenditure incurred by him prior to the date of the determination of the rates as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of a dispute the decision of the Superintending Engineer of the Circle shall be final.
No claim to any payment or compensation for
Alteration in or restriction of work

Clause 14 – If at any time after execution of the contract documents the Engineer-in-charge shall for any reason whatsoever require the whole or any part of the work as specified in the tender, to be stopped for any period or shall not require the whole or part of the work to be carried out at all or the be carried out by the contractor he shall give notice in writing of the fact to the contractor who shall thereupon suspend or stop the work totally or partially as the case may be. In any such case, except as provided hereunder, the contractor shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put to on account of materials purchased or agreed to be purchased, or for unemployment of labour recruited by him. He shall not also have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated. Where, however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him of the said notice, the contractor shall be paid for such materials at the rates detained by the Engineer-in-charge provided they are not in excess of requirements and are of approved quality and/or shall be compensated for the loss, if any that he may put to, in respect of materials agreed to be purchased by him, the amount of such compensation to be determined by the Engineer-in-charge whose decision shall be final. If the contractor suffers any loss on account of his having to pay labour charges during the period during which the stoppage of work has been ordered under this clause the contractor shall, on application, be entitled to such compensation on account of labour charges as the Engineer-in-charge whose decision shall be final may consider reasonable, provided the contractor shall not be entitled to any compensation on account of labour charges if, in the opinion of the Engineer-in-charge the labour could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid,

Time limit for unforeseen claims

Clause 15, - Under no circumstance whatsoever, shall the contractor be entitled to any compensation from Government, on any account unless the contractor shall have submitted a claim in writing to Engineer-in-charge within one month of the cause of such claim occurring.
Action and compensation payable in case of bad work

Clause 16 – If at any time before the security deposit is refunded to the contractor it shall appear to the Engineer-in-charge or his subordinate in charge of the work that any work has been executed with unsound imperfect, or unskillful workmanship or with materials of inferior quality, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or are otherwise not in accordance with the contract it shall be lawful for the Engineer-in-charge to intimate this fact in writing to the contractor and than notwithstanding the fact that the work, materials or articles complained of, may have been inadvertently passed, certified and paid for, the contractor shall be bound forthwith to rectify or remove, and reconstruct the works so specified in whole or in part, as the case may required, or if so required shall remove the materials or articles so specified and provided other proper and suitable materials or articles at his own proper charge and cost; and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in the written intimation aforesaid, the contractor shall be liable to pay compensation at the rate of one percent the amount of the estimate for every day not exceeding ten days, during which the failure so continues and in the case of any such failure the Engineer-in-charge may rectify or remove and re-execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the contractor should the Engineer-in-charge consider that any such inferior work or materials as described above may be accept or made use of it shall be within his discretion to accept the same at such reduced rates as he may fix therefore.

Contractor liable for damage done and for imperfections for three months after certificate.

Clause 17 – If the contractor or his work people. Or servants shall break, deface; injure or destroy any part of building in which they may be working or any building, road curbs fences, enclosures, water pipes, cables, drains, electric or telephone posts or wires, trees, grass or grass-land or cultivated ground contiguous, 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, from any cause whatever, or any imperfections become apparent in it within three months (six months in the case of a road work) after a certificate final or its completion shall have been given by the Engineer-in-charge as aforesaid, the contractor shall make the same good at his own expense or in default the Engineer-in-charge may cause the same to be made good by other work-men and deduct the expense (of which the certificate of the Engineer-in-charge shall be final) from
any sums that may be then or at any time thereafter may become, due to the contractor or from his security deposits of the proceeds of sale thereof, or of a sufficient portion thereof.

The contractor hereby also covenants that it shall be his responsibility to see that the buildings constructed under this contract do not leak during the period of two consecutive rainy seasons after its (their) completion and if any defects are pointed out to him by the Engineer-in-charge during the said periods the same shall be removed by him at his own expense or in default the Engineer-in-charge may get them removed and deduct the expenses thereof from any sum that may be then due or may become due to the contractor or from the security deposit of the contractor an amount equal to 20% cost of the roof shall, not with standing and anything contained in this clause, be retained, till the roofs are tested during two consecutive rainy seasons as aforesaid and the defects are fully removed if any amount still remains due to this account after making deductions as aforesaid the same may be recovered from him as an arrear of land revenue/cash security. The security deposit of the contractor deposit of the contractor to the extent of 50% shall be refunded on his getting the completion certificate provided that all the recoveries outstanding against him are 82ealize82. 25% of the amount shall be refunded on maintenance period being over, even if the final bill is not passed, balance 25% shall be refunded after the final bill is passed.

Work to be open for inspection: contractor or responsible agent to be present

Clause 18 – All work under or in course of execution or executed in 82ealize82e of the contract shall at all times be open to the inspection and supervision of the Engineer-in-charge and his subordinates and they shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate to visit the works shall have been given to the contractor, either himself be present to receive orders and instructions, or have a responsible agent duly accorded in writing present for that purpose. Orders given to the contractor’s agent shall be considered to have the same force as if they had been given to the contractor himself.

Notice to be given before work is covered up

Clause 19 – The contractor shall give not less than five days notice in writing to the Engineer-in-charge or his subordinate in-charge of the work before covering up or otherwise placing beyond the reach of measurement, any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up placed beyond the reach of measurement, any work without the consent in writing of the Engineer-in-charge or his subordinate in charge of the work, and if any work shall be covered up or placed beyond the
reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the contractor’s expense or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

**Contractor to Supply plant, ladder scaffoldings etc.**

**Clause 20** – The contractor shall supply at his own cost materials (except such special materials, if any, as may in accordance with the contract be supplied from the Engineer-in-charge’s store),

plant, tools appliances, implements, ladders, cordage, tackle, scaffolding and temporary works requisite or proper for the proper execution of the work, whether original, altered or substituted, and whether included in the specification, or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-charge as to any matter as to which under these condition he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out work, and counting weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. Failing his so doing the same may be provided by the Engineer-in-charge at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or of a sufficient portion, thereof.

**The contractor is liable for damages arising from non-provision of lights, fencing etc.**

The contractor shall also provide at his own cost, except when the contract specifically provides otherwise and except for payment due under clause 13 all necessary fencing, and lights required to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action, or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the contractor be paid to compromise any claim by any such person.
Compensation under section 12 sub-section (1) of the workmen's compensation Act 1923

Clause 21 – In every case in which by virtue of the provisions of section 12, sub-section (1) of the workmen’s compensation Act, 1923, V.C. is obliged to pay compensation to a workman employed by the contractor in execution of the work, V.C. will recover from the contractor the amount of the compensation so paid; and, without prejudice to the rights of Government under section 12, sub-section (2) of the said Act, V.C. shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by V.C. to the contractor whether under this contract or otherwise V.C. shall not be bound to contest any claim made against them under section 12, sub-section (1) of the said Act, except on the written request of the contractor and upon his giving to V.C. full security for all costs for which V.C. might become liable in consequence of contesting such claim.

Labour

Clause 22 – No female labour shall be employed within the limits of cantonment

Labourers below the age of twelve years

Clause 23 – No labourer below the age of twelve year shall be employed on the work.

Fair Wage

Clause 24 – The contractor shall pay not less than fair wage to labourers engaged by him on the work.

Explanation:

(a) “Fair wage” means wage whether for time or piecework notified at the time of inviting tenders for the work and where such wages have not been so notified, the wages prescribed by the work Department for the division in which the work is done.

(b) The contractor shall notwithstanding the provisions of any contract to the contrary, cause to be paid a fair wage to labourers indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labours had been immediately employed by him.

In respect of all labour directly or indirectly employed on the works for the performance of the contractor’s part of this agreement, the contractor shall comply with or cause to be complied with the labour Act in force.

(d) The university Engineer shall have the right to deduct, from the moneys due to the contractors, any sum required or estimated to be required for making good the loss suffered by a workers by reason of non-fulfillment of the conditions of the contract for the benefit of the
workers non-payment of wages or of deductions made from his or their wages, which are not justified by the terms of the contract or non-observance of the regulations.

(e) The contractor shall be primarily liable for all payments to be made under and for the observance of the regulation aforesaid without prejudice to his right to claim indemnity from his sub-contractors.

(f) The regulation aforesaid shall be deemed to be a part of the contract and any breach thereof shall be deemed to be a part of the contract and any breach thereof shall be deemed to be a breach of this contract.

Work Not to be Sublet

Clause 25 – The contract shall not be assigned or sublet without the written approval of the U.E. And if the contractor shall assign or sublet his contract, or attempt so to do, or become insolvent, or commence any insolvency proceedings or make any composition with his creditors, or attempt so to do, or if any bribe gratuity, gift, loan perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly be given, promised or offered by the contractor, or any of his servants or agents to any public officer or person in the employ of university in any way relating to

his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the U.E. may thereupon by notice in writing rescind the contract, and the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of V.C. and the same consequences shall ensure as if the contract had been rescinded under clause 3 hereof and in addition the contractor shall not be entitled to recover or be paid for any work therefore performed under the contract.

Sum payable by way of compensation to be considered as reasonable compensation without reference to actual loss

Clause 26 – All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of V.C. without reference to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

Changes in the constitution of firm

Clause 27 – In the case of a tender by partners any change in the constitution of the firm shall be forthwith notified by the contractor to the Engineer-in-charge, for his information.

Works to be under the direction of University Engineer

Clause 28 – All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the University Engineer for the time being who
shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

**Disputes relating to specifications, designs etc.**

**Clause 29** – Except where otherwise specified in the contract the decision of the Registrar of University for time being shall be final, conclusive and binding on all parties to the contract upon all questions relating to the meaning of the specifications, designs, drawings and instruction here in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any way arising out of, or relating to the contract, design, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof, provided that the Registrar shall before giving the decision in the matter give an opportunity of being heard to the contractor.

**Stores of European or American manufacture to be obtained from Government**

**Clause 30** – The contractor shall obtain from the stores of the Engineer-in-charge all stores and articles of European or American manufacture which may be required for the work or any part thereof or in making up articles required therefore or in connection there with unless he has obtained permission in writing from the Engineer in charge to obtain such stores and articles elsewhere. The value of such stores and articles as may be supplied to the contractor by the Engineer-in-charge will be debited to the contractor in his account at the rates shown in the schedule attached to the contract and if they are not entered in the schedule, they will be debited at cost price which, for the purposes of this contract, shall include the cost of carriage and all of other expense whatsoever, which shall have been incurred in obtaining delivery of the same at the stores aforesaid.

**Lump Sums in Estimates**

**Clause 31** – When the estimate on which a tender is made includes lump sums in respect of part of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the some rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-charge, capable of measurement, the Engineer-in-charge, may at his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provision of this clause.
Action where no specification

Clause 32 – In the case of any class of work for which there is no such specification as is mentioned in rules, such work shall be carried out in accordance with the specification approved by University Engineer, for application to work in the district, and in the event of there being no such specification, then in such case the work shall be carried out in all respect in accordance with the instruction and requirements of the Engineer-in-charge.

Definition of work

Clause 33 – The expression “works” or “work” where used in these condition, shall, unless there be something either in the subject or context repugnant to such contraction, be construed and taken to mean the works or by virtue of the contract contracted to be executed, whether temporary or permanent, and whether original, altered, substituted, or additional.

Claim for quantities entered in the tender or estimate

Clause 34 – Quantities shown in the tender are approximate and no claim shall be entertained for quantities or work executed being either more or less than those entered in the tender or estimate.

Clause 35 – No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land, or in the case of clearance works, on account of any delay in according sanction to estimates.

Employment of Scarcity Labour

Clause 36 – If Government declare a state of scarcity or famine to exist in any village situated within 16 km. of the work the contractor shall employ upon such parts of the work, as are suitable for unskilled labour any person certified to him by the University Engineer or by any person to whom the University Engineer may have delegated this duty in writing, to be in need of relief and shall be bound to pay such persons wages not below the minimum which Government may have fixed in this behalf. Any dispute which may arise in connection with the implementation of this clause shall be decided by the University Engineer whose decision shall be final binding on the contractor.

Refund of quarry fees and Royalties

Clause 37 – All quarry fees, royalties, octroi duties and ground rent for stacking materials, if any, should be paid by the contractor, and deduced from their RA bill as per rule who will, however be entitled to a refund, of such of the charges as are permissible under the rules on
obtaining a certificate from the Engineer-in-charge that the materials were required for use of University work.

**Royalty for breach of contract**

**Clause 38** – On the breach of any term of condition of this contract by the contractor the said University shall be entitled to forfeit the security deposit or the balance thereof, that may at that time be remaining, and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the said University to recover any further sums as damages from any sums due or which may become due to the contractor by V.C. or otherwise howsoever.

**Note** : - If there is any difference between the amount of words and figures written in the tender forms by the contractor the lesser amount will be treated as valid. If the contractor is not ready to accept the amount so fixed in the above manner and declines to do the work, earnest money deposit of the contractor shall be forfeited.

**NOTICE TO THE CONTRACTOR TO START WORK**

Your contract for the .................................................................................................................. has been accepted by me/U.E./Registrar/V.C. on behalf of the Jiwaji University Gwalior. ........................................................................................................day of ........................................... 200............. and you are hereby ordered to commence the work.

University Engineer    Registrar

The notice to the contractor (s) to start work from the .............................................................. day of ............................................................... 200......... was issued, vide this office memorandum No. .............................................................. dated the .............................................................................................200 ............

University Engineer    Registrar

In pursuance of clause 6 of the Agreement in form B dated the .............................................................. between the Contractor Shri ........................................................................................................ and the U.E. of Jiwaji University, it
is hereby certified that the said contractor has duly completed the execution of the work undertaken by him there under on the 

........................................................................................................................................ day of 

........................................................................................................................................

Signature of contractor University Engineer Registrar

Schedule

Showing (approximately) materials to be supplied by the Department under clause II and 30 for work contracted to be executed and the rates at which they are to be charged for.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Rates at which the material will be charged to the contractor</th>
<th>Place of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>No material provided by the department</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note :- The person or firm submitting the tender should see that the rates in the above schedule are filled up by the Engineer-in-charge on the issue of the form prior to the submission of the tender.

........................................................................................................................................

Signature of the Contractor Signature of University Engineer
## SCHEDULE OF QUANTITY

Name of work:- Design, Supply, Installation, Testing & Commissioning of 8 passenger and goods elevator for ADM Building, Jiwaji University, Gwalior

<table>
<thead>
<tr>
<th>Sr.no</th>
<th>Discription</th>
<th>qty.</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
</table>
| 1.    | Supply, installation and testing of passenger elevator suitable for 08 passenger 544 Kg size 1600mm x 1850 mm with automatic rescue facility & following features B+ G+ 2 floor(4 door opening)  
(A) Capacity & speed :- 08 p(544 Kg) speed:- 01.00 MPS.  
(B) Drive:- Varival voltage, varival frequency Drive.  
(C) Operation :- Microprocessor based closed loop simpley collective selective control.  
(D) Stops & opening :- 04 stops 04 opening.  
(E) Floor & Designation:- B.G1,2 car travel : 11 MT.  
(F) Car Enclosure:- S.S hair line finish car with SS false ceiling granite flooring.  
(G) Car Entrance:- S.S. mirror finish automatic center opening doors with VVVF drive.  
(H)Landing Entrance:- S.S. mirror finish automatic center opening doors with VVVF drive.  
(I) Car size:- 1300 MM width and 1100 mm depth.  
(j) Door opening:- 800 mm width and 200 mm height  
(K) Elevator well:- 1600mm width and 1850 mm depth.  
(L) Machine Room:- 1850x1600mm  
(M) Elevator pit depth :- 1600mm depth overhead required.  
(N) Main Supply:- 415 volts, 3 phase, 50 HZ A.C.  
(O) Signals:- Position and direct indicators for all lands.  
(P) Special feature :- Fire man controls switch Emergency light, automatic reassure device overload indicator, Rate quoted including all electrical 's cable, fitting, panel board, and other required material complete with copper earthing as per PWD specification. | 01   | Each |      |        |
| 2.    | Supply, installation and testing of passenger/goods elevator suitable for 08 passenger 544 Kg size 1600mm x 1850 mm with automatic rescue facility & following features B+ G+ 2 floor(4 door opening)  
(A) Capacity & speed :- 08 p(544 Kg) speed:- 01.00 MPS.  
(B) Drive:- Varival voltage, varival frequency Drive.  
(C) Operation :- Microprocessor based closed loop simpley collective selective control.  
(D) Stops & opening :- 04 stops 04 opening.  
(E) Floor & Designation:- B.G1,2 car travel : 11 MT.  
(F) Car Enclosure:- Steel power coated with s.s. false ceiling and PVC flooring.  
(G) Car Entrance:- S.S. mirror finish automatic center opening doors with VVVF drive.  
(H)Landing Entrance:- S.S. mirror finish automatic center opening doors with VVVF drive.  
(I) Car size:- 1300 MM width and 1100 mm depth. | 01   | Each |      |        |
| (j) Door opening: | 800 mm width and 200 mm height |
| (K) Elevator well: | 1600mm width and 1850 mm depth |
| (L) Machine Room: | 3000X3000X2500 |
| (M) Elevator pit depth: | 1600mm depth overhead required |
| (N) Main Supply: | 415 volts, 3 phase, 50 HZ A.C. |
| (O) Signals: | Position and direct indicators for all lands |
| (P) Special feature: | Fire man controls switch Emergency light, automatic reassure device overload indicator |
| | Rate quoted including all electrical 's cable, fitting, panel board, and other required material complete with copper earthing as per PWD specification |

Registrar
Signature of Contractor
Phone No. ..............
Address ...............