



**The Registrar**  
**Punyashlok Ahilyadevi Holkar**  
**Solapur University, Solapur – 413 255**  
**E-Tender Notice No.PAHSUS/Engg/2024/ 181 for Year 2023-2024**  
**TENDER DOCUMENT**

<b>For the work of</b>	<b>Electrical works of Multi-purpose Indoor sports hall Under Khelo India scheme</b>
<b>Estimated Cost Put to Tender</b>	<b>:- Rs. 1,84,32,824.00s</b>
<b>Security Deposit for Contract</b>	<b>:- 5% of estimated cost put to tender</b>
<b>Earnest Money for Tender Accepted Tender</b>	<b>:- Rs. 1,84,329.00</b> <b>:- At the rate of _____ % Above / Below or at Estimated Rate Rs. 1,84,32,824.00</b>
<b>Cost of Blank Tender Form</b>	<b>:- Rs. 4000/- + 18% GST = Rs. 4720/-</b>
<b>Time Limit</b>	<b>:- <u>4(FOUR)</u> calender Months (including monsoon)</b>
<b>Date of downloading tender document:</b>	<b><u>06/03/2024</u> to <u>20/03/2024</u></b>
<b>Dates of asking clarifications</b>	<b>: Between <u>11/03/2024</u> and <u>22/03/2024</u></b>
<b>Date of uploading clarification</b>	<b>: <u>30/03/2024</u></b>
<b>Date of uploading tender document with financial bid</b>	<b>:- <u>01/04/2024</u> from 11.00 a.m. to <u>06/04/2024</u> upto 17.00 p.m.</b>
<b>Consulting Architects</b>	<b>: DESIGN GROUP (INDIA)</b> <b>Architects, Engineers, Planners, Project Management Consultants, Int. Designers</b>

11/12/13, R.N.A. Arcade, Lokhandwala Complex,  
Andheri West, Mumbai – 400 053.  
Tel. : 022-26316203 / 26321083 / 26302293.  
Email : designgroupindia@gmail.com

**NAME OF WORK: ELECTRICAL WORKS OF MULTI-PURPOSE INDOOR SPORTS HALL  
UNDER KHELO INDIA SCHEME AT NEW CAMPUS OF PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR**

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**FINANCIAL BID**

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**PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR**  
**E-TENDER NOTICE NO. PAHSUS/Engg/2024/ 181 FOR YEAR 2023-2024**

On line percentage rate tenders in B-1 form are invited for Electrical works of Multi-purpose indoor sports hall under Khelo India scheme by the Registrar of Punyashlok Ahilyadevi Holkar Solapur University, Solapur from the experienced contractors registered with PWD in A-1 category having done single building of not less than 2 Crores in last three years and who fulfills the terms and conditions of tender.

NAME OF THE WORK	ESTIMATED COST (Rs.)	EARNEST MONEY (Rs.)	COMPLETION PERIOD	COST OF TENDER (Rs.)
Electrical works of Multi-purpose indoor sports hall under Khelo scheme at new campus of Punyashlok Ahilyadevi Holkar Solapur university	Rs.1,84,32,824.00	Rs.1,84,329/-	4 Months Including Monsoon	Rs.4000.00 + 18% GST

The blank tender forms are available on E-tendering module on Government of Maharashtra: <https://mahatenders.gov.in> from 06/03/2024 TO 20/03/2024

The tenderers can download the entire tender documents from web site.

The last date of submission of E-tender documents duly filled in shall be received from 01/04/2024 to 06/04/2024 upto 17.00 pm and envelope No.1 will be opened on the 08/04/2024.

The period of asking clarification shall be 11/03/2024 to 22/03/2024 and the clarifications shall be uploaded on 30/03/2024 at 5.00 p.m.

For further details please see detailed tender notice on <https://mahatenders.gov.in> , <https://su.digitaluniversity.ac> web sites. Conditional tenders will not be accepted.

The Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur reserves the right to accept or reject the lowest or any other tender or all tenders without assigning any reason whatsoever.

**REGISTRAR  
PUNYASHLOK  
AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY**

**TENDER SCHEDULE**

Sr. No	PUNYASHOLK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY STAGE	VENDOR STAGE	START DATE & TIME	EXPIRY DATE & TIME
1.	Main tender release	-	06/03/2024	20/03/2024
2.	-	Main tender document downloading	06/03/2024	20/03/2024
3.		Ask clarification	11/03/2024	22/03/2024
4.	Uploading clarification	-	-	30/03/2024
5.		Price-bid uploading alongwith complete tender document with clarification duly signed with tender cost of Rs. 4000 + GST and EMD of Rs.1,84,329.00 through online payment	01/04/2024	06/04/2024
6.		Envelope No. 1 opening (Technical)	08/04/2024	
7.		Envelope No. 2 opening (financial bid) Bills of quantities	18/04/2024	

**NOTES :**

- 1 All eligible / interested tenderer are required to be enrolled on portal <https://mahatenders.gov.in> before downloading tender documents and participate in e-tendering.
- 2 Tenderer are requested to contact on following telephone number for any doubts / information / difficulty regarding online process. Tel. : 0217-2744771 / 72 / 73 / 74 / 76 Ext. No. 199 / 111 / 110 and Shri Rahul Swami : Mobile : 9209000369, Email : enggsec@sus.ac.in of Punyashlok Ahilyadevi Holkar Solapur University
- 3 The amount for Earnest Money Deposit and Tender cost should be deposited online only. Tenderer should submit the documents, related to tender, online.  
Copy of required documents ( submitted in Envelope No. 01 ) as per tender volume also should be submitted personally on 06/04/2024 upto 17.00 p.m. in the office of the University Engineer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.  
Earnest Money Exemption Certificate is not applicable / consider for the University Works.

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- Successful tenderer should submit original receipt to the Finance & Account Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur that the amount of Earnest Money Deposit and Tender Cost is deposited by the contractor in the account of Finance & Account Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur, Electrical Division, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
4. Other instructions can be seen in the tender document. All or any one of the tender may be rejected by the University Authority without assigning any reason whatsoever.
  5. Tender notice of this work can also be seen on Punyashlok Ahilyadevi Holkar Solapur University website <http://su.digitaluniversity.as>
  6. The tenderer can ask clarification if any required between 11/03/2024 to 22/03/2024 and the clarification shall be uploaded on 30/03/2024 upto 17.00 p.m.
  7. Right to reject any or all tenders without assigning reason therefor is reserved by Registrar of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

REGISTRAR  
PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

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**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**  
**TENDER NOTICE No.PAHSUS/Engg/2024/ 181 FOR YEAR 2024**

Name of work : **Electrical works of Multi-purpose indoor sports hall under Khelo India scheme at new campus of the University.**

**RECAPITULATION SHEET**

**SUMMARY OF COST OF ELECTRICAL WORKS BASED ON CSR FOR THE YEAR 2021-2022 OF ELECTRICAL WING**

Sr. No.	Description	Estimated cost
1.	ELECTRICAL COST	Rs. 1,84,32,824.00
Rs. 1,84,32,824.00 ( Rupees One Crore, Eighty Four Lacs, Thirty Two Thousand, Eight Hundred, Twenty Four only )		
2.	Reimbursement of Royalty charges	Rs. NIL
3.	Reimbursement of GST : 18% as per ( iv ) ( a )	Rs. 45,37,822.14
4	Provision of insurance in estimate 1% of Rs.	Rs. 1,84,329.00

**Note :**

- The above estimated cost of Rs. 1,84,32,824.00 is exclusive of reimbursable charges stated under Sr.No. 2, 3, 4 & further as described below.
- The amount of insurance as per SSR note section B ( i ) of section B shall be 1% of Rs. 1,84,32,824.00 which shall be Rs. 1,84,329.00 and will be reimbursement only on documentary evidence of receipt of payment and insurance policy in original.
- The amount of royalty charges are as per the letter No. SOL / PWC / Prakalp-I Marathi / 2286 / 2021 dated 05 July 2021 shall be Rs. \_\_\_\_-\_\_\_\_\_ and on which premium shall not admissible.
- GST as 18% of estimated cost is taken in Recapitulation sheet as provision which will be payable only on receipt of documentary evidence of payment of GST and only such payment of GST will be reimbursed.
- The  $\pm$  premium will not be admissible on all above reimbursable charges and  $\pm$  premium shall be admissible on estimated amount of Rs. 1,84,32,824.00 put to tender.

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PUNYASHLOK AHILYADEVI  
HOLKAR SOLAPUR UNIVERSITY,  
SOLAPUR  
E-TENDER NOTICE No. PAHSUS/Engg/2024/ 181 FOR YEAR 2023-24

Online tenders (e-tender) in B-1 form for the following work are invited by the Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur, phone No. 0217-2744771/72/73/74/76 on Government of Maharashtra Electronic Tender Management system <https://mahatenders.gov.in>

The details can be viewed and downloaded only directly from the Government of Maharashtra e-tendering Portal <https://mahatenders.gov.in> This detailed tender notice is available on Notice Board of the office of The Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

NOTE:

1. All eligible / interested contractors are mandated to get enrolled on e-tendering portal <https://mahatenders.gov.in>
2. To process the tenders online bidders are required to obtain digital certificate.
3. Contractors can contact 0217-2744771 / 72 / 73 / 74 / 76 Ext. 199 / 111/ 110 and Shri Rahul Swami : Mobile : 9209000369. Email : [enggsec@sus.ac.in](mailto:enggsec@sus.ac.in) for clarification of their doubts regarding the process of Electronic Tendering System.
3. Submission of documents pertaining to tender form fee and EMD of tender will be uploaded from 01/04/2024 To 06/04/2024

REGISTRAR  
PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

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HOLKAR SOLAPUR UNIVERSITY,  
SOLAPUR  
E-TENDER NOTICE No. PAHSUS/Engg./2024 /181 FOR YEAR 2023-2024

**DETAILS OF WORK**

Name of work : Electrical works of Multi-purpose indoor sports hall at new campus of the University.

Estimated cost put to tender : Rs. 1,84,32,824.00  
In words Rupees : Rupees One Crore, Eighty Four Lacs, Thirty Two Thousand, Eight Hundred, Twenty Four Only )

Earnest money deposit : Rs. 1,84,329.00

The Earnest Money should be deposited only through Net Banking by Linking <https://mahatenders.gov.in> The proof / receipt and duly attested copies shall uploaded at the time of submission.

Total security deposit 5% ( FIVE ) percent Rs. 9,21,642.00 ( 50% in Pay-order at the time of agreement and balance from R. A. Bills till it accrued to total security deposit. Time stipulated for completion is 4 (Four) calendar months which will include the monsoon period.

**TO BE FILLED BY THE CONTRACTOR**

I / We have quoted my / our offer in percentage rate in words as well as in figures. I / we further undertake to enter into contract in regular “ B-1 ” form in Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Name & Signature of Contractor /  
Power of Attorney holder  
with complete address

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**THE REGISTRAR  
PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR**

**NAME OF WORK :** Electrical works of Multi-purpose indoor sports hall under Khelo India scheme at new campus of Punyashlok Ahilyadevi Holkar Solapur University, Solapur

**Tender Notice No. :** PAHSUS / Engg / 2024 / 181 for Year 2023-2024

**e-TENDER DOCUMENTS**

**Volume I :** General rules and directions for the guidance of contractors( Part I )

**Part II :** Conditions of contract, Administrative, Financial & Technical Specifications

**Part III :** Schedule ‘ B ‘

**Part IV :** Drawings

**PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR**

**E-TENDER NOTICE NO. PAHSUS/Engg/2024/ 181\_ FOR YEAR 2023-2024**

On line percentage rate tenders in B-1 form are invited for Electrical works of Multi-purpose indoor sports hall under Khelo India scheme by the Registrar of Punyashlok Ahilyadevi Holkar Solapur University, Solapur from the experienced contractors Registered with PWD in A-1 category, having done single building of not less than 2 Crores in last three years and who fulfills the terms and conditions of tender.

NAME OF THE WORK	ESTIMATED COST (Rs.)	EARNEST MONEY (Rs.)	COMPLETION PERIOD	COST OF TENDER (Rs.)
Electrical works of Multi-purpose indoor sports hall under Khelo India scheme at Punyashlok Ahilyadevi Holkar Solapur university at new campus.	Rs. 1,84,32,824.00	Rs.1,84,329/-	4 Months Including Monsoon	Rs. 4000/- + 18% GST

Tender form, conditions of contract, specifications and contract drawings can be downloaded from the e-tendering portal of <https://mahatenders.gov.in> after entering the details of online payment deposited, as per the Tender schedule. Further information regarding the work can be obtained from the University Engineer, Construction Division, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

The details of EMD & Tender Fee Deposited should be submitted to the University Engineer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur on email : [enggsec@sus.ac.in](mailto:enggsec@sus.ac.in) as per the Tender Schedule, in the presence of such intending tenderers or his / their authorized representatives who may be present at that time.

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## **TENDERING PROCEDURE**

### **1.1. BLANK TENDER FORMS**

Tender forms can be downloaded from the e-tendering Portal of Government of Maharashtra i.e. <https://mahatenders.gov.in> after entering the details of payment towards tender fees as per the tender schedule.

- 1.2. 1.2.1. Tenderers should be registered with PWD in category A-1 and Digital Signatures Certificate (DSC) obtained from recognized certifying authorities.
- 1.2.2. The tenderers have to make a payment of Rs. Nil online as service charges for the use of Electronic tendering during online Bid Data Decryption and Re-encryption stage of the tender.
- 1.2.3 For any assistance on the use of Electronic tendering system, the users may call :  
Shri Rahul Swami : Mobile : 9209000369.or Tel. No. 0217-2744771 / 72 / 73 / 74 / 76  
Ext. 199 / 111 / 110 email : enggsec@sus.ac.in of Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
- 1.2.4. Tenderers should install the Mandatory Components available on the Home Page of <https://mahatenders.gov.in> under the section ‘ Mandatory Components ‘ and make the necessary Browser settings provided under section ‘ Internet Explore settings ‘.

### **1.3. GUIDELINES TO BIDDERS ON THE OPERATIONS OF ELECTRONIC TENDERING SYSTEM OF PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**

A. Pre-requisite to participate in the tenders processed by the University.

#### **1. Enrolment and Empanelment of contractors on Electronic Tendering System**

The contractors interested in participating in the tenders of University processed using the Electronic Tendering system shall be required to enroll on the Electronic Tendering system to obtain User ID.

After submission of application for enrolment on the system, the application information shall be verified by the Authorized Representative of the Service Provider. If the information is found to be complete, the enrolment submitted by the Vendor shall be approved.

The contractors may obtain the necessary information on the process of enrolment and empanelment may visit the information published under the link Enroll under the section E-tendering toolkit for Bidders on the Home Page of the Electronic Tendering system.

#### **2. Obtaining a Digital Certificate :**

The Bid Data that is prepared online is required to be encrypted and the hash value of the Bid Data is required to be signed electronically using a Digital Certificate ( Appropriate class ). This is required to maintain the security of the Bid Data and also to establish the identity of the Contractor transacting on the system.

The Digital certificates are issued by an approved certifying Authority authorized by the Controller of certifying Authorities of Government of India through their Authorized Representatives upon receipt of documents required to obtain a Digital Certificate.

Bid data / information for a particular tender may be submitted only using the Digital certificate which is used to encrypt the data / information and sign the hash value during the Bid Preparation and Hash Submission stage. In case during the process of preparing and submitting a Bid for a particular tender, the contractor loses his / her Digital signature Certificate ( i.e. due to virus attack, hardware problem, operating system problem ); he / she may not be able to submit the Bid online. Hence, the Users are advised to store his / her Digital Certificate securely and if possible, keep a backup at safe place under adequate security to be used in case of need.

In case of online tendering, if the Digital Certificate issued to an Authorised User of a Partnership firm is used for signing and submitting a bid, it will be considered equivalent to a no objection certificate / power of attorney to that User to submit the bid on behalf of the Partnership firm. The partnership firm has to authorize a specific individual via an authorization certificate signed by a partner of the firm ( and in case the applicant is a partner, another partner in the same firm is required to authorize ) to use the digital certificate as per Indian Information Technology Act, 2000.

Unless the Digital Certificate is revoked, it will be assumed to represent adequate authority of the Authority User to bid on behalf of the firm for the Tenders processed on the Electronic Tender Management System of Government of Maharashtra as per Indian Information Technology Act, 2000. The digital signature of this Authorized User will be binding on the firm. It shall be the responsibility of Partners of the firm to inform the certifying authority of Sub certifying authority, if the Authorized User changes, and apply for fresh Digital Signature Certificate. The procedure for application of a Digital Signature Certificate will remain the same for the new Authorized User.

The same procedure holds true for the Authorized Users in a Private / Public Limited Company. In this case, the Authorization Certificate will have to be signed by the Director of the company or the Reporting Authority of the Applicant.

For information on the process of application for obtaining Digital Certificate, the Contractors may visit any Certifying Authority.

### **3. Recommended Hardware and Internet Connectivity**

To operate on the Electronic Tendering System, the Contractors are recommended to use Computer System with atleast 1 GB of RAM and broadband connectivity with minimum 512 kbps bandwidth.

#### 4. Set up of Computer System for executing the operations on the Electronic Tendering System

To operate on the Electronic Tendering System of Government of Maharashtra, the Computer System of the Contractors is required to be set up. The contractors are required to install utilities available under the section Mandatory Installation components on the Home Page of the System.

The Utilities are available for download freely from the above mentioned section. The contractors are requested to refer to the E-tendering Toolkit for Bidders available online on the Home Page to understand the process of setting up the System.

#### 5 Payment for Service Provider fees :

In addition to the Tender Document Fees payable to Punyashlok Ahilyadevi Holkar Solapur University, Solapur the contractors shall pay service providers fees of Rs. NIL through **online payments** gateway service available on electronic Tendering System. For the list of options for making online payments, the Contractors are advised to visit the link E-Payment Options under the section E-Tendering Toolkit for Bidders on the Home Page of the Electronic Tendering System.

#### B. Steps to be followed by contractors to participate in the e-Tenders processed by the University.

##### 1. Preparation of online Briefcase

All Contractors enrolled on the Electronic Tendering System of Government of Maharashtra are provided with dedicated briefcase facility to store documents / files in digital format. The Contractors can use the **online briefcase** to store their scanned copies of frequently used documents / files to be submitted as a part of their bid response. The contractors are advised to store the relevant documents in the briefcase before starting the Bid Preparation and Hash submission stage.

In case, the Contractors have multiple documents under the same type (e.g. multiple Work Completion Certificates) as mentioned above, the Contractors are advised to either create a single pdf file of all the documents of same type or compress the documents in a single compressed file in zip or rar formats and upload the same.

It is mandatory to upload the documents using the briefcase facility. Therefore, the Contractors are advised to keep the documents ready in the briefcase to ensure timely bid preparation.

**Note:** Uploading of documents in the briefcase does not mean that the documents are available to Punyashlok Ahilyadevi Holkar Solapur University, Solapur at the time of Tender Opening stage unless the documents are specifically attached to the bid during the online Bid Preparation and Hash Submission stage as well as during Decryption and Re-encryption stage.

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## 2 Online viewing of Detailed Notice Inviting Tenders:

The Contractors can view the Detailed Tender Notice along with the Time Schedule (Key Dates) for all the Live Tenders released **by Punyashlok Ahilyadevi Holkar Solapur University** on the home page of Solapur University's Web site & e-Tendering Portal on <https://mahatenders.gov.in> under the section Organization Tenders.

## 3 Download of Tender Documents:

The Pre-qualification / Main Bidding Documents are available for free downloading. However to participate in the online tender, the bidder must purchase the bidding documents online by filling up details of the payment towards the cost of Tender Form Fee.

## 4 Online Bid Preparation and Submission of Bid Hash (Seal) of Bids:

Submission of Bids will be preceded by online bid preparation and submission of the digitally signed Bid Hashes (Seals) within the Tender Time Schedule (Key Dates) published in the Detailed Notice Inviting Tender. The Bid Data is to be prepared in the templates provided by the university. The templates may be either form based, extensible tables and / or uploadable documents. In the form based type of templates and extensible table type of templates, the contractors are required to enter the data and encrypt the data using the Digital Certificate. In the uploadable document type of templates, the Contractors are required to select the relevant document / compressed file (containing multiple documents) already uploaded in the briefcase.

### Notes :

- a. The Contractors upload a single document or a compressed file containing multiple documents against each unuploadable option.
- b. The Hashes are the thumbprint of electronic data and are based on one – way algorithm. The Hashes establish the unique identity of Bid Data.
- c. The bid hash values are digitally signed using valid Class – II or Class – III Digital Certificate issued by any Certifying Authority. The Contractors are required to obtain Digital Certificate in advance.
- d. After the hash value of bid data is generated, the Contractors cannot make any change / addition in its bid data. The bidder may modify bids before the deadline for Bid Preparation and Hash Submission as per Time Schedule mentioned in the Tender documents.
- e. This stage will be applicable during both, Pre-bid / Pre-qualification and Financial Bidding Processes.

## 5. Close for Bidding (Generation of Super Hash Values):

After the expiry of the cut-off time of Bid Preparation and Hash Submission stage to be completed by the Contractors has lapsed, the Tender will be closed by the Tender Authority.

The Tender Authority from Punyashlok Ahilyadevi Holkar Solapur University, Solapur generate and digitally sign the Super Hash values (Seals).

## 6 Decryption and Re-encryption of Bids (submitting the Bids online):

After the time for generation of Super Hash values by the Tender Authority from Punyashlok Ahilyadevi Holkar Solapur University, Solapur has lapsed, the Contractors have to make the online payment of **Rs. Nil** towards the fees of the Service Provider.

After making online payment towards Fees of Service Provider, the Contractors are required to decrypt their bid data using their Digital Certificate and immediately re-encrypt their bid data using the Public Key of the Tendering Authority. The Public Key of the Tendering Authority is attached to the Tender during the Close for bidding stage.

**Note:** The details of the Processing Fees shall be verified and matched during the Technical Opening stage.

At this time, the Contractors are also required to upload the files for which they generated the Hash values during the Bid Preparation and Hash Submission stage.

The Bid Data and Documents of only those Contractors who have submitted their Bid Hashes (Seals) within the stipulated time (as per the Tender Time Schedule), will be available for decryption and re-encryption and to upload the relevant documents from Briefcase. A Contractor who has not submitted his Bid Preparation and Hash Submission stage within the stipulated time will not be allowed to decrypt / re-encrypt the Bid data / submit documents during the stage of Decryption and Re-encryption of Bids (submitting the Bids online).

#### **7 Short listing of Contractors for Financial Bidding Process:**

The Tendering Authority will first open the Technical Bid documents of all Contractors and after scrutinizing these documents will shortlist the Contractors who are eligible for Financial Bidding Process. The shortlisted Contractors will be intimated by email.

#### **8 Opening of the Financial Bids:**

The Contractors may remain present in the Office of the Tender Opening Authority at the time of opening of Financial Bids. However, the results of the Financial Bids of all Contractors shall be available on the e-Tendering Portal of Government of Maharashtra i.e. <https://mahatenders.gov.in> immediately after the completion of opening process.

#### **9 Tender Schedule (Key Dates):**

The Contractors are strictly advised to follow the Dates and Times allocated to each stage under the column "Contractor Stage" as indicated in the Time Schedule in the Detailed Tender Notice for the Tender. All the online activities are time tracked and the Electronic Tendering System enforces time-locks that ensure that no activity or transaction can take place outside the Start and End Dates and Time of the stage as defined in the Tender Schedule.

At the sole discretion of the Tender Authority, the time schedule of the Tender stages may be extended. Joint venture is not allowed.

### **2. EARNEST MONEY AND SECURITY DEPOSIT.**

Scanned copy of Earnest Money Deposit (E.M.D.) which should be paid online and scan copy should be submitted as per tender schedule to the University Engineer.

#### **2.1. Earnest money exemption certificate will not be accepted.**

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- 2.2 The amount of earnest money will be forfeited, in case a successful contractor does not pay the amount of initial security deposit within the time specified as stipulated by the Registrar and complete the contract documents. In all other cases, earnest money will be refunded back to other contractors after deposition of Initial Security Deposit by successful contractor.

### 2.3 SECURITY DEPOSIT

The total Security Deposit to be paid shall be **5% ( Five percent ) of Rs. 1,84,32,824.00** of amount put to tender. The successful tenderer shall have to deposit half of the Security Deposit by cash or by Demand Draft in favour of **Finance & Account Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur**. Failing which his earnest money will be forfeited to the Registrar. The balance 50% security deposit will be recovered from running account bills at 5% as percentage shown in item (d) of the memorandum in printed B-1 form or as may be decided by the Registrar during course of execution of the work looking to the position and circumstances that may prevail, whose orders will be final and binding on the contractor.

The Security deposit for the due performance of the contract shall be as detailed in the tender documents elsewhere. Fifty percent of the Security deposit will have to be deposited within ten days of the acceptance of the tender and the remaining fifty percent will be recovered from the running bills at the rate as specified in the tender form on the cost of work as per SSR prevailing at the time of acceptance of tender.

Initial Security Deposit should be deposited by Demand Draft in favour of **Finance & Account Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur**.

### 2.4. PERFORMANCE SECURITY DEPOSIT: (as per Government Resolution Public Works Department No.BDG2016/Pra.Kra-2/Bldg.2/dated 12/2/2016) if the quoted offer by the tenderer is below the estimated rates.

In case the Contractor's bid is below more than 1% of estimated cost put to tender, the tenderer will have to pay additional performance security deposit at the time of submission of tender in commercial envelope i.e. Envelope No.2, in the form of Demand Draft drawn from Nationalized bank in favour of Finance & Account Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

The validity of Demand Draft shall be for six months from the submission of tender. The MICR and IFSC code of the issuing bank shall be printed on the Demand Draft.

**Non submission of the scanned copy of DD as stated above, (in case of Contractor's offer is below more than 1% of estimated cost put to tender) contractor's offer shall not be considered and shall out rightly be rejected.**

Details of amount of performance security shall be as below.

- 1] for bids, if the tender offer quoted as 1 to 10% below than the estimated cost put to tender, performance security shall be 1% of estimated cost put to tender.

- 2]** for bids, if the tender offer quoted more than 10% below to estimated cost put to tender then performance security shall be 1% plus the percentage by which tender offer is more than 10% below of estimated cost put to tender.

(Eg : If the quoted percent is 14% below then the performance security shall be 1% plus 4% [=14%-10%] total 5% of estimated cost put to tender)

(Refer GR No. BLDG 2016 / case No.2 / Bldg-2 Dtd. 12.2.2016)

The original Demand Draft, in case sealed envelope with the name of work and tender number written on it, shall be submitted to the University Engineer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur within 5 working day's from last date of submission of tender.

In case of submission of false documents/Demand Draft, action shall be taken against the contractor as stipulated in the above mentioned G.R.

- 2.5. In the event of failure of the tenderer to pay initial security deposit within 10 days (unless extended in writing by the Registrar) from the date of receipt of notice of acceptance of his tender, the amount of earnest money shall be forfeited to University and the acceptance of his tender, shall be considered withdrawn. Except that in the event of the notice of acceptance of the tender not being issued within 120 days of the date of opening of **Envelope No.2 (financial bid)**. The tenderer shall have the option (to be intimated in writing in good time before the expiry of 120 days period) of withdrawing his tender, in which case the earnest money should be refunded in full. All the tenders shall remain open for acceptance for 120 days from the date fixed for opening of envelope No.2. (Financial bid) and thereafter until it is withdrawn by the tenderer by notice in writing as per condition No. 2 of the Memorandum.
- 2.6. Earnest money of the unsuccessful Tenderers will be refunded online after the work order issued to the successful tenderer or on the expiry of the validity period whichever is earlier automatically through e-Tender portal.
- 2.7 The acceptance of the tender may be intimated to the contractor telegraphically or otherwise and either by the officer competent to accept the tender or any authority in the department including Government and such intimation shall be deemed to be an intimation of acceptance of the tender given by the authority competent to accept the tender.
- 2.8 In case there is difference between amount written in figures and words, the **Lower offer** will be taken as **final**.

### **3. Income Tax**

The Income Tax and surcharge thereon will be deducted from bill amount at the rates amended from time to time or as intimated by the competent Income Tax authority, whether measured bill, advance payment or secured advance.

### **4. Other Taxes**

GST, Labour welfare tax ( Upkar ) and any other statutory deduction as applicable and amended by the govt. from time to time will be deducted from each running bill of work done of the contractor by the University.

### **5. Insurance**

As per the Govt. Resolution No. FD/Insurance-1098/Case No. 28/98, dated 19-08- 1998 and Director of Insurance Maharashtra, Mumbai letter dated 26-04-2005 Contractor has to submit Govt. Insurance policy for the work.

**6. Royalty Charges**

The royalty charges shall be recovered from Contractor's bill.

**7. Building and other construction workers cess**

Building and other construction workers cess @ 1% or at the rate amended from time to time as intimated by the competent authority of building and other construction workers Welfare Dept. 1996 will be deducted from bill amount whether measured bill, advance payment or secured advance.

**8. TENDERING PROCEDURE**

8.1. The tender shall be unconditional, conditional tender shall be summarily rejected.

**8.2. EXAMINATION OF DRAWING AND SITE CONDITIONS:**

The tenderers shall in his own interest carefully examine the drawings, conditions of contract and specifications etc. He shall also inspect the site and acquaint himself about the climate, physical and all weather conditions prevailing at site, the nature magnitude, special features, and practicability of the works. All existing and required means of communications and access to site, availability of housing and other facilities, the availability of labour and materials, labour camp site, stores, godown etc. He shall obtain all necessary information as to the risk, contingencies and other circumstances which may affect and influence the tender. No claims on any of the above or any other factors will be entertained by the Government. Should there be any discrepancy or doubt or obscurity to be observed by him, he shall set forth in writing such discrepancies, doubts, obscurity and submit the same to the **Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur** for elucidation as soon as possible.

**9 TENDERING PROCEDURE****9.1. CLARIFICATION OF TENDER**

The tenderers may ask the clarifications on tender w.e.f. 11/03/2024 to 22/03/2024 regarding the work and tender in writing and the clarifications will be given / uploaded on 30/03/2024 upto 5.00 p.m. These clarifications duly signed by tenderer should be uploaded along with tender documents which will be opened on 05/04/2024 with opening of Envelope No. 1 ( Technical ). These clarifications will form The part of conditions of contract

The tender submitted by tenderer shall be based on the clarification/additional facility issued (if any) by the Department and his tender shall be unconditional. Conditional tenders will be summarily rejected.

All tenderers are cautioned that the tenders containing any deviation from the contractual terms and conditions, specifications or other requirements, and conditional tenders will be rejected.

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**10 Manner of Submission of Tender and its Accompaniments:****10.1. ENVELOPE NO. 1 : ( DOCUMENTS )**

The first envelope “**Envelope No.1**” shall contain the following documents..

- I. **Scanned copy** of forwarding letter.
- II. **Scanned copy** of EMD and Tender Cost amount shall be deposited online, (True Copy thereof duly Self attested) to be submitted as per the tender Schedule.
- III. **Scanned copy** of Certificate in Original or an attested copy thereof duly Self Attested as a registered contractor with (a) State P.W.D. (b) State Irrigation Deptt. (c) Maharashtra Jeevan Pradhikaran Authority, (d) M.I.D.C. in appropriate class as applicable of electrical, valid on the date of submission.
- IV. **Scanned copy** of Details of other works tendered for and in hand with the value of work unfinished on the last date of submission of tender (In the proforma of **Statement No. I** . The Statement from the Heads of the Offices under whom the works are in progress should be enclosed of electrical contractor.
- V. **Scanned copy** of the List of owned Machinery immediately available with the tenderer for use on this work and list of machinery proposed to be utilized on this work, but not immediately available and the manner in which it is proposed. (In the proforma of **Statement No. II.**)
- VI. **Scanned copy** of details of one work of similar type and magnitude carried out by the contractor during last five years (In the proforma of **Statement No. III**) Direction given for Similar type and magnitude of work vide Govt. Resolution No. Sankirna / 2019 / Pra.Kra.47 / Building-2 / dtd.25/10/2019 ) are applicable.
- VII. **Scanned copy** of details of Technical personnel on the rolls of the tenderers. (In the proforma of **Statement No. IV**)
- VIII. **Scanned copy** of partnership deed and Power of Attorney, in case of a Firm, tendering for work. (True copy duly Self Attested ).
- IX. **Scanned copy** of Valid Professional Tax Registration Certificate in the form of PTR and PTE under section (1) of section 5 of Maharashtra State Tax on Profession, Trade callings and Employment Act 1975, Rule 3 (2) for employees including technical personnel from the Professional Tax office of the concerned District of Maharashtra with its latest valid clearance certificate. “No dues Clearance certificate” from competent authority should be submitted.
- X. **Scanned copy** of Valid GST registration certificate from Maharashtra State Sale Tax Department.

**10.2. ENVELOPE NO. 2: TENDER:** (Financial Bid)

*Refer to Section Schedule of online tendering procedure at Sr. No. 1.3.*

**10.3. SUBMISSION OF TENDER:**

Refer to Section ‘**Guidelines to Bidders on the operations of electrical Tendering System of Punyashlok Ahilyadevi Holkar Solapur University, Solapur**’ for details.

**10.4. OPENING OF TENDERS:**

On the date specified in the Tender Schedule, following procedure will be adopted for opening of the tender:

**10.4.1. ENVELOPE NO.1: (Documents)**

First of all **Envelope No. 1** of the tender will be opened **online** to verify its contents as per requirements. If the various documents contained in this envelope do not meet the requirements of the Department, a note will be recorded accordingly by the tender opening authority and the said tenderer's **Envelope No.2 (Financial Bid)** will not be considered for further action, but the same will be recorded. The decision of the Tender opening authority in this regard will be final and binding on the contractor.

**10.4.2. ENVELOPE NO .2 : (FINANCIAL BID)**

This Envelope shall be open **online** if contents of Envelope No. 1 are found to be acceptable to the Department and / or fulfill the Qualifying Criteria. The tendered rates, Percentage above or below the estimated rates quoted shall sealed and intimated to contractor through e-mail.

**10.5. TIME LIMIT :**

The work is to be completed within time limit as specified in the N.I.T which shall be reckoned from the date of written order of commencing the work and shall be inclusive of monsoon period.

**10.6. TENDER RATE :**

No alteration in the form of tender and the schedule of tender and no addition in the scope of special stipulation will be permitted. Rates quoted for the tender shall be taken as applicable to all leads and lifts.

**10.7. TENDER UNITS :**

The tenderers should particularly note that the unit mentioned in the Schedule 'B' on which the rates are based. No change in the units shall be allowed. In the case of difference between the rates written in figures and in words the correct rate will be one, which is lower of the two.

**10.8. TENDER ACCEPTANCE:**

Acceptance of tender will rest with the **University Buildings & Works Committee, Punyashlok Ahilyadevi Holkar Solapur University, Solapur** who reserve the right to reject any or all tenders without assigning any reasons therefore. The tenderer whose tender is accepted will have to enter in to a regular B-1 agreement within 10 days of being notified to do so. In case failure on the part of Tenderer to sign the agreement within the stipulated time, the earnest money paid by him shall stand forfeited and the offer of the tenderer shall be considered as withdrawn by him.

**10.9. POWER OF ATTORNEY:**

If the tenderers are a firm or company, they should in their forwarding letter mentioning the names of all the partners together with the name of person who holds the power of attorney authorizing him to conduct all transactions on behalf of the body, along with the tender.

10.10. The tenderer may in the forwarding letter mention any points he may wish to make clear but right is reserved to reject the same or the whole of the tenders if the same become conditional tender thereby.

10.11. The contractor or the firms tendering for the work shall inform the Department if they appoint their authorized Agent on the work.

10.12. Any dues arising out of contract will be recovered from the contractor as arrears of land revenue if not paid amicable, moreover, recovery of Government dues from the contractors will be effected from the payment due to the contractor from any other Government works under execution with them.

10.13. All pages of tender documents, specifications corrections slips etc. shall be initialed by the tenderer. The tenderer should bear full signature of the tenderer or his authorized power of attorney holder in the case of firm.

**10.14. VALIDITY PERIOD:**

The offer shall remain open for acceptance for minimum period of **120 days** from the date of opening of Envelope No.2 (financial bid) and thereafter until it is withdrawn by the contractor by notice in writing duly addressed to the authority. (Refer to memorandum of B-1 form chapter).

- 11 The contractor will have to sign the original copy of the tender papers and the drawings according to which the work is to be carried out. The contractor shall also have to give a declaration to the effect that, he has fully studied the plans, specifications, local conditions and availability of labour and materials and that he has quoted his rates with the consideration to all these factors.
- 12 The right is reserved to revise or amend the contract documents prior to the due notified for the receipt of tenders or extended date. Such deviations, amendments or extensions, if any, shall be communicated in the form of corrigendum by letter or / and by notice in News Papers as may be considered suitable.
- 13 The tender submitted by the tenderer remain valid for a period of **120 days** from the date of opening of envelope No.2 (financial bid). Tenderer also see para 2 of General Rules etc. of contract form.

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- 14 The contractor(s) whose tender is accepted is required to note that no foreign exchange will be released by the university.
- 15 The tenderers, which do not fulfill all or any of the conditions or are incomplete in any respect are liable to summarily rejection.
- 16 Right to reject any or all tenders without assigning reason there for is reserved. The acceptance of the tender lies with the **University Buildings & Works Committee, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.**
- 17 The e-tender Notice shall form part of the tender agreement.

**18 Instruction to Contractor:**

Regarding revision in the contract terms and conditions according to the Government Resolution and Directions.

- 1 In case the tenderer whose offer is found lowest is requested to negotiate and reduce the offer, if the contractor does not respond within a period of 10 days the tender accepting authority without issuing any reminder reserves the right to reject such tender.
- 2 In case the contractor, who is informed of acceptance of his tender, does not remit the initial Security Deposit within a period of 10 days, the tender accepting authority reserves the right to forfeit the Earnest Money Deposit without issuing any reminder to take further action according to the tender provision.
- 3 As per Government instruction it is proposed to make payment of Contractor's bill through ECS/NEFT system. For this purpose contractor should open his Bank Account in a Bank having Core-Banking facility only.
- 4 Contractor shall submit a certificate to the effect that "All the payments to the Labour / Staff are made in Bank Accounts of Staff linked to Unique Identification Number (AADHAR CARD)." The certificate shall be submitted by the Contractor within 60 days from the commencement of contract. If the time period of Contract is less than 60 days then such certificates shall be submitted within 15 days from the date of commencement of contract [ Govt. Resolution No.Tender-2016/ Pr.Kr.20/Shikana/ Ema-2, Dated 9/12/2016]
- 5 Govt. Resolution No. Bhakas 2019 / Pra.Kra.83 / Udyog4 dated 13 September, 2019 of Energy dated employee department of Maharashtra state.
- 6 The price variation clause is not applicable to this tender.

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**STATEMENT – 1 : ELECTRICAL WORKS**  
**STATEMENT OF LIST OF WORKS IN HAND AND WORKS TENDERED FOR AS ON LAST**  
**DATE OF SUBMISSION OF THIS TENDER**

**NAME OF CONTRACTOR:**

**(i) WORKS INHAND**

Sr. No.	Name of work	Agreement No.	Tendered Amount	Date of commencement	Stipulated date of completion.	Value of work already done.	Value of Balance work to be executed in next ___months	Probable date of completion.	Remarks
1	2	3	4	5	6	7	8	9	10
<b>SAMPLE FORM</b>									

**( ii ) WORKS TENDERED FOR ELECTRICAL WORKS**

Sr. No.	Name of Work	Name and Address of client	Tendered Amount	Time limit	Probable date when decision is expected	Other relevant details, if any.
	2	3	4	5	6	7
<b>SAMPLE FORM</b>						

Note :

1. This is only a standard form. Details are to be furnished in this format in the form of typewritten statement which shall be scanned enclosed in envelope No. 1 duly signed.
2. The documentary proof of work in hand / works tendered for should be submitted also be scanned with this statement duly attested by Gazette Officer.

SIGNATURE OF CONTRACTOR

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**STATEMENT – II : Electrical works**  
**STATEMENT SHOWING THE DETAILS OF PLANT AND MACHINERY IMMEDIATELY**  
**AVAILABLE WITH TENDERER FOR THIS WORK**

**NAME OF CONTRACTOR:**

Sr. No.	Name of Equipment	No. of Units	Kind and make	Capacity	Age and Condition.	Present Location	Remarks
	2	3	4	5	6	7	8
<b>SAMPLE FORM</b>							

**Note:** Use separate sheet for Electrical Works.

**Note: 1.** This is only a standard form. Details are to be furnished in this format in the form of type written statements which shall be scanned enclosed in envelope No. 1 duly signed

**2.** The documentary proof of having own machinery should also be scanned and submitted with this statement duly attested by Gazetted Officer.

**STATEMENT – III ; Electrical works**  
**STATEMENT SHOWING THE DETAILS OF ONE BUILDING ELECTRICAL WORK OF SIMILAR**  
**TYPE AND MAGNITUDE CARRIED OUT BY THE CONTRACTOR DURING LAST FIVE YEARS**

**NAME OF CONTRACTOR:**

Sr. No.	Name of work	Name and address of the organization for whom the work was done	Place And country	Agreement No. and Date.	Date of Commencement	Tendered cost.	Total cost of work done.	Actual date of completion	Remarks
1	2	3	4	5	6	7	8	9	10
<b>SAMPLE FORM</b>									

**Note:** Use Separate sheet for Electrical works.

**Note:** This is only a standard form. Details are to be furnished in this format in the form of type written statements which shall be scanned enclosed in envelope No.1 duly signed. The documentary proof of similar type of work done and magnitude should also be scanned and submitted with statement.

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**STATEMENT –IV : ELECTRICAL WORKS****STATEMENT SHOWING THE DETAILS OF TECHNICAL PERSONNEL AVAILABLE WITH  
CONTRACTOR WHICH CAN BE SPARED EXCLUSIVELY FOR THIS WORK****NAME OF CONTRACTOR:**

Sr. No.	Name of person	Designation.	Qualification	Whether working in field or in office.	Professional Experience of execution of similar works.	Period for which the person is working with the tenderer.	Remarks
1	2	3	4	5	6	7	8
<b>SAMPLE FORM</b>							

**Note:** This is only a standard form. Details are to be furnished in this format in the form of type written statements, which shall be scanned enclosed in envelope No.1 duly signed. The documentary proof of his Technical persons should also be scanned and submitted with statement.

**Signature of Contractor**

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**STATEMENT - V**

**STATEMENT SHOWING WORK DONE IN ELECTRICAL ENGINEERING**  
**[ CONTRACTOR WORKS DURING LAST FIVE YEARS ]**

**NAME OF CONTRACTOR:**

Sr. No.	Name of work	Amount put to tender / tendered cost	Agreement No.	Date of Comm encem ent	Amount of work done during each of last five years					Amount of work Still remaining to be executed	Remarks
					2019-20	2020-21	2021-22	2022-23	2023-24		
1	2	3	4	5	6	7	8	9	10	11	12
<p><b>SAMPLE FORM</b></p>											

**Out ward No. and date of certificate issuing authority:**

**Note:** This is only a standard form. Details are to be furnished in this format in the form of type written statements, which shall be scanned enclosed in envelope No.1 duly signed. The documentary proof of work done with whom contractor executed should also be scanned and submitted with this statement.

**Signature of Contractor****CONTRACTOR****NOS. OF CORRECTION****REGISTRAR**

NAME OF WORK : ELECTRICAL WORKS OF MULTI-PURPOSE INDOOR  
SPORTS HALL UNDER KHELO INDIA AT NEW CAMPUS OF  
PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.

### **GENERAL DESCRIPTION OF WORK**

The work of Electrical works of Multi-purpose indoor sports hall under Khelo India Scheme at new campus of Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Period for completion of work 4 ( Four ) calender months including monsoon. The following items are considered in the work.

### **SCOPE OF WORK**

- 1 Line out work, Electrical point wiring work
- 2 Circuit mains connection and switch board work
- 3 Cable and Accessories
- 4 Main control panel board, Distribution boards and accessories
- 5 LED fittings / Fans fitting with all accessories
- 6 Electrical testing with Power Supply
- 7 Transformer
- 8 Generator

Refer further scope of work as stated in schedule ' B ' and tender drawing, specified list of materials to be used.

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## **DECLARATION OF THE CONTRACTOR**

I / We hereby declare that I / We have made myself / ourselves thoroughly conversant with the local conditions regarding all materials and labour on which I / We have based my / our rates for this tender. The specifications, conditions and leads on this work have been carefully studied and understood by me / us before submitting this e- tender. I / we undertake to use only the best materials and of manufacturers listed and attached with this tender and as approved by the University Engineer and the Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur or his duly authorized assistant during execution of the work and abide by his decisions.

**SIGNATURE OF THE CONTRACTOR**

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## AGREEMENT FORM B-1: DETAILS

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### PERCENTAGE RATE TENDER & CONTRACT FOR WORK

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**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**

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**NAME OF WORK : Electrical works of Multi-purpose indoor sports hall under Khelo India scheme at new campus of Punyashlok Ahilyadevi Holkar solapur University, Solapur**

#### **GENERAL RULES & DIRECTIONS FOR THE GUIDANCE OF CONTRACOTRS –**

1. All works proposed to be executed by contract shall be notified in a form of invitation to tender Online e-Tendering System also pasted on a board hung up in the office of University Engineer and signed by the Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

This form will state the work to be carried out as well as the date for submitting and opening tenders and time allowed for carrying out the work as per e-tendering schedule, also the amount of 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. Copies of the specifications, designs and drawings, estimated rates, schedule rates and any other documents required in connection with the work shall be signed by the University Engineer for the purpose of identification and shall also be open for inspection by contractors at the office of the University Engineer, during office hours.

Where the works are proposed to be executed according to specifications recommended by a Architect / PMC / University Engineer and approved by a competent authority on behalf of the **Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur payable at Solapur** such specifications with designs and drawings shall form part of the accepted tender.

2. In the event of the tender being submitted by a firm.
  - 2.(a) The contractor shall pay as per e-tendering schedule sum of Rs. 1,84,329/- (Rupees One Lac, Eighty Four Thousand, Three Hundred, Twenty Nine only ) as and by way of earnest money online.
  - 2.(b) In the event of his tender accepted, subject to the provisions of Sub- clauses (iii) below, the said amount of earnest money shall be appropriated towards the amount of security deposit payable by him under conditions of General conditions of contract.
  - 2.(c) If after submitting the tender, the contractor withdraws his offer, or modifies the same or if after the acceptance of his tenders the contractor fails or neglect to furnish the balance of security deposit without prejudice to any other rights and powers of the university, hereunder or in law university shall be entitled to forfeit the full amount of the earnest money deposited by him.
  - 2.(d) In the event of his tender not being accepted, the amount of earnest money deposited by the contractor, shall unless it is prior thereto forfeited under the provisions of sub clause (c) above, refunded to him on his passing receipt therefore.

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3. Receipt for payments made on account of any work, when executed by a firm, shall also be signed by all the partners, except where the contractors are described in their tender as firm, in which case the receipts shall be signed in the name of firm by one of the partners, or by some other person having authority to give effectual receipts for the firm.
4. Any person who submits a tender shall fill up the usual printed form stating at what percentage above or below the rates specified in Schedule 'B' (Memorandum showing item of work to be carried out) he is willing to undertake the work. Only one rate or such percentage on all estimated rates/scheduled rates shall be named tenders which purpose 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 rejections. No printed form of tender shall include a tender for more than one works but if contractors who wish to tender two or more works, they shall submit separate tender for each work. Tender shall have the name and number of the work to which they refer, written outside the envelope.
5. **The Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur** shall open tenders as per the e-tender schedule and intimated results through e-mail. In the event of a tender being accepted, the contractor shall, for the purpose of identification, sign copies of the specifications and other documents mentioned in Rule. 1.

In the event of tender being rejected, the University Engineer shall refund the amount of the earnest money deposited, to the contractor making the tender, on his giving a receipt for the return of the money.

6. The officer competent to dispose of the tender shall have the right of rejecting all or any of the tenders without assigning any reason.
7. No receipt for any payment alleged to have been made by a contractor in regard to any matter relating to this tender or the contract shall be valid and binding on Government unless it is signed by Registrar.
8. The memorandum of work to be tendered for and the schedule of material to be supplied by university and there rates shall be filled in and completed by the office of the University Engineer, before the tender form is issued. If a form issued to an intending tenderer has not been so filled in and completed he shall request the said office to have this done before he completes and delivers his tender.
9. All works shall be measured net by standard measure and according to the rules and customs adopted by the Public Works Department and without reference to any local custom.
10. Under no circumstances shall any contractor be entitled to claim enhanced rates for any items in this contract.
11. Every registered contractor should produce along with his e-tender certificate of Registration as approved contractor in the appropriate class and renewal of such registration with date of expiry. (Copies to be attested by a Gazette Officer)

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12. All corrections and additions or pasted slips should be initialed.
13. The measurement of work will be taken according to the usual methods in use in the Public Works Department and no proposals to adopt alternative methods will be accepted. The University Engineer's decision as to what is the usual method in use in the department will be final.
14. The tendering contractor shall furnish a declaration along with the tender showing all works for which he has already entered into contract and the value of work that remains to be executed in each case on the date of submitting the tender.
15. Every tenderer shall scan along with electronic tendering system, information regarding the income tax circle or ward of a district in which he is assessed to income tax, the reference to the number of assessment year.
16. No foreign exchange would be released by the University for the Purchase of plant and machinery required for the execution of the work contracted.
17. The contractor will have to construct shed for storing controlled and valuable materials brought by him at the work site at contractor's cost. The material will be taken for use in the presence of the departmental person. No material will be allowed to be removed from the site of work.
18. The contractors shall also give a list of machinery in their possession and which they propose to use on the work in the form of statement No.II
19. Every registered contractor should furnish along with tender a statement showing previous experience and technical staff employed by him in the form of specimen given.
20. Successful tenderer will have to produce to the satisfaction of the accepting authority a valid and current license issued in his favors under the provision of Contract Labors (Regulation and Abolition Act 1970) before starting work, failing which acceptance of the tender will be liable for withdrawal and earnest money will be forfeited by the university.
21. The contractor shall comply with the provision of the Apprentices Act 1961 and Rules and Order issued there under from time to time. If he fails to do so, his failure will be a breach of contract and Registrar may in his discretion cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the Act.

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## **TENDER FOR WORKS**

1. I / we hereby tender for the execution, for the university (herein before and herein after referred to as owner /Registrar of the work specified in the underwritten memorandum within the time specified in such memorandum at \_\_\_\_\_ percent below / above the estimated rates entered in **Schedule 'B'** (memorandum showing items of work to be carried out) and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule No.1 hereof and in clause-13 of the annexed conditions of the contract and agree that when materials for the work are provided by the university, such materials and the rate to be paid for them shall be as provided in **Schedule 'A'** hereto.

## **MEMORANDUM**

a) It several sub works are included They should be detailed in a separate list	a) Name of work	Electrical works of Multi-purpose indoor sports hall under Khelo India scheme at new campus of Punyashlok Ahilyadevi Holkar Solapur University
	b) Estimated cost	Rs. 1,84,32,824.00
b) The amount of earnest money to be deposited	c) Earnest money	Rs. 1,84,329/-
	d) Initial security deposit	
	i) Demand draft	Rs. 4,60,821.00
	ii) To be deducted from current bills 5%	Rs. 4,60,821.00
	<b>TOTAL SECURITY DEPOSIT</b>	Rs. 9,21,642.00
d) This percentage where no security deposit is taken will vary from 5% to 10% according to requirement of case where, security deposit is taken. See note 1 to clause 1 of conditions of contract	e) Percentage if any to be deducted from bills so as to make up the total amount required as security deposit by the time, half the work, as measured by the cost is done.	5%
	f) Time allowed for the work from the date of work order to commence	4 calendar months including monsoon

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- 2 I / We agree that the offer shall remain open for acceptance for a minimum period of 120 days from the date fixed for opening the "same" means envelope No. 2 and thereafter until it is withdrawn by me / us by notice in writing duly addressed to the authority opening the tenders and sent by registered post AD or otherwise delivered at the office of such authority university receipt no. \_\_\_\_\_ and date \_\_\_\_\_ **in respect** to the sum of **Rs. ( In words \_\_\_\_\_ only)** representing the earnest money is herewith forwarded. The amount of earnest money shall not bear interest and shall be liable to be forfeited by the university, should I / we fail to (i) abide by the stipulation to keep the offer open for the period mentioned above or (ii) sign and complete the contract documents as required by the engineer and furnish the security deposit as specified in item (d) of the memorandum contained in paragraph 1 above within the time limit laid down in clause (1) of the annexed general conditions of contract. The amount of earnest money may be adjusted towards the security deposit or refunded to me / us if so desire by me / us in writing, unless the same or any part thereof has been forfeited as aforesaid.

3. Should this tender be accepted I / we hereby agree to abide by and fulfill all the terms and provisions of the conditions of contract annexed hereto so far as applicable and default thereof to forfeit and pay to university the sum of money mentioned in the said conditions.

Amount to be specified in words and figures

Receipt No. ----- dtd. --- from the scheduled bank at ----- in respect of the sum of Rs. -----

\*strike out (a) if no cash security deposit is to be taken.

----- is herewith forwarded representing the earnest money (a) the full value of which is to be absolutely forfeited to University should I / We not deposit the full amount of security deposit specified in the above memorandum, in the accordance with clause I (A) of the said conditions of the contract, otherwise the said amount

# Signature of contractor before submission of tender

of Rs \_\_\_\_\_ shall be refunded.

Contractor# \_\_\_\_\_

Address: \_\_\_\_\_

Dated: \_\_\_\_\_ The \_\_\_\_\_ Day of \_\_\_\_\_ 20 \_\_\_\_\_

\$ Signature of witness to contractor signature

(Witness) \$ \_\_\_\_\_

Address: \_\_\_\_\_

Occupation: \_\_\_\_\_

\*signature of the officer by whom accepted

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-----  
The above tender is hereby accepted by me & on behalf  
Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

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**VOLUME I**  
**PART II**

## 6. CONDITIONS OF CONTRACT

### CLAUSE 1 : SECURITY DEPOSIT

**PWD Resolution No. CAT / 1087 / cr-94 / Bldg 2 Dt. 14.6.89**

The person / persons whose tender may be accepted (hereinafter called the contractor, which expression shall unless excluded by or repugnant to the Context include his heirs, executors, administrators, and assigns) shall ( A ) within 10 days ( which may be extended upto 15 days if it thinks fit to do so by University authority and the **Common Account Code** of the University ) of the receipt by him of the notification of the acceptance of his tender deposit with the **Finance & Accounts Officer, Punyashlok Ahilyadevi Holkar Solapur University, Solapur** in the form of D.D / Pay-order ( from nationalise bank only ) in favour of THE REGISTRAR, PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY and payable at SOLAPUR. ( B ) ( Permit the University at the time of making any payment to him for work done under the contract to deduct such as will amount to **FIVE percent** of all moneys so payable such deductions to be held by University by way of Security Deposit ). Provided always that in the event of contractor depositing a lump sum by way of Security Deposit as contemplated at ( A ) above, then and in such case, if the sum so deposited shall not amount to FIVE percent of total estimated cost of the work, it shall be lawful for University at the time of making any payment to the contractor for work done under the contract to make up the full amount to FIVE percent by deducting a sufficient sum from every such payment at last aforesaid until the full amount of the security deposit is made up. All compensation or other sums of money payable by the contractor to the Registrar under the terms of his contract may be deducted from or paid by the sale of sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due or may become due by Registrar to the contractor under any other contract or transaction of any nature on any account whatsoever and in the event of his security deposit being reduced by reason of any of such deduction or sale as aforesaid, the contractor shall, within ten days thereafter make good in cash or aforesaid and sum or sums which may have been deducted from or raised by sell of his security deposit or any part thereof.

The security deposit will not be accepted in forms of insurance co. Bonds as per Govt. Orders contained in No. CCM / PWD / CAT / 4250 dtd. 27/02/1956. If the amount the security deposit to be paid in a lump sump within the period specified at ( A ) above is not paid, the tender / contract already accepted shall be considered as cancelled and legal steps taken against the contractor for recovery of the amounts. The amount of security deposit lodged by a contractor shall be refunded along with the payment of the final bill, if the date upto which the contract has agreed to maintain the work in good order is over. If such date if not over only 50% amount of security deposit shall be refunded along with the payment of the final bill. In the event of the contractor failing or neglecting to complete rectification work, within the period upto which the contractor has agreed to maintain the work in good order, then subject to provision of clause 17 & 20 and all relevant clauses / conditions hereof the amount of security deposit retained by the Registrar shall be adjusted towards the excess cost incurred by the Department on rectification work.

The amount of Earnest Money Deposit paid by the tenderer along with the tender, will be forfeited in case, after his tender is accepted and the contractor does not complete the contract document and pay the security deposit of 2.5% of the total estimated cost put to tender amount within 10 days after the acceptance of the tender, otherwise it will be adjusted against the sum of security deposit required to be paid for completion of the contract documents.

### CLAUSE 2 : COMPENSATION FOR DELAY

The time allowed for carrying out the work (including Monsoon Period) as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which a written order to commence the work is given to the contractor. The work shall through the stipulated period of the contract be proceeded with, with all due diligence (time being deemed to be 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

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smaller amount as the Registrar (whose decision in writing shall be final) may decide, of the amount of the estimated cost of the whole work as shown by the tender for every day that the work remains uncommonness, or unfinished after the proper dates. And further to ensure good progress during execution of the work, the contractor shall be bound, in any cases in which the time allowed for any work exceeds one month of complete. The University Engineer / PMC / Architect shall forward his observations in this matter to the contractor shall be to adhere to the following scale of minimum requirement of progress based on time frame.

1/8 of the work in = 1 / 4 of the time  
 3/8 of the work in = 1 / 2 of the time  
 3 / 4 of the work in = 3 / 4 of the time  
 100% of the work in = in completion time

Note : The quantity of the work to be done with a particular time to be specified above shall be fixed and inserted in the blank space kept for the purpose of the officer competent to accept the contractor after taking in consideration the circumstances of each case and above by the Program of detailed process laid down by the University Engineer / PMC / Architect.

The following proportion will usually be found suitable – in 1 / 4, 1/2, 3/4, of the time Reasonable

progress of earthwork 1/6, 1/2, 3/4 of the total value of work to be done Reasonable progress of masonry

work 1 / 10, 4/10, 8/10 of the total value of work to be done.

The Contractor shall submit for approval of the University Engineer, PMC and Architect tentative Bar Chart and corresponding Financial out-put chart alongwith the tender showing the program which will be followed by the Contractor for procurement of materials, employment of skilled and unskilled labour, machinery and equipment and execution of work item by item area-wise so as to complete the work as per the above scale of minimum requirement based on time frame.

The review of actual progress of work shall be taken at any time and at any stage as deemed fit.

In the event of the contractor failing to comply with these conditions, he shall be liable to pay as compensation an amount equal to one percent or such smaller amount as Registrar (whose decision in writing shall be final) may decide of the said estimated cost of the whole work forevery day that due quantum of work remains incomplete. Provided always that the total amountof compensation to be paid under the provisions of this clause shall not exceed 10 percent of the estimated cost of the work as shown in the tender. The Registrar should be the final authority in this respect and shall issue time to time notices to the contractor under this clause and also time to time recommended action against the contractor.

### **CLAUSE 3 : ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FORFEITED**

In any case in which under any clause of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit whether paid in one sum or deducted by instalment, or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause the Registrar on behalf of the University, shall have power to adopt any of the following courses, as he may deem suited to the interest of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur, if the Contractor shall be adjudged bankrupt or if he should make a general assignment for the benefit of his creditors, or if a receiver shall be appointed on account of his insolvency or if he should persistently or repeatedly refuse to carry on the work diligently or shall fall except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials or equipment for the progress of the work, or if he should fail to make prompt payments to sub-contractor or for materials or equipment or labour or persistently disregard laws, ordinance, or instructions of the University Engineer / PMC / Architect or assign this contract without written consent of University Engineer / PMC / Architect or sub let any portion of work or otherwise be guilty of a violation of any provision of the Contract or has abandoned the contract, or has failed to commence the works, or has suspended the works,

or any other Clause then the Registrar upon the recommendation of the University Engineer / PMC / Architect that the sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the contractor seven days notice in writing, terminate the employment of the contractor and take possession of the premises and of all materials, equipment, tools and appliances there on and may finish the work by adopting any of the following methods as deemed expedient or any other cause, the Registrar shall have power to adopt any of the following courses, as he deem best suited to the interest of :**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**

( a )To rescind the contract (for which rescission notice in writing to the contractor under the hand of Registrar shall be conclusive evidence) and in that case the Security Deposit of the contractor shall stand forfeited and be absolutely at the disposal of **PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**

(b) To carry out the work or any part of the work departmentally debiting the contractor with the cost of the work, expenditure incurred on tools and plant and charges on additional supervisory staff including the cost of work-charged establishment employed for getting unexecuted part of the work completed and crediting him with the value of the work done departmentally in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the University Engineer / PMC / Architect as to the costs and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the contractor.

(c) To order that the work of the contractor be measured up and to take such part thereof as shall be unexecuted, out of his hands and to give it to another to complete, in which case all expenses incurred on advertisement for fixing a new contracting agency, additional supervisory staff including the cost of work-charged establishment and the cost of the work executed by the new contract agency will be debited to the contractor and at the value of the work done or executed through the new contractor shall be credited to the contractor in all respects and in the same manner and at the same rates as it has been carried out by the contractor under the terms of his contract. The certificate of the University Engineer / PMC / Architect as to all the cost of the work and other expenses incurred as aforesaidfor or in getting the unexecuted work done by the new contractor and as to the value of the work so done shall be final and conclusive against the contractor.

In case the contract shall be rescinded under clause (a) above the contractor shall not be entitled to recover or be paid, any sum for any work therefore actually performed by him under this contract unless and until the University Engineer / PMC / Architect shall have recommended in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be the amount so certified. In the event of either of the courses referred to in clause (b) or (c) being adopted and the cost of the work executed departmentally or through a new contractor and other allied expenses exceeding the value of such work credited to the contractors, the amount of excess shall be deducted from any money due to the contractor by the Registrar under the contract or otherwise howsoever or from his security deposit or the sale proceeds thereof provided, however that the contractor shall have no claim against the Registrar even if the certified value of the work done departmentally or through a new contractor exceeds the certified cost of such work and allied expenses, provided always that whichever of the three courses mentioned in clauses (a), (b) or (c) is adopted by the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchases, or produced any materials, or entered into any engagements, or made any advances on account of, or with a view of the execution of the work or the performance of the contract.

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**CLAUSE 4 : ACTION WHEN THE PROGRESS OF ANY PARTICULAR PORTION OF THE WORK IS UNSATISFACTORY**

If the progress of any particular portion of the work is unsatisfactory, the University Engineer / PMC / Architect shall notwithstanding that the general progress of the work is satisfactory in accordance with the conditions mentioned in clause 2, be entitled to take action under clause 3 ( b ) after giving the contractor 10 days' notice in writing. The contractor will have no claim for compensation, for any loss sustained by him owing to such action.

**CLAUSE 5 : CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN UNDER CLAUSE 3 & 4. POWER TO TAKE POSSESSION OF OR REQUIRE REMOVAL OF OR SELL CONTRACTOR'S PLANT**

In any case in which any of **the powers conferred upon the Registrar by clauses 3 and 4** hereof shall have become exercisable and the same shall not have been exercised, the non-exercise thereof shall not constitute a waiving of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any further case of default by the contractor for which under any clause hereof he is declared liable to pay compensation amounting to **the whole of his security deposit** and the liability of the contractor for past and future compensation shall remain unaffected.

In the event of the **Registrar** taking action under sub-clause (a) or (c) of clause 3, he may, if he so desires, take possession of all or any tools, plant, materials and stores, in or upon the work on the site thereof or belonging to the contractor, or produced 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 the case of contract rates not being applicable, at current market rates, recommended by the University Engineer / PMC / Architect whose certificate thereof shall be final. In the alternative, the Registrar may, after giving notice in writing to the contractor or his Engineer, foreman or other authorised agent require him to remove such tools, plant, materials, or stores from the premises within a time to be specified in such notice; and in the event of the contractor failing to comply with any such requisition, the Registrar may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and at his risk in all respects and the certificate of the University Engineer / PMC / Architect 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 6 : EXTENSION OF TIME**

If the contractor shall desire an extension of the time for completion of work on the ground of his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the University Engineer / PMC / Architect before the expiry of the period stipulated in the tender or **before the expiration of 30 days** from the date on which he was hindered as aforesaid or on which the cause for asking for extension occurred, whichever is earlier and the University Engineer / PMC / Architect if in their opinion, there were reasonable grounds for granting an extension, recommend such extension as they think necessary and propose to the **Vice-chancellor**. The decision of the **Building and Works Committee** Punyashlok Ahilyadevi Holkar Solapur University, Solapur in this matter shall be final.

**CLAUSE 7 : FINAL CERTIFICATE**

On the completion of the work on and on completion of defect liability period the contractor shall be furnished with a certificate of completion by the University Engineer / PMC / Architect. Of such completion, only on fulfilling all the conditions stipulated in the contract and submitting all the required documents, submit the receipt of payment of royalties, receipts of payment of all statutory charges, GST payment receipts etc. In case of issue of certificate by Architect, the Architect may issue the certificate only on recommendation of the University Engineer / PMC / Architect that the work is done and executed as per the specifications and all defects notified to the contractor from time to time are rectified. That no such certificate shall be given nor shall the work be considered to be completed until the contractor shall have removed the premises on which the work has been executed, all scaffolding, surplus materials and rubbish, and shall have cleaned off, the dirt from all woodwork, doors, windows, walls, floors or other parts or any building in or upon which the work has been executed, or of which he may have had possession for the

purpose of executing the work, nor until the work shall have been measured by the University Engineer / PMC / Architect or where the measurements have been taken by his subordinates until they have received approval of the University Engineer / PMC / Architect, the said measurements being binding and conclusive against the contractor. The contractor also has to submit all the documentation mentioned in this tender and submit the receipt of payment of royalties and to pay all required payment and submit receipt of payment and all statutory charges as mentioned and rectify all the defects before final certificate and before issue of completion certificate.

If the contractor shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials and rubbish and clearing of dirt on or before the date fixed for the completion of the work the **Owner / Registrar** 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, but shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realised by the sale thereof.

**CLAUSE 8 : PAYMENT ON INTERMEDIATE CERTIFICATE  
TO BE REGARDED AS ADVANCES**

No payment shall be made for any work, estimated to cost less than rupees one thousand till after the whole of work shall have been completed and a certificate of completion given. But in the case of works estimated to cost more than rupees one thousand, the contractor shall, on submitting a monthly bill for the work, be entitled to receive payment proportionate to the part of the work then approved and passed by the University Engineer / PMC / Architect, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor. All such intermediate payments shall be regarded as payments by way of advance against the final payments only and not as payments for work actually done and completed, and shall not preclude the University Engineer / PMC / Architect from requiring any bad, unsound, imperfect or unskilful work to be removed or taken away and reconstructed, or re-erected nor shall any such payment 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 affect in any other way the powers of the University Engineer / PMC / Architect as to the final settlement and adjustment of the accounts or otherwise, or in any other way or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for the completion of the work, otherwise the University Engineer / PMC / Architect certificate of the measurements and of the total amount payable for the work shall be final and binding on all parties.

**CLAUSE 9 : PAYMENT AT REDUCED RATES ON ACCOUNT OF  
ITEMS OF WORK NOT ACCEPTED AS COMPLETED,  
TO BE AT THE DISCRETION OF THE UNIVERSITY ENGINEER /  
PMC / ARCHITECT**

The rates for several items of works estimated to cost more than Rs. 1,000/- agreed to within, shall be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specifications. In cases where the items of work are not accepted as so completed the University Engineer / PMC / Architect may recommend payment on account of such items at such **reduced rates** as he may consider reasonable in the preparation of final or on account bills to the University Engineer / PMC / the Architect for his scrutiny and issued of certificate.

**CLAUSE 10 : BILLS TO BE SUBMITTED MONTHLY.**

A bill shall be submitted by the contractor each month on or before the date fixed by the University Engineer / PMC / Architect for all work executed in the previous month, and the University Engineer / PMC / Architect shall take or cause to be taken the requisite measurement for the purpose of having the same verified; and the claim, so far as it is admissible, shall forward it to the Architect for technical checking and the University Engineer / PMC / Architect shall recommend, if possible within fifteen working days from the receipt of the bill from the University Engineer / PMC / Architect. Provided the

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contractor submit all required document, atleast twelve progress photographs in two sets of the work considered in that bill, progress report, and all other necessary document and also there are no ambiguities in the bill as over measurements, duplication and the measurement claimed in the bill of the work not done / executed. The payment will be considered only as per the corrected measurements and corrected bill. If the contractor does not submit the bill within the time fixed as aforesaid, the University Engineer / PMC / Architect may depute a subordinate to measure up the said work in the presence of the contractor or his duly authorised agent whose counter signature to the measurement list shall be sufficient warrant and the University Engineer / PMC / Architect may prepare bill from such list which shall be binding on the contractor in all respects.

**CLAUSE 11 :       BILLS TO BE ON PRINTED FORM**

The contractor shall submit all bills on the printed forms to be had on application at the office of the University Engineer. The bill shall be submitted in two copies of measurements and abstract of cost. The charges to be made 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 tender, at the rates hereinafter provided for such work.

**CLAUSE 12 :       STORES SUPPLIED BY THE OWNER**

If the specification or estimate of the work provides for the use of any special description of materials to be supplied from the stores of Registrar or if it required that the contractor shall use certain stores to be provided by the Registrar (such material and stores and the prices to be charged therefore as hereinafter mentioned being so far practicable for 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 may be required from time to time to be used by him for the purposes of the contract only and the value of the full quantity of the materials and stores so supplied shall be set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract, or otherwise, or from the security deposit. All materials supplied to the contractor shall remain the absolute property of Punyashlok Ahilyadevi Holkar Solapur University, Solapur and shall on no account be removed from the site of the work, and shall at all times be open to inspection by the University Engineer / PMC / Architect, so requires by a notice in writing given under his hand, but the contractor shall not be entitled to return any such materials excepts with consent of the University Engineer / PMC / Architect and he shall have no claim for compensation on account of any such materials supplied to him as aforesaid but remaining unused by him or for any wastage or damage to any such materials.

**CLAUSE 12 (A) :**

The contractor under lock should keep all stores of materials such as cement, steel, fittings and all the materials etc., and key will be accessible for inspection to the University Engineer / PMC and the Architect and Registrar or their authorised representatives at all times.

**CLAUSE 13 :       WORKS TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS DRAWINGS, ORDERS, ETC.**

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner, and both as regards materials and every other respect in strict accordance with specifications. The contractor shall also confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relation to the work signed by the University Engineer / PMC / Architect and lodged in his office and to which the contractor shall be entitled to have access for the work during office hours. The contractors will be entitled to receive three sets of contract drawing and working drawings as well as one certified copy of the accepted tender along with the work order free of cost. Further copies of the contract drawings and working drawing if required by him, shall be supplied at the rate of Rs. 100/- per drawing.

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**CLAUSE 14 :        ALTERATIONS IN SPECIFICATIONS AND  
DESIGNS NOT TO INVALIDATE CONTRACTS**

The University Engineer / Architect / the PMC on behalf of the Registrar, shall have power to make any alterations in, or additions to the original specifications, drawings, designs and 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 instructions in this connection which may be given to him in writing signed by the University Engineer / PMC / the Architect and such alteration shall not invalidate the contract, and any additional work which 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 conditions 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.

**RATES FOR WORKS NOT ENTERED IN ESTIMATE  
OR SCHEDULE OF RATES OF THE CONTRACT**

And if the additional and altered 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 SSR- State Schedule of Rates of the Public Works Division prevailing at the time when the extra /additional items crop up or at the rates mutually agreed upon between the University Engineer / PMC / the Architect and the contractor, whichever are lower, if the additional or altered work, for which no rate is entered in the Schedule of Rates of the Division, is ordered to be carried out then the contractor shall submit detailed analysis as per conditions of contract laid down under section 8 of this document of conditions of contract. The contractor shall accept the rate of such non- schedule item worked out in line with these conditions by University Engineer / PMC / Architect. The contractor shall not withhold the work. In the event of a dispute, the decision of the University Engineer / PMC / Architect will be final and binding on contractor.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority the alterations above referred to shall be within the scope of designs, drawings and specifications appended to the tender.

**EXTENSION OF TIME IN CONSEQUENCE OF  
ADDITIONS OR ALTERATIONS**

The time limit for the completion of the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work, and the certificate of the University Engineer / PMC / the Architect as to such proportion shall be conclusive.

**CLAUSE 15 :        NO CLAIM TO ANY PAYMENT OR COMPENSATION FOR ALTERATION  
IN OR RESTRICTION OF WORK**

( 1 ) If at any time after the execution of the contract documents, the University Engineer / PMC / Architect shall for any reason what-so-ever (other than default on the part of the contractor for which the Registrar is entitled to rescind the contract) desires that the whole or any part of the work specified in the tender should be suspended for any period or that the whole or part of the work should not be carried out at all he shall give to the contractor a notice in writing of such desire and upon the receipt of such notice the contractor shall forthwith suspend or stop the work wholly or in part required, after having due regard to the appropriate stage at which the work should be stopped or suspended so as not to cause any damage or injury to the work already done or endanger the safety thereof provided that the decision of the University Engineer / PMC / the Architect as to the stage at which the work or any part of it could be or could have been safely stopped or suspended shall be final and conclusive against the contractor. The contractor shall have no claim to any payment or compensation whatsoever by reason of or in pursuance of any notice as aforesaid, on account of any suspension, stoppage or curtailment except to the extent specified hereinafter.

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(2) Where the total suspension of work ordered as aforesaid continued for a continuous period exceeding 90 days the contractor shall be at liberty to withdraw from the contractual obligations under the contract so far as it pertains to the unexecuted part of the work by giving a 30 days' prior notice in writing to the University Engineer / PMC / Architect within 30 days of the expiry of the said period of 90 days, of such intention and requiring the University Engineer / PMC / Architect to direct the contractor to submit the final measurements of the work already done so as to process the final bill for University Engineer / PMC / Architect Payment Certificate. Upon giving such notice the contractor shall be deemed to have been discharged from his obligation to complete the remaining unexecuted work under his contract. On receipt of such notice the University Engineer / PMC / the Architect with the approval of the **Chairman of The Building and Works Committee**, shall proceed to complete the final measurement of the work already done and issue the payment certificate for such payment as may be finally due to the contractor within a period of 90 days from the receipt of such bill in respect of the work already done by the contractor. Such payment shall not in any manner prejudice the right of the contractor to any further compensation under the remaining provisions of this clause.

(3) Where the University Engineer / PMC / the Architect required the contractor to suspend the work for a period in excess of 60 days at any time or 100 days in the aggregate or due to delay in obtaining statutory permission from any organisation, the contractor shall be entitled to apply to the Registrar within 60 days of the resumption of work after such suspension for payment of compensation to the extent of precautionary loss suffered by him in respect of working machinery rendered idle on the site or on the account of his having and to pay the salary or wages of labour engaged by him during the said period of suspension, provided always that the contractor shall not be entitled to any claim in respect of any such working machinery, salary wages for the first 60 days whether consecutive or in the aggregate of such suspension or in respect of any suspension whatsoever occasioned by unsatisfactory work or any other default on his part. No payment on any account as compensation for loss of profit, idle machinery, labour, Administrative charges, security etc. shall be made to the contractor. The decision of the Registrar in this regard shall be final and conclusive against the contractor.

**(4) NO CLAIM TO COMPENSATION ON ACCOUNT OF LOSS DUE TO DELAY IN SUPPLY OF MATERIALS BY THE OWNER**

In the event of -

- (i) Any total stoppage of work on notice from the University Engineer / PMC / the Architect and the owner under sub-clause (1) in that behalf.
- (ii) Withdrawal by the Contractor from the contractual obligation to complete the remaining unexecuted work under sub-clause (2) on account of continued suspension of work for a period of exceeding 90 days.
- (iii) Curtailment in the quantity of item or items originally tendered on account of any alteration, omission or substitutions in the specifications, drawings, designs or instructions under clause 14 and clause 38 where such curtailment exceeds 25% in quantity and the value of the quantity curtailed beyond 25% at the rates for the items specified in the tender is more than Rs. 5000/-

It shall be open to the contractor, within 90 days from the service of (i) the notice of stoppage of work or (ii) the notice of withdrawal from the contractual obligations under the contract on account of the continued suspension of the work or (iii) notice under clause 15(1) resulting in such curtailment, to produce to the University Engineer / PMC / the Architect satisfactory documentary evidence that he had purchased or agreed to purchase material for use in the contract work, before receipt by him of the notice of stoppage, suspension or curtailment and require the Registrar to take over on payment such material at the rates determined by the PMC / University Engineer, with consultation of the Architect, provided, however, such rates shall in no case exceed the rates at which the same was acquired by the contractor. The Registrar shall thereafter take over the material so offered, provided, the quantities offered, are not in excess of the requirements of the unexecuted work as specified in the accepted tender and are of quality and specifications approved by the University Engineer / PMC / the Architect.

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**CLAUSE 15 A : NO CLAIM TO COMPENSATION ON ACCOUNT OF LOSS  
DUE TO DELAY IN SUPPLY OF MATERIALS BY THE OWNER**

The contractor shall not be entitled to claim any compensation from the Registrar for the loss suffered by him on account of delay by the Registrar in the supply of materials entered in Schedule A where such delay is caused by -

- (i) Difficulties relating to the supply or railway wagons. – Not applicable
- (ii) Force majeure.
- (iii) Act of God.

(iv) Act of enemies of the State or any other reasonable cause beyond the control of the Registrar.

In the case of such delay in the supply of materials, the Building and Works Committee shall grant such extension of time for the completion of the work as shall appear to the University Engineer / PMC / Architect to be reasonable in accordance with the circumstances of the case. The decision of the Chairman, Building and Works Committee as to the extension of time shall be accepted as final by the contractor.

**CLAUSE 16 : TIME LIMIT FOR UNFORESEEN CLAIMS.**

Under no circumstances whatever shall the contractor be entitled to any compensation from the Registrar on any account unless the contractor shall submitted a claim in writing to the University Engineer / PMC / the Architect within one month of the cause of such claim occurring.

**CLAUSE 17 : ACTION AND COMPENSATION PAYABLE IN CASE  
OF BAD WORK.**

**PWD Resolution No CAT / 1087 / CR 94 / BLDG 2 Dt. 14 / 06 / 89**

If any time before the security deposit or any part thereof is refunded to the contractor, it shall appear to the University Engineer / PMC / the Architect or their 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 quality inferior to that contracted for, or are otherwise not in accordance with the contract it shall be lawful for the University Engineer / PMC / Architect to intimate this fact in writing to the contractor and then 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 work so specified in whole or in part, as the case may require, or if so required shall remove the materials or articles so specified and provided & other proper and suitable materials or articles at his own charge and cost, and in the event of his failing to do so within a period to be specified by the Architect in the written intimation aforesaid, the contractor shall be liable to pay compensation at the rate of one percent on 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 Owner may rectify or remove, 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 Registrar on the advice of the University Engineer / PMC / the Architect consider that any such inferior work or materials as described above may be accepted or made use of if shall be within his discretion to accept the same at such reduced rates as he may fix therefore. However such inferior works or materials may be accepted on obtaining report / observation from the University Engineer / PMC / Architect.

**CLAUSE 18 : WORK'S TO BE OPEN TO INSPECTION.  
CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT**

All works under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the University Engineer / PMC / the Architect and their subordinates, and the contractor shall at all other times at which reasonable notice of the intention of the University Engineer / PMC / the Architect and their subordinates to visit the work shall have been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing present for that purpose. Orders given to the contractor's duly authorised agent shall be considered to have the same force and effect as if they had been given to the contractor himself.

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**CLAUSE 19 : NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP.**

The contractor shall give not less than five working days clear notice in writing to the University Engineer / PMC / the Architect or their subordinates 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 taken of before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the PMC / the Architect or their subordinates in charge of the work, if any work shall be covered up or place beyond the reach of measurement, with such notice having been given or consent obtained the same shall be uncovered at the contractor's expense, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed.

**CLAUSE 20 : CONTRACTOR LIABLE FOR DAMAGE DONE,  
AND FOR IMPERFECTIONS  
PWD Resolutions No CAT – 1087 / CR – 94 / BLDG 2 Dt. 14 / 06 / 89**

If during the period of **TWENTY FOUR MONTHS** from the date of completion as certified by the PMC / the Architect pursuant to Clause 7 of the contract or \_\_\_\_\_ or \_\_\_\_\_ months / years after commissioning the work, whichever is earlier in the opinion of the University Engineer/PMC / the Architect the said work is defective in any manner whatsoever, the contractor shall forthwith on receipt of notice in that behalf from the University Engineer / PMC / the Architect duly commence execution and completely carry out at his cost in every respect all the work that may be necessary for rectifying & setting right the defects specified therein including dismantling and reconstruction of unsafe portions strictly in accordance with and in the manner prescribed and under the supervision of the University Engineer / PMC / the Architect. In the event of the contractor failing or neglecting to commence execution of the said rectification work within the period prescribed therefore in the said notice and / or to complete the same as aforesaid as required by the said notice, the Registrar get the same executed and carried out departmentally or by any other agency at the risk on account and at the cost of the contractor. The contractor shall forthwith on demand pay to the owner the amount of such cost charges and expenses sustained or incurred by the owner of which the certificate of University Engineer / PMC / the Architect shall be final and binding on the contractor. Such costs, charges and expenses shall be deemed to be arrears of land revenue and in the event of the contractor failing or neglecting to pay the same on demand as aforesaid without prejudice to any other rights and remedies of the owner, the same may be recovered from the contractor as arrears of land revenue. The Registrar shall also be entitled to deduct the same from any amount which may then be payable by the owner to the contractor either in respect of the said work or any other whatsoever or from the amount the security deposit retained by the Registrar.

The defect liabilities period in particular for waterproofing treatment ( Building works ) shall be 10 ( ten ) years. In this connection please see also additional specifications at S.R. No. 10 ( for liabilities of water proofing treatment work meant for ten years and amount of equivalent of 10% of whole security deposit will be held up for ten years from the same. )

**CLAUSE 21 : CONTRACTOR TO SUPPLY PLANT,  
LADDERS, SCAFFOLDINGS, ETC.**

The contractor shall supply at his own cost all material (except such special materials, if any as may, in accordance with the contract, be supplied from the university's stores), plant, tool, appliances, implements, ladders, cordage, tackle scaffolding, shuttering profiles, all transport of labour, and temporary works requisite or proper for the proper execution of the work, whether, in original, altered or substituted form, and whether included in the specification or other documents forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with requirements of the University Engineer / PMC / the Architect as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with the carriage therefore to and from the work. The contractor shall also supply without extra charge the requisite number of persons with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at anytime and from time to time of the work of the materials, failing which the same may be provided by the Registrar 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 sufficient portion thereof.

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**AND IS LIABLE FOR DAMAGES ARISING FROM  
NON-PROVISIONS OF LIGHTS, FENCING ETC.**

The contractor shall provide all necessary fencing and lights required to protect the public from accident, and shall also be bound to bear the expenses of defence of every suit, action or other legal proceeding, that may be brought by any person for injury sustained owing to neglect of the above precautions, and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person / persons, or which may with the consent of the contractor be paid for compromising any claim any such person. List of machinery in contractor's possession and which they propose to use on works should be submitted along with the tender.

**CLAUSE 21 A :**

The contractor shall provide suitable scaffolds and working platforms gangways and stairways and shall comply with the following regulations in connection therewith -

- (a) Suitable steel scaffolds shall be provided for workmen for all works that cannot be safely done from a ladder or by other means. When ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well. Suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than  $\frac{1}{2}$  to 1 ( $\frac{1}{2}$  horizontal and 1 vertical).
- (b) A scaffolding shall not be constructed, taken down or substantially altered except –
  - (i) Under the supervision of a competent and responsible person;
  - (ii) As far as possible by the competent workers possessing adequate experience in this kind of work.
- (c) All scaffolds and appliances connected therewith and ladders shall –
  - (i) Be of steel.
  - (ii) Be of adequate strength having regard to the load and strains to which they will be subjected, and
  - (iii) Be maintained in proper condition.
- (d) Scaffolds shall be so constructed that no part thereof can be displaced in consequence of normal use.
- (e) Scaffolds shall not be over-loaded and so far as practicable the load shall be evenly distributed.
- (f) Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds.
- (g) A competent person shall periodically inspect scaffolds.
- (h) Before allowing a scaffold to be used by his workmen the contractor shall, whether the scaffold has been erected by his workmen or not, take steps to ensure that it complies fully with the regulations herein specified.
- (i) Working platform, gangway, stairways shall –
  - (i) Be so constructed that no part thereof can sag unduly or unequally.
  - (ii) Be so constructed and maintained, having regard to the prevailing conditions as to reduce, as far as practicable risks of persons tripping or slipping, and
  - (iii) Be kept free from any unnecessary obstruction.

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- (j) In the case of working platform, gangways, working places and stairways at a height exceeding 5 meters.
  - (i) Every working platform and every gangway shall be closely boarded unless otherwise adequate measures are taken to ensure safety.
  - (ii) Every working platform and gangway shall have adequate width and
  - (iii) Every working platform, gangway working place and stairway shall be suitably fenced.
- (k) Every opening in the floor of a building or in a working platform shall, except for the time and to the extent required to allow the excess of persons or the transport of shifting of material be provided with suitable fencing of railing whose minimum height shall be one meter means to prevent the fall of persons or materials.
- (l) When persons are employed on a roof where is a danger of falling from a height exceeding 3 meters suitable precautions shall be taken to prevent the fall of persons or material ( to be prescribed ).
- (m) Suitable precautions shall be taken to prevent person being struck by articles, which might fall from scaffolds or other working places.
- (n) Safe means of access shall be provided to all working places.
- (o) The contractor(s) will have to make payments to the labourers as per Minimum Wages Act.

#### **CLAUSE 21 B :**

The contractor shall comply with the following regulations as regards the Hoisting Appliances to be used by him :-

- (a) Hoisting machines and tackle including their attachments, anchorages and supports shall :-
  - (i) Be of good mechanical construction, sound material and adequate strength and free from patent defect; and
  - (ii) Be kept in good repair and in good working order.
- (b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defect.
- (c) Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and be re-examined in position at intervals to be prescribed by the Registrar.
- (d) Every chain, ring, hook, shackle, swivel and pulley block used in hoisting or lowering materials or as a means of suspension shall be periodically examined.
- (e) Every crane driver or hoisting appliance operator shall be properly qualified.
- (f) No person who is below the age of 21 (Twenty One) years shall be in control or any hoisting machine, including any scaffold which, or give signals to the operator.
- (g) In the case of every hoisting machine and of every chain, ring, hook, shackle, swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.

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- (h) Every hoisting machine and all gear referred to in preceding regulation shall be plainly marked with the safe working load.
- (i) In the case of a hoisting machine having a variable safe working load each safe working load and the conditions under which it is applicable shall be clearly indicated.
- (j) No part of any hoisting machine or of any gear referred to in regulation (g) above shall be loaded beyond the safe working load except for the purpose of testing.
- (k) Motors, gearing transmissions, electric wiring and other dangerous parts of hoisting appliance shall be provided with efficient safe guards.
- (l) Hoisting appliances shall be provided with such means as will reduce to a minimum the risk of the accidental descent of the load.
- (m) Adequate precaution shall be taken to reduce to a minimum the risk of any part of a suspended load becoming accidentally displaced.
- (n) When workers employed on electrical installations which are already 45 authorize, insulating mats, wearing apparel, such as author, sleeves and hats as may be necessary should be provided. The workers should not wear rings, watches and carry keys or other materials which are good conductors or electricity.

**CLAUSE 22 : MEASURES FOR PREVENTION OF FIRE**

The contractor shall not set fire to any standing jungle, trees, brushwood or grass without a written permit from the Registrar. When such permit is given, and also in all cases when destroying cut or dug up trees, brushwood, grass etc. by fire, the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property. The contractor shall make his own arrangements for drinking water for the labour employed by him and provide sanitary and other arrangements.

**CLAUSE 23 : LIABILITY OF CONTRACTOR FOR ANY DAMAGE DONE IN OR OUTSIDE WORK AREAS.**

Compensation for all damages done intentionally or unintentionally by contractor's labour whether in or beyond the limits of the Owner's property including any damages caused by the spreading of fire mentioned in Clause 22 shall be estimated by the University Engineer / PMC / Architect or such other officer as may be appointed by the Registrar and the estimates prepared by University Engineer / or such officer subject to the decision of the Registrar on appeal shall be final and the contractor shall be bound to pay the amount of the assessed compensation on demand, failing which, the same will be recovered from the contractor as damages in the manner prescribed in Clause 1 or deducted by the University Engineer / PMC / the Architect from any sums that may be due or become due from Registrar to contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any persons for injury sustained by him owing to neglect or precautions to prevent the spread of fire and he shall pay any damages and cost that may be awarded by the court in consequence.

**CLAUSE 24 : EMPLOYMENT OF FEMALE LABOUR**

The employment of female labours on works in neighbourhood of soldier's barracks should be avoided as far as possible.

The contractor shall employ the labourers registered with nearest employment exchange.

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**CLAUSE 25 :            WORK ON SUNDAY**

No work shall be done on Sunday without the sanction in writing of the University Engineer.

**CLAUSE 26 :            WORK NOT TO BE SUBLET, CONTRACT MAY BE RESCINDED AND SECURITY DEPOSIT FORFEITED FOR SUBLETTING IT WITHOUT APPROVAL OR FOR BRIBING A PUBLIC OFFICER OR IF CONTRACTOR BECOMES INSOLVENT**

The contract shall not be assigned or sublet without the written approval of the University Engineer / PMC / the Architect. And if the contractor shall assign or sublet his contract, or attempt so to do, or become insolvent or commence any proceedings to get himself adjudicated and insolvent or make any composition with his creditors, or attempt so to do or if 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 shall become in any way relating to his office or employment, or if any such offer or person shall become in any way directly or indirectly interested in the contract, the Registrar on recommendation of the University Engineer / PMC / the Architect 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 the Registrar, 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 actually performed under the contract.

**CLAUSE 27 :            SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL LOSS.**

All sums payable by a contractor by way of compensation under any of these conditions shall be considered as a reasonable compensation to be applied to the use of the Registrar without reference to the actual loss of damages sustained, and whether any damage has or has not been sustained.

**CLAUSE 28 :            CHANGES IN THE CONSTITUTION OF FIRM TO BE NOTIFIED.**

In the case of tender by partners, any change in the constitution of a firm shall be forthwith notified by the contractor to the University Engineer / PMC / the Architect for their information.

**CLAUSE 29 :            WORKS TO BE UNDER DIRECTION OF THE UNIVERSITY ENGINEER / PMC / ARCHITECT**

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 / PMC / the Architect 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.

**CLAUSE 30 :    DIRECTION AND CONTROL OF VICE – CHANCELLOR**

Except where otherwise specified in the contract and subject to the powers delegated to Registrar by Vice-Chancellor of the University under the Common Account Code, rules then in force, the decision of the Vic-Chancellor for the time being shall be final, conclusive, and binding on all parties of the contract upon all questions relating to the meaning of the specifications, designs, drawings and instructions herein above mentioned and as to the quality of workmanship, or materials used on the work or relating to the contract, designs, drawings, specifications, estimates, instructions, orders, or these conditions or otherwise concerning the works, or the execution, or failure to execute in same, whether arising, during the progress of the work, or after the completion or abandonment thereof.

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The contractor may within thirty days of receipt by him of any order passed by the Registrar as aforesaid, appeal against it, to the Vice-Chancellor concerned with the contract work or project provided that –

- a. The accepted value of the contract exceeds Rs. 10 Lacs (Rupees Ten Lacs only)
- b. Amount of claim is not less than Rs. 1 Lac ( Rupees One Lac only )

If the contractor is not satisfied with the order passed by the Vice-Chancellor as Aforesaid, the contractor may, within 30 days of receipt by him of any such order, appeal against it to the **Building and Works Committee** of Punyashlok Ahilyadevi Holkar Solapur University, Solapur, who if convinced that prima facie the contractor's claim rejected by Registrar is not frivolous and that there is some substance in the claim of the contractor as would merit a detailed examination and the decision of the Building and Works Committee shall put up to the Management Council of Punyashlok Ahilyadevi Holkar Solapur University for final decision. The decision shall be final and without appeal and binding to the contractor.

**CLAUSE 31 : STORES OF FOREIGN MANUFACTURE IF ANY REQUIRED – TO BE OBTAINED FROM OWNER.**

The contractor shall obtain from The Owner's store all stores and articles of foreign manufacture which may be required for the work, or any part thereof or in making up any articles required thereof or in connection therewith, unless he has obtained permission in writing from the Owner to obtain such stores and articles elsewhere. The value of such stores and articles as may be supplied to the Contractor by the owner will be debited to the contractor in his account at "cost" price which for the purpose of this contract shall include the cost of carriage and all other expenses whatsoever, which shall have been incurred in obtaining delivery of the same at stores aforesaid.

**CLAUSE 32 : LUMP SUMS IN ESTIMATES**

When the estimate on which a tender is made includes lump sums in respect of parts 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 same rates as payable under this contract for each items, or if the parts of the work in question is not in the opinion of the University Engineer / PMC / the Architect capable of measurement, the University Engineer / PMC / the Architect may at his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the University Engineer / PMC / the Architect shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of this clause.

**CLAUSE 33 : ACTION WHERE NO SPECIFICATIONS**

In the case of any class of work for which there is no such specification as is mentioned in Rule 1 of form B-1, such work shall be carried out in accordance with the P.W. Deptt. Specifications and in the event of there being no P.W. Deptt. specification, then in such case the work shall be carried out in all respects in accordance with all instructions and requirements of the University Engineer / PMC / the Architect duly approved by the competent Authority of the University.

**CLAUSE 34 : DEFINITION OF WORK**

The expression " Works " or "work" where used in these condition, shall unless there be something in the subject or context repugnant to such construction, be construed to mean the work or works contracted to be executed under or in virtue of the contract, where temporary or permanent and whether original, altered, substituted or additional.

**CLAUSE 35 : CONTRACTOR'S PERCENTAGE WHETHER APPLIED TO NET OR GROSS AMOUNT OF BILL**

The percentage referred to in the tender shall be deducted from / added to the gross amount of the bill before deducting the value of any stock issued.

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**CLAUSE 36 :**

All quarry fees, royalties, octroi, GST, dues, and ground rent for stacking materials if any, shall be paid by the contractor and the contractor shall submit all the receipts of these payments alongwith the R. A. bills.

**CLAUSE 37 :      COMPENSATION UNDER WORKMEN'S  
COMPENSATION ACT.**

The contractor shall be responsible for and shall pay any compensation to his workmen payable under the Workmen's Compensation Act, 1923 (VIII of 1923), (hereinafter called the said Act) for injuries caused to the workmen. If such compensation is payable and paid by the Owner as principal under sub-section (1) of section 12 of the said Act on behalf of the contractor, it shall be recoverable by Registrar from the contractor under sub-section

(2) of the said section. Such compensation shall be recovered in the manner laid down in Clause 1 above.

**CLAUSE 37 A :**

The contractor shall be responsible for and shall pay the expenses or providing medical aid to any workman who may suffer a bodily injury as a result of an accident. If such expenses are incurred by Registrar the same shall be recoverable from the contractor forthwith and be deducted without prejudice to any other remedy of Registrar from any amount due or that may become due to the contractor.

**CLAUSE 37 B :**

The contractor shall provide all necessary personal safety equipments and first aid apparatus available for the use of the persons employed on the site and shall maintain the same in condition suitable for immediate use at any time and shall comply with the following regulations in connection therewith.

- (a) The workers shall be required to use the equipment so provided by the contractor and the contractor shall take adequate steps to ensure proper use of the equipment by those concerned.
- (b) When work is carried on in proximity to any place where there is a risk of drowning all necessary equipment shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any person in danger.
- (c) Adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during course of the work.

**CLAUSE 37 C : (Govt. Circular No. PWD.HO.CAT – 6076/3336/(400)/Bldg – 2 dated 16-8-1995).**

The contractor shall duly comply with the provisions of the “ The Apprentice Act 1961 “ ( **III of 1961**) the rules made there under and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all the liabilities and penalties provided by the said Act and said Rules”.

**CLAUSE 38 :      CLAIMS FOR QUANTITIES ENTERED IN  
THE TENDER OR ESTIMATE**

- 38 (1) Quantities shown in the tender are approximate and no revision in the tender rates shall be permitted in respect of any of the item so long as, subject of any special provision contained in the specification prescribing a different percentage permissible variation in the quantity of the items does not exceed the tender quantity by more than 25% and so long as the value of the excess quantity beyond this limit at the rate of the items specified in the tender is not more than Rs. 5000/-

- 38 (2) “ The contractor shall, if ordered in writing by the University Engineer / PMC / the Architect or by the Registrar to do so, also carry out any quantities in excess of the limit mentioned in Sub-Clause (1) hereof on the same conditions as and in accordance with the specifications in the tender and at the rates ( i ) derived from the rates entered in the current SSR – State schedule of rates and in the absence of such rates, ( ii ) at the rate prevailing in the market, the said rates **increased or decreased** as the case may be by the percentage which the **total tendered amount** bears to the estimated cost of the work as put to tender based upon the current state schedule of rates ( for the year at the time of authorize of Agency ).
- 38 (3) Claim arising out of reduction in the tendered quantity of any item beyond 25 percent will be governed by the provision of clause 15 only when the amount of such reduction is beyond 25 percent at the rate of the item specified in the tender is more than Rs. 5000/- .
- 38 (4) This clause is not applicable to extra item.
- 38 (5) There is no change in the rate if the excess is less than or equal to 25 per cent of the tendered quantity but the value of the excess work at the tender rates does not exceed Rs. 5000/-
- 38 (6) a. The quantity to be paid at tendered rate shall include
- (i) Tendered quantity plus
  - (ii) 25% excess of tendered quantity or the excess quantity of the value of Rs. 5000/- at the tendered rates whichever is more.
- b. The Contractor shall be entitled to revision in rates entered in then current state schedule of rates only when all the following conditions are satisfied.
- (i) The total executed quantity of an Item increases by more than 25% as compared to the tendered quantity.
  - (ii) The total value of the Section under which the particular item that meets the above requirements, also exceeds by more than 25% compared to the Tendered value of that Section.
- 38 (7) Limit for variation as stipulated in sub-clause 38 (1), 38 (2), 38 (3), 38 (4) above does not apply to the items relating to the items below grounds as RCC hume pipes, chambers, earthing pits etc. For the purpose of operation of the above clause, the following work shall be treated as work relating to foundations which the contractor is bound to carry out at the tendered item rates for any additional quantities over and above stipulated in the Bills of Quantities without any limit whatsoever :
- a. For executing all items of electrical works including all items stated in schedule ‘ B ‘ and taken from electrical CSR / SSR.
  - b. For hume pipes, chambers, earthing pits and similar works, all items of work below the ground level.
  - c. For open trench, all items of such work.

Variation in quantities in the items relating to foundations as stated at 38.7(a) to (c) above shall be without any limit.

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**CLAUSE 39 :                    EMPLOYMENT OF FAMINE LABOUR ETC.**

The contractor shall employ any famine, convict or other labour of a particular kind or class ordered in writing to do so by the University Engineer / PMC / the Architect.

**CLAUSE 40 :                    CLAIM FOR COMPENSATION FOR DELAY  
IN STARTING THE WORK**

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.

**CLAUSE 41 :                    CLAIM FOR COMPENSATION FOR DELAY  
IN EXECUTION OF WORK**

No compensation shall be allowed for any delay in the execution of the work on account of water, standing in borrow pits or compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil, water standing in borrow pits and no claim for an extra rate shall be entertained unless otherwise expressly specified.

**CLAUSE 42 :                    ENTERING UPON OR COMMENCING ANY PORTION OF WORK**

The contractor shall not enter upon or commence any portion of work except with the written authority and instructions of the University Engineer / PMC / Architect or of their subordinate incharge of the work. Failing such authority the contractor shall have no claim to ask for measurement of or payment for work.

**CLAUSE 43 :                    MINIMUM AGE OF PERSONS EMPLOYED, THE EMPLOYMENT OF  
DONKEYS AND / OR OTHER ANIMALS AND THE  
PAYMENT OF FAIR WAGES**

- 1) No contractor shall employ any person who is under the age of 18 years.
- (ii) No contractor shall employ donkeys or other animals with breeching of string or thin ropes. The breeching must be at least three inches wide and should be of tape (Nawar).
- (iii) No animal suffering from sores, lameness or emaciation or which is immature shall be employed on the work.
- (iv) The University Engineer / PMC / the Architect or their representative is authorized to remove from the work, any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by Registrar for any delay caused in the completion of the work by such removal.
- (v) The contractor shall pay fair and responsible wages to the workmen employed by him, in the contract undertaken by him. In the event of any dispute arising between the contractor and his workmen on the grounds that the wages paid are not fair and reasonable, the dispute shall referred without delay to the University Engineer / PMC / the Architect who shall decide the same. The decision of the University Engineer / PMC /the Architect shall be conclusive and binding on the contractor but such decision shall not in any way affect the conditions in the contract regarding the payment to be made by Registrar at the sanctioned tender rates.
- (vi) Contractor shall provide drinking water facilities to the workers. Similar amenities shall be provided to the workers engaged on large work in urban areas.

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- ( vii ) Contractor to take precaution against accidents which takes place on account of labour using loose garments while working near machinery.
- 1) All facilities provided in the contract labour should be provided ( Regulation & Abolition Act 1971 ). The Maharashtra Contract Labour regulation & abolition rule 1971 should be provided.

**CLAUSE 44 : METHOD OF PAYMENT**

Payment to contractors shall be made by cheque drawn on any bank, provided the amount exceeds Rs. 100/-. Amounts not exceeding Rs. 100/- will be paid in cash.

**CLAUSE 45 : ACCEPTANCE OF CONDITIONS COMPULSORY BEFORE TENDERING FOR WORK**

Any contractor who does not accept these conditions shall not be allowed to tender for works.

**CLAUSE 46 : EMPLOYMENT OF SCARCITY LABOUR**

If Government declares a state of scarcity or famine to exist in any village situated within 10 miles 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 / PMC / the Architect, or be any person to whom the University Engineer / PMC / the Architect may have delegated this duty in writing, to be in need of relief and shall be bound to pay to such person 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 / PMC / the Architect whose decision shall be final and binding on the Contractor.

**CLAUSE 47 : Maharashtra act XIX of 1985, clause regarding turn over tax void P.W.D. Circular No. CAT -1086 / cr / 330 –Bldg-2 Dt. 10 Jun, 1987.**

The price quoted by the contractor shall not in any case exceed the control price, if any, fixed by Government or reasonable price which it is permissible for him to charge a private purchaser for the same class and description, the controlled price or the price permissible under Hoarding and Profiteering prevention Ordinance, 1948 as amended from time to time.

If the price quoted exceeds the controlled price or the price permissible under Hoarding and profiteering Prevention Ordinance, the contractor will specifically mention this fact in his tender alongwith the reasons for quoting such higher prices. The purchaser at his discretion will in such case exercise the right of revising the price at any stage so as to conform the controlled price on the permissible under the Hoarding and Profiteering Prevention Ordinance. This discretion will be exercised without prejudice to any other action that maybe taken against the contractor.

**CLAUSE 48 :**

The tender rates to be quoted by the contractor shall be exclusive of GST, but inclusive of all taxes- Sales Tax, Swacch Bharat tax and inclusive of all other taxes legally payable charges and taxes, water charges, electricity charges, all incidental expenses, labour welfare tax and all liable tax in respect of sale by transfer of property in good involved in the execution of a work contract under the provision of rule 58 of Maharashtra Value aided tax act, 2005 for the purpose of levy of tax and all charges, expenses and any tax / taxes under Work Contract Act 1985 etc. No payment on such account will be made to the contractor.

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**CLAUSE 49 :**

In case of materials that may remain surplus with the contractor from those issued for the work contracted for, the date of ascertainment of the materials being surplus will be taken as the date of sale for the purpose of sales tax and the Sales Tax ( Govt. Circular CAT / 1086 / CR-330 / Bldg. 2 dt 10.6.87 including amendments ) will be recovered on such sale.

**CLAUSE 50 :**

The contractor shall employ at least 80 percent of the total number of unskilled labour to be employed by him on the said work only from locally available labourers and shall give preference enrolled under Maharashtra Govt. And Self Employment Departments Scheme.

Provided, however, that if the required number of unskilled labour from district is not available, the contractor shall in the first instance employ such number of persons as is available and thereafter may with the previous permission in writing of the University Engineer / PMC / the Architect of the said work, obtain the rest of the requirement of unskilled labour from outside the above scheme.

**CLAUSE 51 : Wages to be paid to the skilled and unskilled labour engaged by the contractor**

- ( 1 ) The contractor shall comply with the provision of the apprentices Act 1961 and the rules and orders issued there under from time to time, if he fails to do so his failure will be a breach of the contract, and the Owner, may in his discretions cancel the contract. The Contractor shall also be liable for precautionary liability, arising on account of any violation by him of the provision of Act.
- ( 2 ) The contractor to take precautions against accidents which take place on account of labour using garments while working near machinery.
- ( 3 ) The contractor shall pay the labours skilled and unskilled according to the wages prescribed by the minimum wages Act of the 1948 applicable to the area in which the work is in progress.

**CLAUSE 52 :**

All accounts whatsoever which the contractor is liable to pay to the Registrar in connection with the execution of the work including the amount payable in respect of (i) materials and / or stores supplied / issued here under by the Registrar to the contractor ( ii ) hire charges in respect of heavy plant, machinery and equipment given or hire by the Registrar to the contractor for Execution by him of the work and / or which advances have been given by the Registrar to the contractor shall be deemed to be arrears of Land Revenue and the Registrar without prejudice to any other rights and remedies of the Registrar recover the same from the contractor as arrears of revenue.

**CLAUSE 53 : Government circular No. CA 1284 (120) Building-2, Mantralaya, Bomba-400 032 Dt. 14.8.85**

“ The contractor shall duly comply with all the provisions of the Contract Labour ( Regulation and Abolition ) Act. 1970 (37 of 1970) and the Maharashtra Contract Labour ( Regulation and Abolition ) Rules, 1971 as amended from time to time and all other relevant statutes and statutory provisions concerning payments of wages particularly to workmen employed by the contractor and working on the site of work. In particular the contractor shall pay wages to each worker employed by him on the site of the work at the rates prescribed under the Maharashtra Contract Labour (Regulation and Abolition) Rules, 1971. If the contractor fails or neglects to pay wages at the said rates or makes short payment and the Registrar makes such payment of wages in full or part thereof less paid by the Registrar to such payment of wages in full or part thereof less paid by the contractor, as the case may be, the amount so paid by the Registrar to such workers shall be deemed to arrears of land revenue and the Registrar shall be entitled to recover the same as such from the contractor or deduct the same from the amount payable by the Registrar to the contractor hereunder or from any other amount/s payable to him by the Registrar.

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**CLAUSE 54**

The contractor shall engaged apprentices such as brick layer carpenter, wiremen, plumber, as well as black smith recommended by the state apprenticeship Advisor Director of Technical Education, Dhobi Talao, Mumbai – 400 001 in the construction work ( as per Govt. of Maharashtra, Education Dept. No. TSA / 5170 / T / 56689 dtd. 07/07/1972 )

**CLAUSE 55 : CONDITIONS FOR MALARIA ERADICATION ANTI-MALARIA AND OTHER HEALTH MEASURES**

**( Government of Maharashtra P.W.D. Resolution No. CAT / 1086 / CR-243 / K / Bldg.32 Dt. 11.8.1987 )**

- A. The anti malaria and other health measures shall be as directed by the Joint Director (Malaria and Filaria ) of Health Service, Pune.
- B. Contractor shall see that mosquitogenic conditions are not created so as to keep vector population to minimum level.
- C. Contractor shall carry out anti-malaria measures in the area as per guidelines prescribed under National Malaria Eradication Programme and as directed by the Joint Director (M & F) of Health Services, Pune.
- D. In case of default in, carrying out prescribed anti-malaria measures resulting in increase in malaria incidence, contractor shall be liable to pay to Owner the amount spent by Owner on anti malaria measures to control the situation in addition to fine.
- E. Relations with Public Authorities  
The Contractor shall make sufficient arrangements for draining away the sewerage water as well as water coming from the bathing and washing places and shall dispose of this water in such a way as not to cause any nuisance. He shall also keep the premises clean by employing sufficient number of sweepers.

The contractor shall comply with all rules, regulations, bye-laws and directions given from time to time by local or public authority in connection with this work and shall pay fees or charges which are leviable on him without any extra cost of Owner.

( Govt. Circular No.CAT-1086 / CR-243 / Desk Building 2 dated 1-9-1987 including amendments )

**Clause 56 : Conditions relating to Insurance of contract works**

Contractor shall take out necessary insurance policy / policies ( viz. Contractor's All Risks Insurance Policy, Erection All Risks Insurance Policy etc. As decided by the Directorate of Insurance ) so as to Provide adequate insurance cover for execution of the awarded contract work for total contract value and Complete contract period compulsory from the " Director of Insurance, Maharashtra State, Mumbai " only. Its postal address for correspondence is " 264, MHADA, First Floor, Opp, Kalanagar, Bandra ( East ), Mumbai – 400 051. ( Telephone No. 26590403 / 26590690 and FAX No. 26592461 / 26590403 ).

Similarly all workmen's appointed to complete the contract work are required to insure under workmen's Compensation insurance policy. Insurance policy / policies taken out from any other company will not be accepted.

If any contractor has effected insurance with any insurance company, the same will not be accepted And the amount of premium calculated by the Govt. Insurance fund will be recovered directly from the Amount payable to the contractor for the executed contract work and paid to the Directorate of Insurance fund, Maharashtra State, Mumbai. The Director of Insurance reserves the right to distribute The risks of insurance among the other insurers.

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## 7 GENERAL CONDITIONS OF CONTRACT

### **7.1. INTERPRETATIONS AND DEFINITIONS**

#### **7.1.1. SINGULAR AND PLURAL**

Where the context so requires words importing the singular shall also mean the plural and viceversa.

#### **7.1.2. HEADING AND MARGINAL NOTES TO CONDITIONS**

Heading and / or marginal notes to these conditions shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or the contract.

#### **7.1.3. GENDER**

Words importing the masculine gender shall also include the feminine gender.

#### **7.1.4. WORDS IMPORTING PERSONS**

Words importing persons include Firms, Companies, Corporations and together bodies, incorporated or not.

### **7.2. DEFINITIONS:-**

7.2.1. In the “Contract” (as herein after defined the following works and expressions shall have the meanings herein assigned except where otherwise specified.

7.2.2. **Contract:** The contract document consists of the Invitation to tender, Opening of Tender, The Agreement, the General Instructions to Contractors, General Conditions of contract, Special Conditions of Contract, Specifications, the drawings, and Bills of Quantities, including all modifications thereof incorporated in the documents before their execution. The contract document is complementary, what is called for in one shall be as binding as it called for by all.

The contract document is complementary, what is called for in one shall be as binding as if called for by all.

The Registrar :  
The University Engineer :  
The Site Engineer :  
The Architect:  
The PMC :  
The Contractor :

Are those mentioned as such in the Agreement and shall include their legal representatives, assigns or successors. They are treated throughout the Contract Document as if each were of the singular number and masculine gender.

7.2.3. The Employer / owner shall mean PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.

7.2.4. The “**Registrar**” means, The Registrar, PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.

7.2.5. The “Contractor” shall mean \_\_\_\_\_  
\_\_\_\_\_ or company

7.2.6. **THE SENATE:** - It is the Senate of the PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.

7.2.7. **THE MANAGEMENT COUNCIL:** - It is The Management Council of PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR. The decisions taken by the University Building and Works Committee shall be placed to the Management Council for ‘final’ decision and their decision shall be final and without appeal and binding to the contractor.

**7.2.8 UNIVERSITY BUILDINGS AND WORKS COMMITTEE:** - It is the University Building and Works Committee constituted as per Building and works committee ordinances framed under the Maharashtra University Act 1994, amended and latest updated from time to time and also updated by latest resolutions of Management Council and The Maharashtra Non-Agriculture Universities Common Account Code made applicable by the Govt. of Maharashtra w.e.f. 01<sup>st</sup> April, 2012 to have the procedure consistent with PWD manual. It works under direct and overall Superintendence of the Management Council, have overall control for the Execution of Works and it shall exercise general supervision over the work of engineering staff of the University. The Committee shall be competent to accord administrative approval, Technical Sanction and financial sanction. The selection of Contractor and acceptance of tender shall be as per the decision of the committee or of the Vice-Chancellor. The decision taken by the Vice-Chancellor or by the building and works committee shall be final and without appeal and binding to the contractor.

**7.2.9. THE CHANCELLOR & GOVERNOR :-** The Governor of Maharashtra, shall be the Chancellor of every University and the Chancellor, by virtue of his office, shall be the Head of the University.

**THE VICE-CHANCELLOR:-** The Vice-chancellor means The Vice-chancellor of PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR. He is the Chairman of the Building and Works Committee and of The Management Council. The decision taken by the Vice-Chancellor shall be fixed and binding and without appeal to the contractor.

**7.2.10. THE REGISTRAR:** - The Registrar means the Registrar of Punyashlok Ahilyadevi Holkar Solapur University, Solapur. He is the member and Secretary of the Building and Works Committee and administer the contract as a owner. He is also termed as owner in this claimed document.

**7.2.11. THE FINANCE AND ACCOUNTS OFFICER:** - The Finance & Account Officer means the Finance & Account Officer of Punyashlok Ahilyadevi Holkar Solapur University, Solapur. He is the member of the Building and works committee.

**7.2.12. THE UNIVERSITY ENGINEER:** - “UNIVERSITY ENGINEER” means University Engineer or his representative of Punyashlok Ahilyadevi Holkar Solapur University, Solapur. He is overall in-charge for day to day execution of the project. The University Engineer shall have under his control various engineers, site engineers, supervisors, clerks, and other supporting staff and through them, he shall maintain & obtain progress report from the contractor & monitor day to day progress of work at site as per bar- chart.

- a. He shall keep the PMC and the Architect well informed for all activities related to the projects for his guidance, advice and necessary actions as per the contract condition.
- b. He shall provide the PMC and Architect by providing necessary site data, documents required in respect of the projects, etc.
- c. He shall provide the latest P.W.D. Government G.R., circulars etc. to the Architect.
- d. He shall also issue site instructions / clarifications necessary actions under various contract conditions as a representative of the University, if required in the interest of the project with the PMC and Architect.
- e. The term referred in this agreement at places as “ University Engineer “ shall be referred as “ University Engineer “ who shall carry on his duties for the best administration / execution of this contract.
- f. Where, PMC is not appointed and the work is executed directly under the supervision of University Engineer, the powers as given under PMC are vested with, the University Engineer and the University Engineer be read also as PMC in this agreement.

**7.2.13. THE SITE ENGINEER:** - The Site Engineer means the Site Engineer of Punyashlok Ahilyadevi Holkar Solapur University, Solapur and shall be wholly responsible for day to - day execution of the project. He shall check 100% measurements on site with all hidden measurement. He shall work under the direct control of the University Engineer and shall be responsible for him and report every day's progress to them. He shall be totally responsible for getting the work done from the contractor as per the drawings and the specifications. He shall study all the drawings well in advance before execution of the work and if any discrepancy observed must be immediately brought to the notice of the University Engineer who there inform to the University, so that the clarification from the University Engineer be obtained will in advance before starting the said work. He shall obtain program of work and completion program from the contractor. He shall monitor day-to-day progress of work at site as per bar chart. He shall provide complete necessary data as competitive market rates, leads of materials, labour contents, sundries and whatever information data's required etc. for analyzing non-schedule items, etc.

The term referred in this agreement at places as “Site Engineer” shall be referred as “site Engineer” who shall carry on his duties for the best admission / execution of this contract.

- 7.2.14. THE ARCHITECT** :- The “Architects” shall mean the Architects, Design Group (India), 11/12/13, RNA Arcade, Main road, Lokhandwala Complex, Andheri West, Mumbai – 400 053 and shall include their assigns and legal representatives in the event of ceasing to be Architects, such other person / firm / company as shall be nominated by the employer for that purpose shall function as Architects.
- 7.2.15. PMC : Project Management Consultant**  
The project management consultant shall mean project management consultant M/S \_\_\_\_\_ and shall include their assigns and legal representatives and in the event of ceasing to be PMC, such other person / firm / company as shall be nominated by the employer for that purpose shall function as PMC.
- 7.2.16.** The term “Sub-Contractor” as employed herein, includes those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design according to the plans or specifications of this work but does not include one who merely furnishes material not so worked. Anyone doing working on a piece rate basis shall be deemed a Sub-Contractor.
- Where the Contractor in the ordinary course of his business directly carried out works for which Prime Cost or Provisional Sums are included in the Contract Bills and the University Engineer / PMC / Architect is prepared to receive tenders from the Contractors for such items, then the Contractor shall be permitted to tender for the same or any of them but without prejudice to the Owner's right to reject the lowest or any tender. If the Contractor's tender is accepted he shall not sub-let the work without the consent in writing of the University Engineer / Architect.
- 7.2.17. “Nominated Sub-Contractor”** shall mean all specialist merchants, tradesmen, and other executing any works or supplying and fixing any goods, who may be nominated or selected by the University Engineer / Architect shall be deemed to be Sub-Contractors employed by the Contractors and are to be referred as nominated Sub-Contractors.
- 7.2.18. “Nominated Supplier”** shall mean all specialists, merchants, suppliers and others executing any special order for supplying of materials or equipment, who may have been or be nominated or selected by the University Engineer / Architect. They shall be employed by the contractor.
- 7.2.19. The “Works”** shall mean the works to be executed in accordance with the contract or part(s) thereof as the case may be and shall include all extra or additional, altered or substituted works as required for performance of the contract.
- 7.2.20. “Temporary works”** shall mean all temporary works of every kind required for or in connection with the execution, of the work tendered, but which will not form part of the letter.
- 7.2.21. “Urgent Works”** shall mean any measures which, in the opinion of the PMC / University Engineer / Architect become necessary during the progress of works to obviate any risk or accident or failure which become necessary for security of the work or the persons working, thereon.
- 7.2.22. Written Notice** :- Written Notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivery receipt obtained or sent by registered mail to the last business address known to him who gives the notice. The work of the contractor or sub - contractor includes labour of material or both.
- 7.2.23.** The law of the place Solapur of work shall govern the construction place Solapur under this contract.
- 7.2.24. Virtual Completion** :- “Virtual Completion” shall mean that the “Works” are completed in every respect in conformity with the Contract Documents and to the full satisfaction of the University Engineer / PMC / Architect including complying all statutory condition, permissions, complying all contract conditions as stated in conditions of contract.
- 7.2.25. Working Day** :- “Working Day” shall mean any day from Monday to Saturday (both days inclusive) excluding all Public Holidays as notified by the State Government.
- 7.2.26. A “Week”** shall mean seven consecutive days without regard to the number of hours worked in any day in that week.
- 7.2.27.** The “Contract Sum” shall mean the sum for which the tender is accepted.
- 7.2.28. Approved Equal** :- “Approved Equal” shall mean equivalent approved by the University Engineer / PMC / Architect. Where the context so requires, words written singular only also include the plural and vice-versa.

7.3. **THE REGISTRAR, CONTRACTOR AND UNIVERSITY ENGINEER:** - The **Registrar**, the Contractor and the University Engineer are those mentioned as such in the Agreement and shall include their legal representative/s assignee/s or successor/s. They are treated throughout the contract documents as if each were the singular number and masculine gender.

#### 7.4. SCOPE AND INTENT :-

7.4.1. **Scope :** The general character and the scope of the work is illustrated and definely by the Specifications and the Bills of Quantities herewith attached and by the signed Drawings. If the Contractor shall find any discrepancy in or divergence between the Contract Drawings and or the Contract Bills he shall immediately inform the University Engineer / PMC / Architect specifying the discrepancy or divergence and the University Engineer / PMC / Architect shall issue instruction in regard thereto.

7.4.2. **Extent:** - The Contractor shall carry out and complete the work in every respect in accordance with this Contract and with the directions of and to the reasonable satisfaction of the University Engineer / PMC / Architect. The University Engineer / PMC / Architect may in his absolute discretion and from time to time issue further drawings, details and / or written instructions, written directions and written explanations all of which are collectively referred to as the University Engineer / PMC / Architect. All such drawings and instructions shall be consistent with Contract Document, true developments thereof and reasonably inferable there from. In addition, the University Engineer / PMC / Architect any also issue time-to-time instructions / clarification / directions / explanations to the contractor consistent with the contract document with intimation to the University Engineer / PMC / Architect.

7.4.3. **Intent:** - The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the Document is to include all labour and materials, equipment and transportation necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Document, true developments thereof and reasonably inferable there from. Materials of work described in words, which so applied, have a well-known technical or trade meaning shall be held to refer to such recognized standard.

7.5. **Architects' Instructions:** - The Architects may from time to time issue further supplementary drawings and / or written instruction, details and directions and explanations which are collectively referred to as the Architects Instructions. The Contractor shall forthwith comply with the duly execute works comprised in such the Architects instructions provided always that verbal instruction, directions and explanations given to the Contractor, or his work's representative by the Architects shall if involving avariation, be confirmed in writing.

7.6. If within seven days after receipt of a written notice from the University Engineer / PMC / Architect, requiring compliance with an instruction the Contractor does not comply herewith, then the **Registrar** may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instructions and all cost incurred with such employment shall be recoverable from the contractor by the **Registrar** as a debt or may be deducted by him from any monies due to become due to the Contractor under this Contract.

7.7 The contractor shall provide the University Engineer / PMC / Architect and their representative every facility and assistance for inspecting the work and materials and for checking and measuring work, time and materials.

7.8 The representative of the University Engineer / PMC / Architect shall have power to give notice to the contractor or to his representative of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the University Engineer / PMC / Architect or the Architects is obtained. The works will from time to time be examined by the University Engineer and the Architects, but such examination shall not in any way exonerate the contractor from the obligation to remedy any defects which may be found to exist at any stage of the works or after the same is completed. Subject to the limitation of this clause the contractor shall take instructions only from the University Engineer / PMC / Architect.

**7.9 ARCHITECTS STATUS AND DECISION:** - The Architects shall be the **Registrar**'s representative during the construction period. The Architects shall periodically visit the site and shall have only the general supervision and direction of work and familiarize himself generally with the progress and quality of the work and to determine in general if the work is proceeding in accordance with the Contract Document. He has authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the work.

- 7.9.1. The Architects shall be in the first instance the interpreter of the conditions of this contract and the judge of its performance. In case of any disputes arising due to the interpretation of any technical terms and conditions of the contract executed between **Registrar** and the Contractor, Specifications and drawings, quality and finish of work acceptance of work and all matters related to this contract document. The Architects decision shall be final who shall give their decision in reasonable time.
- 7.9.2. The Architects may in his absolute desecration and from time to time issue further drawings. Details and /or written instruction, written directions and written explanations and instruction in site instruction book.
- 7.9.3. For other disputes of non-technical nature on the administrative, legal and financial aspects of the contract, the University Engineer shall advise the **Registrar** to arrive at reasonable settlement keeping in view contract condition. Decision of the **Registrar** shall be final and binding on to this contract.
- 7.9.4. The instruction book will be maintained on site which will be in the custody of the representative of the University Engineer / PMC / Architect in which the site instruction / orders will be written and issued to the contractor. The contractor has to accept the instructions. However if he has some observation on the instruction he can write letter to the University Engineer / PMC / Architect within three days.
- 7.9.5. Access for the PMC / University Engineer / the Architects to the Works : The University Engineer / PMC / Architect and their representative shall at all reasonable times have access to the Works and to the Workshops or other places of the Contractor where work is being prepared for the contract and when work is to be so prepared in workshops or other places of sub-contractor, the contractor shall by a term in the sub-contract so far as possible secure a similar right of access to those workshops or places for the University Engineer / PMC / Architect and their representatives and shall do all things reasonably to make such right effective.

#### **7.10. PMC'S STATUS AND DECISION**

- 7.10.1. The PMC shall be the Owner's extended arm and representative during the construction period. He shall provide full time supervision at site, monitor the works quality / progress, co-ordinate the work of different agencies give directions to the contractor, measure and certify the work. In case of any dispute arising due to interpretation of conditions of contract, technical matters, specifications and drawing, the PMC shall consult the Architect before giving the decision. The decision of University Engineer / PMC / Architect on quality finish of work acceptance of work shall be final binding on the contractor. The site instruction book will be maintained on site which will be in the custody of representative of PMC, in which the site instructions / orders will be written and issued to the contractor. The contractor can not refuse the site instruction and the contractor has to accept the site instruction.
- 7.10.2. For other disputes of non-technical nature on the administrative, legal and financial aspects of the contract, the PMC shall advise the Registrar to arrive at a reasonable settlement with following Contract Conditions.
- 7.10.3. The University Engineer / PMC / Architect and their representative shall have access to the works at any time. PMC shall study all other drawings well in advance before execution of work and if any discrepancy observed shall bring to the notice of Architect. PMC shall ensure that the construction is done as per the latest Architectural and structural design drawings issued time to time.
- 7.11. **ASSIGNMENT**:- The contractor shall not directly or indirectly assign the contract or any part thereof or any benefit or interest herein or thereunder (otherwise than a favour of the contractor's Bankers of any monies due or to become due under the contractor) without the prior written consent of the University Engineer .
- 7.12. **SUB-LETTING** :- The contractor shall not sub-let the whole or any part of the works without the prior written consent of the University Engineer / PMC / Architect and such consent of the University Engineer / PMC / Architect and such consent, if given, shall not relieve the contractor from any liability or obligation under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents, servants of workmen as if they were the acts, defaults or neglects of the contractor, his agents, servants or workmen provided always that the provision of labour on a piecework basis shall not be deemed to be a sub-letting under this clause.
- 7.13. **Sub-Contractors**:- No work of the contract shall be all putted or awarded by the contractor without the sanction of the Registrar. As soon as practicable and before awarding any sub-contract, the Contractor shall obtain approved of the Registrar in writing the names of the Sub-Contractor proposed for the principal parts of the work and for such other parts as the University Engineer / PMC / Architect may direct, and shall not employ any to whom the **Registrar** may have as reasonable objection. The Registrar however, shall have power to obtain estimate and select other agencies to carry out any of the works for which contractor is in default.

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**7.14. Nominated Sub-Contractor:** - As soon as practicable and before awarding work to the nominated sub-contractor, the contractor shall notify the **Registrar** writing the names of the nominated sub- contractor proposed for such parts of the work as the **Registrar** in consultation with the University Engineer / PMC / Architect may direct for his approval.

- 7.14.1** The nominated Sub-Contractor shall carry out and complete the sub-contract work in every respect to the satisfaction of the Contractor and the University Engineer / PMC / Architect and in conformity with all the reasonable direction and requirements of the contractor.
- 7.14.2. The nominated Sub-Contractor shall observe, perform and comply with all the provisions of this or Contract on the part of the Contractor to be observed, performed and complied with so far as they relate and apply to the Sub-Contract works or to any portion of the same.
- 7.14.3. The nominated Sub-Contractor shall indemnify the Contractor against the same liabilities in respect of the Sub-Contract work as those for which the Contractor is liable to indemnify the **Registrar** under this Contract.
- 7.14.4. The nominated Sub-Contractor shall indemnify the Contractor against claims in respect of any negligence, omission or default of such Sub-Contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, and shall insure himself against any such claims and produce the policy, or policies and premium and premium receipts as and when required by the Contractor or the University Engineer / PMC / Architect.
- 7.14.5. The payment in respect of any work, materials or goods comprised in the Sub Contract shall be made within fourteen days after receipt by the Contractor of the University Engineer / PMC / Architect Certificate under clause under separate contract (Condition No. ) of these conditions which states as due an amount calculated by including the total value of such work, materials or goods, and shall when due be subject to the retention by the Contractor of the sums mentioned in sub- item.
- 7.14.6. The University Engineer / PMC / Architect and their representative shall have right of access to the workshops and other places of the nominated Sub-Contractor.
- 7.14.7. The Sub-Contract work shall be completed within the period or (where they are to be completed in sections) periods therein specified, that the Contractor shall not without the written consent of the University Engineer / PMC / Architect grant any extension of time for the completion of the Sub-Contract work or any section thereof, and that the Contractor shall inform the University Engineer of any representative made by the nominated Sub-Contractor as to the cause of any delay in the progress of completion of the Sub-Contract work or of any section thereof.
- 7.14.8. If the nominated Sub-Contractor shall fail to complete the Sub-Contract work or (where the Sub-Contract works are to be completed in sections) any section thereof within the period therein specified or within any extended time granted by the Contractor with the written consent of the University Engineer / PMC / Architect certifies in writing to the Contractor that the same ought reasonably so to have been completed the nominated Sub-Contractor shall pay or allow to the contractor either a sum calculated at the rate therein agreed as Liquidated and Ascertained Damages for the period during which the said work or any section thereof, as the case may be, shall so remain or have remained incomplete or (where no such rate is therein agreed) a sum equivalent to any loss or damage suffered or incurred by the Contractor and caused by the failure of the nominated Sub-Contractor as aforesaid.
- 7.14.9. The Contractor shall retain from the sum directed by the University Engineer / PMC / Architect having been included in the calculation of the amount stated as due in any payment certificate in respect of the total value of work, materials or goods executed or supplied by the nominated Sub- Contractor the percentage of such value retained up to a total amount not exceeding a sum which bears the same ratio to the Sub-Contract price as the unreduced sum named in the appendix to these conditions as limited or Retention Fund bears to the Contract sum; and that the Contractor's interest in any sums so retained (by whomsoever held) shall be fiduciary as trustee for the nominated Sub-Contractor (but without obligation to invest); and that the nominated Sub-Contractor's beneficial interest in such sums shall be subject only to the right of the Contractor, and that if and when such sums or any part thereof are released to the nominated Sub-Contractor they shall be paid in full if paid within 14 days of the date fixed for their release in the Sub-Contract.

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- 7.14.10. Before issuing any Payment Certificate, the University Engineer / PMC / Architect may request the Contractor to furnish to him reasonable proof that all amounts included in the calculation of the amount stated as due on previous certificates in respect of the total value of work materials or goods executed or supplied by any nominated Sub-Contractor have been duly discharged and if the Contractor fails to comply with any such request the University Engineer / PMC / Architect shall issue a certificate to that effect and thereupon the **Registrar** may himself pay such amounts to any nominated Sub-Contractor concerned and deduct the same from any sums due or to become due to the Contractor.
- 7.14.11. The Contractor shall not grant to any nominated Sub-Contractor any extension of the period within which the Sub-Contract work or (where the Sub-Contract works are to be completed in sections) any section thereof is to be completed without the written consent of the University Engineer / PMC / Architect of any representation made by the nominated Sub-Contractor as to the cause of any delay in the progress or completion of the Sub-Contract work or any section thereof and that the consent of the University Engineer / PMC / Architect shall not be unreasonably withheld.
- 7.14.12. If any nominated Sub-Contractor fails to complete the Sub-Contract work or (where the Sub-Contract works are to be completed in sections) any section thereof within the period specified in the Sub-Contract or within the extended time granted by the Contractor with the written consent of the University Engineer / PMC / Architect then if the same ought reasonably so to have been completed the University Engineer / PMC / Architect shall certify in writing accordingly. Any such certificates shall be issued to the Contractor and immediately upon issue the University Engineer shall send a duplicate copy thereof to the nominated Sub-Contractor.
- 7.14.13. If the University Engineer PMC / Architect desires to secured final payment to any nominated Sub-Contractor before final payments is due to the Contractor, and if such Sub-Contractor has satisfactorily indemnified the Contractor against any latent defects then the University Engineer may in an interim Certificate include an amount to cover the said final payment and thereupon the Contractor shall pay such nominated Sub-Contractor the amount so certified. Upon such final payment the amount of retention fund shall be reduced by the sum which bears the same ratio to the said amount as does such Sub-Contractor's Sub-Contract price to the Contract Sum, and save for latent defects the Contractor shall be discharged from all liability for the work materials or goods executed or supplied by such Sub-Contractor under the Sub-Contract to which the payment relates.
- 7.14.14. Neither the existence nor the exercise of the foregoing powers nor anything else contained in these conditions shall render the **Registrar** in any way liable to any nominated Sub-Contractor.
- 7.14.15. Where the Contractor in the ordinary course of his business directly carried out works for which Prime Cost or Provisional Sums are included in the Contract Bills and the University Engineer / PMC / Architect is prepared to receive tenders from the Contractors for such items, then the Contractor shall be permitted to tender for the same or any of them but without prejudice to the **Registrar's** right to reject the lowest or any tender. If the Contractor's tender is accepted he shall not sub-let the work without the consent in writing of the University Engineer / PMC / Architect.
- 7.14.16. The Contractor shall allow for general attendance upon Sub-Contractors including free use of plant scaffolding and is to allow them the use of sanitary convenience, storage facilities for storing materials, other amenities and affording them all reasonable facilities for carrying out their Contracts.
- 7.14.17. The liability for workmanship, guarantee, defects liability and completion of work in time shall rest with the contractor who shall be held fully responsible in respect of the work carried out through the Sub-Contractors as well as the Nominated Sub-Contractors.
- 7.15. PRIME COST**
- 7.15.1. The following provisions of these conditions shall apply where Prime Cost sums are included in the Contract Bills or arises as a result of the University Engineer / PMC / Architect instructions given in regard to the expenditure of provisional sums in respect of any materials or goods to be fixed by the Contractor.
- 7.15.2. Such sums shall be understood to mean the net cost to be defrayed as a Prime Cost after deducting any trade or other discount and shall include sales-tax (where applicable) and other taxes and duties and the cost of packing carriage and delivery. Provided that where in the opinion of the University Engineer / PMC / the Contractor has incurred expense for special packing or special carriage such special expense shall be allowed as per of the sums actually paid by the contractor.

- 7.15.3. Such sums shall be expended in favour of such persons as the University Engineer / PMC / Architect shall instruct, and all specialist, merchants, tradesman or others who are nominated by the University Engineer / PMC / Architect to supply materials or goods are hereby declared to be the suppliers to the Contractor and are referred to in these conditions as "Nominated Suppliers" provided that the University Engineer / PMC / Architect shall not (save where the University Engineer / PMC / Architect and Contractor shall otherwise agree) nominate as a supplier a person who will not enter into a Contract of sale which provides (inter alia).
- (a) That the materials or goods to be supplied shall be to the reasonable satisfaction of the University Engineer / PMC / Architect.
  - (b) That the nominated supplier shall make good by replacement or otherwise any defects in the materials or goods supplied which appear within such period as is therein mentioned and shall bear any expenses reasonably incurred by the Contractor as a direct consequence of such defects, provided that where the materials or goods have been used or fixed such defects are not such that examination by the Contractor ought to have revealed them before using or fixing.
  - (c) The delivery of the materials or goods supplied shall be commenced and completed at such times as the Contractor may reasonably direct.
  - (d) All payments by the Contractor for materials or goods supplied by a Nominated Supplier shall be in full, and shall be paid within 30 days of end of the month during which delivery is made.
- 7.16. **TIME OF COMPLETION:** - All time limits stated in the contract document shall be of the essence of the contract. The contractor obligates himself to complete the works including completion of different stages of work as stipulated in all respects within the time schedule stipulated in the Agreement subject to any adjustment granted by the University Engineer / PMC / Architects in writing under the conditions of contract. He shall submit to the University Engineer / PMC / Architects periodic progress reports on the first and fifteenth of each and every month.
- 7.17. **CONTRACTOR'S RESPONSIBILITY REGARDING DAMAGE TO PROPERTY AND INJURY TO PERSONS**
- 7.17.1. The **Registrar** shall not be liable or responsible for any accident, loss, death, injury or damage of any kind whatsoever happening in the course of the performance of the works herein referred to and in connection therewith to persons and / or property, materials and equipment and the Contractor shall fully indemnify and protect the **Registrar** from and against the same. In addition to the liability imposed by law upon the Contractor for injury (including death) to persons or damage to property by reason of the negligence of the Contractor or his agents, which liability is not impaired or otherwise affected hereby, the Contractor hereby assumes liability for and agrees to save the **Registrar** harmless and indemnify him from every expense, liability or payment by reason of any injury (including death) to person or damage to property, neighbor's property suffered by any act or omission of the Contractor or any of his Sub-Contractors, or any person directly or indirectly employed by any of them or from the control of the Contractor of any part of the premises which is in the control of the Contractor or any of his Sub-Contractors, or any one directly or indirectly employed by either of them, or arising in any way from the works under this contract.
- Further, the contractor hereby agrees and undertakes to indemnify the **Registrar** from any loss or damage or death arising out of the University Engineer / PMC / Architects instruction, without limiting this obligations and responsibilities under this condition, the Contractor shall ensure and obtain at his cost insurance / insurance's against all the foregoing risks or eventualities. The insurance or insurances shall be obtained in favor of the Registrar, PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY AS 'INSURED' and policy / policies shall be deposited with the Registrar.
- 7.17.1. The Contractor shall submit original certificates of Insurance so obtained by him in proof of compliance with the above condition, to the Registrar with C.C. to the University Engineer / PMC / Architects and the Contractor shall not proceed with the work until he has received in writing from the University Engineer / PMC / Architect approval of the Certificates of insurance required by the proceeding paragraph. The contractor will not get any payment before submission of prescribed insurance policy in original.
- 7.17.2. The Contractor shall ensure that his Sub-Contractors shall obtain insurances in the same manner and to the same extent, as he is liable to do under this condition and shall produce to the University Engineer / PMC / Architect Certificates Insurance, so obtained by his Sub-Contractors. The Contractor shall indemnify and keep indemnified the **Registrar** for any claims or demands that may be made against the **Registrar** for loss or damage arising from the performance of contracts by the Sub-Contractors.
- These insurance Certificates shall be fully executed and shall state that the policies cannot be cancelled until ten (10) days after written notification of such intent of cancellation has been given to the **Registrar**. All policies shall be with insurance companies acceptable to the **Registrar**.

- 7.17.3. The contractor shall owe absolute and unqualified liability for anything done or omitted to be done by him and impairing the validity or value of the insurance policy obtained by him. He shall also indemnify the **Registrar** in respect of any costs, charges or expenses arising out of any claims arising there from. The **Registrar** shall be at liberty to and is hereby empowered to deduct cost, charges and expenses arising or accruing from or in respect of any such claim or damage from any sum or sums due to or become due to the Contractor.
- 7.17.4. The Contractor shall continuously maintain adequate protection of all his work, materials, and equipment from damage, destruction or loss and shall protect the works from weather conditions which, in the University Engineer / PMC / Architects, Punyashlok Ahilyadevi Holkar Solapur University, Solapur opinion will be detrimental to the works. In default, the Contractor shall make good at his cost, any such damage, destruction, loss or injury.
- 7.17.5. When so ordered by the University Engineer / PMC / Architects, the Contractor shall suspend any work that may be subjected to damage by climatic conditions.

## 7.18. **LABOUR REGULATIONS**

- 7.18.1. The Contractor shall be wholly and solely responsible for full compliance with the provision under all labour laws and / or regulations such as payments of Wages Act, 1936; Minimum Wages Act, 1948; Employees Liability Act, 1938, Workmen Compensation Act, 1923, Industrial Dispute Act, 1947 and the Maternity Benefit Act, 1961 and any modifications thereof or any law relating thereto and rules made there under from time to time and all laws and regulation now in existence and to be imposed later.
- 7.18.2. The Contractor shall his own expense comply with or cause to be complied with Model Rules for labour welfare framed by Government or other local bodies from time to time for the protection of health and for making sanitary arrangements for workers hutments area. In case the Contractor fails to make arrangements as aforesaid, the **Registrar** shall be entitled to do so and recover the cost thereof from the Contractor.
- 7.18.3. If female labour is employed, the Contractor shall make necessary provision at his own expense, for safeguarding and care of small children and keeping them clear of the site of operations. No labour shall reside within the site except authorized guards.
- 7.18.4. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid, the **Registrar** shall be entitles to do so and recover the cost there of from the Contractor.

(कंत्राटदाराने शासकिय विमा निधीपाशी कंत्राट कामाचा विमा उतरावा म्हणून करारनाम्यात समाविष्ट करावयाच्या अटी)

कंत्राटदारावर सोपविलेल्या कंत्राट कामांचा विमा कंत्राटदारानी विमा संचालनालय, महाराष्ट्र राज्य, गृह निर्माण भवन, २६४, पहिला मजला, कलानगर, समोर, वांद्रे (पूर्व), मुंबई - ४०००५१ (दूरध्वनी क्र. २६५९०४०३/२६५९०६९० व फॅक्स क्र. २६५९२४६१/२६५९०४०३) या कार्यालयापाशी कंत्राटाच्या संपूर्ण रकमेस व कंत्राटाच्या पूर्ण कालावधिसाठी विमा संचालनालयाने निश्चित केलेल्या (उदा. कंत्राटदाराच्या संपूर्ण जोखीम विमा पत्र इ.) विमा पत्राखाली उतरविणे सक्तीचे आहे. तसेच कंत्राटी काम पूर्ण करण्यासाठी नियुक्त करण्यात येत असलेल्या सर्व कामगारांचा विमा कामगार नुकसान भरपाई विमा पत्राखाली उतरविणे अनिवार्य आहे. विमा संचालनालयाच्या व्यतिरिक्त अन्य विमा कंपन्याकडून घेतलेली विमा पत्रे स्विकारली जाणार नाहीत. जर कोणत्याही कंत्राटदाराने उपरोक्त पध्दतीने विमा पत्र न घेता परस्पर विमा कंपनीकडून विमापत्र घेतल्यास शासकिय विमा निधीने कळविलेली विमा हप्त्याची रक्कम कंत्राटदारास कंत्राटकामापोटी देय असलेल्या रकमेतून

- 7.19. **Co-Ordination by the Contractor:-** Co-ordination of work and at the commencement of work, and from time to time, the Contractor shall confirm with other contractors Sub-Contractors, persons engaged on separate contracts in connection with the work, and with the University Engineer / PMC / Architect for the purpose of the co-ordination and execution of the various phases of work. The Contractor shall ascertain from the other contractors, Sub-Contractors and persons engaged on separate contracts, in connection with the works, the extent of all chasing, cutting and forming of all opening, holes, grooves etc. as may be required to accommodate the various services. The Contractor shall ascertain the routes of all services and the positions of all floors and wall outlets, traps etc. in connection with the installation of plant, services and arrange for the construction of work accordingly. All breaking shall be done by the electrical contractor for Civil works related to electrical work as recesses, holes in the walls and making good to the original surface and no work shall be done over broken or patched work without first ascertaining that the broken surface is adequately prepared with chicken mesh jali and reinforced to receive and hold the repairing further work all without any cost.
- 7.20. **Co-Ordination of Drawings:-** Before commencement of every section of work, the contractor shall correlate all relevant structural, architectural and services drawings, fire fighting works satisfy himself that the information available there from is complete and unambiguous. The contractor shall be responsible for any error / difficulty in execution / damage incurred owing to any discrepancy in the drawings which has been overlooked by him and has been brought to the notice of the University Engineer / PMC / Architect or their representatives.
- 7.21. **Entering upon or commencing any portion of work:-** The contractor shall enter upon or commence any portion of work with prior concurrence in writing of the University Engineer / PMC / Architect of his subordinate-in-charge of work. Failing such and authority, the contractor shall have no claim to ask for measurements of or payment for work done.
- 7.22. **Co-ordination with other agencies work:-** It should be carefully noted that numerous agencies will be working in this project simultaneously and the contractor shall have to work at every stage in close co-ordination with each of these agencies. He shall have to programme his work accordingly in consultation with other agencies and par sequential requirements as may be decided upon by the University Engineer / PMC / Architect. Simultaneous execution of other components of the work by other agencies may necessitate execution of the work in a particular sequence and this will not be accepted as a ground for delay or excuse of any nature whatsoever and nothing extra will be paid for compliance in accordance with the requirements of this clause.
- 7.23. **DEDUCTION FOR RECORRECTED WORK:-** If the University Engineer / PMC / Architect deems it inexpedient to correct work damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made therefore and the University Engineer / PMC / decision in this respect shall be final.
- 7.24. **CORRECTION OF WORK:-** The University Engineer / PMC / Architect shall conduct a final inspection just before the virtual completion of the work and prepare a list of materials, equipment and items of work which fail to confirm to the Contract Specifications. The contractor shall promptly replace and re-execute such items in accordance with the contract and shall bear all expenses of making good all work and the cost of all work of other contractors destroyed or damaged by such replacement or removal. If the contractor fails to remove and replace above rejected materials, equipment and /or workmanship within a reasonable time, fixed by written notice, the **Registrar** may employ and pay other persons to amend and make good such defects at the expense of the contractor. All expenses incurred by the **Registrar** in rectifying the defects including all the damages, loss and expense consequent on the defects shall be recoverable from any amount due or may become due to the Contractor.
- 7.25. VIRTUAL COMPLETION AND DEFECT LIABILITY PERIOD**
- 7.25.1. The work shall be considered as virtually completed by the Contractor, as on fulfilling all the conditions as per clause 7 of section 6 and all other related conditions of the contract of this document. The Defect Liability Period of **Twenty Four months** provided herein shall be reckoned and be effective from the date of final bill duly accepted by the contractor and on obtaining all required undertaking, guarantees, NOCs / clearance of payment of all GST related taxes / charges and on rectifying all defects notified to the contractor from time to time only on complying above virtual completion certificate will be issued to the contractor.

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- 7.25.2. The Contractor shall make good at his own cost and to the satisfaction of the University Engineer / PMC / Architects all defects shrinkages, settlement or other faults, arising in the opinion of the University Engineer from work or materials not being in accordance with the Drawings or specifications or Schedules of Quantities or the instructions of the University Engineer / PMC / Architect which may appear within one year after completion of work, excepting specialist items such as water proofing and anti-termite treatment etc. which call for longer guarantee periods.
- 7.25.3. Such defects, shrinkage, settlement and other faults shall, upon directions in writing of the University Engineer / PMC / Architect and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost, and in case of default the **Registrar** may employ and pay other persons to amend and make good such defects, shrinkages, settlements or other faults, and all damages, loss and expense consequent there on or incidental thereto shall be made good and borne by the Contractor and such damage, loss or expenses shall be recoverable from him by the **Registrar** or may be deducted by the **Registrar** up to the University Engineer / PMC / Architects Certificate in writing from any amount due to the contractor, or the **Registrar** may in lieu of such amending and making good by the contractor, a sum to be determined by the University Engineer / PMC / Architects on recommendation from University Engineer / PMC / Architect equivalent to the cost of amending such work and in the event of the retention amount being insufficient to recover the balance from the Contractor as arrears of land revenue together with any expense the **Registrar** may have incurred therewith.
- 7.25.4. Maintenance during defects liability period: The Contractor shall provide and maintain adequate staff and labour at his own expense to attend to defects arising in the works during the defects liability period of **Twenty Four months** commencing from the date of Virtual Completion certified by the University Engineer or date of final bill whichever is later. He shall attend to the defects pointed out to him expeditiously.

## **7.26. GUARANTEE**

- 7.26.1. Beside guarantees required elsewhere, the Contractor shall guarantee the work in general for **Twenty Four months** from the date of final bill as noted under above clause of Virtual Completion and Defects Liability Period.
- 7.26.2. The Contractor shall submit all required guarantees to the University Engineer / PMC / Architect when requesting certification of accounts for payment by the **Registrar**.
- 7.26.3** All required guarantee shall be submitted to the University Engineer / PMC / Architect in the forms acceptable as a pre-requisite to acceptance and payment.

## **7.27. CONTRACT DRAWINGS, SPECIFICATION, SCHEDULE OF QUANTITIES**

- 7.27.1. In general, the drawings shall indicate dimensions, positions and type of construction; the specifications shall indicate the quantities and the methods; and the Schedule of Quantities shall indicate the quantities and rate for each item of work. However, the above documents being complementary, what is called for by any one shall be as binding as if called for by all. In case of any discrepancies they shall be immediately brought to the notice of the University Engineer / PMC / Architect well in advance before execution.
- 7.27.2. Any work indicated on the Drawings and not mentioned in the Schedule of Quantities or Specifications or vice versa, shall be deemed as though fully set forth in each. work not specifically detailed, called for, marked or specified.
- 7.27.3. No deviation from the Drawings, Specifications and Schedule of Quantities shall be made. The Architect interpretation of these documents shall be final.
- 7.27.4. Errors or inconsistencies discovered in the Plans and Specifications shall be promptly called to the attention of the University Engineer / PMC / Architect for interpretation or correction of University Engineer / P MC / Architect. Local conditions which may affect the work shall likewise be brought to the Architect's attention at once. If, at any time, it is discovered that work is being done which is not in accordance with the approved plans and specifications, the contractor of defective work shall not be a basis for any claim for extension of time. The contractor shall not carry on with the work except with the knowledge of the University Engineer / PMC / Architect or his representative.

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- 7.27.5. Figured dimensions on the scale drawings and large-scale details shall govern. Large-scale details shall take precedence over scale drawings. Any work done before receipt of such details if not in accordance with the same shall be removed and replaced or adjusted as directed without expense to the **Registrar**. All dimensions shall be checked at site prior to execution. Any discrepancy, if observed in drawings, the clarification should be obtained from the Architect before execution.
- 7.27.6. The dimensions where stated do not allow for waste, laps, joints etc. but the contractor shall provide at his own cost sufficient labour and materials to cover such waste, laps, joints etc.
- 7.28. **METHOD OF MEASUREMENT:** - Where work done is to be measured, the standard method of measurement in accordance with the standard laid down by the Indian Standard Institute and standard specification of public works and housing department of Govt. of Maharashtra shall be adopted unless otherwise specified. When several components of item work are specifically incorporated together in the wording of an item in the Bills of Quantities, such item will be measured as a composite item comprising of all the components will not qualify for measurement individually, which the standard method of measurement would have otherwise required them to be measured separately. In the event of any dispute with regard to the mode of measurement of the work executed the decision of the University Engineer / PMC / Architect shall be final and binding.
- 7.29. **TOLERANCE:** - The Contractor shall exercise every care to ensure that all structural Members are in plumb and true to dimensions called for on the drawings, to receive finishing elements such as doors, windows, fittings, fixtures, equipment and similar items. The details of the above finishing items are based upon allowing tolerance of plus / minus 3 mm. from the given location. Any variations beyond this may require rectification in the structural members or may involve remaking or replacing the finishing elements, fabricated to fit in the openings or spaces, as called for on the drawings. Such rectification shall be carried out by the contractor as directed by the University Engineer / PMC / Architect at no extra cost to the **Registrar**. In case of Separate contracts, the contractor whose work does not conform to dimensions called for, shall be liable for all the expenses which may have to be incurred for rectification or replacements as may be required by the University Engineer / PMC / Architect for the proper installation of the finishing elements. The Architects decision in this respect shall be final and binding on the Contractor.
- 7.30. **INDIAN STANDARDS:** - A reference made to any Indian Standard Specifications in these documents, shall imply reference to the latest revision of the standard, including such revisions / amendments as may be issued by the Indian Standards Institution during the contract and the corresponding clause/s therein shall hold valid in place of those referred to.

### 7.31. **PROTECTION AND CLEANING**

- 7.31.1. The Contractor shall protect and preserve the works from all damage for accident by providing temporary roofs, windows, and door covering, boxing or other contraction as required by the University Engineer / PMC / Architect. This protection shall be provided for all property adjacent to the site as well as on the site.
- 7.31.2. The Contractor shall properly clean the work as it progresses and shall remove all rubbish and debris from the site from time to time as is necessary and as directed. On completion, the contractor shall ensure that the premises and / or site are cleaned, surplus materials, debris, shades etc., removed areas under floors cleared or rubbish, gutters and drains cleared, doors and sashes eased, locks and fastenings oiled, keys clearly labeled and handed over to the University Engineer so that the whole is left fit for immediate occupation or use and to the satisfaction of the University Engineer / PMC / Architect.
- 7.32. **SUSPENSION OF WORK :-** The Contractor shall, on receipt of the order in writing of the University Engineer / PMC / Architect suspend the progress of the work or any part thereof for such time and in such manner as the University Engineer may consider necessary for any of the following reasons: -
- 7.32.1. On account of not accepting the site instruction and continued non-compliance of the instructions of the University Engineer / PMC / Architect or any other default on the part of the contractor, in such case the University Engineer shall have powers to suspend the payment under the contract. Such suspension of payment may be continued until default shall have been rectified.
- 7.32.2. For proper execution of the works or part thereof for reasons other than the default of the contractor, or for safety of the works or part thereof.

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7.33. **ENTRY AT SITE:-** It is hereby expressly declared that the entry of the Contractor(s) on the site will be merely as a licensee for carrying out the construction of works under this Agreement, and they shall not, by his/her being allowed such entry on the premises, acquire any right, lien or interest either in the works carried out by them under the Agreement or anything appurtenant or attached thereto and their claim will only be in the nature of money claim found due and payable to them in accordance with the certificates issued by the University Engineer / PMC / Architect under the provisions contained hereafter.

7.34. **JURISDICTION:** - All matters arising out of or in any way connected with this agreement shall be deemed to have arisen in MAHARASHTRA STATE and only the Courts in Solapur shall have jurisdiction to determine the same.

**7.35. POWER OF THE REGISTRAR TO RECOVER ARREARS FROM THE CONTRACTOR :-**

All amounts whatsoever which the contractor is liable to pay to the **Registrar** in connection with the execution of the work including the amount payable in respect of (i) materials and / or stores supplied / issued here under by the **Registrar** to the contractor (ii) hire charges in respect of heavy plant, machinery and equipment given or hire, by the **Registrar** to the contractor for execution by him of the work and / or on which advances have been given by the **Registrar** to the Contractor (iii) and any payment due from the contractor on any account to the **Registrar**, shall be deemed to be arrears of Land Revenue and the **Registrar** may without prejudice to any other rights and remedies of the **Registrar**, recover the same from the contractor as arrears or revenue.

**7.36. SETTLEMENT OF DISPUTE**

The reference is invited to clause 7.9 and clause 7.10 above regarding the Architects status and decision and PMC's status and Decision and that of University Engineer.

If the contractor is not satisfied with the decision given by the University Engineer / PMC / Architect as aforesaid for any disputes, claims and difference arising due to interpretation of any technical terms and conditions of contract executed between the Owner and the Contractor, specification, drawings, quality and finish of work and acceptable of work and all matter related to this contract document, then the contractor may, within thirty days of receipt by him of any such decision / order, appeal against it with full details and justification to the Vice-Chancellor, Punyashlok Ahilyadevi Holkar Solapur University, Solapur who if convinced that prima-fascia, the contractors claim, rejected by the University Engineer / PMC / Architect is not frivolous and that there is some substance in the claim of the contractor as would merit a detailed examination and place such claim to the Building and Works Committee for suitable decision.

The decision taken by the Building and Works Committee of the Punyashlok Ahilyadevi Holkar Solapur University shall be final and without appeal and binding to the contractor and the Registrar. The contractor and the owner hereby agree that, this clause shall be condition precedent to any right of action under the contract.

The Arbitration is not allowed and the contract does not provide for any provision to arbitration.

**7.37 SECURED ADVANCE ON MATERIALS DURING CONSTRUCTION STAGE**

7.37.1. The contractor may be considered for payment as secured advance on certain unfixed imperishable material that have been brought to the site in appropriate and reasonable time for incorporation in the work and stored as per prescribed specification to the extent of 70% of cost of such materials. Such advance payment shall be supported by all relevant vouchers, weigh bills, payment receipts, delivery challan, test certificate, measurement books. Such payment shall be based on the basic rates given in C.S.R. 2022-2023. However the rate whichever is lower will be taken for such advance payment and as recommended by the University Engineer / PMC / Architect where the basic rates of materials are not available in C.S.R. the basic rates decided by University Engineer / PMC / Architect shall be applied.

7.37.2. The Contractor is required to furnish Indenture Bond on Rs. 500/- stamp-paper prescribed by the Owner duly executed by the Contractor as directed for such advance payment. The payment of such advances shall be made only on the Certificate of the University Engineer / PMC / Architect .

7.37.3. Such advance will be made only on such imperishable materials which are to be consumed in less than two months time and which will be solely on the discretion of the University Engineer / PMC / Architect and lying unfixed in safe custody and storage at site on stock taking basis every month and the sum thus advanced in one bill shall be fully recovered from the next bill, may be after allowing fresh advance in the next bill on similar basis on the unfixed materials then in the stock at site.

- 7.37.4. No such advance will be granted in the pre-final bill. The Advance payments on unfixed materials will be treated as on account payment, such materials when paid for, become the exclusive property of the Registrar and shall not be hypothecated to any party or removed from the site regardless of whether accepted or not.
- 7.37.5. The said materials shall remain in the custody of the Contractor until the work is completed and delivered to the Registrar and any loss or damage shall be the sole responsibility of the contractor. An insurance policy against theft, loss or damage by fire, accident and all other causes including acts of God to cover the value of all materials at site for which the contractor at his cost in the name of the Owner. The policy shall be kept in force till the materials are incorporated in the work. The original policy and receipts for premium shall be submitted to the University Engineer / PMC / Architect.
- 7.37.6. Such payments shall be restricted to the approved imperishable materials as fan, fitting without tubes and lamps, cables, wire etc. Secured advance on cement in addition to the above materials will also be considered to the maximum extent of 75% if storage godown and system of storage is as per conditions of the contract and to the satisfaction of the University Engineer / PMC / Architect.
- 7.37.7 The payment in lieu of secured advance shall not exceed to 10% of the estimated cost put to tender at initial stage and thereafter 10% of balance work as per Schedule ' B ' without premium.

## 8 **ADDITIONAL CONDITIONS OF CONTRACT**

### 8.1. **ADMITTANCE TO THE SITE**

The Contractor shall be allowed admittance to the site on the date of commencement and he shall thereupon and forthwith begin the work and shall regularly proceed with and complete the same on or before the date of completion.

### 8.2. **PROGRAMME CHART**

- 8.2.1. The Contractor shall prepare Time and Progress Schedules in the form of BAR CHARTS based on PERT / CPM analysis including resources Scheduling and procurement for materials and all other factors for the whole of the contract within fifteen days of the award of contract for completing the whole work within the completion time stated in the contract, and submit them for approval of the University Engineer / PMC / Architect. It is the contractor's responsibility to submit to the University Engineer / PMC / the Architects and University Engineer the Works progress Report precisely in terms of work done for every week and to see that the Progress of work is maintained and conformity with the Time and Progress Schedules. The Punyashlok Ahilyadevi Holkar Solapur University will not be responsible for any claim on the part of the Contractors and Sub-Contractors on account of delay in delivery of materials by merchants or nominated sub-contractors not having completed their works in accordance with the Time and Progress Schedules.
- 8.2.2. The chart shall also indicate the scheduling of samples, shop drawings and approvals. Thereafter on the first day of each month, for purposes of comparison, the Contractor shall submit an identical chart showing the actual rate of progress to date.
- 8.2.3. In the event the actual rate of progress falls behind the scheduled progress as indicated in the charts, the contractor shall accelerate the works to the satisfaction of the University Engineer / PMC / Architect.

### 8.3. **DAILY PROGRESS REPORT**

The contractor shall submit in duplicate, on a form to be approved by University Engineer / PMC / Architect, a daily report giving an accurate record of the progress of the works and shall submit a detailed report of the following : These reports should be submitted to the University Engineer / PMC / Architect.

- 8.3.1. Materials procured, consumed and balance at site for previous week as well as expected deliveries during next week.
- 8.3.2. List of equipments and machinery working at site, standby as well as those under repair on daily basis and equipments scheduled to arrive during next week.
- 8.3.3. Skilled / unskilled men employed in each trade including Engineers working at site from day to day and expected increase in next week.
- 8.3.4. Steps proposed for speeding up the progress of work in the next week.
- 8.3.5. Necessary information on all the above items shall be displayed on the black board to be provided in the site office of the University Engineer / PMC / Architect by the Contractor at his cost to indicate these items for that particular day through out the construction period.

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- 8.3.6. The contractor shall also submit daily record of weather, temperature visitors to the site and any other events influencing the progress of the works of the previous day.
- 8.3.7. The Contractor shall impose a similar requirement on all his sub-contractors and shall incorporate such information in his own report.
- 8.3.8. The contractors shall arrange adequate resources in time to adhere to the time schedule at each stage and this adherence will be a part of the contractor's performance under the contract.
- 8.4. The contractor should obtain approval from University Engineer and from the PMC / the Architects for the temporary construction of office, storage, Godown and Labour hutments if allowed etc. proposed to be erected, on the site of work and pay taxes, rent etc. if any.
- 8.5. The contractor shall provide, erect and maintain at his own cost where directed, office accommodation of the Site Engineer of University Engineer / PMC / Architect at site with drawing table, stool, desk with drawers, writing table, six chairs, mobile, electric lights, fans, drinking water arrangement and also a room for site meetings with required furniture, separate adequate toilet facilities, etc. and clear away at completion and make good all work disturbed as directed by the University Engineer / PMC / Architect. The contractor shall pay all deposits, bills, charges, etc. of the telephone upto the completion of works. The total office area required to be provided at contractors cost shall be minimum of 80 Sq.M. This office and the contractors site office shall be handed over to the Registrar without any cost if Registrar decides to retain the structure.
- The contractor shall install atleast eight numbers of CCTV camera with mobile booster, dongal WiFi with all required accessories as to see everyday outgoing work at site from the office of Honourable Vice-Chancellor, the Registrar, the University Engineer, Architect & PMC.
- The contractor shall provide and maintain the computer, printer, ink cartridges, required stationery, etc. to the Project Engineer of PMC / Architect and shall maintain effective working condition through the contract period till completion of project and till issue of final bill whichever is later.
- 8.6. The contractor shall provide, erect and maintain at approved position proper office for his staff and his office shall be open at all reasonable hours to receive instructions, notices or communications and clear away at completion and make good all works distributed as directed by the University Engineer / PMC / Architect.
- 8.7. The contractor shall ensure continued effective supervision with the help of a qualified, experienced and competent Engineer assisted by adequate technical supervisory and other staff as ascertained by the University Engineer / PMC / Architect for the entire duration of the works. The Contractor will be responsible for carrying out the work to the true meaning of the Drawings, Conditions of Contract, Specifications, Schedule of Quantities and the University Engineer / PMC / Architect's Instructions and directions to the satisfaction of the University Engineer / PMC / Architect. Any directions or instructions given to him in writing shall be held to have been given to the Contractor officially. Attention is called to the importance of requesting written instruction from the University Engineer / PMC / Architect before undertaking any work where the University Engineer / PMC / Architect's directions or instructions are required. Any such work done in advance of such instructions will be liable to be removed at the Contractor's cost. No staff including the Engineer and Technical Supervisory staff shall be transferred from the work without the written prior permission from the University Engineer / PMC / Architect.
- 8.8. The Electrical Contractor should allow any other contractor to work simultaneously wherever necessary. In case of any dispute between the sub-contractors / the agencies and the Electrical contractor arises, the decision of the University Engineer / PMC / Architect shall be final and binding on the agencies and electrical contractor.

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## 8.9. WATER

- 8.9.1. All water charges, Sewerage Charges / Taxes as levied by LOCAL AUTHORITY for water required during construction shall be paid by the contractor and / or the contractor shall ~~make his own arrangement~~ of water required during construction and the whole of the water must be clean and fresh water. It also include for providing water required by sub-contractors. The contractor must execute any temporary plumbing and pay all fees and charges including transportation charges, etc.
- 8.9.2. Clean fresh water only shall be used for the works. The water shall be free from any deleterious matter in solution or in suspension and be obtained from an approved source. The quality of water shall conform to IS 456.
- 8.9.3. The contractor shall make his own arrangements for storing water, if necessary, in drums or tanks or cisterns, to the approval of the University Engineer / PMC / Architect. Care shall be exercised to see that water is not contaminated in any way.
- 8.9.4. There is no water available with the University, hence the contractor need to arrange the water for construction by his own. In case contractor use tanker water, he must obtain the permission from Local authority & pay their charges and submit NOC from Local authority to use tanker water. Further the contractor need to submit a copy of challan of tanker water also showing the source and test reports of water before submission of each R. A. Bill. Owner shall not accept any commitment for supply of water.
- 8.9.5. In case university allow the contractor to make borewell / wells in their Land, all the expenses of borewell, submersible pumps, piping, electric connection of all these charge shall be borned by the contractor and the contractor shall handover the borewell including sub-mercible in good condition to the university without any charge. The test report of water should be submitted to the UniversityEngineer / PMC / Architect as to ascertain whether it is fit forconstruction, then water can be allowed to use for construction. The contractor shall also allow the university to use the water of these borewells without any cost for their other project. The contractor shall obtain all / requisite permissions as from the collector and also from respective authority without any cost.
- 8.10. The whole of the work including all extra and additional items if and when ordered are to be completed in the time stated in the contract and the contractor will be required if necessary to work over time within the framework of regulations to stick to the University Engineer / PMC / Architect's instructions to complete all the works by the stipulated date. No extra claim will be allowed on the contracted amount on account of this factor.
- 8.11. The contractor will be responsible for the complete co-ordination of all the works including that of sub-contractors and nominated sub-contractors, for arranging runs of all services and working to the requirements and layouts of the specialist traders, execution of the works.
- 8.12. All drawings, tracings, Bills of Quantities, Photoprints, Writings ( except letters ) and Specifications and copies thereof furnished by the Architect are his property. They shall not be used on any other work and shall be returned to the Architect on completion or termination of the contract.
- 8.13. The drawings maintained on the site are to be carefully mounted on canvas of appropriate size. They are to be protected from the ravages of termites, ants, silver fish and other insects.
- 8.14. The whole of the work must be proceeded with such sections and at such times as directed by the University Engineer / PMC / Architect.

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- 8.15 The whole of the materials ( except where otherwise described ), stores and equipment required for the faithful performance of the contract must be provided through normal trade channels and strictly in accordance with specification and be the best of their kind available at the time and the contractor must be responsible for the proper and efficient carrying out of the work. The work must be done in best and most workman like manner. Samples of all materials to be used must be submitted to the University Engineer / PMC / Architect for approval prior to procurement.
- 8.16. The contractor shall provide and do everything necessary for the proper execution of the works according to the true intent and meaning of the drawings and specifications taken together, whether the same may or may not be particularly shown on the drawings or described in the Schedule of Quantities, provided that the same can be reasonably inferred therein from.
- 8.17. It must be clearly understood that the whole of the conditions and specifications are intended to be strictly enforced, and that no extra charges in respect of extra work will be allowed unless they are clearly outside the spirit and meaning of the conditions or unless such works shall have been ordered in writing by the University Engineer / PMC / Architect.
- 8.18 Any instructions given verbally shall be deemed instructions for the proper execution of the works not involving extra charges, however immediately verbal instructions, to be confirmed in writing by the contractor.
- 8.19. The contractor shall on the request of the University Engineer / PMC /Architect immediately dismiss from the works any person employed thereon by him who may in the opinion of the University Engineer / PMC / Architect be incompetent or misconducts himself and such person shall not be again employed on the work without the permission of the University Engineer / PMC / Architect.
- 8.20. The Contractor shall make his own security arrangements to guard the site and premises at all times, by day, by night, on sundays, and other holidays at his own expense. The security arrangements shall be adequate to maintain strict control on the movement of materials and labour. The contractor shall extend the security arrangements to guard the material stored and / or fixed on the premises by the sub-contractors. The contractor will provide at his own cost suitable temporary huts for the watchmen and clear away when no longer required and provide all necessary attendance, light, etc. required. The Contractor must prevent his men from entering any adjoining land or property other than that in which he is actually employed, and the contractor will be held responsible for any loss or damage which can be ascertained and proved to have occasioned by his workmen.
- 8.21. The Contractor shall provide all artificial light required for the works and to enable the contractors and sub-contractors to complete the works in the specified time including that for the workmen of any sub-contractors or special tradesmen which must be provided by the contractor at his own cost.
- 8.22. The contractor shall provide any necessary temporary enclosures, gates entrances, etc., for the protection of the works and materials and for altering and adapting same as may be required and removing at completion of the works and making good all works disturbed.
- 8.23. The contractor shall provide and erect adequate latrine accommodation for the site staff and the workmen and keep the same in a clean and sanitary condition to the satisfaction of the Public Health Authorities / University and clean and deodorise the ground after removal and make good all works disturbed by these conveniences.
- 8.24. Should the work be suspended by reason of rain, strike, lockouts, or other cause the contractor shall take all precautions necessary for the protection of the work and at his own expenses shall make good any damages arising from any of these causes.

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- 8.25. The contractor shall keep accurate records of weather, temperature, visitors and any other occurrences affecting the progress or quality of the works as per the sample charts supplied by the University Engineer / PMC / Architect.
- 8.26. The terms " Approved ", " Directed " or " Selected " mean the approval, direction or selection of the University Engineer / PMC / Architect and wherever the word " Allow " occurs the cost of the item or items is at the risk of the contractors.
- 8.27. The contractor shall provide, erect and maintain at his expense proper water proof stores for the storage and protection of construction materials and equipments both of his own as well as those supplied by the Registrar from time to time and also for the tools and materials of sub-contractors.
- 8.28. The contractors shall at all times give access to workmen employed by the local or other authorities or any other parties employed on the buildings and to provide such parties with proper, sufficient and if required, special scaffolding, hoists and ladders and provide them with water and lighting and leave or make any holes, grooves etc., in any work where directed by the University Engineer / PMC / Architect as may be required to enable such workmen to lay on fix pipes, electric wiring, special fittings etc.
- 8.29. The contractor shall cover up and protect from injury from any cause all new work, also for supplying all temporary doors, protection to windows, and any other requisite protection for the whole of the works executed, whether by himself or special tradesmen or sub-contractors, and any damage caused must be made good by the Contractor at his own expense.
- 8.30. The whole of the fences, paths, trees, shrubs, green and other surfaces about the buildings or approaches thereto, which are required to be maintained are to be kept free from damage due to the operations in connection with the works.
- 8.31. The contractor shall at his own cost provide and maintain such temporary road on the site as may be necessary for the proper performance of the contract and for his own convenience but not otherwise. Upon completion such roads shall be broken up and levelled where so required by the drawings unless the University Engineer / PMC / Architect shall otherwise direct.
- 8.32. **TREASURES** : Any Treasures Coins or objects of Antiquity, which may be found at site shall be handed over to the Registrar , Punyashlok Ahilyadevi Holkar Solapur University.
- 8.33. The Contractor at his cost clean, clear and cart away all shavings, cutting and other rubbish as it accumulates from time to time during the progress of work and at completion, including that sub-contractors, special tradesmen.
- 8.34. Should suitable sand or gravel or rock be found in the excavations and the contractor is allowed to use the same in the work, he will be required to pay the owner the full market value of the same. Any sand or gravel taken from the excavation will remain the property of the owner and in the event, of it, not being allowed to be used in the work the subject of this contract, the contractor at his cost cart away the same at the place directed by the University Engineer / PMC / Architect.
- 8.35. The contractor shall provide and erect on the site in the position as directed by the University Engineer / PMC / Architect, the name board with birds eye view or Perspective well laminated & printing on photographic waterproof paper as per the design provided with the name plate of size of about 1.80 X 3.25 meter of 18 mm. thick marine kit ply with T.W. beading all around and to be fixed at height of 2.40 meter from

the finished ground. The frame for name board shall be of 3" X 3" X 1/4" thick M.S. angle with cross members of M.S. angle of 3" X 3" X 1/4" at every 900 mm. distance. The frame shall be braced with 3" X 3" X 1/4" M.S. bracings with cross members of same size. The bracing and the frame shall be fixed in the ground with atleast in 450 X 450 X 1000 mm. in deep in 1 : 2 : 4 concrete. The board to be painted in three coats of approved oil colour and lined out in darker lines into panels to received the name and address of Registrar, PMC, Architect, Contractors, etc. to provide for all necessary writing on board. The name board and lettering shall be got approved by the University Engineer / PMC / the Architect.

- 8.36. The contractor shall not affix or place any placards or advertisement of any description or permit the same to be affixed or placed in or upon any hoardings, gantry, building or structure other than the above name board.
- 8.37. The rates quoted by the contractor cover for necessary transport of materials from place of availability to the site of works.
- 8.38. Theodolite, levels, prismatic compass, chain, leveling staffs, steel and metallic tapes and all other surveying instruments found necessary on the works shall be provided by the contractors for the due performance of their contract as instructed by the University Engineer / PMC / Architect.
- 8.39. The mistries and the supervisors on the works shall carry with them always a one foot rule, a measuring tape of atleast 30 meters a spirit level, a plumb bob and a square. The University Engineer / PMC / Architect or their representative will use any and all measuring instruments or tools belonging to the contractors as he chooses, checking the works executed or being executed on the works.
- 8.40. The contractors or their representatives shall accompany the University Engineer / PMC / Architect and their representatives when required to do so, and assist in taking the measurements recorded on the spot.
- 8.41. All measuring tapes shall be of steel and scaffolding and ladders that may be required for taking measurements shall be supplied by the Contractor.
- 8.42. If the contractor fails to accompany the Engineer or any other person that has been duly authorised by the University Engineer / PMC / Architect to take measurements they shall be bound by the measurements recorded by the University Engineer / the PMC / the Architects or his / their representative.
- 8.43. The contractor or contractors shall place at the disposal of the owner and the University Engineer / PMC / Architect, the services and the advice of himself and his firm, and their staff of Engineers skilled person employed by him or them for the conduct of the works comprised in this contract.
- 8.44. The contractor is to construct and maintain proper bench marks with levels at the intersection of the all main walls in order that the lines and levels may be accurately checked at all times. The contractor shall install main reference bench mark with marking level related to bench mark level to be taken from main reference point as directed by the PMC / the Architect / University Engineer.

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- 8.45. The contractors shall provide suitable stone with flat tops and build the same in concrete for temporary bench marks. All the pegs for setting out the work and fixing the necessary levels required for the execution thereof shall if desired by the PMC / the Architects / the University Engineer, likewise be built in masonry at such places and in such manner as the University Engineer / PMC / Architect may determine.
- 8.46 Particular care must be taken to see that the floors are not overloaded by stacks of materials during construction. It is important that no load comes on the reinforced concrete floors until they are at least 3 weeks old and at no time must the load placed upon them exceed the load for which they are designed.
- 8.47. The charges for testing of materials will be borne by the contractor from time to time including transport and handling charges. All such tests shall be carried out, at the laboratories specified by the University Engineer / PMC/Architect periodically as per guidelines of the Maharashtra Govt. (vigilance etc ).
- The testing charges shall be reimbursed by the Registrar as per rates given in Schedule ' B ' with no premium, escalation etc. on the satisfactory evidence of payments and testing reports.
- 8.48. Income Tax at 2% plus surcharge as applicable on income tax or percentage of tax and surcharge that will be in force from time to time shall be recovered from the Gross amount of every bill, whether for measured work or advance payment and / or Secured Advance.
- 8.49. The contractor shall pay to the government authorities – all royalties and others sums payable in respect of the materials as sand murum , rubble and aggregate . The Contractor shall submit the receipts of all such payment to the University Engineer. No payment of royalties will be made by the University till the receipts of payment of all royalties are submitted.
- 8.50 Licences and Permits for all materials under Government control shall be obtained by the Contractor directly. The Contractor shall include in his tender all taxes, all transport charges and other expenses likely to be incurred to bring the materials to the site and the tender premium + or – or at par shall be inclusive of it.
- 8.51. The rates are taken from C.S.R. published by P.W.D. of year 2022-2023. Hence, if any discrepancies in rates observed in Bills of Quantities, C.S.R. Rates of 2022-2023 will be followed.
- 8.52. **PARTIAL POSSESSION** : The Contractor at any time or times before practical completion of the works shall allow the **Registrar** to take possession of any parts of the building without any conditions and without any extra cost .The contractor shall workout completion program including partial completion as required by the **Registrar** from time to time without any extra cost, keeping all the conditions of contracts as these are nothing shall be paid extra for such partial completions. Partial completions taken by the **Registrar** from time to time shall have no effect whatsoever on virtual completion and defect liability period which shall be taken as per clause 7 of section 6 and as per 7.25 of the conditions of contract.
- 8.53 **POWER FOR CONSTRUCTION** : Contractor shall make all necessary arrangements at his cost for adequate supply of electric power required for him and by other agencies employed at site and shall pay all electrical bills regularly.

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8.54. **OVER TIME** : As and when necessary for the contractor or any sub- contractor to work from time to time on other than week days or outside normal working hours in order to keep up to the time schedule, the contractor shall give due notice of his intention to do so and obtain prior approval of the University Engineer / PMC / Architect. The additional cost of wages and any other costs caused by overtime or shift work payable by him to his employees shall be borne in full by the Contractor and nothing extra will be paid by the Registrar to the Contractor for compliance with the requirements of this clause.

8.55. **WORK SHEDS** : The Contractor shall, at his expense provide, erect and maintain proper weather-proof work sheds for carpentry and joinery work and such other trades which require protection against weather.

8.56. The University Engineer / PMC / Architect shall have the power to direct the omission of carrying out of any part or parts of the works but not amounting to the omission of the whole, the contractor shall not be entitled to claim any compensation of this ground.

#### 8.57. **PAYMENT WITHHELD**

The University Engineer / PMC / Architect may withhold or on account of a subsequently discovered evidence nullify the whole or a part of any certificate to such extent as may be necessary in his reasonable opinion to protect the Registrar from loss on account of :

8.57.1. Defective work not remedied.

8.57.2. Failure of the Contractor to make payments properly to Sub-Contractor or for materials or labour.

8.57.3. A reasonable doubt that the Contractor intend not to complete the work and also leaving items of work incomplete.

8.57.4. Damage to another Contractor or Sub-Contractor.

8.57.5. A reasonable doubt that the contractor intends to leave work incomplete.

#### 8.58 **MATERIALS AND WORKMANSHIP**

8.58.1. All materials and workmanship shall be as per the prescribed specification and as per relevant code of I.S.I. Specification and of only specified make in this tender. All materials and equipment to be incorporated in the work shall be new and are to be entire satisfaction of the University Engineer / PMC / Architect. The Contractor shall immediately remove from the works any material and / or workmanship which in the opinion of the University Engineer / PMC / Architect are defective or unsuitable and shall substitute proper materials and / or workmanship at his own cost. The term approval used in connection with his contract shall mean the approval of the University Engineer / PMC / Architect.

8.58.2. The contractor shall if required submit satisfactory evidence as to the kind and quality of material.

8.58.3. Where special makes or brands are called for they are mentioned as a standard. Others of equal quality may be used provided approval is first obtained in writing from the University Engineer / PMC / Architect. Unless substitution are requested no deviation from the specification will be permitted. Failure to propose the substitution of any article within 30 days after signing of the Contract will be deemed sufficient cause for denial of the request for substitution. No extra cost shall be paid to the contractor on account of such approved substitutions.

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- 8.58.4. The contractor shall indicate and submit evidence in writing of those materials of articles called for in the specifications that are not obtainable for installation in the work within the Time Limits of the contract. Failure to indicate the above, within 30 days after the signing of the contract, will be deemed sufficient cause for the denial of request for the extension of the Contract time.
- 8.58.5. All materials, and equipment shall be delivered so as to ensure a speedy and uninterrupted progress of the work. Same shall be stored so as to cause no obstruction and so as to prevent overloading of any portion of the structure, and the Contractor shall be entirely responsible for damage or loss to the materials, by weather or other causes.
- 8.58.6. Within one month after signing the contract, the Contractor shall submit for approval of the University Engineer / PMC / Architect, a complete list of all materials and equipment he and his sub- contractor propose to use in the work, of definite brand or make, which differs in any respect from those specified; also the particular brand of any article where more than one is specified as standard..He shall also list items not specifically mentioned in the specifications but which are reasonably inferred and necessary for the completion of the work.
- 8.58.7. The Contractor shall employ the right kind of workmen, jigs, tools and equipment to fabricate and install all materials and equipment, whether locally purchase or imported and whether provided by the Registrar or Contractor himself. They shall be fabricated and installed without any damage and in accordance with the manufacturers instructions and manuals. Unless specifically shown otherwise, all items such as doors / window frames, suspended and other ceilings, equipments etc. shall be securely fixed to their supports through wooden plugs shall not be permitted.
- 8.58.8. **Inspection** : All materials, equipment and workmanship shall be subject to inspection, examination and test by the University Engineer / PMC / Architect at any and all times during manufacture and / or construction. The University Engineer / PMC / Architect shall have the right to reject defective material, equipment and workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected and rejected materials and equipment shall be satisfactorily replaced with proper material and equipment without charge thereof, and the Contractor shall promptly segregate and remove the rejected materials and equipment from the premises. If the contractor fails to proceed at once with the replacement of rejected materials and / or the correction of defective workmanship the owner may by contract or otherwise, replace such materials and equipment and / or correct such workmanship and charge the cost thereof to the contractor or may terminate the right of the contractor to proceed further with the work. The contractor shall furnish promptly, materials and equipment necessary for the safe and convenient inspection and test that may be required by the University Engineer / PMC / Architect.
- 8.58.9. **Testing** : All tests shall be conducted in a manner and only through an organisation specified in the condition of contract. The Contractor shall arrange for such tests. As per Maharashtra Govt. rules and regulations issued time to time by various P.W.D. G.R.'s and also notifications by vigilance and quality control circle, Pune, the tests of building materials and items used in building construction, shall be carried out.

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The frequency of such tests shall be as required by the govt.directives ( under IS code and specifications. ) and also as and when such tests are desired by the University Engineer /PMC / Architect.

The testing charges for construction materials used are given in Schedule ' B ', which shall not attract any plus or minus premium nor any escalation and it shall be the duty of the contractor to obtain, manage such tests from the testing laboratories as detailed in the Govt. G. R. No. 2004 / p. k . 109 / r;.m. – 2 Mantralaya, Mumbai – 400 032 dated 22.3.2005 and further and updating circulars / G. R. 's Issued by Maharashtra Govt. / P.W.D.

- 8.59. **Sample panels of finishes for approvals** : For all finishing item such as flooring, wall veneering, plastering, painting, external finishes and exposed work, the contractor shall have to make sample panels for approval of the University Engineer / PMC / Architect as directed by the Architects. No extra amount of rates shall be paid for making such samples for approval, irrespective of number of such samples.

#### 8.60 **FIRE AND ACCIDENT INSURANCE**

- (a) The Contractor shall insure the works against loss or damage by fire, accident, riot, civil commotion and / or all acts of God, progressively to the full amount of the Contract. Such insurance is to be effected from time to time in the name of the Registrar and is to be for the amount of the full value of the work including quoted premium and as determined by the University Engineer / PMC / Architect.

All premiums on insuring the works as described above and approved by University Engineer / PMC / Architect shall be paid by the contractor, which shall be reimbursed by the University on production of documentary evidence including the payment actually debited from the contractors account, Such insurances shall be from Directorate of Insurance, Govt. of Maharashtra ( circular enclosed ) and the Contractor shall deposit with the University Engineer / PMC / the Architect / the policy or policies and the receipts in respect of premiums paid : and should the Contractor make default in insuring or continuing to insure as aforesaid the Registrar may himself insure against any risk with respect of which the default shall have occurred and deduct a sum equivalent to the amount paid by him in respect of premium from any monies due to or to become due to the Contractor, or may at his option refuse payment of any certificate to the Contractor until Contractor shall have complied with the terms of this condition.

- (b) Such Insurance, whether effected by the Registrar or the Contractor, is to be no limit or bar to the liability and obligation of the contractor to deliver the works to the owner completed in all respects according to this contract. In case of loss or damage due to any of the aforesaid causes, the money payable under any such insurance shall be received and retained by the Registrar until the works are finally completed and the settlement of accounts in the event of this Contract not having been previously cancelled under those conditions.

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- (c) Comprehensive all risk insurance cover : The contractor shall bear initially the expenditure to be incurred in respect of the following insurance and obtain comprehensive all risk ( CAR ) insurance policy to cover damages to and loss of property and persons for minimum value as under :
- (i) Building work under construction including all adjacent buildings boundary walls, power lines, sewer lines, road telephone cables etc. Full reinstatement value of the building against all risks during construction.
  - (ii) Injuries or deaths to persons or damage to the property belonging to Owner/ Registrar employees, PMC, PMC's staff / Architects, Architect's Staff, PMC's / Architect's representatives, University Engineer and his Consultants and staff, Sub-Contractor, Suppliers and Visitors to site or adjacent premises, minimum Rs. 15,00,000.00 ( Rupees fifteen Lakhs only ) for single incidence.
  - (iii) Compensation payable under Workmen Compensation Act on account of injury to all works belonging to contractor's own or sub-contractor's organisation.
  - (iv) Injury to persons or damage to the property belonging to contractor's own organisation, contractor's own employees and contractor's sub-contractor's employees, minimum Rs. 15,00,000.00 ( Rupees fifteen Lakhs only ) for single incidence.
  - (v) Insurance of works against Fire etc., as stated in item ' a ' above.
  - ( vi ) The insurance policy shall be done in favour of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur as “ INSURED “. The policy should indicate the cost of work and all the details as described in the item, Receipt of payment and letter of realization of cheque if payment is made by cheque should be submitted alongwith the original policy.
- (d) If the contractor fails or neglects to obtain the comprehensive all risk insurance policy at his cost, the policy shall be obtained by the Registrar while additional 20% of premium shall be recovered from the contractor as management expenses for making policy.

The University has right to change or modify the comprehensive All risk Policy as per Govt. regulations.

- 8.61. The Registrar reserves the right to let other contracts in connection with his work. The contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and co-ordinate his work and theirs. If any part of Contractor's work depends for proper execution or results upon the work of any other Contractor, the contractor shall inspect and promptly report to the University Engineer / PMC / Architect any defects in such work that render it unsuitable for such proper execution and results. His failure to inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the reception of his work, except as to the defects which may develop in the other Contractor's work after the execution of the work.

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- 8.62. The contractor shall comply with all Government Acts including any bye-laws or regulations of local authorities relating to the works, and shall give all notices and pay all fees and charges demandable by law thereunder and indemnify the Registrar against the same.
- 8.63. If the contractor desires with the approval of University Engineer / PMC / Architect to use any design of materials and process covered by letters ' Patented ' or ' Copy right ' it shall be the full responsibility of the contractor to observe all legal formalities for use of such materials.
- 8.64. The contractor shall indemnify the Registrar against all actions, suits, claims and demands brought or made against in respect of anything done or omitted to be done by the contractor in execution of or in connection with the work of this contract and against any loss or damage to the Registrar on consequence of any action or suit being brought against the contractor for anything done or committed to be done in the execution of the work of this contract.

**8.65. SITE PHOTOGRAPHS**

The Contractor shall submit three sets of atleast 20 ( 4 “ x 6 “ size ) photographs on progress of the construction work before 5th of every month to the University Engineer / PMC / Architect ( one set each ) without any extracost. No R. A. Bill shall be forwarded to the University Engineer / PMC / the Architect and will not be paid without these photographs. These photographs shall be of the works considered in that R. A. Bill.

If the above photographs are not submitted by the contractor, then the University will get the private photographer and all his expenses will be debited from the immediate R. A. Bill @ rate Rs. 75/- per photographs copy.

**8.66. SITE MEETINGS**

The University Engineer / PMC / Architect may invite regular meetings on site and if necessary in Architect's office in Mumbai and in Registrar's office for discussions on project. The contractor or his Engineer shall visit University Engineer's / PMC's / Architect's office in Mumbai atleast once in a month or more if required in respect of the work without any extra cost.

**8.67. THE DEFINITION OF FLOORS**

GROUND FLOOR : Means Ground Floor with total height upto truss upto ridge  
And including floor below spectators gallery

FIRST FLOOR : Means First Floor and terrace and over roof as indicated on  
drawing

- 8.68. The unsuccessful tenderers will have to return all the copies of drawings collected alongwith the tender without any refund thereof before release of the earnest money.
- 8.69. Receipts for payments made on account of any work, when executed by a firm, should also be signed by all the partners except where the contractors are described in their tender as a firm, in which case the receipt shall be signed in the name of the firm by one of the partners, or by some other person having authority to give official receipts for the firm.
- 8.70. University Engineer / PMC / Architect may change the layout of building in accordance with site conditions, without any financial implications.

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- 8.71. The materials and labour components and their constants in item rates shall be as per Maharashtra P.W.D., where-ever such components and their constants are not available in P.W.D., these will be followed as given by All India Schedule of Rates ( N.B.O.)
- 8.72. Theoretical Consumption of all materials of the items based on S.S.R. / C.S.R. shall be as Maharashtra P.W.D.
- 8.73. All the terms and provisions of all conditions of contract stipulated in the tender documents shall be applicable. In the absence of any provisions in the tender document for all other matters, the matter shall be dealt in light of Maharashtra P.W.D. provisions.
- 8.74. No extra payment shall be made for shuttering, scaffold, etc. for all other works for all clear storey heights and for any height whatsoever. The scaffolding at any storey heights shall be done strictly in stages with platforms in between and shall be strong & of proper design without any extra cost. The contractor shall be wholly responsible for its safety.
- 8.75. **BASIC RATES FOR MATERIAL AND LABOURERS, ETC.**  
The basic rates for all materials, labour, etc. shall be as per provision made in S.S.R. / C.S.R. published by P. W. D. of year SSR 2022 - 2023. These rates shall be applicable for administration of this contract including analysis of non-schedule items.
- 8.76. The analysis of rates of the extra items shall be done / derived from the basic rates given in S.S.R. / C.S.R. electrical DSR. The analysis will be done as per item No. 8.71, 8.72, 8.73, 8.75 and all the related conditions of Volume I of tender document. Wherever basic rates are not available, the prevailing market rate will be taken and the rates shall be derived from the basic consumption of materials and labour components. The Contractor has to accept the rates of such non-schedule items worked out by the University Engineer / PMC / Architect. The contractor shall not withhold the work on account of this or any other reasons.
- 8.77. **LOCAL AUTHORITY REGULATIONS**  
The contractor shall carry out the work in accordance with all local authority, regulations and bye-laws without any extra cost. No extra claim shall be entertained due to any delay caused by local authority approvals.
- 8.78. **ELECTRICITY**  
The contractor shall arrange temporary electric connection for construction at his own cost only on obtaining necessary permission from the local authorities and from any other respective authorities. The required Deposits, the other charges, monthly electricity charges of consumption of electricity for such temporary connection shall be paid by the contractor immediately. In case, it is not paid within the time limit, all such charges shall be deducted from the contractor's running bill.
- 8.79. In addition to stipulated conditions in this contract, the contractor shall also provide facilities to the construction workers as per labour regulation laid by the Government.
- 8.80. Any defective or inaccurate setting out or deviation from the plan, shall be rectified at contractor's risk and cost.

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- 8.81 The contractor shall make necessary arrangements and obtain approval to get water connection from local authorities, other authorities concerned, for the execution of the work at his own cost and pay deposit and extra water charges, sewerage charges and flushing charges and all other charges in accordance with the rules of local authorities or other charges in accordance with the rules or other authorities in force. The Registrar can help the contractor in obtaining necessary water connection by way of recommendation only. In case due to circumstances, the contractor is required to make his own arrangement for water required for construction purpose, the contractor shall be required to obtain N.O.C. from the concerned authorities for the same and all the charges, required for the N.O.C. will be paid by the contractor.
- 8.82. The contractor shall arrange his own temporary water connection, electricity connection for construction from Local authorities and M.S.E.B. as applicable respectively at his own cost.
- 8.83. The tenderers are requested to visit and examine the site before submitting the tender.

**8.84. WORKING DAYS**

Working days means from monday to saturday excluding any public and bank holidays.

- 8.85. Nothing shall be paid extra for any work at any height of truss – upto ridge of roof and above slopping roof.
- 8.86. The Insurance policy as described under conditions of contract 8.60 shall be submitted immediately on award of contract. No payment of any interim certificate shall be made to the contractor without submission of Insurance policy as per condition of contract.
- 8.87. The labour licence shall be submitted before starting of work on site, no payment of any interim certificate shall be made to the contractor without submission of labour licence.
- 8.88. The Contractor shall have to pay all the deposits and payments to all the concerned authorities wherever applicable for execution of all the items of work under this contract and the payment shall not be recoverable from the Registrar. If required, appropriate certificates shall be issued by the Registrar, so as to facilitate the refund of such deposits or payments by the authorities concerned.
- 8.89. The Contractor shall obtain NOC from P.C.O. before starting the work, necessary certificates from Local Sanitation and anti-malaria authorities and from all related authorities as required during construction and on completion of work, and for securing permanent water supply connection from concern department without any extra cost. He shall also have to obtain necessary certificates from other departments without any extra cost.
- 8.90. Wherever water or drainage pipe lines are found to be passing under the proposed buildings or by roadside such pipe lines shall have to be removed and realigned and relaid as directed, without extra cost. In such cases, if extra materials are required, the cost of the same will be borne by the owner, whereas the cost labour will have to be borne by the Contractor. This work will have to be done during non-peak load in case of drainage lines and non- supply hours in case of water pipe lines.

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However, the water proofing work will have to be re-done by the contractor as specified and to the satisfaction of the University Engineer / PMC / Architect. without any extra Cost if in the opinion of the University Engineer / PMC / Architect it is defective and repair / rectification work will not give the satisfactory result.

- 8.91. The Contractor shall provide his Site Engineer having Bachelor's degree in Electrical Engineering with minimum 8 to 10 and with atleast two experienced diploma engineers in building construction and experienced supporting staff such as licensed plumber, technical supervisors, etc.
- 8.92. The Contractor shall workout a completion programme which shall include the partial completions without any financial implication and as required by the owner.
- 8.93. The Contractor shall comply with and give all notices required under any Government Authority, instrument, rule or order made under any act of parliament, state laws or any regulation on Bye-laws of any local authority or public utility concern relating to works.
- 8.94. The Contractor shall provide vertical barrier, protection with proper and stable framing, supports, etc. with tarpaulin, G.I. sheets paneling, barricades, fences, guards, etc. as directed by the University Engineer / PMC / Architect without any extra cost to ensure public safety and health during construction and to avoid any disturbances in the working and functioning of the first half of the building as required by the University.
- 8.95. The contractor will not be allowed to disconnect or remove the pipe laid down by him for taking water required for execution of the work without the permission of University Engineer / PMC / Architect.
- 8.96. The rates in Schedule ' B' are inclusive of all leads ir-respective of the distance of the source of different materials. No additional payment whatsoever will be admissible on this account.
- 8.97. The University Engineer / PMC / Architect may change the layout of buildings, layout of Development works, infrastructural services in accordance with the site condition. No extra cost on any account whatsoever shall be admissible.
- 8.98. **COMPLETION DRAWINGS / AS BUILT DRAWINGS : ELECTRICAL WORKS**

Upon completion of the whole work, the contractor shall submit four sets of atleast 24 photographs of complete electrical works & building and four sets of electrical drawings with original drawings on tracing of all as built / completion drawings comprising all plans, elevations, sections to the Architect. The contractor shall also submit four sets with original of site plan showing actual position of building in relation to grids, adjoining buildings, roads, all services, and all physical features around. The above all details & drawings shall be submitted alongwith the final bill without any extra cost.

- 8.99. The contractor shall provide safety belts to all workers without any extra cost while working at height above 4.50 meters for safety of workers.
- 8.100. The contractor shall provide without any extra cost, helmet to each worker on site.
- 8.101. The Contractor shall prepare fabrication / workshop drawings of all electrical works and seek approval from University Engineer / PMC / Architect before starting the work, without any additional cost.

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- 8.102. The contractor shall provide cuttings, openings to required shape and size for light fittings and carryout electric cables, wires for casing capping and providing holes in the slab & beams with encasing G.I. or strong PVC pipe of any diameter as directed by the University Engineer / PMC / Architect etc. without any extra cost.
- 8.103. The Electrical contractor shall provide required assistance to civil contractor, fire fighting contractor and all other contractors working at site in required manner and shall co-ordinate the work of electrical contractor at no extra cost to the satisfaction of the University Engineer / PMC / Architect.
- 8.104. The work of electrical contractor, civil contractor, fire fighting contractor, furniture, A.C. contractor and all various agencies, etc. will go on together and electrical contractor has to work in co-ordination with all other these agencies and electrical contractor can not stop the work of any of these contractor. Any delay occurred due to any agency has to be accommodated without any financial implications. No claim whatsoever will be entertained due to any reason because of any agency.
- 8.105. Temporary sanitary accommodation on full flushing system with necessary arrangement should be provided on site for workers and all rules, regulations, laws of local Government and of any concerned statutory bodies shall be observed by contractor for the welfare of the workers.
- 8.106. The following notes shall be applicable for all drawings, Schedule ' B ' and for this contract.
  - 8.106.1. The contractor must study all the drawings and if any discrepancies observed, it must be brought to the notice of the University Engineer / PMC / Architect well in time before execution to avoid delay.
  - 8.106.2. All the dimensions to be checked before the commencement of work on site. If any discrepancy observed, it should be reported to the University Engineer / PMC / Architect and his decision obtained.
  - 8.106.3. The electrical drawings shall be read strictly in conjunction with Architectural drawings, structural drawings, all other service drawings etc., if any discrepancy is observed, it shall be referred to the University Engineer / PMC / Architect.
  - 8.106.4. All electrical drawings are inter-related and if any discrepancy observed it shall be referred to the University Engineer / PMC / Architect.
  - 8.106.5. The electrical contractor shall make holes where-ever required in the beams, slabs etc. for passing cables at electrical rooms, distribution boards and where required without any extra cost.

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- 8.107. This contractor shall comply with all laws of the land, the rules, regulations and bye-laws of local authority and of all organizations as of storm water, waste and sewerage disposal, electrical companies, gas authorities, telephones, to whose system the structure is to be connected where such laws and regulations conflict with the contract documents the more stringent requirements as interpreted by the University Engineer / PMC / Architect shall govern. The contractor shall pay all fees, charges in connection with all notices required by the acts, regulations or bye-laws and for the work etc. The contractor shall protect and indemnify the owner against all claims or liabilities arising out of his actions in violation of applicable rules and regulations of local authorities and law of the land applicable to the contract and the work therein and against all fees, penalties and liabilities of every kind for the breach of any statute, ordinance or law, rules, regulations or bye-laws etc.
- 8.108. All operations necessary for the execution of the works shall, so far as compliance with the requirements of the contract permits, be carried on so as to interfere unnecessarily or improperly with the convenience of the public, or the access to use and occupation of public or private roads and footpaths to or of properties whether in the possession of the owner or of any other person or of public authorities. The contractor shall save harmless and indemnify the Owner in respect of all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters in so far as the contractor is responsible therefore.
- 8.109. Should it be found necessary for the Contractor to move one or more loads of constructional plant, machinery or pre-constructed units or parts of units of work over part of a highway or bridge, the moving whereof is likely to damages any highway or bridge unless special protection or strengthening is carried out, the contractor shall carry out all such protection work / strengthening works and take necessary approvals if required from the appropriate authority for movement of such special loads. No extra / claims shall be payable to the contractor on such accounts.
- 8.110. **KEEPING SITE CLEAR**  
The part of the site towards approach road will be continuously used by the public, resident for tracking etc., hence contractor shall keep this site free from all obstruction, shall not store and dispose any material. Further after completion of work every day, the contractor shall collect all scrap material and debris and accumulate it in a location as directed by the University Engineer / PMC / Architect. In case, this is not done by the contractor, it shall be carried out by the site engineer at the contractor's risk and cost and the cost will be deducted from the contractor's first following R.A. bill and or from any amount due to him. The contractor shall remove from site all waste material on daily basis at his own cost to any lead whatsoever.
- 8.111. **SITE CLEARING ON COMPLETION**  
On completion of the Works, the Contractor shall clear away and remove from the site all his constructional plant, surplus materials, rubbish and temporary works of every kind, sheds, hutment and other worker's amenities constructed and leave the whole of the site and works clean and in a workmanlike / usable condition to the satisfaction of the University Engineer / PMC / Architect. The final bill will be scrutinised / done only after clearing the site.

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8.112. **OWNERSHIP OF MATERIALS**

All the materials required for scope of work, brought to the site for which payment is required to be made, has been received or is to be received shall be deemed to be property of the Registrar and shall not be removed from the site without prior written permission of the University Engineer / PMC / Architect. Storage and safe custody of materials shall be the responsibility of the contractor.

- 8.113. The contractor shall take utmost care not to cause any disturbances to the residents of adjoining building and shall not carry any sound making activities related at odd hours and also shall take every care to reduce the noise pollution.

8.114. **REDUCTION / ABANDONMENT OF THE WORKS**

In continuation to clause 38, the Registrar reserve the right to curtail the works at any time after commencement of the works as per clause 38 without any financial implications then in such case, the Registrar shall give notice to the contractor, who shall then complete any such of the works as it is required to be done by the Registrar as intimated in the notice and the contractor shall have no claim for any payment of damages, compensation whatsoever on any from the execution of the works in full, but which he did not derive in consequence of the full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any change having been made in the original specifications, drawings, designs and instructions which shall involve any claim for compensations, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

- 8.115. All water which may accumulate on the site during progress of the work or in trenches and excavation, shall be removed from site to the satisfaction of University Engineer / PMC / Architect. The contractor shall take all precautions that no breeding of mosquitoes, flies etc. take place at site and shall undertake spraying of DDT and all other appropriate precautions continuously.
- 8.116. The site shall be maintained free from rubbish stacking of scaffolding and all other materials shall be done in a organised manner / in a proper stacks. Heaps in unplanned manner and disorderly way shall not be permitted.
- 8.117. The contractor shall provide on the site, safe drinking water and other water for the use for the workers and shall arrange for disposal of waste water arising therefrom. The contractor shall comply with rules framed by Government authorities for labour welfare, protection of health, sanitation etc.
- 8.118. The contractor shall in all dealings with labour in his employment have due regard to all recognised festivals, days of rest and religions and other customs.
- 8.119. **EPIDEMICS** : In the event of any outbreak of illness of an epidemic nature, the contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local medical or municipal authorities for the purpose of dealing with and overcoming the same.
- 8.120. The contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and shall take all necessary action for the preservation of peace and protection of persons and property in the neighbourhood of the works against the same.

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- 8.121. **FIRST AID :** The contractor shall, at his cost, provide, equip and maintain throughout the construction period and so far as may be necessary during the Defects Liability period, in a position on site approved by the University Engineer / PMC / Architect, suitable and sufficient first aid facilities for the general use of labourers, his staff and employees and sub-contractor's staff and employees.
- 8.122. The University Engineer / PMC / Architect shall be entitled to require the contractor to dismiss or remove from the site of the works any person or persons in the contractor's employment on the work who may be incompetent or / and who may have misconducted himself and the contractor shall forthwith comply with such requirements.

### 8.123. **ENVIRONMENT and PRECAUTIONS**

The contractor shall carry the work as per the rules & regulations of local authority.

The contractor need to take all the following precautions to make sure that no complaints are received from the residents of neighbouring buildings, users, local authorities, etc.

- ( a ) Plying of trucks
- ( b ) Plants and equipment deployed in carrying out the work shall not create any problems to others.
- ( c ) Noise level of plants, equipment and manner of working shall be within standard specified by local authorities.
- ( d ) Spreading of dust storm and polluting the air atmosphere.
- ( e ) Falling of debris, aggregate, sand, bricks, cement etc. on roads being used to transport these materials.
- ( f ) Parking of vehicles, plants, equipment shall not cause any hindrances to movement of traffic.

The contractor shall be wholly responsible, if any problem arised due to above.

- 8.124 The materials required only for this work shall be kept in the godown at site. No material shall be shifted outside of the godown except for the work for which this agreement is entered, without prior approval of the University Engineer / PMC / Architect.

### 8.125 **SETTING OUT THE WORKS**

The contractor shall be responsible for true and proper setting-out of the work as per the approved plans and if any discrepancy observed, he must bring immediately to the notice of the PMC and the Architect. If at any time, during the progress of works, any error shall appear or arise in the position, levels, dimension, heights, alignments of any part if the works, the contractor shall rectify the same at his cost. The contractor shall carefully protect and preserve all benchmarks, site rails, pegs and other devices used in setting outthe works.

The contractor shall provide all facilities, instruments and manpower, attendance to the University Engineer / PMC / Architect to check his work. Instruments provided by the contractor shall be in good condition alongwith necessary test certification / calibration reports and shall be subject to the approval of the University Engineer / PMC / Architect. Checking in part or full of any setting out or any line or level University Engineer / PMC / Architect shall not in any way relieve the contractor of his responsibility for the correctness thereof.

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8.126 **PRICE Variation clause**

Price variation clause is not applicable to this tender.

8.127. **SETTING OUT THE WORKS AND MARKING LAYOUT OF BUILDING.**

The contractor shall provide all facilities, instruments and manpower, attendance to the University Engineer / PMC / Architect to check his work. The contractor shall be responsible for true and proper setting out the work , if any discrepancy observed in the drawings, he should bring to the notice of the University Engineer / PMC / Architect. It at any time during the progress of works any error shall appear or arise in the position, levels, dimension, heights, alignments of any part of the works the contractor shall rectify the same at his cost, the contractor shall carefully preserve all bench marks, site rails, pegs and all other devises used in setting out of the works.

8.128 The contractor shall produce sufficient documentary evidence i.e. bill for the purchase octroi receipts etc. for the purchase of material brought on the worksite at once if so requested by the department.

8.129. **INDEMNITY**

The condition regarding indemnity as defined will apply mutatis mutandis in case of material brought by contractor at site for the execution of the work being executed under this contract.

8.130 In case the materials brought by the contractor become surplus owing to the change in the design of the work, the materials should be taken back by the contractor at his own cost after prior permission of Registrar.

8.131 The Contractor is using tanker water shall submit the details as of source, test report in every month at his cost. The contractor shall obtain the permission of using tanker water from the required public authorities and shall pay their charges as applicable.

8.132. R.A. bill less than Thirty Lacs shall not be entertained and will not be paid. The contractor should not submit the bill less than the said prescribed amount. The contractor should do the work of atleast Forty Five Lacs monthly as to complete the electrical works within completion period.

8.133. In case of unavoidable circumstances if the university need to curtail the work in such case the University shall finalised the bill of the contractor at the stage of the construction .This shall be without any claim or loss of profit and any financial implications whatsoever.

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## 9. **ADDITIONAL SAFETY CONDITIONS**

- 9.1. Excavation and Trenching : All trenches, four feet or more in depth, shall at all times be supplied with atleast one ladder for each 30 meters in length of fraction thereof. Ladder shall be extended from bottom of the trench to atleast one meter above surface of the ground. The side of the trenches which are 1.50 meters or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapse. The excavated materials shall not be placed within 1.50 meters of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.
- 9.2 Demolition : Before any demolition work is commenced and also during the process of the work.
- a. All roads and open areas adjacent to the work site shall either be closed or suitably protected.
  - b. No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus which is liable to be used by the operator shall remain electrically charged.
  - c. All practical steps shall be taken to prevent danger to person employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
- 9.3. All necessary personal safety equipment as considered adequate by the University Engineer / PMC / Architect should be kept available for the use of the person employed on the site and maintained in condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
- a. Those engaged in welding work shall be provided with welder's protective eyesight lids.
  - b. Stone breakers shall be provided with goggles and protective clothing and seated at sufficiently safe intervals.
  - c. The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.
    - i. No paint containing lead or lead products shall be used except in the form of paste or ready-made paint.
    - ii. Suitable face masks should be supplied for use by the worker. As paint is applied in the form of spray on the surface or when paint dry-rubbed and scrapped.
- 9.4. When the work is done near any place where there is a risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of work.

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- 9.5. The safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.
- 9.6. To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the Labour officer, owner, the University Engineer / PMC / Architect.
- 9.7. Notwithstanding all the clauses on safety codes, there is nothing in these to exempt the contractor from the operation of any other Act or rule in force in the Republic of India.

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No. of corrections

REGISTRAR

**ANNEXURE ' D '****FORM OF CONTRACT AGREEMENT**

THIS AGREEMENT made at the \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand, Twenty Four between Punyashlok Ahilyadevi Holkar Solapur University, Solapur, hereinafter called " the Owner " of the One Part and Shri \_\_\_\_\_ Shri \_\_\_\_\_ and Shri \_\_\_\_\_ carrying on business in partnership of \_\_\_\_\_ at \_\_\_\_\_ in the firm name and style of \_\_\_\_\_ / \_\_\_\_\_ Limited, a company registered under the Partnership Act, 1932 and including any act amended to date and act prevailing in its place at that appropriate time and having its registered office at \_\_\_\_\_

hereinafter called " the Contractor " ( which expression shall unless the context does not so admit include him, his heirs executors and administrators / them the survivors or survivor of them, the heirs executors and administrators of last survivor, the partners or partners for the time being of the said firm of \_\_\_\_\_ / its successors ) of the other part.

WHEREAS the Owner is desirous of carrying out work of Electrical works of Multi-purpose indoor Sports hall under Khelo India scheme as per notice inviting tender dated \_\_\_\_\_ ( hereinafter called " the works " ) of Punyashlok Ahilyadevi Holkar Solapur University.

AND WHEREAS pursuant to the said Notice Inviting Tenders dated \_\_\_\_\_, the contractor has submitted his / their tender for the said work, which has been accepted by Punyashlok Ahilyadevi Holkar Solapur University on the terms and conditions contained in the complete tender documents containing Volume I – conditions of contract, Volume II – Schedule ' B ' and tender drawings including clarifications, conditions stated in letter of intent dated \_\_\_\_\_ and work-order dated \_\_\_\_\_ for the said work.

AND WHEREAS AS PER ALL TERMS AND CONDITIONS OF CONTRACT, after making of initial Security Deposit of 5% of the estimated cost put to tender, the Contractor is required to enter into an Agreement with the Punyashlok Ahilyadevi Holkar Solapur University in connection with execution of the said work being in fact these presents.

AND WHEREAS it has been agreed that the said amount of Security Deposit will not carry interest.

CONTRACTOR

No.s of correction

OWNER

NOW THIS AGREEMENT WITNESSETH AND IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS : -

1. All the tender documents for Electrical works of Multi-purpose indoor sports hall under Khelo India Scheme at Punyashlok Ahilyadevi Holkar Solapur University, Solapur contained in Volume I, Volume II and Volume III and all clarifications given vide our letter dated \_\_\_\_\_ of Electrical works of Multi-purpose indoor sports hall under Khelo India Scheme of Punyashlok Ahilyadevi Holkar Solapur University, Solapur issued by DESIGN GROUP (India), the Architects for and on behalf of Punyashlok Ahilyadevi Holkar Solapur University and letter of intent dated \_\_\_\_\_ and letter of work-order dated \_\_\_\_\_ issued by Punyashlok Ahilyadevi Holkar Solapur University in favour of the contractor therewith shall be deemed to form and be read and construed as part of this Agreement ( All these documents are hereinafter collectively referred to as " tender documents " )
2. The works and expressions used in this Agreement shall have the same meaning as are respectively assigned to them in the tender documents. In case of ambiguities and discrepancies arising out of the provisions contained in the tender documents, the provisions contains in the tender documents in Volume I, Volume II and Volume III and all clarifications given vide our letter dated \_\_\_\_\_ issued by the Architects DESIGN GROUP (India) / the University Engineer shall take precedence over the provisions contained in all other remaining documents.
3. In consideration of the Owner having agreed to pay the Contractor for the work specified in the under written Memorandum within the time specified in such memorandum at \_\_\_\_\_ per cent below / above ( + / - ) / at par the estimated rates entered in ' Schedule B ' ( Memorandum showing items of work to be carried out ) at the time and in the manner provided in the contract documents, the contractors do hereby agree to duly execute and complete the said work in all respects strictly in accordance with the specifications, designs, drawings, all terms and conditions of contract as provided in the tender documents and within the time limit specified therein and instructions in writing referred to in Rule 1 hereof and in clause 12 of the conditions of contract and agree that when materials for the work are provided by the Owner, such materials and the rates to be paid for them shall be as provided in Schedule A hereto.

CONTRACTOR

No.s of correction

OWNER

4. The term the " Architects " in the said conditions shall mean the said DESIGN GROUP (India) or in the event of their death or ceasing to be the Architects for the purpose of this contract, such other person as the Owner shall nominate for that purpose, not being a person to whom the contract shall object for reasons considered to be sufficient by owner provided always that no person subsequently appointed to be the Architects under this contract shall be entitled to disregard or overrule any certificate or opinion or decision or approval or instructions given or expressed by the Architects for the time being.
5. The term the " PMC " in the said conditions shall mean the said \_\_\_\_\_ or in the event of their death or ceasing to be the PMC for the purpose of this contract, such other person as the Owner shall nominate for that purpose, not being a person to whom the contract shall object for reasons considered to be sufficient by owner provided always that no person subsequently appointed to be the PMC under this contract shall be entitled to disregard or overrule any certificate or opinion or decision or approval or instructions given or expressed by the PMC for the time being.

AT WITNESS the hands of the said Parties.

Signed by the said  
In the presence of

Owner

Witness

Name :

Address :

Signed by the said  
In the presence of

Contractor

Witness

Name :

Address :

CONTRACTOR

No.s of correction

OWNER

**INDENTURE FOR SECURED ADVANCES  
ON Rs. 500/- STAMP-PAPER**

( For use in cases which the contract is for finished work the contractor has entered into an Agreement / or the execution of a certain specified quantity of work in a given time ).

**NAME OF THE WORK : ELECTRICAL WORKS OF MULTI-PURPOSE INDOOR SPORTS HALL UNDER KHELO INDIA SCHEME AT PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**

THE INDENTURE made at Solapur the \_\_\_\_\_ day of \_\_\_\_\_ BETWEEN :-  
M/s. \_\_\_\_\_,  
hereinafter called the Contractor ( which expression shall where the context so admits of implies be deemed to include his executors, administrators and assigns ) of the one part AND PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR ( Hereinafter called Punyashlok Ahilyadevi Holkar Solapur University, Solapur, which expression shall where the context so admits of implies to deemed to include his successors in office and assigns ) of the other part.

WHEREAS by an agreement dated \_\_\_\_\_ ( hereinafter called the said Agreement ) the contractor has agreed.

AND WHEREAS the Contractor has applied to the Punyashlok Ahilyadevi Holkar Solapur University, Solapur that be allowed Advances on the Security of materials absolutely belonging to him and brought by him to the site of the works, the subject of the said agreement for use in the construction of subject of the said agreement of the work as he has undertaken to execute at rates fixed for the finished works ( including of the cost of material and labour and other charges )

AND WHEREAS the Punyashlok Ahilyadevi Holkar Solapur University, Solapur has agreed to advances to the contractor as per the condition of contract and which is as secured advance shall not exceed to 10% of estimated cost put to tender and which comes to Rs. \_\_\_\_\_

\_\_\_\_\_ at initial stage and thereafter 10% of balance work, as per schedule ' B ' without premium on the aforesaid security and has reserved to himself the option of making any further advance or advances of security of aforesaid nature the quantities and other particulars of the materials on the security of which the advances or advance are made being detailed in Part II of the running account bill for the said works signed at the time being by the contractor.

NOW THIS INDENTURE WITNESSETH the in pursuance of the said Agreement and in consideration of the sum of as per contract conditions and as given and explained above on or before the execution of these presents paid to the Contractor by Punyashlok Ahilyadevi Holkar Solapur University, Solapur (the receipt whereof the Contractor do hereby acknowledged) and of such further advances (if any) as may be made to him as aforesaid the contractor do hereby convenient and agree with Solapur University, Solapur.

CONTRACTOR

NO. OF CORRECTION

REGISTRAR

- a. That the said sum of Rupees as the amount as per the Conditions of Contract as given and explained above so as advanced by the Punyashlok Ahilyadevi Holkar Solapur University, Solapur to the Contractor as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the contractor in or towards expediting the execution of the said work and for no other purposes whatsoever.
- b. That the materials detailed in the said running account bill which have been offered to and accepted by the Punyashlok Ahilyadevi Holkar Solapur University, Solapur as Security are absolutely the Contractor's own property and free from encumbrances of any kind and the Contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and contractor indemnifies the Punyashlok Ahilyadevi Holkar Solapur University, Solapur against all claims to any materials in respect of which an advance has been to him as aforesaid.
- c. That the materials detailed in the said running account bill and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid ( hereinafter called the said materials ) shall be use by the Contractor solely in the execution of the said works in accordance with the directions of the Architect / PMC / University Engineer and as per the direction of the Registrar of Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
- d. That the Contractor shall make at his own cost all necessary and adequate arrangement for the proper watch, safe custody and protection against all risks of the said materials and that until used in constructions as aforesaid, the said contractor's materials shall remain at the site of the side works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the University Engineer / PMC / Architect or any person authorized by him and by The Registrar, Punyashlok Ahilyadevi Holkar Solapur University, Solapur or any person authorized by him / them. In the event of the said materials or any part thereof stolen, destroyed or damaged, the contractor will forthwith replace the same with other materials of same quality or repair and make good the same as required by the University Engineer / PMC / Architect or their representative.
- e. That the said materials shall not on any account be removed from the site of the said works except with the written permission of the University Engineer / PMC / Architect or any person authorized by him on that behalf.
- f. That the advance shall be repayable in full when or before Contractor receives payment from the Solapur University, Solapur of the price payable to him for said works under the terms and conditions and the provisions of the said agreement provided that if any intermediate payments are made to the contractor on account of works done then on the occasion of such payment by Punyashlok Ahilyadevi Holkar Solapur University, Solapur will be at liberty to make a recovery from the Contractor's bill for such payment by deducting therefrom the value of the said material then actually used in the constructions and in respect of which recovery was not been made previously the value for this purpose being determined in respect of each description of materials at the rate at which the amounts of the advances made under these presents were calculated.
- g. That if the Contractor shall at any time made any default in the performance or observances in any respect of any of the terms and provisions of the said Agreement or of these presents the total amount of the advance or advances that may still be owing to the Punyashlok Ahilyadevi Holkar Solapur University, Solapur shall immediately on the happening of such default be repayable by the Contractor to the Solapur University, Solapur together with interest thereon at eighteen percent per annum from the date of respective dates of such advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Punyashlok Ahilyadevi Holkar Solapur University, Solapur in or for the recovery thereof or the enforcement of this security or otherwise by reason of the Default of the Contractor hereby covenant & agrees with the Punyashlok Ahilyadevi Holkar Solapur University, Solapur to repay and pay the same respectively to him accordingly.

- h. That the Contractor hereby charges all the said materials with the repayment to the Solapur University, Solapur of the said sum of Rupees as per the Conditions of Contract and given and explained above and any further sum or sums advanced as aforesaid and all costs, charges, damages and expenses payable under these present PROVIDED ALWAYS and it is hereby agree and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whatsoever the convenient for repayment and payment herein before contained shall become enforceable and the money owing shall not be paid in accordance therewith the Punyashlok Ahilyadevi Holkar Solapur University, Solapur may at any time thereafter adopt all or any of the following courses as he may deem best :-
- ( a ) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provision in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates there by provided. If the balance is against the contractor he is to pay same to the Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
  - ( b ) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the Punyashlok Ahilyadevi Holkar Solapur University, Solapur under these presents and pay over the surplus ( if any ) to the contractor.
  - ( c ) Deduct all or any of the moneys owing out of the security deposits or any sum due to the contractor under the said agreement.
- i. That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.
- j. That in event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been hereinbefore expressly provided for the same shall be referred to the University Engineer / PMC / Architect, whose / their decisions shall be final and the provisions of the agreement for the execution of the said building contract shall apply to any such reference.

IN WITNESSES WHEREOF the said Agreement and the order and under the direction of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur have hereunto set their respective hands the day and year first above written.

Signed, sealed and Delivered by the said contractor in the presence of .....

Signature :

Witnesses Name :

Address :

Signed by  
the order and direction of the Punyashlok Ahilyadevi Holkar Solapur University, Solapur in the presence of .....

Signature :

Address :



**PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR  
( CONSTRUCTION DIVISION ): ELECTRICAL WORKS**

**PROGRESS REPORT**  
TO BE SUBMITTED QUADRUPLICATE

FOR THE WEEK : \_\_\_\_\_ TO \_\_\_\_\_

NAME OF WORK : \_\_\_\_\_

NAME OF CONTRACTOR : \_\_\_\_\_

**NUMBER OF LABOURERS EMPLOYED**

	TYPE	MON	TUES	WED	THUR	FRI	SAT	REMARKS
1	ELECTRICIANS							
2	MALE MAZDOOR							
3	FEMALE MAZDOOR							
4	OTHERS							
5								
6								
7	TOTAL							
PUBLIC HOLIDAY								
RAINFALL								
WORK CLOSED								

**MATERIALS AT SITE**

NAME	AT THE BEGINNING OF THE WEEK	DELIVERED ON SITE DURING THE WEEK	CONSUMED DURING THE WEEK	AVAILABLE AT THE END OF WEEK	REMARKS
CONDUIT PIPES					
SWITCH/SOCKET					
FANS					
TUBE LIGHT					
WIRES/ CABLES					
OTHERS					

VISITORS ON SITE

GENERAL PROGRESS OF WORK

\_\_\_\_\_

CONTRACTOR  
STAMP & SIGNATURE

CHECKED BY PMC / THE ARCHITECT

C.C. : DESIGN GROUP (India)

CONTRACTOR

NOS. OF CORRECTION

REGISTRAR



**PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR  
( CONSTRUCTION DIVISION ): ELECTRICAL WORK**

**ELECTRICAL  
MATERIAL**

FOR THE WEEK : \_\_\_\_\_ TO \_\_\_\_\_

NAME OF JOB : \_\_\_\_\_

NAME OF CONTRACTOR : \_\_\_\_\_

**RECEIPT AND CONSUMPTION OF THE VARIOUS  
ELECTRICAL MATERIALS**

BALANCE OF  
THE LAST WEEK :

SR. No.	DATE	RECEIVED	CONSUMED	BALANCE
1				
2				
3				
4				
5				
6				
7				
8	TOTAL			

CONTRACTOR  
STAMP & SIGNATURE

FOR OFFICE USE	REMARKS
COPY TO : DESIGN GROUP (India)	

CONTRACTOR

ARCHITECT / PMC

CONTRACTOR

NOS. OF CORRECTION

REGISTRAR

**PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.**  
**ELECTRICAL WORKS OF MULTI-PURPOSE INDOOR SPORTS HALL UNDER KHELO**  
**INDIA SCHEME**

**LIST OF TENDER DRAWINGS**

Drawing No. MULT-IND.SP.E.101	:	Ground Floor Plan Electrical layout
Drawing No. MULT-IND.SP.E.102	:	First Floor Plan Electrical layout
Drawing No. MULT-IND.SP.E.103	:	Roof plan : Electrical layout Lighting arrestor
Drawing No. MULT-IND.SP.E.104	:	Line distribution diagram Earthing detail
Drawing No. MULT-IND.SP.E.105	:	Earthing pit layout
Drawing No. MULT-IND.SP.E.106	:	External light layout
Drawing No. MULT-IND.SP.E.107	:	Layout showing location of cable route, feeder pillar as supply to indoor sports hall from sub-station

CONTRACTOR

No. of corrections

REGISTRAR



	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON WALL
	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON CEILING
	INCANDESCENT LAMP (LIGHT POINT)
	1400 MM SIZE CEILING FAN
	900 MM SIZE CEILING FAN
	EXHAUST FAN
	6 AMP PLUG POINT INDEPENDENT
	16 AMP POWER POINT INDEPENDENT
	20 / 30 AMP PLUG POINT FOR A.C.
	6 AMP PLUG POINT ON SWITCH BOARD
	TPN MCB DISTRIBUTION BOARD
	RECESS/SURFACE MOUNTING MIRROR OPTIC FITTING WITH 2 NOS. OF 40 W TUBE
	WALL MOUNTED FAN
	SPN MCB DISTRIBUTION BOARD
	EARTHING
	DOWN LIGHTS
	LIGHTENING ARRESTER
	GATE LIGHT FITTING
	HPMV FITTING
	STREET LIGHT
	STREET LIGHT WITH POLE
	200W LED HIGH BAY ROUND SHAPE
	600 x 600 LED FITTING 40W

**JOB TITLE:**

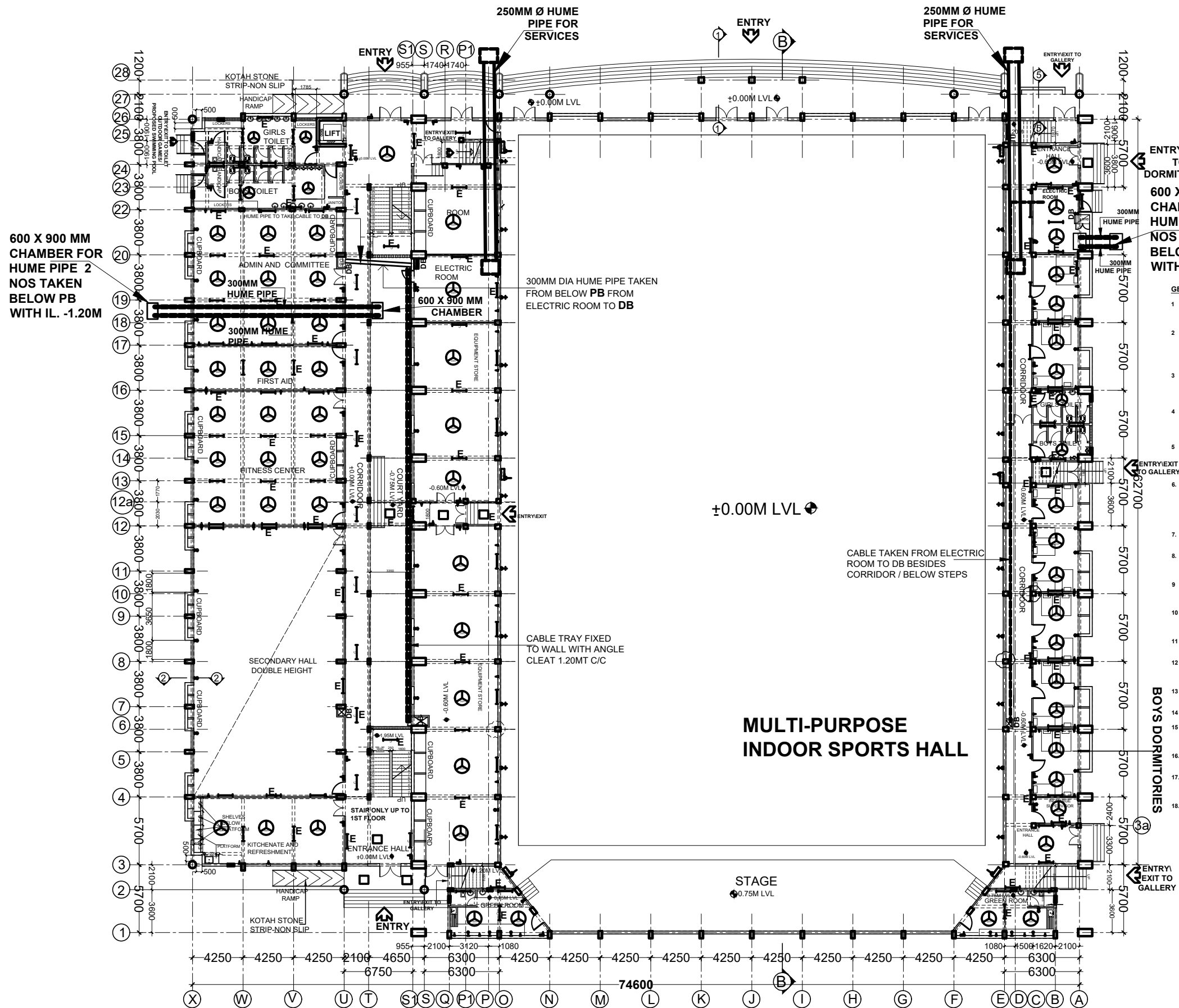
**MULTI PURPOSE INDOOR SPORT HALL AT  
PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR  
UNIVERSITY, SOLAPUR.**

SCALE -	DATE :
DRAWN :	CHD :

**DESIGN GROUP INDIA**  
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MANAGEMENT CONSULTANTS AND INTERIOR DESIGNERS.

11/12/13, R.N.A. ARCADE, MAIN ROAD,  
LOKHANDWALA COMPLEX,  
ANDHERI (WEST), MUMBAI-400 053.  
TEL.-022-26302293, 26316203, 26321083; FAX: 26302292

**DRAWING No.**  
**MULTI. IND.SP - E. 101**



## MULTI - PURPOSE INDOOR SPORTS HALL. GROUND FLOOR PLAN ELECTRICAL LAYOUT

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PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

LEGEND

	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON WALL
	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON CEILING
	INCANDESCENT LAMP (LIGHT POINT)
	1400 MM SIZE CEILING FAN
	900 MM SIZE CEILING FAN
	EXHAUST FAN
	6 AMP PLUG POINT INDEPENDENT
	16 AMP POWER POINT INDEPENDENT
	20 / 30 AMP PLUG POINT FOR A.C.
	6 AMP PLUG POINT ON SWITCH BOARD
	TPN MCB DISTRIBUTION BOARD
	RECESS/SURFACE MOUNTING MIRROR OPTIC FITTING WITH 2 NOS. OF 40 W TUBE
	WALL MOUNTED FAN
	SPN MCB DISTRIBUTION BOARD
	EARTHING
	DOWN LIGHTS
	LIGHTENING ARRESTER
	GATE LIGHT FITTING
	HPMV FITTING
	STREET LIGHT
	STREET LIGHT WITH POLE
	200W LED HIGH BAY ROUND SHAPE
	600 x 600 LED FITTING 40W
	SPOT LIGHT POINT 20 AMP

REVISION	INITIAL	DATE	NO.
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JOB TITLE:  
MULTI PURPOSE INDOOR SPORT HALL AT  
PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR  
UNIVERSITY, SOLAPUR.

DRAWING TITLE  
FIRST FLOOR PLAN ELECTRICAL  
LAYOUT

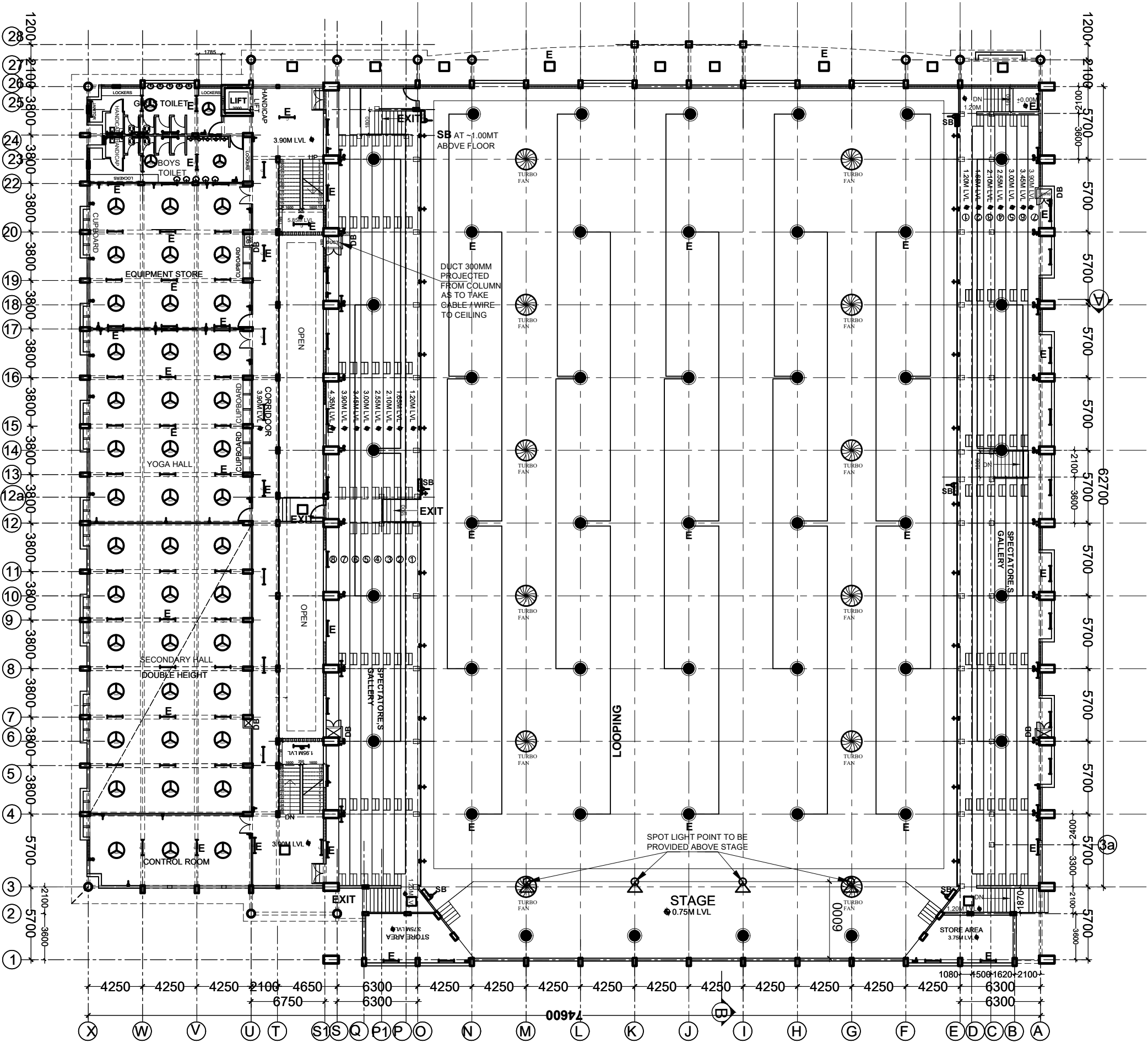
SCALE :	DATE :
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DIP. ARCH., N.D. ARCH.,  
F.I.I.A.

K.R.WARADE  
B. ARCH., G.D. ARCH.,  
F.I.I.A., CERT. IN T.P., F.I.V.

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MULTI. IND.SP - E -102



MULTI - PURPOSE INDOOR SPORTS HALL. FIRST FLOOR PLAN ELETRICAL LAYOUT

NOTES :  
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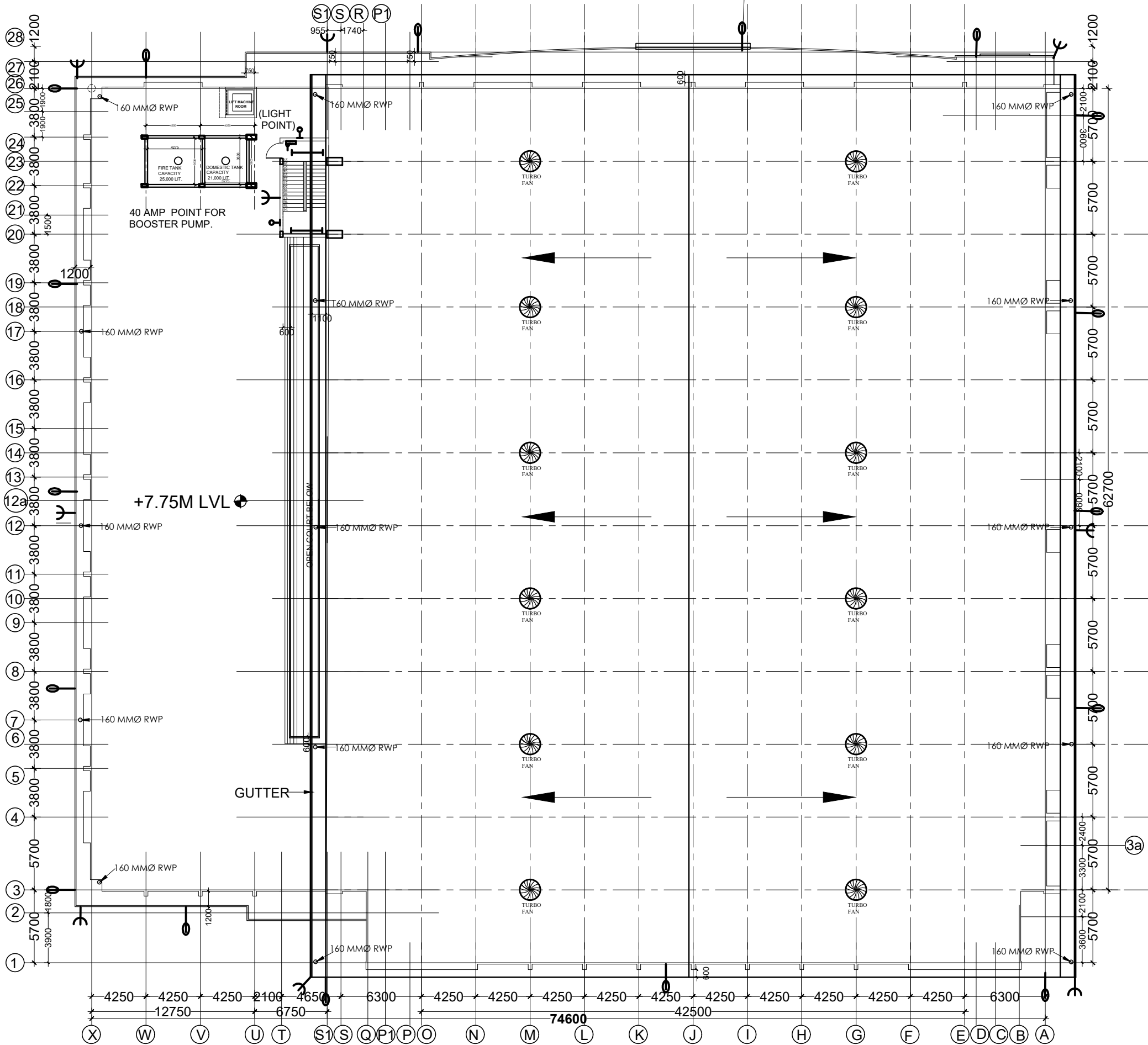


PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

### LEGEND

	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON WALL
	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON CIELING
	INCANDESCENT LAMP (LIGHT POINT)
	1400 MM SIZE CEILING FAN
	900 MM SIZE CEILING FAN
	EXHAUST FAN
	6 AMP PLUG POINT INDEPENDENT
	16 AMP POWER POINT INDEPENDENT
	20 / 30 AMP PLUG POINT FOR A.C.
	6 AMP PLUG POINT ON SWITCH BOARD
	TPN MCB DISTRIBUTION BOARD
	RECESS/SURFACE MOUNTING MIRROR OPTIC FITTING WITH 2 NOS. OF 40 W TUBE
	WALL MOUNTED FAN
	SPN MCB DISTRIBUTION BOARD
	EARTHING
	DOWN LIGHTS
	LIGHTENING ARRESTER
	GATE LIGHT FITTING
	HPMV FITTING
	STREET LIGHT
	STREET LIGHT WITH POLE
	TURBO FAN

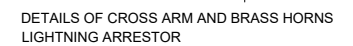
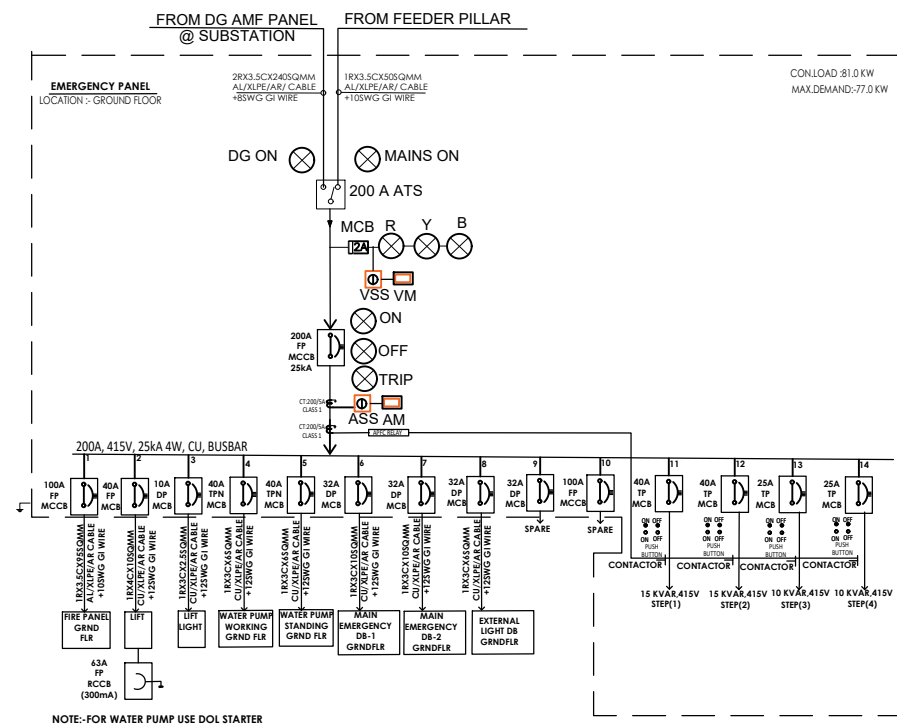
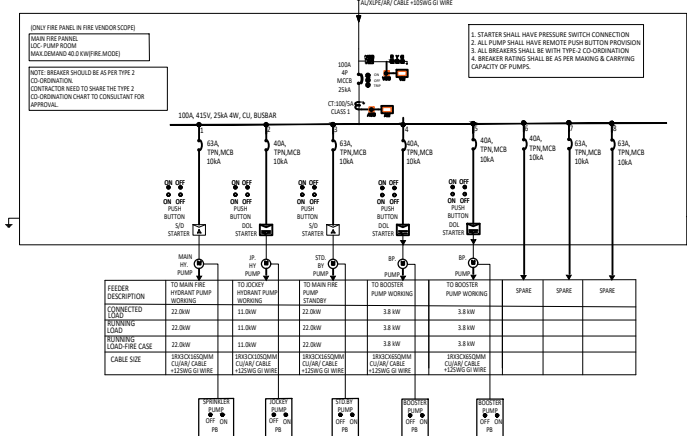
REVISION	INITIAL	DATE	NO.
JOB TITLE:			
MULTI PURPOSE INDOOR SPORT HALL AT PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.			
DRAWING TITLE			
ROOF PLAN ELECTRICAL			
SCALE :	DATE :		
DRAWN :	CHD :		
D.R.WARADE DIP. ARCH., N.D. ARCH., F.I.I.A.	K.R.WARADE B. ARCH., G.D. ARCH., F.I.I.A., CERT. IN T.P., F.I.V.		
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DRAWING No.			
MULTI. IND.SP - E.103			



## MULTI - PURPOSE INDOOR SPORTS HALL. ROOF PLAN

NOTES :  
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MULTI.IND.SP - E 101

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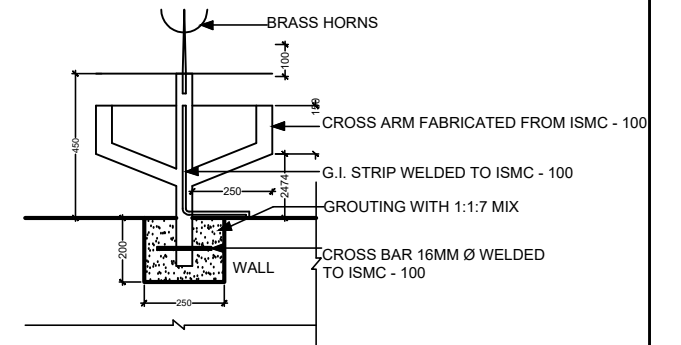
<b>REVISION</b>		<b>INITIAL</b>	<b>DATE</b>	<b>NO.</b>
<b>JOB TITLE:</b>				
<b>MULTI PURPOSE INDOOR SPORT HALL AT PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR.</b>				
<b>DRAWING TITLE</b>				
<b>LINE DISTRIBUTION DIAGRAM &amp; EARTHING.DETAIL</b>				
<b>SCALE :</b>		<b>DATE :</b>		
<b>DRAWN :</b>		<b>CHD :</b>		
<b>D.R.WARADE</b> DIP. ARCH., N.D. ARCH., F.I.I.A.				
<b>K.R.WARADE</b> B. ARCH., G.D. ARCH., F.I.I.A., CERT. IN T.P., F.I.V.				
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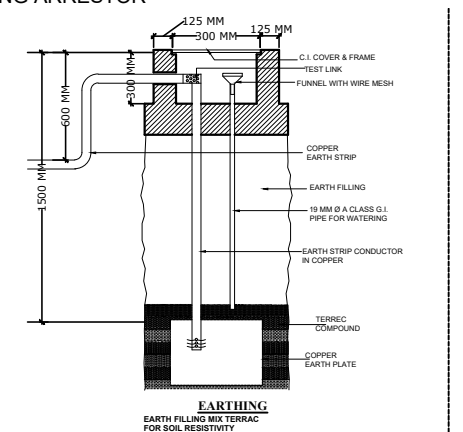


PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

EARTHING PIT			
1	LIFT 1	EP 1,2	2NO.s 25 X 3MM CU STRIP
2	LIGHT PANEL 1	EP 3,4	2NO.s 25 X 3MM G.I STRIP
3	POWER PANEL 1	EP 5,6	2NO.s 25 X 3MM G.I STRIP
4	EMERGENCY PANEL	EP 7,8	2NO.s 25 X 3MM G.I STRIP
5	LIGHT PANEL 2	EP 9,10	2NO.s 25 X 3MM G.I STRIP
6	POWER PANEL 2	EP 11,12	2NO.s 25 X 3MM G.I STRIP
7	FIRE PANEL 1	EP 13,14	2NO.s 25 X 3MM G.I STRIP
8	LIGHTENING ARRESTER	EP 15 - EP 23	9NO.s 25 X 3MM CU STRIP
9	FEEDER PILLAR	EP 24,25	2NO.s 25 X 3MM G.I STRIP



DETAILS OF CROSS ARM AND BRASS HORNS  
LIGHTNING ARRESTOR



REVISION	INITIAL	DATE	NO.
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JOB TITLE:  
**MULTI PURPOSE INDOOR SPORT HALL AT  
PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR  
UNIVERSITY, SOLAPUR.**

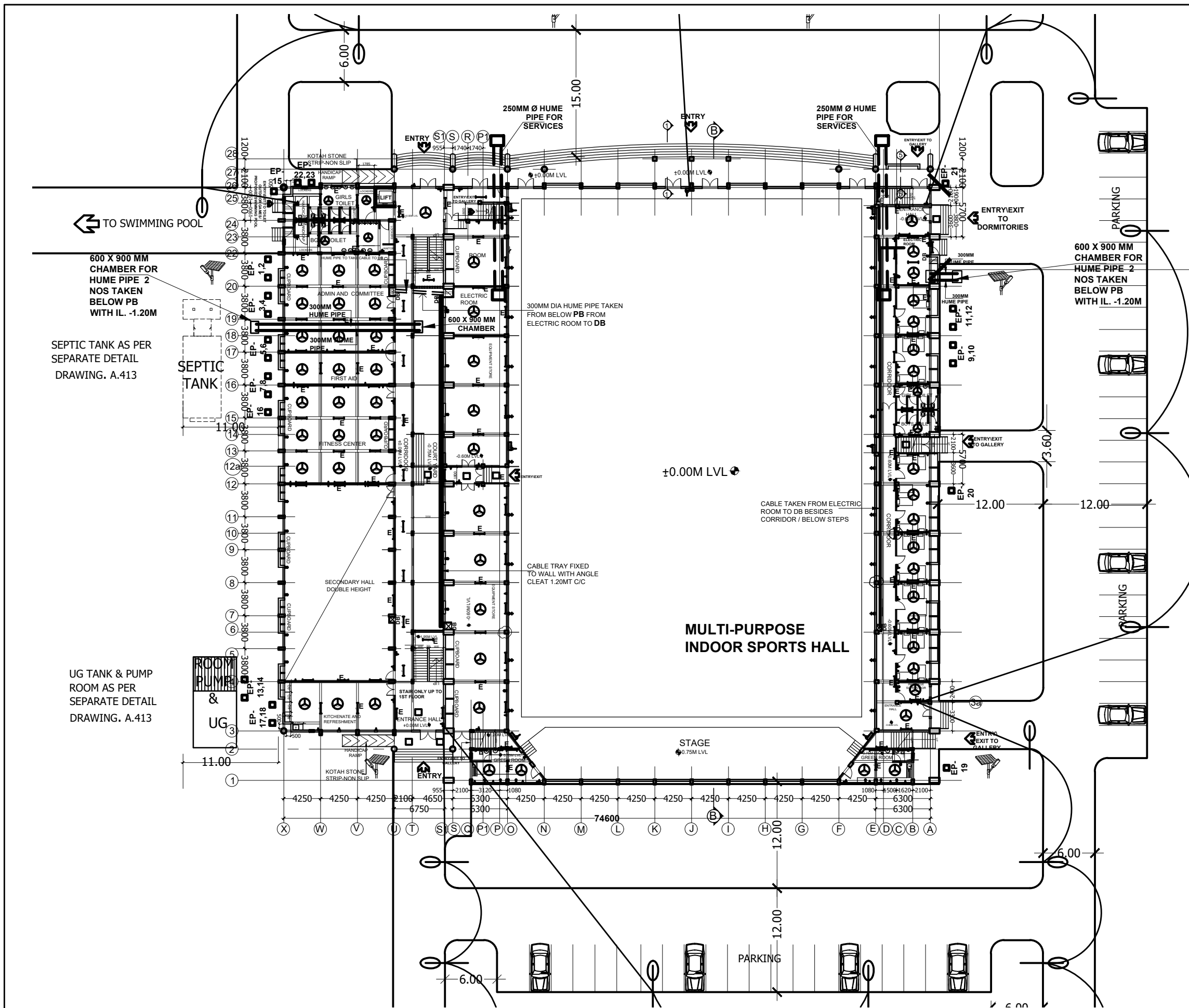
DRAWING TITLE  
**EARTHING PIT LAYOUT**

SCALE :  
DATE :  
DRAWN :  
CHD :

D.R.WARADE  
DIP. ARCH., N.D. ARCH.,  
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DRAWING No.  
**MULTI. IND.SP - E -105**



MULTI - PURPOSE INDOOR SPORTS HALL. EARTHING PIT LAYOUT

NOTES :  
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MULTI.IND.SP - E 101

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PUNYASHLOK AHILYADEVI HOLKAR  
SOLAPUR UNIVERSITY, SOLAPUR

LEGEND

	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON WALL
	1200 MM FLUORESCENT FITTING WITH 40W TUBE ON CIELING
	INCANDESCENT LAMP (LIGHT POINT)
	1400 MM SIZE CEILING FAN
	900 MM SIZE CEILING FAN
	EXHAUST FAN
	6 AMP PLUG POINT INDEPENDENT
	16 AMP POWER POINT INDEPENDENT
	20 / 30 AMP PLUG POINT FOR A.C.
	6 AMP PLUG POINT ON SWITCH BOARD
	TPN MCB DISTRIBUTION BOARD
	RECESS/SURFACE MOUNTING MIRROR OPTIC FITTING WITH 2 NOS. OF 40 W TUBE
	WALL MOUNTED FAN
	SPN MCB DISTRIBUTION BOARD
	EARTHING
	DOWN LIGHTS
	LIGHTENING ARRESTER
	GATE LIGHT FITTING
	HPMV FITTING
	STREET LIGHT
	STREET LIGHT WITH POLE
	200W LED HIGH BAY ROUND SHAPE
	600 x 600 LED FITTING 40W
	SOLAR LIGHT

REVISION	INITIAL	DATE	NO.
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JOB TITLE:  
MULTI PURPOSE INDOOR SPORT HALL AT  
PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR  
UNIVERSITY, SOLAPUR.

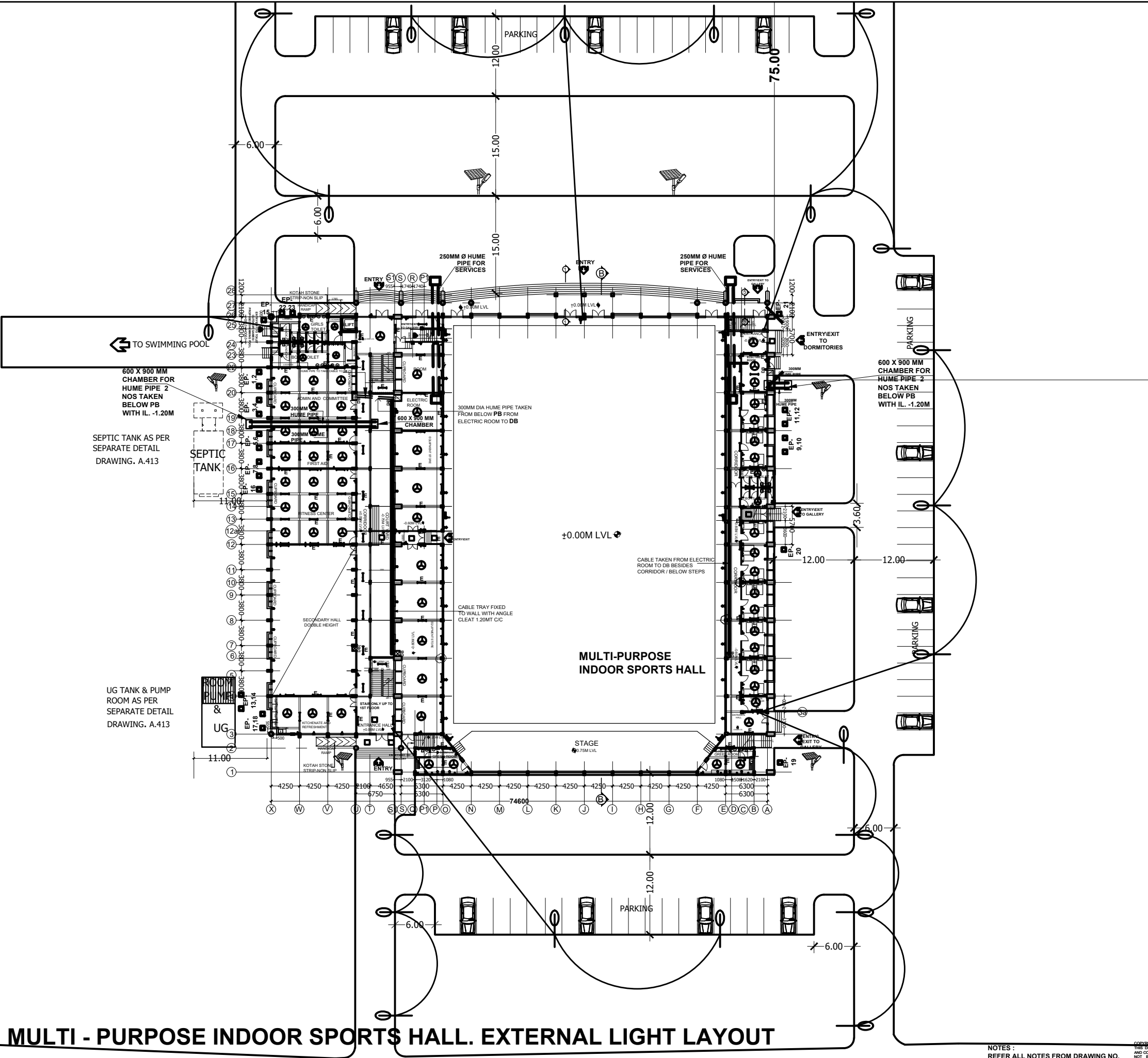
DRAWING TITLE  
EXTERNAL LIGHT LAYOUT

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DRAWING No.  
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MULTI - PURPOSE INDOOR SPORTS HALL. EXTERNAL LIGHT LAYOUT

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MULTI PURPOSE  
INDOOR SPORT  
HALL

PROPOSED RING ROAD

FEEDER  
PILLAR

900 X 600 X 900  
CHAMBER  
@ 25MT C/C

CABLES LAID IN  
HUME PIPES 2NOS.  
250MM HUME PIPE  
REFER SLD

FEEDER PILLAR  
TO SERVE TO  
CLOCK TOWER  
& STATUE

PEDESTAL  
STATUE

CLOCK  
TOWER

UNDER  
SEPERATE  
SCOPE

CABLE  
ROUTE

A

GAT NO. 356

S - 10

S - 120

S - 200

S - 200

N - 100

APPROACH ROAD

S - 300

W - 1400

W - 1300

W - 1200

W - 1100

W - 1000

W - 900

W - 800

W - 700

W - 600

W - 500

W - 400

W - 300

W - 200

W - 100

W - 0

W - 100

W - 200

W - 300

W - 400

W - 500

W - 600

W - 700

W - 800

W - 900

W - 1000

W - 1100

W - 1200

W - 1300

W - 1400

W - 1500

W - 1600

W - 1700

W - 1800

W - 1900

W - 2000

W - 2100

W - 2200

W - 2300

W - 2400

W - 2500

W - 2600

W - 2700

W - 2800

W - 2900

W - 3000

W - 3100

W - 3200

W - 3300

W - 3400

W - 3500

W - 3600

W - 3700

W - 3800

W - 3900

W - 4000

W - 4100

W - 4200

W - 4300

W - 4400

W - 4500

W - 4600

W - 4700

W - 4800

W - 4900

W - 5000

W - 5100

W - 5200

W - 5300

W - 5400

W - 5500

W - 5600

W - 5700

W - 5800

W - 5900

W - 6000

W - 6100

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W - 7900

W - 8000

W - 8100

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W - 8300

W - 8400

W - 8500

W - 8600

W - 8700

W - 8800

W - 8900

W - 9000

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W - 9600

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W - 9900

W - 10000

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W - 10500

W - 10600

W - 10700

W - 10800

W - 10900

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W - 15600

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W - 16100

W - 16200

W - 16300

W - 16400

W - 16500

W - 16600

W - 16700

W - 16800

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W - 17100

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W - 23800

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W - 24000

W - 24100

W - 24200

W - 24300

W - 24400

W - 24500

W - 24600

W - 24700

W - 24800

W - 24900

W - 25000

W - 25100

W - 25200

W - 25300

W - 25400

W - 25500

W - 25600

**E.1. SPECIFICATIONS FOR ELECTRICAL INSTALLATION WORK****CODES AND STANDARDS**

E.1.1. The following codes and standards shall be applicable for the continuous performance of all electrical equipments to be supplied, delivered at site, erected, tested and commissioned.

E.1.2. The electrical equipments offered shall comply to the relevant Acts or Regulations.

Indian Standard Specifications

Fire Insurance Regulations

Tariff Advisory Committees Regulations

And, in particular to Indian Electricity Rules in all respects with other IS Code as applicable at the time of execution over and above the following Codes and with all its latest amendments up-to-date.

E.1.3. Some of the Indian Standards are indicated below for general reference.

IS - 5216	:	Guide for safety procedures and practices in electricity works.
IS - 5908	:	Method of measurement of electrical installation in building.
IS - 732	:	Electrical wiring installation ( upto 650 Volts )
IS - 694	:	PVC insulated cable and cords for Power / Lighting.
IS - 1554	:	Part – I PVC insulated cables for working Voltages upto 1.1 KV
IS - 162	:	Electric Power Switchgear for indoor & outdoor Installations.
IS - 3427	:	Metal enclosed switchgear and control gear.
IS - 3043	:	Code of practice for earthing
IS - 1567	:	Metal clad switches upto 100 Amps.
IS - 1293	:	3 pin plugs and socket outlets.
IS - 1087	:	Single pole tumbler switch 5 Amps.
IS - 375	:	Marking and arrangement for switchgear Boards Main Connections and auxiliary wiring.
IS - 374	:	Ceiling fans
IEC Pub 26	:	Circuit Breakers
IS - 3070	:	( Part I ) Lighting arrestors
IS - 2675	:	Enclosed distribution fuse boards and cutouts for voltage upto 1000 volts.
IS - 2509	:	PVC Electrical Conduits
IS codes on	:	LED lights and fittings

CONTRACTOR

Nos. of corrections

REGISTRAR

IS - 2309	:	Code of Practice for Lighting Protection
IS - 2312	:	Exhaust fans.
IS - 3854	:	Switches for domestic and similar purpose.
IS - 8884	:	Installation of electric bells & call system code of practice.
IS - 2268	:	Call Bells / Buzzers.
IS - 2208	:	HRC cartridge fuse units upto 650 volts.
IS - 2147	:	Degree of Protection provided for enclosure of switchgear
IS - 1947	:	Flood Lights
IS - 6381	:	Specifications for construction & testing of electrical apparatus.
IS - 5578	:	Guide for marking of insulated conductors.
IS - 4613	:	Switch sockets outlets.

Nothing in this specification shall be construed to relieve the contractor of his responsibility to make the installation comply with the requirements of the above.

## **E.2. DISTRIBUTION BOARDS**

- E.2.1. The distribution board should comply with B.S. 214 in all respects. It should comprise of all-welded fabricated sheet steel case and door of robust and rigid construction, designed to exclude dust. The doors should be secured by robust fastener, enabling dust-protecting gasket to be compressed quickly and easily. The distribution boards should be provided with under laid detachable and plates at the top and bottom and should be complete with suitable wall fixing arrangement.
- E.2.2. The fuse fittings should be of high grade fin like mouldings and must be non-hygroscopic and non-inflammable. They should be suitable to receive high rupturing capacity cartridge fuse links complying with B.S. 88 or I.S. 2208 and having a certified rupturing capacity of not less than 35 MVA at 440 Volts. There must be a viewing aperture on the fuse fittings to facilitate location of 'blown' cartridge fuse-links. The fuse fittings should be mounted on a high grade rigid insulating support and connected by bus bars made up of hard drawn high conductivity tinned copper. The cable socket of each fuse bank should be situated centrally and must be covered by an insulating shroud for safety. The interior of the fuse board should be as far as possible chassis-mounted and should be removable as a complete unit to facilitate the drawing in of cables. In addition, the interior should be reversible to give adequate cabling space for either top or bottom entry of the incoming supply to the bus bars. It should be possible to detach individual fuse banks when desired.
- E.2.3. Phase separation barriers made out of resistant material should be provided between fuse links.  
There should be racks for supporting spare fuse links inside the distribution board as per drawing and a label for indicating the designation of each circuit. All earthing socket should be fitted to the casing of the distribution board.

CONTRACTOR

Nos. of corrections

REGISTRAR

E.2.4. It should be possible to convert a triple pole distribution board to a triple pole and Neutral Board by the simple addition of a neutral bar. For distribution boards upto 32 Amps. Rating the neutral bar should have sufficient terminals for full number of single phase outgoing circuits so that these can be used for lighting circuit.

E.2.5. The distribution boards shall have one of the following standard rating :

a.	16 Amps.	4, 8, 12, 14 ways	S.P. AND N.
b.	32 Amps.	4, 8, 12, 14 ways	
c.	63 Amps.	4, 8, 12, 14 ways	T.P. OR
d.	100 Amps.	4, 6, or 8 ways	T.P. & N.

16 amps. S. P. & N. Boards may have 2, 6, or 10 ways in addition to those detailed above and should be fitted with circuit switches were specified.

E.2.6. **DISTRIBUTION BOARDS FOR POWER AND LIGHTING**

This specifications are applicable to all the Power & Lighting distribution boards for medium voltage system. The scope includes design, fabrication and supply, as per the specification and schedules indicated herein.

E.2.7. **MINIATURE CIRCUIT BREKAERS BOARD : M.C.B.D.B.**

The MCBs shall be of moulded design and housed in a totally enclosed, hinged door distribution boards. The housing shall be such that they shall be totally heat resistant, dust-tight and shall withstand all mechanical stresses operation. Earthing link and neutral bars shall be provided having sufficient ways to enable each cable to be connected to a separate terminal. Neutral connections shall correspond in position to phase connections. The fault level of MCB shall be 12 KA but in no case less than 9 KA at 230 A.C. supply. The contacts of the MCB on both the sides shall be made up of either cadmium Silver Alloy and / or Graphite Silver Alloy. All the MCBs shall be tested and certified as per the relevant section of Indian standard specifications. They shall mainly comply to DS 3871 ( Part- I ) and shall be of quick make and break type.

E.3. **SWITCH FUSE UNITS**

E.3.1. The switch fuse unit should comply with I.S.1567, B.S. 861 / 1939, B.S. 861 / 1955 and B.S. 2510 / 1954 where-ever applicable. It should be suitable to accommodate High Rupturing capacity cartridge fuse-links complying with B.S. 8801 and having a certified rupturing capacity of not less than 35 MVA at 440 Volts.

E.3.2. The unit shall be of robust construction, designed to withstand the arduous working conditions. It should have double break per phase to ensure complete isolation of the fuse-links when the unit is in the ' OFF ' Position. The ' ON ' and ' OFF ' positions of the handle shall be clearly indicated and the action of the switch should be positive. Interlocks must be provided to ensure that the enclosure can not be opened until the switch is in the ' OFF ' position.

E.3.3. The interior arrangement of the switch must be such that all ' live ' metal is shrouded and the contacts of the switch should be silver plated. The moving contacts should be mounted on their own operating shaft so that they can be removed as a complete Sub-assembly to facilitate inspection and maintenance. The operating mechanism should be crisp and positive in action and the speed of operation should be independent of the operator.

CONTRACTOR

Nos. of correction

REGISTRAR

- E.3.4. The switch should have an external earthing terminal to enable the enclosure to be earthed. The arrangement and disposition of the parts in the unit should provide for straight, through connections thereby avoiding looping in of cables. The unit should be fitted with top and bottom detachable end covers and provisions should be made for fixing cable boxes to the flanges of the unit in the place of end covers.
- E.3.5. The unit should be capable of breaking the stalled current of the largest induction motor with which it is likely to be associated. If necessary, the supplier should be prepared to produce type test certificates set out in the appropriate British or Indian Standards with which the unit complies.
- E.3.6. The switches should have the following standard ampere ratings :
- 32, 63, 100, 125, 200, 250, 315, 400, 630 and 800 either S.P. & N., D. P. , T. P. or T.P. & N.

#### **SECTION : E.4.**

##### **E.4.1. CIRCUIT BREAKERS**

- E.4.1.1. Circuit breakers shall be air break horizontal drop out type fully interlocked and meeting the requirements of IS : 2516 or BS : 3659. Breakers shall be rated for a medium voltage or 600 V. and rated full load amperes as indicated on drawings. Breaker shall be capable of making and breaking system short circuits specified.
- E.4.1.2. Breakers shall be unless specified otherwise manually operated, complete with front of the panel operating handle, isolating plug with safety shutters, mechanical ON / OFF indicator, silver plated arching and main contacts, arc chutes, trip free operation. Breakers shall be capable of being racked out into ' Testing ' , Isolator ' and ' Maintenance ' positions and kept locked in any position. Breakers for remote operation shall be motor operated spring charged.

##### **E.4.2. CUBICLE BOARDS**

- E.4.2.1. All boards shall be combination of 14 & 16 SWG sheet steel, free standing, extensible, totally enclosed, dust tight, vermin-proof cubicle, flush dead front and modular construction suitable for 3 phase 415 V. 4 wire 50 Hertz system. All boards shall be accessible from the front for the maintenance of switch fuses, bus bars, cable terminations, meters etc. Cables shall be capable of entering the board both from top as well as bottom, as detailed in the drawing, procurement shall be done after the final approval of the Architect. All panels shall be machine pressed with punched openings for meters etc. All sheet steel shall be rust inhibited through a process of degreasing, acid pickling, phosphating etc. The panels shall be finished with two coats of synthetic enamel of approved colour applied over one coat of red oxide primer. Engraved plastic labels shall be provided indicating the feeder details and capacity and danger signs.
- E.4.2.2. The boards shall accommodate air insulated bus bars, air circuit breakers, switch fuse units with HRC fuses, starters, necessary meters, relays contractors etc., arranged in suitable tiers as detailed in the drawings.

CONTRACTOR

Nos. of corrections

REGISTRAR

- E.4.2.3. The switch board shall be fully compartmentalized in vertical tiers housing the feeder switches in totally enclosed independent. Each compartment shall be self sufficient with switch unit, fuses, contactors, relays, indicating lamps and an interlocked door with facility for pad-locking. Each feeder must terminate in an independent labelled terminal block. Strip type terminal block accommodating several feeders together is not acceptable. Pressure clamp type terminals suitable for aluminium wires may be used upto switches of 25 A and cable lugs for higher ratings. All terminations shall be shrouded in an approved manner. The entire enclosure shall meet with IS : 2147 / 1962. Feeder connections shall be out of solid insulated copper / aluminium wire or strips with bimetallic clamps wherever required. Internal wiring, bus bar markings etc. shall confirm to IS : 375 / 1963. Internal wiring shall have terminal ferrules. Main switch should be at an easily accessible height and the higher switch operating handle should not be over 1.75 M. from floor level. Cable glands need not form part of the switch board as the cost of glands will form part of the cable termination.

#### E.4.3. **BUS BARS**

- E.4.3.1. Bus bars shall be three phase and neutral and of high conductivity aluminium or aluminium alloy rated for a temperature rise of 30 deg. C over the ambient temperature specified, based on insulated conductor rating ( IS : 8084 – 1976 ). Neutral bars may be of one half the size of the phase bars.
- E.4.3.2. The main horizontal bus bars shall be of uniform cross section and rated in accordance with the incoming switch. The vertical bus bars for the feeder columns may be rated at 75% of aggregate feeder capacity and shall be uniform in size. Bus bars and interconnections shall be taped with PVC colour coded tape to prevent bar-to-bar accidental shorts. Each bus bar shall be directly and easily accessible on removal of the front cover. Bus bars shall be totally enclosed, shrouded and supported on non-hygroscopic insulator blocks to withstand thermal and dynamic overloads during system short circuits. An earth bus of size 50% of the phase subject to the following maximum and minimum shall be provided. Individual switch components shall be connected with the earth bus through aluminium strip size of connecting wire being as above. All wire connections to bars shall through lugs, bolts and nuts and spring washers.
- E.4.3.3. All main and auxiliary busbars shall be insulated with tapes. The tapes shall be of high dielectric strength, non-corrosive and of phase and neutral colours.
- E.4.3.4. The bus bars shall be supported on cast epoxy resin insulators and the spacing of the support shall be such as to withstand the stresses of the short-circuit currents. The bus bar spacings shall be adequate for 3 phase voltage upto 600 V.
- E.4.3.5. The bus bars shall be as chosen for specific current ratings with a minimum current density for 1 Amp. for Sq.mm. area.

#### E.4.4. **ISOLATORS**

- E.4.4.1. Isolators shall be fixed on wall on self-supported angle iron frame work as required and mounted as near to the motor as possible. Where several motors are installed, isolators if required shall be provided at a central location on a common frame work.
- E.4.4.2. Painting, earthing and labels shall be provided as generally indicating for MV switchgear and shown on drawings.

**SECTION : E.5.****E.5.1. INDICATING INSTRUMENT**

- E.5.1.1. All indicating instruments shall be of type and sizes as specified under subsequent sections and shall conform to IS 722 and with all the latest amendments and additions up to date. They shall be capable of carrying their full load current continuously without heating. They shall have long clearly divided and indelibly marked scales of engraved or enamelled metal and the pointer shall be of clean outlined. The marking on the dials shall be restricted to the scale marking. All indicating instruments shall be provided with non-reflecting glass type fronts.
- E.5.1.2. Indicating instruments shall be of minimum 96 mm. Square size, suitable for flush mounting. The zero adjustment shall be done from outside the cover. The dials to be parralex free with black numerals on a white dial.

**E.5.2. INSTRUMENT TRANSFORMERS, METERS & RELAYS**

- E.5.2.1. Ammeters and voltmeters shall have moving iron spring controlled dead-beat elements in square bezel flush type cases 144 mm. in size and suitable for switch board mounting. Meters shall conform to BS : 89 and / or equivalent Indian Standard and have grade ' A ' accuracy. Scale ranges shall meet with the requirements. It shall also be as shown on the drawing and shall follow schedule of quantities.
- E.5.2.2. Energy meters shall be two element switch board mounting type suitable for unbalanced loads. Meters should incorporate a KVA. demand meter with an integration time of 0 minutes. In case of two incoming feeders, a summing C.T. shall be provided with the meter. Meters shall conform to BS : 37 and / or equivalent Indian Standard.
- E.5.2.3. The energy meters for DG set & transformers shall be calibrated and got certified by the Maharashtra State Electricity Board or with Electricity Board / Authority of the related state.
- E.5.2.4. All tripping may be through combination thermal and magnetic releases or IDMT releases as specified.

**E.5.3. CURRENT TRANSFORMERS : CTs**

The CTs shall be of dry type and shall have a short time withstand rating of the associated switchgear for one second. It shall be of 15 VA with minimum accuracy of class 1.0 and instrument safety factor of 5.

**E.5.4. INDICATING LAMPS**

Indicating lamps shall be of the filament type and of low watt consumption, provided with series resisters and a HRC fuse link for protection. The lens shall be translucent and coloured as required. The bulbs shall easily replaceable from the front.

**E.5.5. CONTROL AND SELECTOR SWITCHES**

The control and selector switches shall be of the rotary type, adequately rated for the application but with a minimum rating of 10 Amp. at 240 AC and 1 Amp. 220 V DC. The escutcheon plates shall have a clear position marking.

The control switches shall have pistol grip handles with spring return to normal. The selector switches shall have oval knobs and shall be contact stay-put type.

**E.6. RISING MAIN****E.6.1. SCOPE**

The scope of work shall cover supply, installation & testing of Aluminium / Copper Mains and Tap-off boxes.

**E.6.2. STANDARDS**

The following standards shall be followed :

- ( a ) IS 8623
- ( b ) Rising Mains

**E.6.3. RISING MAINS**

- E.6.3.1. The rising mains shall be rated for 415 V., 3 Ph, 50 Hz and amperage as specified and housed in a 1.6 mm. rust inhibited sheet steel trunking and shall be of dust and vermin proof enclosure not less than IP.44. wall straps shall be provide at every 500 mm. for fixing the trunking to the wall. The rising mains shall be supplied in suitable sections, joints shall be rendered electrically continuous.
- E.6.3.2. Fire resistant inter floor barrier boxes shall be 150 mm. in length packed with 64 Kg. / Cum ( 4 lbs / cft ) white glass wool between two 12 mm. thick asbestos sheets. The fire barrier shall comply with fire insurance regulations and fire officers requirements.
- E.6.3.3. The bus bars shall be three phase and neutral and of electrolytic grade aluminium / copper alloy of E 9IE grade as specified having uniform section and shall be individually insulated. Bus bars shall be rated for a temperature rise of 30 deg. C over the specified ambient temperature. The neutral bus bars may be of one half the size of the phase bars but not less than 25 Sq.mm. Joints between bus bars should be with ample overlaps with multiple bolts to ensure long term low resistance connections. Fasteners are high tensile steel cadmium plated and passivated.
- E.6.3.4. A continuous earth bar shall be laid connecting to one set of earth terminals while the other terminals are interconnected with same size earth jumper. Similar jumpers shall be provided across the fire barriers also.
- E.6.3.5. The rising main and the supporting frames shall be painted with two coats of glossy oil paint over two coats of red oxide to the following colour code :
  - ( a ) Supporting frame : Black
  - ( b ) Rising Mains : Red
- E.6.3.6. Rating of the rising main, Voltage and danger sign shall be stenciled in bright yellow at every floor.

**E.6.4. TESTING**

Rising mains shall be tested upon installation with a 500 V. meggar and the following readings established :

- ( i ) Continuity on all phases
- ( ii ) Insulation resistance
  - ( a ) between conductors  
&
  - ( b ) all conductors & ground

All test readings shall be recorded.

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**E.6.5. MODE OF MEASUREMENT**

- E.6.5.1. Rising mains shall be measured on the basis of unit length and the cost shall include end box for the isolator switch, all supporting system, jointing, end supports, fire barriers, earth jumpers, continuous earth bus testing and commissioning.
- E.6.5.2. Tap-off boxes shall be measured per unit and the cost shall include the box, fuses, erection, testing and commissioning.
- E.6.5.3. The isolating switch shall be paid for separately per unit.
- E.6.5.4. Expansion joint should be of flexible copper / aluminium conductor bolted to the bus bars and enclosed in a Bakelite tubes.
- E.6.5.5. The bus bars shall be supported with non-hygroscopic insulators and shall withstand the dynamic & thermal overloads during system short circuits and also take into account the linear expansion due to temperature variations, without inducing stresses in the bars. Bus bars shall be provided with thrust block insulator at the bottom to give extra support to the bus bars. Self adjusting spring loaded supports shall be provided at the top in addition to expansion joints and cater for the expansion or contraction of the bus bar.
- E.6.5.6. Tap off boxes shall be provided as required. The tap off boxes shall be provided with make before and break after earthing arrangements to ensure safety.
- E.6.5.7. An earth bus bar having a size not less than 50% of the phase bus bar subject to a minimum 6.5 Sq.mm. copper or 10 Sq.mm. aluminium and maximum 120 Sq.mm. aluminium or 70 Sq.mm. copper shall be provided throughout the length of the rising main. In addition two earth connections shall be made for each section of the enclosure.

**E.6.6. INSTALLATION**

- E.6.6.1. Rising Mains shall be installed in the positions shown. The contractor should survey the route of bus bar and ensure that there are no obstructions for fixing the rising mains.
- E.6.6.2. Supporting brackets shall be grouted into the wall or fixed with shear fasteners. A minimum gap of 150 mm. ( 6 inch ) shall be left between the wall and rising main. Where tap-offs occur, necessary additional supports shall be provided. A rain hood shall be provided on top of the rising main. Floor barriers shall be fixed at every floor and the space around shall be filled up and sealed to achieve the original fire rating.
- E.6.6.3. The isolating switch shall be mounted at the start of the rising main and connections into the trunking shall be double sealed, with one 12 mm. hylam sheet and one 4 mm. galvanised steel sheet.

**E.7. SUB-DISTRIBUTION SWITCH BOARDS**

- E.7.1. These shall be of industrial type, air break metal clad, floor or wall mounting as required and shall comprise of a suitable length of bus bar chamber fitted with copper bus bar of appropriate current rating with the required number of switch-fuse units mounted above and below in double tier formation.

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- E.7.2. The units shall be arranged so as to permit change in position or assembly without difficulty of structural alteration. The risers connections from the unit to the bus bars shall be in solid copper which shall be suitably insulated at the point of entry into the bus bar chamber. As far as possible, the riser connections shall be connected to the bus bars by means of clamps, in order to obviate the need of drilling the bus bars. An insulating barrier should be interposed between the unit and the bus bar chamber and where the risers connections pass through this barrier rubber bushes should be provided. The bus bars have riser connections and should sufficient mechanical strength to withstand the effects of a 35 MVA short circuit until it can be cleared by the appropriate protecting device. All the risers and the bus bars should be clearly marked with an appropriate colour code to enable immediate identification of the phase and neutral.
- E.7.3. The switch board should be complete with all necessary self contained inter-connections, small wiring for instruments and suitably engraved designation labels made out of white plastic with black inscriptions. The boards should also be extensible on both sides to allow for additional units to be added at a later date.
- E.7.4. The bus bar chamber should be fabricated sheet steel construction. It should be provided with detachable front cover fitted with dust excluding gaskets secured by sufficient number of screws to ensure that these covers are dust tight. The maximum unsupported length of bus bar chamber between floor-stands should not exceed 6 ft.
- E.7.5. The bus bars should be of hard drawn high conductivity aluminium of sufficient and uniform cross section so that a current density of 1000 amps. per square inch is not exceeded at nominal current rating. Any neutral bus bar fitted must be rated at not less than 50% of the phase bus bars. The bus bars shall be carried on supports constructed from a suitable insulating material such as 'Per mali' or 'helium'. The supports should be sufficiently close and robust to effectively with stand electro-mechanical stresses in the event of a short circuit.
- E.7.6. Where-ever required, instruments should be fitted on special housing interposed between the fuse switch units and bus bar chamber. These instruments should normally be mounted on the hinged door of the housing to allow easy access to C.T.'s and small wiring. All potential circuits should be protected by HRC fuselinks. Small wiring should be colour coded for any easy identification of circuit.
- E.7.7. All the steel materials used in the construction of the board should have undergone rigorous rust-proofing process which must comprise alkaline degreasing-descaling in dilute sulphuric-acid and a recognised phosphating process. The steel work shall then receive two coats of filler oxidised primer before final painting.

E.8. **MEDIUM VOLTAGE ( MV ) AND LOW VOLTAGE ( LV ) CABLES**

E.8.1. **GENERAL**

- E.8.1.1. MV Cables shall be inspected prior to laying, laid tested and commissioned in accordance with drawings, specifications, sizes, relevant Indian Standards Specifications and cable Manufacturer's name clearly written on the drum.
- E.8.1.2. The recommendations of the cable manufacturer with regard to jointing and sealing shall be strictly followed.
- E.8.1.3. All cables shall be inspected upon receipt at site and checked for any damage during transit.

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- E.8.1.4. While selecting cable routes, corrosive soils, ground surrounding sewage effluent etc. shall be avoided : where this is not feasible, special precautions as decided by the Architect, shall be taken. Street lighting and Service line to each area have separate route where layout drawings are furnished for cable routing these must be followed.

E.8.2. **PROXIMITY TO COMMUNICATION CABLES**

Power and communication cables shall as far as possible cross at right angles. Where power cable are laid in proximity to communication cables the horizontal and vertical clearances shall not be less than 100 cms.

E.8.3. **LAYING METHODS**

- ( a ) Cables shall be laid direct in ground, in pipes / closed ducts, in open ducts or on surface depending on environmental and site conditions.
- ( b ) During the preliminary stage of laying the cables, consideration should be given to proper location of the joint position so that when the cables are actually laid the joints are made in the most suitable places. As far as possible water logged locations, carriage ways, pavements, proximity to telephone cables, gas of water mains, inaccessible places, ducts pipes racks etc. shall be avoided for joint position.

E.8.4. **ROUTE MARKER**

- E.8.4.1. Route marker shall be provided along straight runs of the cables at locations approved by the Architect and generally at intervals not exceeding 100 m. Markers shall also be provided to identify change in the direction of the cable route and also for location of every underground joint.
- E.8.4.2. Route markers shall be made out of 100 mm. X 100 mm. X 5 mm. GI / Cast Iron plate, welded or bolted on to 35 mm. X 35 mm. X 6 mm. angle iron 60 cm. long. Such plate markers shall be mounted parallel to 0.5 m. or so away from the edge of the trench.
- E.8.4.3. The word cable and other details such as voltage grading size etc. as furnished by the Architect shall be inscribed on the marker.

E.8.5. **SINGLE CORE CABLES**

Three single core cables forming one three phase circuit shall normally be laid in close trefoil formation and shall be clamped together at intervals of approximately 1 m., using non magnetic material. The relative position of the three cables shall be changed at each point, complete transposition being effected in every three consecutive cable length. The joints shall be clearly marked in an approved manner to indicate the circuit and phases, the arrangement for laying a number of parallel cables shall be as detailed of IS : 1255 / 1967.

- E.8.6. Fire resistance coatings for cables in ducts etc. wherever required / directed as per fire safety rules, in square meter considering the diameter X length area.

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**E.8.7. LAYING IN PIPES / CLOSED DUCTS**

- E.8.7.1. In locations such as road crossing, entry to building on walls, in paved area etc. cables shall be laid in pipes or closed ducts.
- E.8.7.2. Hume pipes, GI pipes shall be provided for such purposes. In case of new constructions, pipes as required shall be laid alongwith the Civil Works, and jointed as per instructions of the Architect and shall not be less than 10 cm. in diameter for a single cable and not less than 15 cm. for more than one cable. These pipes shall be laid directly in ground without any special bed except for SW pipe which shall be laid over 10 cm. thick cement concrete 1 : 5 : 10 ( 1 cement : 5 coarse sand : 10 graded stone aggregate of 40 mm. nominal size ) bed. No sand cushioning or tiles need be used in such situations. Unless otherwise specified, the top surface of pipes shall be at a minimum depth of 1 m. from the ground level when laid under roads, pavements etc.
- E.8.7.3. Where steel pipes are employed for protection of single core cables feeding AC load, the pipe should be large enough to contain both cables in the case of single phase system and all cables in the case of polyphase system.
- E.8.7.4. Pipes from cable entries to the building shall slope downwards from the building and suitably sealed to prevent entry of water inside the building. Further, the mouth of the pipes at the building end shall be suitable sealed to avoid entry of water.
- E.8.7.5. All chases and passage necessary for the laying of service cable connections to buildings shall be cut as required and made good to the original finish and to the satisfaction of the Architect. For new construction contractor shall provide a duct / pipe for route length of cable feeding power to the building.
- Cable grips / draw wires and winches etc. may be employed for drawing cables through pipes / closed ducts etc.

**E.8.8. LAYING IN OPEN DUCTS**

- E.8.8.1. Open ducts with suitable removable covers shall be preferred in sub-stations, switch rooms, plant rooms, workshops etc.
- E.8.8.2. The cable ducts should be of suitable dimensions or as per layouts drawings so that the cables can be conveniently laid. If necessary, cables may be fixed with clamps on the walls of the duct or taken in troughs in duct. The duct should be covered with removable slabs or checkered plates of suitable thickness considering the width of duct or as specified on drawing or B.O.Q.
- E.8.8.3. Ducts may be filled with dry sand after the cable is laid covered as above or finished with cement plaster specially in high voltage applications to prevent rodent entry.
- E.8.8.4. Splices or joints of any type shall not be permitted inside the ducts.

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**E.8.9. LOW VOLTAGE CABLES****E.8.9.1. CONSTRUCTION**

- E.8.9.1.1. All power and lighting cables shall be of aluminium conductors, PVC insulated, armoured and PVC sheathed. The insulation grade shall be 1100 V. The control cables shall be of copper conductors, PVC insulated, armoured and PVC sheathed of 1.1 KV grade.
- ( a ) Wiring cables for lighting shall be single core, copper conductor PVC insulated of 1.1 KV grade.
  - ( b ) The H.V. cables shall be of aluminium conductors, PVC insulated and armoured. The current conductor shall be aluminium or copper as specified in bill of quantities.

**E.8.9.2. INSTALLATION, TESTING AND COMMISSIONING**

- ( a ) The cables routes shall be established before commissioning the installation work.
- ( b ) All cables to be buried underground & shall be done after digging uniform section trenches. The cable shall be laid with proper spacings between adjacent cables. The cables shall then be covered with tiles or bricks and finally back-fillings with sand and earth.
- ( c ) Cables buried underground and crossing, pathways, roads etc. shall be laid in GI pipes / Hume pipes.
- ( d ) Cables run along prepared trenches or structures and wall shall be suitably clamped and cleated. The spacings of clamps shall be dependent on the size of the cables, but not to exceed 500 mm. horizontally. The cables shall be protected from mechanical damage using G.I. pipes sleeves while crossing floors etc. The spacers and saddles shall be of G.I.
- ( e ) The use of cables trays, racks or direct clamping shall be determined before commencing work and the same shall be approved.
- ( f ) Cables shall be supplied in non-returnable wooden drums as per IS 10418. Both ends of the cables shall be properly sealed with PVC / rubber caps so as to eliminate ingress of water during transportation, storage and erection.

**E.8.9.3. TERMINATION**

- E.8.9.3.1. All HV cable terminations shall be carried out with conical heavy duty brass glands. The armour shall be bend and securely clamped. The terminations shall be carried out with sockets, sealing components etc. There should not be any strain on the cable.
- E.8.9.3.2. The LV cable terminations shall be soldered or crimped on to cable sockets. In case of soldering, the solder and flux shall be quality. The terminations to the equipments shall be carried out with brass compression glands.

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- E.8.9.3.3. After terminations, the individual phase conductors shall be taped with coloured tapes for identifications.
- E.8.9.3.4. The H.V. cable terminations shall be pressure tested in the presence of the Architect prior to commissioning in service.

#### E.8.10. **TESTS**

Cables shall be subjected to type test, acceptance tests and routine tests as per IS : 1554 and IS : 10810. The owner reserves the right to witness any or all the tests for which at least 20 days advance notice shall be given by the contractor. Six ( 6 ) copies of all test reports shall be submitted for approval by owner reports shall be submitted for approval by owner before dispatch of the materials for works.

#### E.8.11. **CODES AND STANDARDS**

The design, manufacture, testing and supply of the cables under this specification shall comply with the latest revisions including amendments of the following standards.

- |                |   |   |
|----------------|---|---|
| IS : 1554 – I  | : | PVC insulated heavy duty cables for working voltages upto 1100 Volts. |
| IS : 3961 – II | : | Recommended current ratings for cables.                               |
| IS : 8130      | : | Conductors for insulated cables.                                      |
| IS : 5831      | : | PVC insulation and sheath of electric cables.                         |
| IS : 10810     | : | Test Procedures for cables.   |
| IS : 10418     | : | Specification for drums for electric cables.                          |
| IS : 3975      | : | Mild steel wire, strips and tapes for armouring of cables.            |

#### E.9. **CONDUIT RUNS**

##### E.9.1. **RIGID P.V.C. CONDUITS**

- E.9.1.1. Conduits shall be Rigid PVC Conduit as per IS – 2509, including latest amendments and in accordance with the requirements set out in the schedule. The diameter of the conduit shall be 19 mm. minimum and increase in the size of conduit shall be as per size and numbers wires and the tubing must be perfectly circular and capable of clean and tight fitting joints.

##### E.9.1.2. **ACCESSORIES**

PVC conduit accessories shall be of PVC material and shall comply with IS : 2509 with all its latest amendments upto date, with clean tight fittings. The cover of accessories for outdoor use shall be made water tight in an approved manner. Normal bends, elbows, couplings, adapters can be used only after obtaining specific approval. Junction boxes used for suspension of fittings shall be secured to the ceiling, clamps or spacers as the case may be. High dome junction boxes shall be used where a SP tumble switch is to be mounted.

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**E.9.2. M.S. CONDUIT**

- E.9.2.1. Conduit shall be heavy gauge ( HGBE ) M.S. Conduit, electric threaded type as per IS 1653 of 1960 including latest amendments and in accordance with the requirements set out in the schedule. The gauge of the conduit shall be 16 BG ( minimum ) and the tubing must be perfectly circular and capable of clean and tight fitting joints. The Galvanised conduit shall also be used whenever the conduits are exposed to weather i.e. run outside the structure.

**E.9.2.2. ACCESSORIES**

M.S. Conduit accessories shall be of G.I. iron and shall comply with IS 2667 of 1964 and be of threaded type with clean tight fitting threads. The cover of accessories for outdoor use shall be made water tight in an approved manner. Normal bends elbows can be used only after obtaining specific approval. Junction boxes used for suspension of fittings shall be secured to the ceiling, clamps or spacers as the case may be. High dome junction boxes shall be used where a SP tumble switch is to be mounted or a 16 Amps. porcelain connector is to be housed for looping wires.

**E.9.3. FIXING OF CONDUIT**

- E.9.3.1. The conduit shall be fixed to the structures by means of adequate number and appropriate size as directed by the Architect or as per the drawing of G.I. saddles of minimum 18 gauge fixed on MS clamps or on MS spacers as specified and shall run throughout adjacent to either steel work, wall or ceiling.

Where the conduits or PVC cables pass through the flooring the same shall be passed through a galvanised pipe of suitable size fixed in the flooring so that conduits, cables or wires can be renewed at any time without breaking the floor. The galvanised pipe shall extend 75 mm. above the flooring and shall be flush with ceiling surface on other side. In case the same are passing through the wall M.S. Conduit ( H.G.B.E. pipes ), flush with walls on both sides shall be used.

- E.9.3.2. All conduit wiring in the building, workshops, substations, sheds, pump houses, shall be fixed on MS clamps or on MS spacers as specified and shall be of appropriate size. The conduit wiring in offices and quarters running at ceiling height shall be fixed on MS spacers, the raising main being fixed on clamps unless otherwise specified in the notes. The minimum size of MS spacers shall be 15 mm. wide and 4 mm. thick.

- E.9.3.3. M.S. clamps for fixing conduits shall normally be prepared for M.S. flats of size 25 X 3 mm. In case more than 5 conduits are running side by side the M.S. flats of size 30 X 5 mm. ( minimum ) shall be used for this purpose. For suspension of conduits from ceiling of structural member at a distance of more than 100 mm. clamps made of flats of size 37 X 5 mm. shall be used with additional supports in the run as required to keep the conduits held firm in position.

- E.9.3.4. M.S. clamps for conduit run shall be grouted on brick walls and shall be screwed on R.C.C. walls as per instructions. Philips or teakwood plugs of size as directed shall be used in drilled holes to secure the screws to the walls or to required surfaces.

- E.9.3.5. The spacing of clamps or spacers in the straight runs shall not exceed 800 mm. and additional clamps or spacers shall be provided near bends, curves and under / near junction boxes for fittings so as to make the whole fixtures quite rigid.
- E.9.3.6. The run of the conduit shall be arranged in good way to the finished work and with that end in view all the conduits entering or leaving a D.B. or switch should be neatly arranged. Any crossing of conduit should be avoided as far as possible, but if required to cross, the conduits shall be neatly bent and fixed.
- E.9.3.7. Termination of the conduit runs must have PVC adapters on either side of the entry to the boards, switches and fittings. The continuity of whole conduit system shall conform with the requirements of the regulations prescribed by Indian Electricity rules and also Regulations issued by the Institute of Electrical Engineers.
- E.9.3.8. While connecting the PVC conduit to the trunking & trunklinks or at the point of termination or all joints, the joints shall be sealed properly to make it waterproof. Due care should be taken while laying the cable below the sinks or laying it directly in ground, especially for the cable to be provided in areas like laboratories.
- E.9.3.9. The entire conduit work shall be given two coats of approved brand and colour of enamel paint on completion of the work. All the threads, running couplers, lock nuts, joins of entry into boxes and abrasions resulting in exposure of the metal shall be given two coats of approved brand of black enamel paint of any other colour shade as approved immediately after erection.
- E.9.3.10. At every six meters straight run the conduits shall be provided with sufficient extra threads and a check-nut for easy running of the coupling back on the conduit for the purpose of renewal of wires etc. Sufficient number of inspection bends and junction boxes shall be provided for easy drawing in of new and repair works in future. Normal bends shall only be used only on approval from the Architect.

## **SECTION : E.10.**

### **E.10.1. POINT WIRING**

The wiring shall be of the looping in system as different from the tree system. Connectors should not be used without specific prior approval. Looping in on the phase side shall be at the switches and that on the neutral side at the ceiling roses. Every light point, fan point and plug point shall have individual control switch unless stated otherwise. Earthing shall be provided for all the points according to the statutory requirements where ever necessary. The number of points per circuit shall not exceed 8 in any case.

- E.10.1.1. The point wiring in conduit consists of wiring from the branch distribution board in conduit with its ancillary work, such as inspection bends, junction boxes and PVC wires upto the fixed terminals of ceiling roses, connectors, batten holders, etc. depending upon the type of point.
- E.10.1.2. For easy identification, wires with different colours shall be used for phase and neutral as far as practicable.

- E.10.1.3. The control switches for lights, fans, wall sockets and fan regulators shall suitably be grouped on sheet steel cases of all welded design fabricated out of 1.2 mm. ( approx. ) Generally, the bakelite sheet shall be 3 mm. thick where SP Piano type flush mounting switches are to be accommodated and in all other cases it shall be 5 mm. thick. The bakelite sheet cover shall be fitted above the sheet steel case and shall be levelled on the outer edges. Control accessories for one circuit only shall be grouped on a sheet steel case. Suitable earthing terminal shall be provided on the sheet steel case. All the conduits entering and leaving D.B. shall be bonded together with 4 Sq.mm. bare aluminium / copper wire and earth clips.

E.10.1.4. **FOR SURFACE WIRING AND FOR CASING-CAPPING**

The switchboard shall be made of polished 12 mm. thick well finished T.W. plank preferably in one piece with 1 mm. thick laminates to all sides with 20 mm. thick well polished T.W. back and 6 mm. thick Anchor or Guna plywood smooth finished cover with 1 mm. thick laminates, fixed with piano hinges to the frame. All the inside surfaces and back board shall be treated with anti-termite treatment and polished.

E.10.1.5. **POINT WIRING BY USING PVC-A-PVC CABLE**

This shall be similar to point wiring in conduit system. The fixing of cables shall, however, be according to the specifications.

The PVC wires shall have a grade 440 / 660 Volts for single phase lighting and power wiring, 1.1 KV grade for TPN four wire system.

E.10.2. **MAINS AND SUB-MAINS WIRING**

This shall include the cost of all PVC-A-PVC cables, conduit accessories, clamps spacers, PVC wires, PVC / PVC wires on battens depending upon the type of wiring, all masonry work, such as cutting, neat finishing of walls, floor openings etc. Only approximate lengths are included in the Schedule of Quantities and Rates, but the actual lengths of the mains and sub-mains executed will be measured between termination points and will be paid for. Where the mains and sub-mains pass through the flooring, or through the wall, the same shall pass as specified in the above specifications. Mains and sub-mains risers in conduit shall be bonded together with 4.0 Sq.mm. bare aluminium / copper as specifically mentioned in Schedule and earth clips on each floor landing / midlanding. The PVC heavy duty cable are provided as mains and sub-mains. The same shall be fixed as per specifications.

E.10.3. **CONDUIT CAPACITY**

- E.10.3.1. The maximum capacity of a conduit for drawing in PVC insulated wires shall be in accordance with IS 732 of 1963 & IS 694 of 1990. The minimum size of conduit to be used shall not be less 19 mm. ( approx. ) and not more than two circuits connected to same phase be bunched in one conduit. Two different phases are not allowed in one conduit.

- E.10.3.2. Commonly used sizes of 250 / 440 / 1100 Volts PVC wires and conduit capacities are as tabulated below :-

Size of Wire	Voltage Grade	Capacity of the Conduit	
		19 mm. / 20 mm.	25 mm.
1.5 Sq.mm.	230 / 440 / 1100	4 Nos.	8 Nos.
2.5 Sq.mm.	230 / 440 / 1100	4 Nos.	6 Nos.
4.0 Sq.mm.	230 / 440 / 1100	2 Nos.	4 Nos.
6.0 Sq.mm.	650 / 1100	2 Nos.	3 Nos.
10.0 Sq.mm.	650 / 1100	-	3 Nos.

**E.11. SWITCHES, PLUG SOCKETS AND CEILING ROSES****E.11.1. PIANO TYPE SWITCHES**

These shall be of single pole type, shock proof manufactured as per relevant I.S. The switches shall be surface mounting and minimum continuous ratings shall be of 5 A. & 250 V AC. Higher ratings shall be provided as specifically stated in Schedules. The switches shall be of A.C. micro Break Silent type with silver contacts.

**E.11.2. PLATE TYPE, MOULDED DESIGN – SWITCHES**

These shall be of single pole, double pole, two ways, one ways or otherwise as indicated in the Schedule. These shall be manufactured as per relevant IS Codes approved by the Architect and Indian Electricity Rules. The minimum rating shall be 5 A at 250 V AC.

For group control of lights flush mounted S.P. load master switches housed in 16 gauge sheet enclosures shall be provided.

**E.11.3. SOCKET OUTLETS WITH PLUGS**

These shall be with porcelain base, in 2 pin and earth design of best quality, suitable for single phase, 250 Volts supply. The earth pin shall be effectively connected to the earth connections in distribution board with not less than 3 mm<sup>2</sup> ( No. 14 SWG ) copper wire. The socket outlet shall be complete unit shall be with ratings of 5 Amps. 250 Volts of 15 Amps 250 Volts to suit individual requirement as stated in Schedule of Quantities and Rates. The socket outlets shall be shutter type designs, flush mounting or on plate designs as called for in the schedule.

**E.11.4. CEILING ROSES**

These shall be of bakelite and of approved make and colour and shall not contain fuse terminals. These shall be provided with brass ceiling plate and M.T. brass Screws and Washers with cord grip for termination of wires.

**E.11.5. POINT WIRING : WITH CASING-CAPPING****E.11.5.1. CASING-CAPPING**

The casing-capping shall be as per BS – 4607 made of PVC material. The size of the casing-capping will vary as per the total number of circuits in the casing-capping. The maximum number of wires which can be easily fitted in the casing-capping shall not at all exceed 45% of its total capacity. The casing-capping shall be fireproof, termite resistant, acid proof, alkali proof and safe in construction. The casing-capping shall be fixed to the wall / column / ceiling with M.S. screws of proper size, with a distance of one meter in between two screws without any extra cost. There shall not be any projection of screws in the casing.

E.12.5.2. The casing-capping accessories shall be of PVC material, having colour exactly same as that of the casing-capping & rigidly fixed with casing-capping with original resin or adhesive without any extra cost. The casing-capping and accessories shall be of the same make.

**E.12. LIGHT FIXTURES & FANS****E.12.1. STANDARDS**

E.12.1.1. The following standards and rules shall be applicable to lighting fixtures and fans.

- |    |   |   |
|----|---|---|
| a. | IS 3646 – 1968 :                                    | Code of practice for interior illumination.                     |
| b. | IS 1913 – 1969 :                                    | General and Safety requirements for electric lighting fittings. |
| c. | IS 8030 – 1976 :                                    | Luminaires for Hospitals  |
| d. | IS 374 - 1966 :                                     | Electric ceiling type fan & regulators                          |
| e. | Indian Electricity Act and Rules issued thereunder. |   |
| f. | IS 2418 – 1964 :                                    | Lamp holders  |
| g. | IS 3324 – 1965 :                                    | Light fittings  |
| h. | IS 2149 :   | General safety requirements of lighting fittings.               |
| i. | IS 418 – 1963 :                                     | GLS incandescent lamps.   |
| j. | IS 2183 – 1963 :                                    | HPMV lamps  |
| k. | IS 3324 – 1965 :                                    | Starter holder for light fittings.                              |
| l. | IS 1534 – Part I :                                  | Ballasts for fluorescent fittings.                              |
| m. | IS 1569 – 1963 :                                    | Condensers for light fittings                                   |
| n. | IS 6616 :   | Ballasts for HPMV fittings.                                     |

E.12.1.2. All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Indian Standard Codes of Practice or the relevant British Standard Codes of Practice in the absence of Indian Standard.

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**E.12.2. GENERAL REQUIREMENTS**

- E.12.2.1. All fixtures shall be complete with accessories with fixings materials necessary for installation whether so detailed under fixture description or not.
- E.12.2.2. Fixture housing, frame or canopy shall provide a suitable cover for the fixture outlet box or fixture opening.
- E.12.2.3. Fixtures and / or fixture outlet boxes shall be provided with hangers to support the complete weight of the fixture. Design of hangers and method of fastening other than shown on the drawings or herein specified shall be submitted to the Architect for approval before installation.
- E.12.2.4. Fixtures shall be installed at mounting heights as detailed on the drawings or instructed on site by the Architects.
- E.12.2.5. Pendant fixtures within the same room or area shall be installed plumb and at a uniform height from the finished floor. Adjustment of height shall be made during installation as per Architect's instructions.
- E.12.2.6. Flush mounted and recessed fixtures shall be installed so as to completely eliminate light leakage within the fixture and between the fixture and adjacent finished surface.
- E.12.2.7. Fixtures mounted on outlet boxes shall be tightly secured to a fixture stud in the outlet box. Extension pieces shall be installed where required to facilitate proper installation.
- E.12.2.8. Fixture shall be completely wired and constructed to comply with the regulations and standards for Electric Lighting Fixtures, unless otherwise specified. Fixtures shall bear manufacturer's name and the factory inspection label unless otherwise approved by the Architect.
- E.12.2.9. Wiring within the fixture and for connection to the branch circuit wiring shall be not less than 1.5 Sq.mm. copper for 250 Volt application. Wire insulation shall suit the temperature conditions inside the fixture and wires bypassing the choke shall be heat protected with a heat resistant sleeve.
- E.13.2.10. Metal used in lighting fixtures shall be not less than 22 SWG or heavier if so required to comply with the specification or standards. Sheet steel reflectors shall have a thickness of not less than 20 SWG. The metal parts of the fixtures shall be completely free from burrs and tool marks. Solder shall not be used as mechanical fastening device on any part of the fixture.
- E.13.2.11. Ferrous metal shall be bonderized and given a corrosion resistant phosphate treatment or other approved rust inhibiting prime coat to provide a rust-proof base before application of finish.

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- E.12.2.12. Non-reflecting surfaces such as fixture frames and trim shall be finished on baked paint.
- E.12.2.13. Light reflecting surface shall be finished in baked white enamel having a reflection factor of not less than 80%. All parts of reflector shall be completely covered by finish and free from irregularities. After finish has been applied and cured, it shall be capable of withstanding a 6 mm. radius bend without showing sign of cracking, peeling or loosening from the base metal. Finish shall be capable of withstanding 72 hours exposure to an ultraviolet sun lamp placed 10 cm. from the surface without discoloration, hardening or warping and retain the same reflection factor after exposure. Test results shall be furnished for each lot of fixtures to the Architect.
- E.12.2.14. Fixture with visible frames shall have concealed hinged and catches. Pendant fixtures and lamp holders shall be provided with ball type aligners or similar approved means. Recessed fixtures shall be constructed so as to fit into an acoustic tile ceiling or plaster ceiling without distorting either the fixture or the ceiling plaster rings / flanges shall be provided for plaster ceiling. Fixtures with hinged diffuser doors shall be provided with spring clips or other retaining device to prevent the diffuser from moving.
- E.12.2.15. Detailed catalogue cuts for all fixtures, with sample where-ever required by the Architect shall be submitted for approval to the Architect before placing orders of fixtures for procurement. Shop drawings for non-standard fixture types shall be submitted for approval to the Architect.
- E.12.2.16. Recessed fixtures shall be constructed so that components are replaceable without removing housing from the ceiling.
- ( a ) Lamps shall be supplied and installed in all lighting fixtures furnished under this contract. All lamps shall be rated for 250 Volts.
  - ( b ) Lamps used for temporary lighting service shall not be used in the final lamping of fixtures units.
  - ( c ) Lamps shall be of wattage and type as shown on the drawings and schedule. Where not shown, the details shall be ascertained from the Architect before procurement.
  - ( d ) Lamps for permanent installation shall not be placed in the fixtures until so directed by the Architect, and this shall be accomplished directly before the building portions are ready for occupation.

### E.12.3. **FLUORESCENT FITTINGS**

- E.12.3.1. Only single and / or two lamp ballast shall be used in any one fixture. Ballasts shall be completely enclosed inside sheet steel casing and shall have a corrosion – resistant finish. Ballasts shall contain a thermosetting type compound not subject to softening or liquefying under any operating conditions or upon ballast failure. Compound shall not support combustion. All ballasts shall be of high power factor compensated to above

0.9PF. Ballast temperature and sound rating shall be specified by the manufacturer and guaranteed. Ballasts shall be for operation at the voltages and frequencies indicated and under temperature conditions prevailing in the various locations of the premises. Tapped ballasts are preferred.

- E.12.3.2. All fluorescent fixtures shall be provided with separate wiring channel with cover plate and an earth terminal. All screws shall be chromium brass screws. Lamp and starter holders shall be out of tough moulded plastic with spring loaded rotor type contractors rendered shock and vibration proof. Condensers shall be low loss paper impregnated hermetically sealed complying with IS 1569-1963. Internal wiring shall be neatly clipped and where by passing the ballast, a suitable heat resistant barrier or sleeve shall be provided.
- E.12.3.3. Surface mounted fixtures longer than two feet shall have one additional point of support besides the outlet box fixture stud when installed individually. Pendant individually mounted fixtures four feet long and smaller shall be provided with twin stem / conduit hangers. Stems shall have ball aligners or similar devices and provided for a minimum of 25 mm. vertical adjustment. Stems shall be of appropriate length to suspend fixtures at required mounting height.
- E.12.3.4. Lamps shall have bi-pin bases and a minimum approximate rated and guaranteed life of 6000 hrs. Colour spectrum of light shall be equivalent to ' Philips White '. Lamp starter and ballast shall match the lamp.
- E.12.3.5. The fluorescent fittings shall be decorative, commercial or industrial types stove enamelled reflectors shall be provided wherever specified.
- E.12.3.6. Lighting fittings in various areas as specified in the drawings shall be decorative type, recessed mounting or industrial type. The luminaries shall have a bat-wing widespread distribution for high optical efficiency.

#### E.12.4. **INCANDESCENT FITTINGS**

- E.12.4.1. Incandescent fittings shall be of the type generally specified on the drawings. The sample shall be got approved from the Architect before procurement of the materials.
- E.12.4.2. Incandescent fixtures shall be equipped with porcelain, medium base, screw type sockets for lamps upto and including 200 watt and mogul screws type base for lamps 300 watt and over.
- E.12.4.3. Re-lamping the fixture should be possible without removing the fixture from its place.
- E.12.4.4. Incandescent lamps shall be inside frosted / or clear type as required by the Architect.

#### E.12.5. **CEILING FANS**

- E.12.5.1. The fan suspension stem canopies shall be minimum 30 cm. to 60 cm. long and shall be of heavy duty galvanised steel tubes complying to IS 1239-1958.
- E.12.5.2. Fans shall be mounted on a pre-embedded hook with hard rubber isolator. Regulators shall be no-step type mounted in the switch box. The box in all such cases shall be large enough to accommodate the regulator and switches. One sample box with top cover shall be submitted to the Architect for approval before procurement.

**E.12.6. EXHAUST FANS**

- E.12.6.1. Exhaust fans shall be complete with wire guard for protection against birds, with low noise as approved by the Architect / PMC / University Engineer.
- E.12.6.2. Exhaust fan's motor should have double ball bearing for longer life and continuous smooth operation and powder coated for protection against rust and corrosion.
- E.12.6.3. The contractor will submit a sample for approval from the Architect / University Engineer / PMC.
- E.12.6.4. Size and type of exhaust fan will be as specified in the schedule.

**E.13. EXTERNAL LIGHTING****E.13.1. SCOPE**

The scope of covers the supply, installation and testing of lighting poles, weather proof light fixtures, wiring to the fixtures, cable laying, earthing as specified and shown on drawings.

**E.13.2. STANDARDS**

- E.13.2.1. The following standards and rules shall be applicable :
- |       |                                  |   |   |
|-------|----------------------------------|---|---|
| ( a ) | IS : 1913 – 1969                 | : | General and safety requirements for light fittings.       |
| ( b ) | IS : 2944 – 1981                 | : | Code of Practice for lighting public thorough fares.      |
| ( c ) | IS : 3528 – 1966                 | : | Water proof electric light fittings.                      |
| ( d ) | IS : 3553 – 1966                 | : | Water tight electric light fittings.                      |
| ( e ) | IS : 1239 – 1958                 | : | Mild steel tubulars and other wrought steel pipe fittings |
| ( f ) | IS : 2149 – 1970                 | : | Luminaires for street lighting                            |
| ( g ) | Indian Electricity Act and Rules |   |   |
- E.13.2.2. All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Indian Standard Codes of Practice or the British Standard Codes of Practice in the absence of Indian Standards.

**E.13.3. FIXTURES**

- E.13.3.1. The lighting fixture construction shall be of die cast aluminium with a separate compartment for integral ballast equipment. The reflector shall be anodized polished aluminium. The glass refractor shall be heat-resistant.
- E.13.3.2. Lamp holder shall be of porcelain and shall comprise of a terminal block of non-hygroscopic material. The luminaires shall have integral ballasts housed in water tight and dust tight metal cases. Ballasts shall be prewired to the lamp socket and terminal block, requiring only power supply leads to the ballast primary terminals.

- E.13.3.3. The Lamp & Luminaire shall generally follow the specification under section “ LIGHTING FIXTURES “.

All external lighting fixtures shall be installed only after obtaining the approval from the Architect.

#### E.13.4. **LIGHTING POLES**

- E.13.4.1. The lighting poles shall be fabricated from heavy duty cold-rolled steel tubes to IS : 1239 – 1958 and hot dip galvanised or painted or specified. The pole shall have a base plate, a large access panel, and necessary fixture mounting bracket at top.
- E.13.4.2. The access panel shall provide easy access to a multiway porcelain connector and fuse board, to be mounted inside the pole. The access shall be specially fabricated with adequate reinforcement and weather gasket to prevent ingress of moisture and vandal proofed. Poles shall have large diameter entries for incoming and outgoing cable and two earth studs. The pole fabrication shall confirm to the drawings and where such drawing is not available, the contractor shall make such drawing and have it approved before fabricating by the Architect.
- E.13.4.3. The pole shall house a multiway porcelain terminal block and rewirable fuse as shown on the drawings. Pole shall have a concrete coping.

#### E.13.5. **CABLE LAYING**

- E.13.5.1. Cabling shall be generally as specified in the section “ CABLING “.
- E.13.5.2. Cables shall be terminated in a 4-way terminal block inside the pole or attached therewith as shown on drawings.
- E.13.5.3. Cable route shall be as shown on the drawings or the contractor shall mark out the route and lay the cables only upon approval of the route.

#### E.13.6. **EARTHING**

All street lighting fixtures and poles shall be earthed as specified under section “ EARTHING “.

#### E.13.7. **FLOOD LIGHT FITTINGS**

- E.13.7.1. The flood light fittings shall be of outdoor type, totally weather proof and water resistant. The fixtures shall be complete with fixing brackets, control gear box, terminal connections, reflector and front glass. The glass fitting shall be water proof with proper gasket-ring and clamping arrangement.
- E.13.7.2. The flood light shall be suitable for GLS type incandescent lamps upto 500 watts or halogen lamps upto 1000 watts, or as specified in the drawings,
- E.13.7.3. Flood lights will not be fixed without the approval of the Architect / PMC / University Engineer. The Contractor has to submit a specimen for approval.

**E.13.8. GARDEN AND DRIVEWAY LIGHT FITTINGS**

- E.13.8.1. The garden and driveway light fittings shall be suitable for mounting on GI poles of 2 M. to 3 M. height as specified. The fittings shall be weather-proof, robust and shall have components which are not easily corroded.
- E.13.8.2. The connectors shall be suitable for a minimum of 4 X 6 Sq.mm. PVC Aluminium conductor cables or as specified in the drawings.
- E.13.8.3. The fittings shall be suitable for mounting GLS lamp of MLL blended lamps with proper reflector / shade with good appearance as approved by the Architect / PMC / University Engineer.

**E.14. TELEPHONE DISTRIBUTION****E.14.1. SCOPE**

The scope of work shall cover supply, installation, commissioning and testing of :

- ( a ) Telephone cables
- ( b ) Telephone Tag Blocks
- ( c ) Telephone wiring in conduits

**E.14.2. CONDUITS**

- E.14.2.1. Conduits for telephone distribution lines shall be Hot dipped heavy gauge galvanised steel or Rigid PVC conduit, as specified in the drawing.
- E.14.2.2. The conduit shall generally be as specified under section ' CONDUIT RUNS '.
- E.14.2.3. All the materials for telephone distribution and Installation shall be as approved by the Architect.

**E.14.3. CABLES AND WIRES**

- E.14.3.1. The type of cables and the services shall be as follows :
- ( a ) Indoor : Multipair, PVC insulated sheathed armoured and sheathed.
  - ( b ) Inside conduit : Twin core PVC insulated with twisted cores.
- E.14.3.2. All multicore cables and wires shall be of tinned copper conductor of not less than 0.5 mm. dia. and shall be of colour coded twisted pairs with rip cord.
- E.14.3.3. The conductor resistance shall be less than 150 ohms per KM and the insulation resistance between the conductors shall be not less than 50 megaohms and the nominal capacitance of about 0.1 micro-fared per kilometer.
- E.14.3.4. Cables laid under ground or locations subject to dampness and flooding shall be filled with polythelene compound and shall have sufficient protection against moisture and water ingress.

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- E.14.3.5. All armouring shall be of galvanised steel wires and protected against corrosion by an outer sheath of PVC in the case of indoor cables and polyethylene in the case of outdoor cables. Outer sheathing must be fire retarding and anti-termite.
- E.14.3.6. All unarmoured single core cables and inner sheath of armoured cables shall be provided with rip cord.
- E.14.3.7. All single pair cables for final extension to the telephone outlet box shall be unarmoured tinned copper conductors of not less than 0.6 mm. dia. And shall be drawn in conduits. All telephone outlets shall consist of 2 A 2 pair polythene connector in G.I. box with 6 mm. perspex cover with beveled edges and chromium plated brass hardware.

#### E.14.4. **TAG BLOCKS**

- E.14.5.4.1. The telephone tag blocks shall be suitable for the multicore telephone cables and shall have two terminal blocks, cross connect type. All incoming and outgoing cables shall be terminated on separate terminal blocks and the terminations shall be silver soldered. The cross connecting jumpers shall be insulated wires of same diameter and screw connected.
- E.14.4.2. The tag blocks shall be mounted inside the fabricated sheet steel boxes with removable hinged covers and shall be fully accessible. The enclosure shall be painted with 2 coats of red oxide primer and stove enamelled.

#### E.14.5. **INSTALLATION**

- E.14.5.1. The installation of conduits shall generally be as specified under section ' CONDUIT RUNS '.
- E.14.5.2. All cables shall be on cable racks and neatly stitched together.
- E.14.5.3. The connection at the tag blocks shall be silver soldered so as to achieve minimum contact resistance.
- E.14.5.4. The final branch connections with single pair cables in conduits and the maximum number of cables in each conduit shall be as follows :

CONDUIT DIA INCH / MM	MAX. No. OF CABLES
$\frac{3}{4}$ ( 20 )	2 Nos. single pair
1 ( 25 )	6 Nos. single pair
1 $\frac{1}{4}$ ( 32 )	12 Nos. single pair
1 $\frac{1}{2}$ ( 40 )	18 Nos. single pair

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**E.14.6. MODE OF MEASUREMENT**

- E.14.6.1. The main telephone cables shall include supply and laying of multipair cables on ceiling / wall / on cable trays / racks including all supports and shall be measured and paid on running length basis.
- E.14.6.2. Cable trays / racks shall be paid for separately.
- E.14.6.3. All outdoor jelly filled cables shall also be paid for per unit length excluding excavation and back filling which will be paid extra as specified under 'CABLING'.
- E.14.6.4. The multipair tag blocks shall consist of two telephone connectors strips, KRONE or equivalent make and shall be measured and paid as one unit complete with m.s. enclosure box.
- E.14.6.5. The conduit wiring for telephone shall include single pair cables in HG galvanised steel conduits and shall include junction boxes, pull boxes and shall be paid per unit length.
- E.14.6.6. Telephone outlets shall be paid per unit and shall cover outlet terminal connector, plate-type outlet box, wiring etc. complete.

**E.15. EARTHING AND LIGHTNING PROTECTION****E.15.1. SCOPE**

- E.15.1.1. Earthing system to be provided shall comprise of earth electrode of copper plate in earth pits, earth bus / grid or copper flats and bare copper wires as earth continuity conductor.
- E.15.1.2. Lightning Protection system shall comprise of earth electrode of Cu plate in earth pits, earth bus of down conductors of flats.
- E.15.1.3. Earthing of Compound, Flood Lighting and Road Lighting poles shall be done using Cu plates in earth pits near pole and 7 / 16 size galvanised strained wire for connecting to the pole or as specified in the schedule or in drawings.
- E.15.1.4. Entire earth system shall conform to the Code of Practice as per IS.3043.
- E.15.1.5. Material shall be galvanized iron or copper as specified in bill of quantities.

**E.15.2. GENERAL REQUIREMENT**

- E.15.2.1. Enclosures and frame work of all current carrying equipment and accessories, Structural steel / columns shall be adequately earthed to a single earthing system, unless separate earthing systems are specifically stipulated. All electrical equipment shall be earthed at two distinct points.
- E.15.2.2. Earth leads and risers shall follow as direct and shortest path as possible. Suitable risers shall be provided as directed if equipment is not available when earthing is installed.

**E.15.3. EARTH ELECTRODES IN EARTH PITS**

Plate electrodes of GI shall be 600 X 600 X 6.30 mm. thick and of copper shall be 600 X 600 X 3.15 mm. thick unless otherwise specified.

**E.15.4. EARTH, BUS AND EARTH CONTINUITY CONDUCTOR  
( MATERIAL SHALL BE COPPER / G. I. / ALUMINIUM AS  
SPECIFIED IN B.O.Q. )**

- E.15.4.1. Earth bus is a copper strip of flat of specified size interconnecting all earth electrodes.
- E.15.4.2. Switchgears and Power Distribution Boards shall be earthed by a copper flat strip.
- E.15.4.3. Panels, fused DBs and motors upto 30 KW rating shall be earthed by a continuity conductor, as specified. Minimum size of continuity conductor shall be 14 gauge bare copper, soft drawn.
- E.15.4.4. Road Lighting Poles shall be earthed with Cu standard wire conductor while for lighting and power wiring bare copper conductor shall be provided unless otherwise specified to use insulated conductor.

**E.15.5. EARTH BUS STATION**

Earth Bus Station shall be provided to facilitate tapping of earth bus / grid very conveniently. It will comprise of a 400 mm. long 38 X 6 mm. bare copper strips / flat fixed with rawl plugs / bolts securely on wall / column above floor level. Spacers of 20 mm. to 25 mm. shall be provided to keep the flat away from wall and facilitate connections of earth conductor for which 6 mm. dia. holes 8 to 10 numbers are provided with proper size brass nuts, bolts and washers. Earth bus is connected to it.

**E.15.6. LIGHTNING PROTECTION SYSTEM**

- E.15.6.1. Air termination shall be give prong type copper and securely clamped / installed to withstand severe weather conditions and protection against lightning Horizontal air termination conductors shall be provided where specified.
- E.15.6.2. Earth electrodes for lightning protection system shall be Cu plate installed in earth pits as per IS. ( or G.I. as specified in B.O.Q. )
- E.15.6.3. The down conductors from air terminals shall be done in tinned Cu Flat strip of size 50 mm. X 6 mm. as required. The down conductor shall follow a direct path to the earth electrode without any sharp bend, turn or kinks. These down conductors shall not be connected to other earthing conductors above ground level but the metallic parts in the vicinity of lightning protection conductor such as ladders, pipes, etc. shall be effectively connected and bonded. ( The material shall be as per B.O.Q. )
- E.15.6.4. A test joint as per IS shall be provided for every down conductor within 1500 mm. above ground level.
- E.15.6.5. Hardware and clamps shall be similar as used for the earthing systems.

**E.15.7. ARTIFICIAL TREATMENT OF SOIL**

If the earth resistance is too high and the multiple electrode earthing does not give adequate low resistance to earth, then the soil resistivity immediately surrounding the earth electrodes shall be reduced by adding sodium chloride, sodium carbonate, copper sulphate, salt and soft coke or charcoal in suitable proportions.

**E.15.8. RESISTANCE TO EARTH**

The resistance to each earthing system shall not exceed 1.0 ohm.

**E.15.9. EARTHING STATION****E.15.9.1. PLATE ELECTRODE EARTHING**

Earthing electrode shall consist of a tinned copper plate not less than 600 X 600 X 3 mm. thick, 600 X 600 X 3 mm. G.I. as called for in the drawings. The plate electrode shall be buried as far as practicable below permanent moisture level but in any case not less than 3 mts. below ground level. Where-ever possible earth electrode shall be located as near the water tap, water drain or a down take pipe as possible. Each electrodes shall not be installed in proximity to a metal fence.

E.15.9.2. It shall be kept clear of the buildings foundations and in no case shall it be nearer than 2 metres from the outdoor face of the wall. The earth plate shall be set vertically and surrounded with 150 mm. thick layer of charcoal dust and salt mixture. 20 mm. G.I. pipe shall run from the top edge of the plate to the ground level. The top of the pipe shall be provided with a funnel and a mesh for watering the earth through the earth. The main earth conductors shall be connected to the electrode just below the funnel, with proper terminal lugs and checks nuts. The funnel over the G.I. pipe and earth connections houses 300 mm. wide and 300 mm. deep. The masonry chamber shall be provided with a cast iron cover resting over a C.I. frame embedded in masonry.

Earthing electrode shall consist of a G.I. pipe ( Class B ) Indian Tube Company make or approved equal, not less than 40 mm. dia. and 5 metres long. G.I. pipe electrode shall be cut tapered at the bottom and provided with holes of 12 mm. dia. drilled at 75 mm. interval upto 2.5 meters length from bottom. The electrode shall buried vertically in the ground as far as practicable below permanent moisture level with its top not less than 200 mm. below ground level. The electrode shall be in one piece and no joints shall be allowed in the electrode. Wherever possible earth electrodes shall be located as near water tap, water drain or a down take pipe. Earth electrode shall not be located in proximity to a metal fence. It shall be kept clear of the building foundations and in no case shall be nearer than 2 metres from the outer face of the wall.

E.15.9.3. The pipe earth electrode shall be kept vertically and surrounded with 150 mm. thick layer of charcoal dust and salt mixture upto a height of 2.5 meters from the bottom. At the top of the electrode a funnel with a mesh shall be provided for watering.

**E.16. FIRE ALARM SYSTEM****E.16.1. SCOPE**

The scope of work shall cover supply of :

1. Main control panel and Repeater panel
2. Local control panels
3. Smoke and heat detectors
4. Remote indicators for detectors
5. Break glass units
6. Hooters
7. Public address system

Before procurement of the above, the contractor / supplier has to take the final approval from the Architect.

#### E.16.2. **CODES & STANDARDS**

The fire alarm equipment shall confirm to the requirements of standard No. 72 of American National Board of Fire under-writers, BS 3116, BS 5839, BS 5364, BS 5445, BS 5446 and Fire Insurance Association of India and Local fire Brigade, with all their latest amendments up to date.

#### E.16.3. **CONTROL PANELS**

- E.16.3.1. The main control panel shall be multi line modular solid state device suitable for non-coded, closed loop, self supervising type using 24 volts DC circuitry. The panels shall have facility for local and remote fault signals. The fault indication shall cover " open circuit ", " short circuit " and " Earth circuit " on both the detector as well as the alarm loop. The panel shall confirm to BS 5839. The panel shall have built in stand-by battery.
- E.16.3.2. The main control panel shall have the following visual indication, alarm and test facilities :
- ( a ) Fire, fault isolation indication of all local control panel's.
  - ( b ) Zone / Panel isolation and test and reset facility.
  - ( c ) Sounder release
  - ( d ) Power supply fault monitoring.
  - ( e ) Halon release indication wherever necessary.
  - ( f ) Automatic AHU cut-off facility for all the AHV's packaged units as shown on the drawing complete with necessary external and internal relays, contactors
  - ( g ) Flow switch opening with visual and audible alarm.
- E.16.3.3. The local control panels shall be fixed zone type suitable for non coded, closed loop, self supervising type using 24 Volts DC circuitry. The panels shall have auxiliary output terminals for remote indication of common fire, common fault. The fault indication shall cover open circuit, short circuit and earth fault of both the detectors as well as alarm loop. The panel shall confirm to BS 5839. These panels shall be complete with built in standby resistance free ( dry ) battery.
- E.16.3.4. The local control panels shall have the following visual Indication and alarm facilities.
- ( a ) Fire, Fault and test indication of all zones.
  - ( b ) Automatic fan shut off facility for all air handling units serving the floor as shown on drawings complete with necessary external and internal relays and contactors etc.
  - ( c ) Test / reset switches
  - ( d ) Power supply fault monitoring
  - ( e ) Sounder release

- E.16.3.5. The power supply to each panel shall be 230 V single phase 50 Hz. The panel shall incorporate necessary silicon rectifier, battery charger, relays, pilot lamps signals, meters, cancellation switches and nickel cadmium standby battery. The battery shall have a capacity of not less than 48 hours of operation in the requescent conditions and after that for 30 minutes of operation in full alarm mode as stipulated in the 16.3.2.1 of BS 5839 ( Part 1 ) or its equivalent Indian Standard, with all its latest amendments up to date.
- E.16.3.6. The unit shall have its own main switch, input and output fuses, output voltmeter and ammeter and function failure alarms and integral with the respective fire alarm panel.
- E.16.3.7. The central panel shall have a building diagram displaying the various local control panels. Similarly the local control panels have a mini diagram displaying the various zones, location of fire escapes and Air Handling Units. All such diagrams shall be screen printed and framed in an approved manner.
- E.16.3.8. The main repeater panels shall be multiline modular type having indication and alarm of
- ( a ) Fire, fault isolation, indication of all zones / local control panels. They shall also have a mini diagram displaying the various zones location of fire escape and air handling units. All such diagrams shall be screen printed and framed in an approved manner.
- E.16.3.9. The local repeater panels shall be fixed zone type having indication only of fire and fault for all zones. It shall also have a mini diagram displaying the various zones locations of fire escapes and location of Air handling units

#### E.16.4. **SMOKE AND HEAT DETECTORS**

- E.16.4.1. The smoke detectors shall be of double chamber, ionization type meeting the requirements of BS 5446 and BS 5839 or its equivalent Indian Standard, with all its latest amendments up to date.
- E.16.4.2. The detector shall respond to both visible and invisible smoke. The detector shall have built-in L.E.D. indication and a facility for remote indication and shall be suitable for operation on 24 V DC supply. The detectors shall be complete with stove enamelled round junction boxes, base plate, all inter-connections prewired with multi-core PVC insulated 1.0 Sq.mm. copper cables terminated in porcelain connector with 300 mm. flexible and all connections being tightly screwed, and silver soldered. The smoke detectors in the rooms, industrial units, stores, air handling units, meter rooms, and all such areas as specified in the drawings, after obtaining the approval from the Architect, shall have facility for remote indicating lamps outside the rooms. Remote indicators shall be enclosed in an M.S. box and mounted as directed.
- E.16.4.3. The heat detectors shall be ' rate of rise ' type conforming to BS 3116 Part I – Grade I or its equivalent Indian Standards, with all its equivalent Indian Standards, with all its latest amendments up to date and shall respond for a temperature rise above 10 deg C minimum, with an upper temperature limit of 60 deg C. The detector shall be suitable for operation at 24 V DC supply. The detectors shall be complete with stove enamelled round junction boxes, base plate, all interconnections prewired with multi-core PVC insulated 1.0 Sq.mm. copper cables terminated in porcelain connector with 300 mm. flexible and all connections being tightly screwed and silver soldered.

**E.16.5. BREAK GLASS UNIT**

- E.16.5.1. The break glass units shall be meeting the requirements of BS 5364 Part I or its equivalent Indian Standard, with all its latest amendments up to date. The glass cover shall be designed to prevent glass splintering and shall have " FIRE ALARM " in English painted with indelible red enamelled paint. The break glass unit shall be suitable for recessed / wall mounting of square / circular unit type with push button as approved by the Architect. The manual fire alarm shall be complete with red enamelled MS junction box, stainless steel hammer with chain, all inter-connections prewired with multicore PVC insulated 1.0 Sq.mm. copper cables terminated in porcelain connector with 300 mm. flexible and all connections being tightly screwed and silver soldered.
- E.16.5.2. Wherever shown, a telephone jack shall also be provided along with the break glass unit in an M.S. junction box. Alternatively, the Break Glass unit and telephone jack may be mounted together in one junction box.

**E.16.6. REMOTE INDICATORS**

The remote indicators shall be red L.E.D. type in duplicate and operated on 24 v.d.c. The remote indicator shall be complete with stove enamelled M.S. junction box, all inter-connections pre-wired with multicore PVC insulated 1.0 Sq.mm. Copper cables and terminated in porcelain connector with 300 mm. flexible and all connections being tightly screwed and silver soldered.

**E.16.7. HOOTERS / SOUNDERS**

The hooters shall be solid state electronic type capable of delivering a sound pressure level of 100 dB at 3 mts. and operated on 24 v.d.c. supply. The hooter shall be complete with stove enamelled M.S. junction box all interconnections being pre-wired with multicore PVC insulated 1.0 Sq.mm. copper cables and terminated in a porcelain connector with 300 mm. flexible and all inter-connections being tightly screwed and silver soldered.

**E.16.8. PUBLIC ADDRESS SYSTEM**

- E.16.8.1. The public address system shall consist of an amplifier, floor selector, volume controllers, speakers etc. as shown on the drawings.
- E.16.8.2. The amplifier shall be low-noise solid state device with the rated output. The signal to noise ratio of atleast 80 dB and a distortion factor of less than 0.6% maintained in the frequency range of 20-1500 Hz. The amplifier shall receive 230 V. 50 Hz. mains supply.
- E.16.8.3. Speakers shall be 200 mm. diameter flush mounting type with a tapped matching transformer. Speaker minimum sound pressure levels at a distance of 1 meter shall be atleast 15 dB over a frequency range of 30 – 15000 Hz. Speakers shall have suitable designed metal back covers. Speaker ratings shall be as detailed in the drawings and schedule of work but each speaker shall have a volume controller.
- E.16.8.4. Floor selector shall be a rotary type 5 A rated with smooth and clear cut-off from one position to the other. The volume control shall be solid state rotary type with off switch and continuous variation. Both floor selector and volume control shall be enclosed in a sheet steel box with a Perspex cover and engraved write up.

- E.16.8.5. All cabling from the power outlet ( 15 A 3 pin 230 V AC 50 Hz ), to the amplifier, to floor selector / volume control shall be provided by the supplier. A multicore cable from the floor selector to a wall mounted terminal box shall also form part of the equipment supplier. The cable length shall not exceed 4 M. All connecting cables shall be not less than 1.0 Sq.mm. copper.

E.16.9. **CABLING, WIRING AND CONDUITING**

- E.16.9.1. Conduits shall generally conform to the specifications under Section ' CONDUIT RUNS '. The type of conduit and the service shall be as shown below :
- ( i ) Embedded in walls & slabs : Heavy gauge galvanised steel or as approved by the Architect.
  - ( ii ) Exposed / surface run : Heavy gauge galvanised steel or as approved by the Architect.
- E.16.9.2. Wires shall be single core multistrand electrolytic copper 300 / 500 V. grade conforming to BS 6500 or any other I.S. with all its latest amendments up to date. Minimum size of wires shall be 1.0 Sq.mm.
- E.16.9.3. Multicore cables shall be PVC insulated and armoured with copper conductors to I.S. 1554 – I and I.S. 3975 with all its latest amendments.

E.16.10. **INSTALLATION, TESTING & COMMISSIONING**

- E.16.10.1. Installation of all detectors, break glass units, control panels, repeater panels and remote indicators, sounders are included in the scope of this tender, where as supply and laying of main cabling and control cabling will be done by others.
- E.16.10.2. The installation of conduits shall generally conform to the specification under section ' CONDUIT RUNS '.
- E.16.10.3. All wires shall be drawn inside the conduit and terminated in junction boxes with connectors having sufficient number of ways suitable for the incoming / outgoing wires.
- E.16.10.4. The maximum capacity of the conduits shall be as follows :

CONDUIT DIA INCH ( MM. )	No. OF WIRES ( MAXIMUM )	
	1.0 Sq.mm.	1.5 Sq.mm.
$\frac{3}{4}$ ( 20 )	8	6
1 ( 25 )	12	10
1 $\frac{1}{4}$ ( 32 )	20	18

- E.16.10.5. All cables shall be laid generally as specified under ' CABLING '. All cables shall be laid on cable trays or as specified in the drawings. The cable wire terminations shall be through terminal connectors.

- E.16.10.6. The entire installation shall be tested by operating the detector devices, creating line fault conditions. Two detectors / break glass units shall be set of on each floor 3 times at 5 minute intervals to establish the performance. The public address system shall be tested for its performance and all tests shall be conducted in the presence of the Engineer and recorded in the proforma for acceptance test.

All cabling and wiring shall be tested as under section “ INSPECTION AND TESTING “.

## E.17. **POWER FACTOR CORRECTION**

### E.17.1. **P.F. IMPROVEMENT CAPACITORS**

- E.17.1.1. Capacitor units shall be indoor type, air-cooled, 3 Ph 415 V., 50 Hz. Delta connected with manual & automatic power factor control panels. Capacitors shall conform to IS 2834 – 1964.
- E.17.1.2. Capacitors shall be in multiples as specified and as shown on drawings. Units shall have polypropylene dielectric media and hermetically sealed in closed sheet steel containers, galvanised both internally and externally. Each unit shall have a discharge resistor and fuse. Units shall be of low loss and be able to withstand 10% over voltage and also suitable for continuous operation at 135% of rated KVAR. Tenderer should indicate the loss factor of the capacitor offered.
- E.17.1.3. The control panel shall be sheet steel enclosed, dust and vermin proof unit, incorporating in addition, a PF meter suitable for auto or manual operation as specified, and indicating lamps. Capacitors shall be mounted above or under the same panel and covered with adequate ventilation louvres rendered vermin proof. All interconnections shall be enclosed in sheet steel channel for neat appearance. The panel shall be double earthed.
- E.17.1.4. Capacitors shall not be installed without the approval from the Architect / PMC / University Engineer.

### E.17.2. **TESTING**

Capacitor units shall be tested to withstand 2500 V AC for one minute and shall yield an IR value of 50 megohms after one minute charge with 500 V DC. The sequence switching wherever specified shall be functionally tested.

All test readings shall be duly recorded and presented.

## E.18. **MATV SYSTEM**

### E.18.1. **SCOPE**

The scope of work shall cover supply, installation, commissioning and testing of :

- ( a ) Music & MATV wiring
- ( b ) Music & MATV distribution equipment
- ( c ) Antenna outlets.

**E.18.2. CONDUITS**

The conduit shall generally be as specified under section “ CONDUIT RUNS “.

The type of conduit and the service shall be shown below :-

Indoor

- ( a )    Surface run        :        Heavy gauge MS black enameled or rigid PVC conduit.
- ( b )    Concealed         :        Heavy gauge MS black enameled or Rigid PVC conduit.

Outdoor

Medium duty Galvanised steel tube to IS : 1237 or Rigid PVC conduit.

**E.18.3. CABLES**

The co-axial cable shall be copper core of 0.8 mm. diameter tinned, PE solidly insulated and shielded with tinned copper braid with necessary protective foil and white PVC outer sheath. The cable characteristic impedance shall be 75 ohms.

**E.18.4. INSTALLATION**

- E.18.4.1.        The installation of conduits shall generally be as specified under section “ CONDUIT RUNS “
- E.18.4.2.        All cables shall be drawn inside the conduit and terminated into splitter / tap-off in MS JB.

**E.18.5. DISTRIBUTION EQUIPMENT**

- E.18.5.1.        Splitters shall be suitable for the entire frequency range with an insertion loss not exceeding 4.5 dB at 8 MHz. The isolation between the out-puts shall exceed 17 dB and the return loss at input and output shall be 14 dB and 12 dB respectively. splitters shall have a characteristic impedance of 75 ohms at both input and output and the RF shielding factor shall be greater than 70 dB. The entire unit shall be housed in an M.S. box and shall be suitable for and ambient of 45 deg.C.
- E.18.5.2.        Tap-off units shall be multitap and shall be suitable for the entire frequency range. The insertion loss shall not exceed 3 dB at 8 MHz. and the tap off ratio shall be around 26 dB. at 8 MHz. The isolation shall exceed 36 dB between tap and output and the return loss shall be around 20 dB at input, output and taps. The entire unit shall be housed in M.S. box and shall be suitable for an ambient of 45 deg C. The characteristic impedance shall be 75 ohms at input, output, and tap ports.
- E.18.5.3.        Antenna outlets shall be frequency flat and the insertion loss shall not exceed 0.5 dB. The outlet shall have a characteristic impedance of 75 ohms and the outlet shall be coaxial plate type cover compatible with all other switch and socket outlets.

**E.18.6. AIRCRAFT WARNING SYSTEM**

- E.18.6.1. The aircraft warning system shall consist of dual-head non-flickering aircraft warning lights located at the highest point of the building. The warning lights shall be of cast alum. body with twin lamp head, red prismatic glass dome with smooth exterior, weather-proof construction necessary gasket & cable entry arrangement.
- E.18.6.2. The lamp shall be wired with PVC insulated and sheathed cable and shall be earthed as specified under ' EARTHING '.

**E.18.7. MODE OF MEASUREMENT**

- E.18.7.1. Each aircraft warning light shall be measured as one unit for payment and shall include :
- ( a ) Light fitting, lamp and accessories
  - ( b ) Internal wiring
  - ( c ) Installation with all fixing accessories
- E.18.7.2. The wiring for each aircraft warning lights will be measured as one point for payment and shall include :
- ( a ) 3C 2.5 mm. PVC insulated armoured cable, clamp and fixing accessories.
  - ( b ) Junction box with cover, painting, control switch.
  - ( c ) Interconnections

**E.19. SAFETY CONDITIONS**

- E.19.1. The Graduate Electrical Engineer with minimum 6 to 8 years experience in electrical installation of buildings shall be appointed on site to supervise the work. He shall be supported with sufficient number technical and supervisory staff. The Electrical Engineer should ensure that all plant and machinery used on the site are rendered safe for working and meets with the Indian or International safety standards applicable for the use and operation of such machinery. The Engineer should also ensure that the workmen are supplied with and made to use safety appliances such as safety belts, life lines, helmets etc.
- E.19.2. Smoking altogether strictly prohibited in area where combustible and inflammable goods / materials are stored or lying about.
- E.19.3. Any hot job such as welding, soldering, gas cutting shall not be carried out without the permission of the Architect. Such jobs shall not be carried out where inflammable materials are stored or lying about. All electric connections shall be through adequately sized mechanically protected cables without any joints and with proper and adequate terminals. All power supplies shall be through properly rated fuses with isolating devices. No such hot jobs shall be carried out on holidays and without the presence of the Contractor's Supervisor.

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- E.19.4. Those engaged in welding works shall be provided with welder's protective eye-shield and gloves.
- E.19.5. The contractor should clear the site of all debris every day to avoid accidents. In case this is not done, the owners may engage necessary labour to maintain the cleanliness of the premises and removal of debris, and debit all or part of the expenditure so incurred from the contractor/s.
- E.19.6. It is entirely the responsibility of the contractor to practice the principles of ' Safety First ' during the entire tenure of work or damage to the property belonging to owner, owner's employee, students, Architects, Architect's staff, Architect's representative, Site Engineer, Consultants, Sub-contractor, Supplier and visitors to site or adjacent premises to minimum Rs. 10,00,000/- ( Rupees Ten Lacs only ) for single incident.
- E.19.7. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be provided on site readily available to the workers.
- E.19.8. The injured person shall be taken to a public hospital without loss of time in cases where the injury necessitates hospitalization.
- E.19.9. Suitable and strong scaffolds should be provided for work-men for all works that can not safely be done from ground.
- E.19.10.No portable single ladder shall be over 8 metres in length. The width between the side rails shall not be less than 30 cm. ( clear ) and the distance between two adjacent rungs shall not be more than 30 cm. when a ladder is used an extra mazdoor shall be engaged for holding the ladder.
- E.19.11.The excavated material shall not be placed within 1.5 meters of the edges of the trench, or half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.
- E.19.12.Every opening in the floor of the building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum heights shall be one metre.
- E.19.13.No floor roof or other part of the structure shall be loaded with debris or materials.
- E.19.14.No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
- E.19.15.Guidable face-masks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed scrapped.
- E.19.16.The painters shall be provided with suitable clothes overall for white working and shall be provided with water to get wash after painting.
- E.19.17.Hoisting machines and tackle used in the work, including their attachments, anchorage and supports shall be in perfect condition and suitably earthed as per I.E. rules.
- E.19.18.The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from defects.

**E.20. GENERAL INSTRUCTIONS****E.20.1. SCOPE OF WORK**

- E.20.1.1. The contractor's scope of work covers supply, installation, commissioning and testing of the complete electrical installation as specified in volume I of conditions of contract and schedule ' B '. In case of ambiguities, the decision of the Architect shall be final.
- E.20.1.2. The contractor shall prepare fabrication and working drawings and all work shall be to approved working drawings. Approval of drawings does not relieve the contractor of his responsibility to meet with the intents of the specifications. All such drawings for approval shall be in duplicate.
- E.20.1.3. All tools, tackle, scaffolding and staging required for erection and assembly of the equipment and installation covered by the contract shall be obtained by the contractor himself. All other materials such as foundation bolts, nuts etc. required for the installation of the plant shall also be supplied and included in the contract.
- E.20.1.4. Tenderer shall quote separately for spares recommended by him for two years operation of each type of equipment covered by these specifications. These rates shall be valid for acceptance for a period of 120 days.
- E.20.1.5. The contractor shall carry out tests on different equipment as specified in various sections in the presence of representatives of clients, Architects in order to enable them to determine whether the plant, equipment and installation in general comply with the specifications.
- E.20.1.6. All equipment shall be tested after carrying out necessary adjustments and balancing to establish equipment ratings and all other design conditions. At least four sets of readings shall be taken for each item tested and submitted to the Architect. Instruments required for testing shall be furnished by the contractor along with initial requirements of all consumables.
- E.20.1.7. The plant shall be handed over after satisfactory testing along with four sets of documentation each consisting of :
- ( a ) Detailed equipment data as approved by the Architect.
  - ( b ) Manufacturer's maintenance and operating instructions.
  - ( c ) Set of as-built drawings, showing plant layouts, piping, ducting etc.
  - ( d ) Approved Test readings & certificate of local authorities.
  - ( e ) List of recommended spares.
- Submission of the above documentation shall form a precondition for the final acceptance of the plant and installation and final payment.

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**E.20.2. PERFORMANCE GUARANTEE**

- E.20.2.1. All equipment and the entire installation shall be guaranteed to yield the specified ratings and design conditions plus / minus 3% tolerance. Any equipment found short of the specified ratings by more than the allowable tolerance as determined by the test readings shall be rejected.
- E.20.2.2. Rates for all the items stated in the contract must cover the cost of all the materials, labour, tools, machinery, scaffolding, staging, bamboos, props, ropes, templates, pegs, nails and other appliances necessary for the correct and complete execution of the work as per the general specifications and those mentioned in the bills of quantities.
- E.20.2.3. All work carried out shall be as per The Indian Electricity Act rules and all government, semi-government, municipal and other authorities.
- E.20.2.4. The materials for all work carried out shall be with the approved materials given in the P.W.D and H. Department Electrical circle, for the current year, and with the approval of the University Engineer / Architect / PMC.
- E.20.2.5. Samples of all materials used should be submitted to the Architect for approval before commencement of the work.
- E.20.2.6. The electrical contractor shall make good all necessary repairs to civil work due to execution of electrical work, as and when required at his cost. Should a dispute arise between the civil and electrical contractors working at site, the decision of the University Engineer / Architect / PMC shall be final and binding.

**E.20.3. GENERAL CONDITIONS**

- E.20.3.1. For obtaining additional electric supply, the contractor shall make necessary arrangement and shall obtain necessary forms from TATA / BSES / Reliance Energy, P.W.D., and with all other concerned authorities at his own cost.
- E.20.3.2. The contractor shall obtain service quotation / the estimate of service cable, and electric supply including meter box and necessary meters, etc. and shall do commissioning and Installation etc. complete TATA / BSES / Reliance Energy at his own cost. However, actual amount of estimates obtained from TATA / BSES / Reliance Energy shall be paid by owner on submission.
- E.20.3.3. The owner shall pay necessary deposit to BSES / Reliance Energy for permanent supply of electricity. However, the contractor shall have to pay all deposits and charges to all concerned authorities where-ever applicable, required while in execution of works and also for obtaining temporary electric supply required for execution of work.
- E.20.3.4. The contractor will prepare and submit test report etc. as per the requirement of TATA / BSES / Reliance Energy and complete all formalities and obtain regular electric supply at his own cost.
- E.20.3.5. The contractor will complete all required formalities and obtain N.O.C. from P.W.D. at his own cost.

- E.20.3.6. You shall provide a site engineer having bachelor degree in electrical engineering with minimum 8 to 10 years experience of electrical installation in buildings with supporting staff as licensed electricians, supervisors, etc.
- E.20.3.7. The materials and labour components and their constants shall be as per Maharashtra P.W.D.
- E.20.3.8. Theoretical consumption of all materials of the items based on D.S.R. shall be as per Maharashtra P.W.D.
- E.20.3.9. All the terms and provisions of all conditions of contract stipulated in the tender documents shall be applicable. In the absence of any provision in the tender document for all other matters, the matter shall be dealt in light of Maharashtra P.W.D. provisions.
- E.20.3.10. No extra payment shall be made for shuttering, scaffolding etc. required for carrying internal and external electrical works and repairs of Civil works at any height.
- E.20.3.11. The basic rates for all materials and labour, etc. shall be as per provision made in schedule of rates for the year 2022-2023 issued by P.W.D., Electrical Wing and in case such basic rates are not available in S.S.R. of electrical wing then the rates given in S.S.R. for year 2022-2023 published in P.W.D. will be applied. These rates shall be applicable for administration of this contract including Non-schedule items. The analysis of rates of the extra items shall be done / derived from the basic rates given in the schedule of rates. The analysis will be done also as per item No. E.20.3.7., E.20.3.8., E.20.3.9, E.20.3.10 and with all other related items where-ever basic rates are not available, the prevailing market rates will be taken and the rates shall be derived from the basic consumption of materials and labour components.
- The contractor has to accept the rates of such non-schedule items worked out by the Architect based on the above references. The contractor shall not withhold the work on account of this or any other reasons.
- E.20.3.12. **APPLICATION OF ITEMS AND RATE FROM D.S.R. OF P.W.D. MUMBAI CIRCLE**
- Where-ever, there are no items and rates given in Schedule ' B ' of electrical works and also not available in S.S.R. of electrical wing then such items and rates if available shall be taken from schedule of rates for the year 2022-2023 published by P.W.D.
- E.20.3.13. The contractor must submit every time the manufacturers certificate of all materials and equipments being provided by him in the electrical works. The certificate of the manufacturers shall be submitted every time for the materials brought on site.
- E.20.3.14. The contractor has to arrange the temporary electric supply required for execution of his works at his own cost.

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- E.20.3.15. 15% of payment upto the 5 Lacs and 10% of payment above Five Lacs shall be deducted from each R. A. Bill in lieu of testing and commissioning on obtaining approvals from various authorities, etc. and shall be released on completion of complete work and on commissioning and satisfactory testing of all required test reports and certificates of approvals where-ever required from appropriate authorities in final bill.
- E.20.3.16. Price variation clause is not applicable to this tender. Hence, escalation shall not be paid under this contract.

E.21. **INSPECTION AND TESTING OF ELECTRICAL EQUIPMENT INSTALLATION**

E.21.1. **INSPECTION**

Inspection shall be carried out to ensure that the complete installation is carried out in accordance with drawings and complies with the requirements laid down by Indian Electricity Rules, regulations for the electrical equipment of building by insurance association of India ( Fire Section ), Indian Standard specification and Code of Practice, and any other statutory regulations and competent authorities. The complete installation shall be subject to the approval of any of all the competent authorities and the Architect / PMC.

E.21.2. **TEST**

- ( I ) On completion of the work, the entire installation shall be subjected to the minimum following tests :-
- ( a ) Insulation resistance test
  - ( b ) Earth resistance test
  - ( c ) Earth continuity test
  - ( d ) Operation test
- Besides above tests, any other test specified by the local authority shall also be carried out.
- ( II ) The tests specified shall be carried out on the electrical equipment and installation before commissioning the same. The test shall be performed by or under the direct supervision of a competent person, qualified to carry out the test. All tests shall be carried out in presence of Architect or his representative, unless this stipulation is waived in writing.
- ( III ) The installation shall not be accepted by the Architect unless it has been approved by all the competent authorities, and Architect / PMC and his representative.
- ( IV ) In case the installation is found to be not in conformity with the requirements of the test results indicate defective materials or workmanship, the same will have to be rectified to the complete satisfaction of the Architect and tested again.

E.21.2.2. **TESTING OF WIRING**

All the wiring systems shall be tested for continuity of circuits, short circuits and earthing after the wiring is completed and before energising and the work shall be carried out to the complete satisfaction of University Engineer / Architect / PMC.

**E.21.2.3. INSULATION RESISTANCE TEST**

- a. The insulation resistance shall be measured between earth and the whole system of conductors, or any section thereof, with all fuses in place and all switches closed and except in concentric wiring all lamps in position of both poles of the installation. The insulation resistance measured as above shall not be less than 50 dividend by the number of points on the circuit provided that the whole installation shall not be required to have an insulation greater than one mega-ohm.
- b. The insulation resistance shall also be measured between all conductors connected to one phase conductor of the supply and all the conductors connected to the middle wire of the neutral or to the other phase conductor of the supply. Such a test shall be carried out after removing all metallic connections between the two poles of the installation and in those circumstances the installation shall not be less than that specified above. The insulation resistance between the case of frame work of housing and power appliances, and all live parts of each appliance shall not be less than that specified in the relevant Indian Standard Specifications or where there is no such specification shall not be less than half a mega-ohm.

**E.21.2.4. EARTH CONTINUITY TEST**

The earth continuity conductor metallic envelope of cable shall be tested for electric continuity and the electrical continuity and the electrical resistance of the same alongwith the earthing lead but excluding any added resistance or earth leakage circuit breaker measured from the connection with the earth electrode to any point in the earth continuity conductor into the completed installation shall not exceed one ohm.

**E.21.2.5. TESTING OF POLARITY OF NON LINKED SINGLE POLE SWITCHES**

In a two wire installation, a test shall be made to verify that all non-linked single pole switches have been fitted in the same conductor through out and such conductor shall be labeled or marked for connections to an outer or phase conductor or to the non-earthed conductor of the supply. In the three of four wire installation, a test shall be made to verify that every non-linked single pole switch fitted in a conductor to one of the outer or phase conductor of the supply. The entire electrical installation shall be subjected to the final acceptance of Architect, local authorities and all other related competent authorities.

**E.21.2.6. EARTH RESISTANCE TEST**

Earth Resistance Test shall be carried out in accordance with Indian Standard Code of Practice for earthing IS 3043 – 1966 and with latest amendments. All tests shall be carried out in the presence of the Architect and his representative. The earth resistance shall be measured using an earth megger.

**E.21.3. PRECOMMISSIONING TESTS**

All tests underlined herein and / or called by the local Electrical Authorities, and all other related authorities and as laid down in relevant Indian Standard Specifications and / or Rules and Regulations stated in Indian Electricity Act shall be strictly complied. The earth resistance value for earthing shall not exceed 1 ohm.

**E.21.4. COMMISSIONING**

- E.21.4.1. The contractor shall obtain the written permission and sanction of commissioning the equipment from Electrical Inspector of I.E. & L., Department of Government of Maharashtra State, if required under the specific rules of the Government.
- E.21.4.2. All costs towards visit fees etc. incidental to such obtaining sanctions from all the related authorities shall be to the Contractors Account, except statutory fees payable under relevant Indian Electricity Act or Rules.
- E.21.4.3. Contractor shall furnish all the necessary test and tests reports to the Electrical Supply Authorities and furnish all formalities required to comply as per the Rules and Regulations laid down for release of Electrical Supply to the building. If called, the contractor shall again carry out all such tests and prove the results to the entire satisfaction of the local and electric supply authorities and all other related authorities without any extra cost. All costs and expenses incidental to the release of electric supply shall be to the contractors account and no demand whatsoever shall be made from the owner except for any security deposits that the supply authorities would deem it necessary for charging of the line etc.
- E.21.4.4. All such documents forwarded and / or letters and / or correspondence exchanged to this regard shall be made available for inspection and the contractor shall furnish 3 sets each of such documents and drawings for the Architect and owners records.
- E.21.4.5. After release of electric supply to owner, the contractor shall furnish six sets of all tests and test reports declared to the supply authorities and shall record the initial reading of the L.T. Meter and shall furnish all such documents, officially exchanged between the Contractor and the supply authorities for the record of Architect and the owner.
- E.21.4.6. Contractor shall also attend and furnish the relevant completion certificate from the Electrical inspector, I.E. & L. Department, Government of Maharashtra and / or any other authority thereof, whichever may be applicable.
- E.21.4.7. The contractor shall maintain a close liaison with the supply Authorities and keep informed to the Architect of the entire developments and planning, i.e. being done by the Supply Authorities, and all other related authorities. It is the primary responsibility of the contractor to approach Supply for obtaining Electrical Loads Sanctions. All formalities connected with this work shall be to the account of the Contractor except for official fees or deposits or any other statutory obligations.

**E.22. DOCUMENT, CERTIFICATES, DRAWINGS AND SPARE REQUIREMENTS**

- E.22.1. The intent of this specification is to give a guideline to the Contractor to furnish in reproducible all sets of relevant papers and lists of spares for the continuous performance of the owner's Building. Nothing shall absolve the contractor from not furnishing any information documents and / or papers that have not been specifically stated herein.

**E.22.2. DOCUMENT**

All relevant documents for maintenance, manuals, procedures and data of all electrical Equipments supplied and erected by the Contractor on the site.  
The documents shall be binded and furnished to the Architect and the owner.

**E.22.3. CERTIFICATES**

All relevant tests certificates etc. and as more specifically stated in clause, shall be furnished. The contractor shall also furnish all such certificates issued by the original manufacturer towards guarantee of performance of all equipments supplied by the Contractor to the Architect / PMC / University Engineer.

**E.22.4. AS BUILT / COMPLETION DRAWINGS**

Upon completion of the whole work the contractor shall submit four set of completion work with Original drawings on tracing of all as built / completion drawings comprising all plans and sections and four set of alteration twenty photographs of work done. The drawings should show all fittings & fixtures as fans tube light fittings all electrical points, power points fuses and all installation works M.V. panel distribution boards, cable routing, sizes connection diagrams, circuits, wiring diagram, conductor sizes lengths termination details, distribution diagrams etc. All these shall be without any extra cost.

The contractor shall, not withstand anything stated otherwise, shall furnish list of recommended maintenance tools, spares, fuses, sets, codes, catalogues, appropriate pricings, original equipments manufacturer's addresses etc. to the Architect and the owner prior to such furnishings. Contractor shall make a proper assessment of all such requirements and then proceed to make the lists. The contractor shall also be deemed to have understood the requirements, in such a way that it ensures a continuous operation and functioning of the Electrical Equipment under the stated ratings, conditions and specifications.

- E.23. It is necessary to use readymade accessories for all sizes of P.V.C. casing and capping. If contractor fails to provide the readymade accessories, the rate will be reduced by minimum 10% or based on market rate analysis whichever is higher. In case of accessories not being manufactured by approved manufacturer for P.V.C. casing-capping, the decision of The University Engineer and Architect / PMC shall be final and binding to contractor regarding change in make for readymade accessories.

**E.24. OBTAINING ELECTRIC SUPPLY and LIASONING ETC.**

The contractor shall obtain electrical supply from M.S.E.B. or from any concern electrical authority as directed by the University and shall complete all the procedural formalities as of applying and filling all forms & obtaining required electrical load liasoning with all the concerned authorities as of above electrical supply company, P.W.D., M.M.R.D.A. and with any required authorities. The contractor also shall obtain the required approval etc. complete. The owner only shall pay the official charges levied by the concerned authorities. The contractor should see that the electric supply / connection be obtained from the any Transformer from adjoining plots or from any transformer located in the vicinity for required electric load within one month of date of award of work. These all liasoning wok etc. shall without any extra cost and nothing shall be paid to the contractor on this account.

**E.25. GENERATOR**

The contractor shall follow the proper procedure of installation and commissioning of Generator as carrying out all the preparatory works, assembling, installing, pre-commissioning requirements as per manufacturers instructions, commissioning, final testing with recording and preparing and submitting test reports and putting into operation and handing over of the complete system of DG set including submission report of PWD electrical inspector and from all concerned authorities as of MSEB / Mahavitaran Board, Pollution Control Board, etc. The work include transport, loading, unloading, installation, providing foundations, plate girders, bolt, lifting the generator with cranes and putting at place as directed with necessary minor civil works etc. complete. All above works are included in the cost and nothing shall be paid extra in whatever account.

I / We hereby declare that I / We have read and understood the above instruction which have been issued as conditions of the contract.

W I T N E S S

( Signature of the Tenderer )

CONTRACTOR

Nos. of corrections

REGISTRAR

**LIST OF PREFERRED BRANDS / MAKES OF EQUIPMENTS REQUIRED UNDER THIS TENDER**

The product listed below shall be considered good materials and this tender should be based on the materials, products, fittings & fixtures etc. of only products of following manufacturers. In case of the following makes are not available the other make can be allowed only on satisfactory evidence on non-availability of prescribed make.

Rigid PVC conduit heavy gauge with I.S.I. Mark / PVC flexible Pipes and PVC conduit Accessories	:	Precision / Prestoplast, Modi
M.S. conduits / G.I. conduits of minimum 16 gauge - HGBE type ERW Pipes	:	TATA / ZENITH
MS Conduits / G.I. conduit Accessories of Cast Iron type	:	PEW / PI / NCT
PVC Casing Capping (Trunking / Trunklinks)	:	Precision conforming to test IS-9537 ( Part III ), Legrand.
G.I. sheet	:	TATA / JINDAL / SAIL
PVC oval conduit	:	PRECISION PLASTIC INDUSTRIES

**ACCESSORIES**

Switch, Sockets out lets, Bell Pushes, 6 Amps / 16 Amps in moulded Press Covers	:	All following will be in Metallic finish as Pearl / Chroma / Silver / Steel / Gold Anchor-Wood, Roma / Legrand.
6 Amp. and 16 Amp. ( 6 Pin ) Plug Socket with 16 Amp. switch combined Unit with fuse.	:	Anchor-wood Roma / Legrand
Ceiling Rose / Batten Holder / Slanting Holder	:	Anchor-Wood Roma / Legrand
Ding Dong type call bell	:	ANCHOR / GLOLITE, Harrison, Cona Edison
Telephone socket with top	:	Anchor-Wood Roma / Legrand
Alarm Bells	:	Target
Indicating Lamps Holders with filament type lamps	:	TEKNIC, L & T
Fire Extinguisher	:	FIREX, Cease fire, Safex, Newage.
Luminous type call indicator	:	MAX / CPL

**SWITCHGEARS**

Anchor type D.P. switch heavy duty surface type / Flush type 32 A. 250 V.,with indicator lamp	:	ANCHOR-WOOD, Roma, Legrand Crompton, Jainson.
Triple pole metal / Iron clad HRC fuse Switch 415 / 500 V. with neutral link	:	SIEMENS / L & T, Jainson, Kew
Metal clad sockets 16 Amps and 20 Amps etc.	:	Anchor-Wood, Roma, Legrand, Crompton, Siemens
FRP Box	:	Sintex, MEW, Lotus

Iron clad / Metal clad change over switch 500 V.	:	STANLEY / L & T / Siemens, Crompton
Metal Clad distribution Fuse boards for MCB	:	Anchor-Wood, ROMA / Legrand / Schneider / Crompton / Siemens / L & T
HRC control fuses with bakelite / type moulded fuse holders	:	SIEMENS / L & T / Crompton
HRC fuse cartridge	:	SIEMENS / L & T
Miniature circuit Breaker of 10 K.A. breaking capacity	:	Legrand / L & T / SIEMENS, Schneider
MCB Distribution Boards	:	Legrand / L & T / Siemens
Earth Leakage circuit breakers ( Only Load Break type )	:	Legrand / L & T / Siemens, Schneider
Isolators ( Only switch version of miniature circuit breakers )	:	Legrand / L & T / SIEMENS
Low Tension, TP, moulded case circuit breaker, 415 volts AC, 3 phase 50 HZ, NOTE : S.C. rating for 100 & 200 Amps. is 25 K.A. & for 300 Amp. and above shall be 35 K.A.	:	L & T / SIEMENS / Legrand
Air Circuit breaker	:	L & T / SIEMENS / ABB / Schnider
11 KV / 33 KV H.V. switchgear	:	L & T / SIEMENS / ABB / GE
Starters / Contactor / Push Buttons / Timers	:	SIEMENS / L & T / CROMPTON / Cutler Hammer
Relays	:	SIEMENS / L & T / CROMPTON / Cutler Hammer
ELCB + MCB	:	Legrand / L & T / SIEMENS
MS fabricated items for panels, switch boards, etc.	:	ELECHMECH
<b><u>PVC WIRES, CABLES, GLANDS, LUGS</u></b>		
PVC insulated wire 1.1 KV grade	:	FINOLEX / POLYCAB
Panel wires, Grey / Black colour in 660 / 1100 volts grade - 440 / 660 volts grade	:	FINOLEX / POLYCAB

CONTRACTOR

Nos. of corrections

REGISTRAR

PVC unarmoured cable 1100 V. grade with I.S.I. mark stranded / solid aluminium / copper conductor type	:	FINOLEX / POLYCAB
PVC armoured cable 1100 V. grade with I.S.I. mark stranded / solid aluminium / copper conductor type AYWY / AYFY / YFY / YWY	:	FINOLEX / POLYCAB
H.V. Cables	:	Polycab / FINOLEX
Cables ( Telephones )	:	FINOLEX / DELTRON, ITL
Heavy duty Flange type brass cable glands	:	BRACO / DOWELS, Jainsons
Glands ( Double seal compression type heavy duty brass )	:	BRACO / DOWELS
Crimping and Soldering terminals, Lugs and Sockets	:	DOWELS / BRACO
<b><u>FITTINGS, FANS, ENERGY METERS</u></b>		
Fluorescent Fixtures Single, Twin 4'-40 W.	:	CROMPTON / PHILIPS
Decorative Fixtures, Fluorescent : LED	:	PHILIPS / CROMPTON, Osram
Fluorescent Tubes : LED	:	CROMPTON / PHILIPS, Osram
Tubular Lighting system	:	RAYMOULD
Mirror optic type flurescent fittings	:	PHILIPS / CROMPTON.
Under water light	:	ASTRAL / HAYWARD / CHANGI ( Superior model )
Ceiling Fans : double bearing, high speed	:	CROMPTON, PHILIPS Fans of standard model with Hi speed
Wall mounting Fan : double bearing	:	CROMPTON
Exhaust Fans : double bearing	:	CROMPTON
Emergency Lights	:	PROLITE
LED light fittings	:	Crompton Greaves, Philips, Osram
Energy meters	:	L & T / Siemens / Schneider
M.V. Lamp / S.V. Lamp	:	CROMPTON / PHILIPS
Storage / Pressure type Horizontal / Vertical Water Heater	:	RACOLD
Instant water heater	:	Recold / Venus.
Fluorescent Fixtures Single, Twin 2'-20 W.	:	PHILIPS / CROMPTON / BAJAJ
M.V. / HPSV Lamp Fitting, Street Light fitting	:	PHILIPS / CROMPTON

Deluxe Type Bulk head fitting	:	CROMPTON / PHILIPS
Electronic rotory step type Regulator for ceiling fan	:	Anchor Roma / Legrand-Myrius
Digital type Meters for Ammeters, Voltmeters, Power factor	:	L & T / RUDRASHAKTI / HPL / AE / MECO / NIPPEN
Frequency Meter etc. Push Button Stations Type in different colour codes	:	SIEMENS / L & T / HPL / AE
Moving iron / moving coil type / Digital type Meters	:	L & T / RUDRASHAKTI / HPL / AE / MECO / NIPPEN
Selector switches for Ammeter / Voltmeter	:	KAYCEE
LED indicating lamps with holders digital type	:	L & T / TECHNIC / RISHAB
Electric Geysers	:	Spearhead, Record, Bajaj, Crompton
Enamel paint	:	BERGER / JENSON NICHOLSON / NEROLAC / ICI
Solar Street lights	:	Crompton Greaves, Philips, Bajaj.
Street poles & fitting	:	Crompton, Philips, Bajaj with approved synthetic paint
M.S. Fabricated items for panels, switch board etc.	:	Elechmech
Street Light poles coloring	:	Crompton, Bajaj, Philips
Power Distribution transformers	:	CROMPTON GREEVES / KIRLOSKAR, United Insulation Ltd.
MPP.Gas filled capacitor Banks	:	EPCOS
GENERATOR	:	Crompton Greaves, Powerica, Caterpillar, Kirloskar Ele. Company, Jackson.

I / We hereby read and understand the make of the above materials / equipment and shall use the materials / equipment only of the above make companies and the Schedule ' B ' : Bills of Quantities of electrical works is based on the use of above materials.

No extra payment whatsoever will be made for using the above materials. I / We shall not use any duplicate fitting, materials etc. If found, I / We shall be liable for any action imposed by the Architect / PMC and the owner.

In case any of the above materials / equipments are not available of the given make, then we shall used the materials / equipments as directed by the Architect / University Engineer on reducing the rate.

Where-ever equivalent product / accessories is written it has to be approved from the Architect / PMC / University Engineer.

Signature of the  
Tenderer

CONTRACTOR

Nos. of corrections

REGISTRAR

### **SITE VISIT / SURVEY REPORT**

- 1 Tender ID :-
- 2 Bidder Details ( Name of Agency / Bidder ) :-
- 3 Bidder Representative – Name & Designation :-
- 4 Details of site / Name of work :- Electrical works at Multi-purpose indoor sports hall under Khelo India scheme at new campus of the University
- 5 Date of site visit :-

In compliance to above referred tender enquiry and special terms & condition regarding site visit, the bidder must visit above site before the tender submission date and understand the requirements before participating the bid.

Accordingly, I / we have visited and examined the building and site with all physical features, contours, characteristic, the approach and all other requisite information relating thereto as affecting the tender invited by the University.

- i) I / we have understood the site conditions, I / we will be binded to complete the work within the time period mentioned in the tender.
- ii) I / We have understood the details scope of the work exclusively defined in the technical specification.

Bidder's authorized representative

Name \_\_\_\_\_

Sign \_\_\_\_\_

Date\_\_\_\_\_

University Engineer or his  
Representative or  
Punyashlok Ahilyadevi Holkar  
Solapur University,

Signature

**OR**

Project Engineer  
Design Group (India),  
Architects and Project Management  
Consultant

Signature



# **PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR**

## **VOLUME II**

### **ELECTRICAL WORK FOR PROPOSED CONSTRUCTION OF MULTI-PURPOSE INDOOR SPORTS HALL UNDER KHELO INDIA SCHEME AT NEW CAMPUS OF THE UNIVERSITY**

#### **SCHEDULE "B"**

**(BASED ON P.W.D.,C.S.R 2022-2023)**

#### **CONSULTING ARCHITECTS**

**DESIGN GROUP(India)**

**ARCHITECT,PLANNERS,ENGINEERS**

**INTERIOR DESIGNERS AND VALUERS**

**11/12/13, FIRST FLOOR, R.N.A. ARCADE MAIN ROAD**

**LOKHANDWALA COMPLEX, ANDHERI WEST. MUMBAI - 400053**

**JULY  
2023**

Signature of Contractor with seal	No. of Corrections	The Registrar
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Tender Inviting Authority:PUNYASHLOK AHILYA DEVI HOLKAR SOLAPUR UNIVERSITY,SOLAPUR.				
Name of Work: ELECTRICAL WORK FOR PROPOSED CONSTRUCTION OF MULTI-PURPOSE INDOOR SPORTS HALL UNDER KHELO INDIA SCHEME AT NEW CAMPUS OF THE UNIVERSITY				
Contract No: ELECTRICAL WORKS/				
Bidder Name:		Select		%
<b>SCHEDULE OF WORKS</b>				
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)				
<b>SUMMARY OF COST OF ELECTRICAL WORKS</b>				
<b>BASED ON CSR for the year 2022-2023</b>				
<b>SCHEDULE OF ABSTRACT</b>				
SR.NO	ITEM OF WORK	ESTIMATED COST		IN WORDS
1	MAIN CONTROL PANEL BOARD & DISTRIBUTION BOARD WITH ACCESSORIES	Rs.	35,51,296.28	(RUPEES THIRTY FIVE LACS, FIFTY ONE THOUSAND, TWO HUNDRED NINETY SIX AND PAISE TWENTY EIGHT ONLY)
2	POINT WIRING WITH ACCESSORIES	Rs.	4,74,627.00	RUPEES FOUR LACS,SEVENTY FOUR THOUSAND,SIX HUNDRED AND TWENTY SEVEN ONLY)
3	CIRCUIT MAIN WITH ACCESSORIES	Rs.	7,80,205.00	(RUPEES SEVEN LACS,EIGHTY THOUSAND,TWO HUNDRED AND FIVE ONLY)
4	CABLE WITH ACCESSORIES	Rs.	99,34,715.00	(RUPEESNINETY NINE LACS, THIRTY FOUR THOUSAND,SEVEN HUNDRED AND FIFTEEN ONLY)
5	GENERAL FITTINGS AND EARTHING WITH ACCESSORIES	Rs.	36,91,981.00	(RUPEES THIRTY SIX LACS,NINETY ONE THOUSAND, NINE HUNDRED AND EIGHTY ONE ONLY)
	TOTAL	Rs.	1,84,32,824.28	(RUPEES ONE CRORE,EIGHTY FOUR LACS, THIRTY TWO THOUSAND,EIGHT HUNDRED TWENTY FOUR AND PAISE TWENTY EIGHT ONLY)
Quoted Percentage		Select		
Quoted Percentage in Words				
7	REIMBURSEMENT OF GST OF 18% ON TOTAL ESTIMATED COST.	Rs.	33,17,908.37	(RUPEES THIRTY THREE LACS, SEVENTEEN THOUSAND, NINE HUNDRED, EIGHT AND PAISE THIRTY SEVEN ONLY)
8	REIMBURSEMENT OF INSURANCE AMOUNT.	Rs.	1,84,328.24	(RUPEES ONE LACS,EIGHTY FOUR THOUSAND, THREE HUNDRED, TWENTY EIGHT AND PAISE TWENTY FOUR ONLY)
	NOTE :- If required insurance document is not submitted by the agency then amount worth to 1% of tender amount to be recovered from the 1st bill..			
9	TOTAL REIMBURSEMENT COST	Rs.	35,02,236.61	(RUPEES THIRTY FIVE LACS, TWO THOUSAND,TWO HUNDRED, THIRTY SIX AND PAISE SIXTY ONE ONLY)

Signature of Contractor with seal

No. of Corrections

The Registrar

Tender Inviting Authority:PUNYASHLOK AHILYA DEVI HOLKAR SOLAPUR UNIVERSITY,SOLAPUR.						
Name of Work: ELECTRICAL WORK FOR PROPOSED CONSTRUCTION OF MULTI-PURPOSE INDOOR SPORTS HALL UNDER KHELO INDIA SCHEME AT NEW CAMPUS OF THE UNIVERSITY						
Contract No: ELECTRICAL WORKS/						
<b>SCHEDULE OF WORKS</b>						<b>PRINT</b>
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for t Bidders are allowed to enter the Bidder Name and Values only)						
Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
<b>1.00</b>	<b>MAIN CONTROL PANNEL BOARDS &amp; DISTRIBUTION BOARDS WITH ACCESSORIES.</b>					
1.01	Supplying and erecting <b>metal work in CRCA sheet including Iron work</b> for supports with fabrication of boxes, panel boards, etc. including cutting, bending, drilling, welding, riveting, treated with anti-rust treatment and duly powder coated or painted with one coat of red lead paint and 2 coats of enamel paint complete. <b>Item No. 6-1-1 / Page No. 106</b>	310.00	kg	249.00	(Rupees Two Hundred And Forty Nine Only)	77,190.00
<b>NOTE:-</b> For feeder pillar, it should be as per IP-67 FROM 6-1-1(only for feeder pillar)						
1.02	Supplying and erecting <b>slotted angles, frames etc. for panel board or any other purposes</b> complete with bending, cutting, drilling and welding completeerected at the position with necessary materials duly painted with one coat ofred oxide and two coats of enamel paint to match the switchgears or as per directions by the authority. <b>Item No. 6-1-22 / Page No.107</b>	25.00	Kg	147.00	(Rupees One Hundred And Forty Seven Only)	3,675.00
1.03	Supplying and erecting <b>iron work, sheet metal work consisting of CRCA sheets</b> , various sections of iron, plates, chequered plates, rods, bars, MS pipes, etc. <b>for panel board</b> or any other purpose with bending, cutting, drilling and welding complete erected at the position with necessary materials duly painted with one coat of red oxide and two coats of enamel paint to match the switchgears. <b>Item No. 6-1-19 / Page No.107</b> <b>Specification. No.</b> as per directions by the authority.	1305.00	Kg	186.00	(Rupees One Hundred And Eighty Six Only)	2,42,730.00
1.04	Supplying and erecting bus bar chamber triple pole with neutral with four <b>copper bars, 500V, 100A</b> having 10mm (Width) X 1.6 mm (Thickness), <b>with 99.9 % Copper purity as per E91E Grade &amp; Current Density 1.6 A per sq. mm.</b> compliance to IS 5082 and Enclosure fabricated with 16 SWG CRCA sheet andepoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating complete. <b>Item No. 6-2-7 / Page No. 108</b> <b>Specification No.</b> CP-BB.	75.00	Mtr.	8810.00	(Rupees Eight Thousand, Eight Hundred And Ten Only)	6,60,750.00

Signature of Contractor with seal

No. of Corrections

The Registrar

**SCHEDULE OF WORKS**

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**PRINT**

Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.05	Supplying and erecting bus bar chamber triple pole with neutral with four <b>copperbars, 500V 200A</b> having 20mm (Width) X 2 mm (Thickness), <b>with 99.9 %Copper purity as per E91E Grade &amp; Current Density 1.6 A per sq. mm.</b> compliance to IS 5082 and Enclosure fabricated with 16 SWG CRCA sheet andepoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating complete. <b>Item No. 6-2-8 / Page No. 109</b> <b>Specification No. CP-BB.</b>	20.00	Mtr.	10376.00	(Rupees Ten Thousand, Three Hundred And Seventy Six Only)	2,07,520.00
1.06	Supplying and erecting bus bar chamber triple pole with neutral with four <b>aluminium bars, 500V 630A</b> having 50mm (Width) X 10 mm (Thickness), <b>with99.9 % aluminium purity as per E91E Grade &amp; Current Density 0.8 A per sq. mm.</b> compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating complete. <b>Item No. 6-2-5 / Page No. 108</b> <b>Specification No CP-BB.</b>	7.00	Mtr.	10152.00	(Rupees Ten Thousand, One Hundred And Fifty Two Only)	71,064.00
1.07	Supplying and erecting bus bar chamber triple pole with neutral with four <b>aluminium bars, 500V,1250A</b> having 100mm (Width) X 10 mm (Thickness), <b>with 99.9 % aluminium purity as per E91E Grade &amp; Current Density 0.8 A per sq. mm.</b> compliance to IS 5082 and enclosure fabricated with 16 SWG CRCA sheet and epoxy paint, with suitable number of ways and with SMC/DMC Insulators and accessories of suitable rating complete. <b>Specification No. CP-BB.</b>	15.00	Mtr.	13944.00	(Rupees Thirteen Thousand, Nine Hundred And Forty Four Only)	2,09,160.00
1.08	Supplying & erecting porcelain/epoxy <b>bus bar support</b> complete erected in provided M.S. box for <b>100A</b> Complete. <b>Item No. 5-10-26 / Page No. 103</b>	72.00	Each	69.00	(Rupees Sixty Nine Only)	4,968.00
1.09	Supplying & erecting porcelain/epoxy <b>bus bar support</b> complete erected in provided M.S. box for <b>200/300A.</b> <b>Item No. 5-10-27 / Page No. 103</b>	20.00	Each	97.00	(Rupees Ninety Seven Only)	1,940.00
1.10	Supplying & erecting porcelain/epoxy <b>bus bar support</b> complete erected in provided M.S. box for <b>630A.</b>	20.00	Each	403.20	(Rupees Four Hundred Three And Paise Twenty Only)	8,064.00
1.11	Supplying & erecting porcelain/epoxy <b>bus bar support</b> complete erected in provided M.S. box for <b>1250A</b> Complete.	20.00	Each	504.00	(Rupees Five Hundred And Four Only)	10,080.00

Signature of Contractor with seal

No. of Corrections

The Registrar

SCHEDULE OF WORKS							PRINT
(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for t Bidders are allowed to enter the Bidder Name and Values only)							
Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
1.12	Supplying & erecting <b>LED type indicating pilot lamp with LED colours red / yellow / green, 230 / 250V</b> on provided box / panel with necessary material,wiring & connections etc. <b>Item No. 6-5-5 / Page No. 115</b> <b>Make:- ABB,L&amp;T,Technic</b>	15.00	Each	248.00	(Rupees Two Hundred And Forty Eight Only)	3,720.00	
1.13	Supplying & erecting <b>LED type indicating pilot lamp with LED colour blue,230 / 250 V</b> on provided box / panel with necessary material, wiring & connections etc. <b>Item No. 6-5-6 / Page No. 115.</b> <b>Make:-ABB,L&amp;T,Technic</b>	57.00	Each	354.00	(Rupees Three Hundred And Fifty Four Only)	20,178.00	
1.14	Supplying and erecting <b>selector switch suitable for voltmeter/ammeter</b> for 3 phase AC supply 500V, 50Hz, on provided box / panel and duly connecting with necessary PVC wire leads and lugs. <b>Item No. 6-5-1 / Page No. 114.</b> <b>Make:-Kaycee</b>	15.00	Each	334.00	(Rupees Three Hundred And Thirty Four Only)	5,010.00	
1.15	Supplying and erecting <b>LT current transformer</b> with bar primary <b>50/5 to 1000/5 ratio with 15 VA burden</b> erected in provided CRCA box duly secured with insulating materials connected to the meter with test certificates. <b>Item No. 6-5-2 / Page No. 114.</b> <b>Make: -Automatic Electric,Nippen</b>	10.00	Each	1027.00	(Rupees One Thousand And Twenty Seven Only)	10,270.00	
1.16	Supplying, installing, testing and commissioning <b>air circuit breaker manual fixed type, non-drawout type, 650V, 1000A</b> rated at 50° C without deration, 12kV Impulse, <b>4 Pole</b> (100% Neutral Protection), 50 kA (Ics=Icu=Icw for 1s),with standard accessories with ready to close, individual fault trip, alarm and trip indication, mechanical and electrical anti pumping, soft/ hard rating plug (including hard rating plug CT) with Micro-processor based LCD display release with LSIG and temperature rise protection & with 4 C/O contacts for On-Off-Trip indication, min. 5 event and trip history on breaker display on provided iron frame. <b>Item No. 5-8-3 / Page No. 98.</b> <b>Make: -ABB,Siemens,Legrand,L&amp;T</b> <b>Specification No. SW-SWR/ACB</b>	1.00	Each	121804.00	(Rupees One Lacs Twenty One Thousand, Eight Hundred And Four Only)	1,21,804.00	
1.17	Supplying and erecting panel mounting type <b>digital ammeter</b> having three and half digit <b>LED display, external CT operated, calibrated for suitable to operate on 500V, 0 to 1000A</b> having accuracy class of 0.5, AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer. <b>Item No. 6-3-7 / Page No. 110.</b> <b>Make:- Automatic Electric,Meco,Nippen,L&amp;t</b>	5.00	Each	2034.00	(Rupees Two Thousand And Thirty Four Only)	10,170.00	

Signature of Contractor with seal

No. of Corrections

The Registrar

SCHEDULE OF WORKS						
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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.18	Supplying and erecting panel mounting type <b>digital voltmeter</b> having three and half digit LED display, calibrated for 0 to <b>750V AC</b> suitable to operate on 500V having accuracy class of 0.5 ,AC supply with necessary PVC wire leads and lugs and mounting hardware on provided panel complete with calibration certificate from manufacturer. <b>Item No.</b> 6-3-8 / Page No. 110. <b>Make:-</b> Automatic Electric,Meco,Nippen,L&T	5.00	Each	1672.00	(Rupees One Thousand, Six Hundred And Seventy Two Only)	8,360.00
1.19	Supplying and erecting <b>LT CT multifunction DLMS compliance energy meter of accuracy of class 0.5, 3x240V,50 Hz</b> with optical & RS 232 port, backlit <b>LCD, measures &amp; displays trivector energy, load survey, TOD, tamper detection</b> & logging, power ON /OFF events, instantaneous parameters of rating 1/5 A with display in absence of power complete with zero adjustment & test certificate from manufacturer erected on provided M.S. box and connected to CTs. <b>Item No</b> - 6-3-5/ Page No. 110 <b>Make:-</b> Automatic Electric, Secure,L&T,Meco	1.00	Each	10731	Rupees Ten Thousand, Seven Hundred And Thirty One Only)	10,731.00
1.20	Supplying and erecting <b>static energy meter with 3 x 240V 50 Hz. AC supply 10 to 60 A</b> , ISI mark, accuracy class 1.0 with backlit LCD display, (Measuring and display Trivector, <b>V, I, kW, PF, Hz, Last month history of kWh and MD in kW</b> ) with special features like <b>TOD, Tamper logging, Optical Communication Port &amp; Display in absence of Power</b> & with transparent hinge type box complete erected on polished teak wood board duly wired with required size of weather proof PVC wires duly tested by electric supply company. <b>Item No.</b> 6-3-3 / Page No. 110. <b>Make:-</b> Automatic Electric, Secure,L&T,Meco	1.00	Each	7797.00	(Rupees Seven Thousand, Seven Hundred And Ninety Seven Only)	7,797.00
1.21	Supplying and erecting <b>ON LOAD four pole automatic transfer switch</b> , 415V,200A, 50 Hz with enclosure, flexibility of neutral connection, line and loadreversibility, changeover with phase barriers, source separator, terminal coversalong with staggered termination for cable connection and ATS controller withprovision of time delay protection of OV, UV, phase sequence changing, singlephasing and event logging, connected with provided leads complete <b>Item No.</b> 5-1-12 /Page No. 85. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> IS/IEC 60947-3 Part-1/6 .	1.00	Each	61155.00	(Rupees Sixty One Thousand, One Hundred And Fifty Five Only)	61,155.00
1.22	Providing & erecting <b>3 Pole MCCB, 415 V, 100A</b> , rated short-circuit breaking capacity <b>25 kA (Ics=100% of Icu)</b> , adjustable thermal (overload) setting and fixedmagnetic setting with provided leads, provision for installation of shunt/UV/tripalarm contact. MCCB with phase barriers on both sides, insulation withstand capacity 800V, no line-load bias in provided enclosure/panel. <b>Item No.</b> 5-5-1 / Page No. 93. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCCB.	6.00	Each	5309.00	(Rupees Five Thousand, Three Hundred And Nine Only)	31,854.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P	
				Figure	Words		
1.23	For use of 4 pole MCCBs in place of 3 pole MCCBs add 20% in rate of 3pole MCCB. <b>Note No. 1 / Page No. 94</b>	6.00	Each	1061.80	(Rupees One Thousand, Sixty One And Paise Eighty Only)	6,370.80	
1.24	Providing & erecting <b>3 Pole MCCB, 415V, 200A</b> , rated short-circuit breaking capacity <b>25 kA (Ics=100% of Icu)</b> , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact and MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel. <b>Item No. 5-5-2 / Page No. 93.</b> <b>Make:- ABB,Siemens,Legrand,L&amp;T</b> <b>Specification No. SW-SWR/MCCB.</b>	1.00	Each	10604.00	(Rupees Ten Thousand, Six Hundred And Four Only)	10,604.00	
1.25	For use of 4 pole MCCBs in place of 3 pole MCCBs add 20% in rate of 3pole MCCB. <b>Note No. 1 / Page No. 94</b>	1.00	Each	2120.80	(Rupees Two Thousand, One Hundred, Twenty And Paise Eighty Only)	2,120.80	
1.26	Providing & erecting <b>3 Pole MCCB, 415V, 630A</b> , rated short-circuit breaking capacity <b>36 kA (Ics=100% of Icu)</b> , adjustable thermal (overload) setting and adjustable magnetic setting with provided leads, provision for installation of shunt/UV/trip alarm contact and MCCB should have phase barriers both sides, with insulation withstand capacity 800V, no line-load bias in provided enclosure/panel . <b>Item No. 5-5-5 / Page No. 94.</b> <b>Make:- ABB,Siemens,Legrand,L&amp;T</b> <b>Spec. No. SW-SWR/MCCB</b>	1.00	Each	25327.00	(Rupees Twenty Five Thousand, Three Hundred And Twenty Seven Only)	25,327.00	
1.27	For use of 4 pole MCCBs in place of 3 pole MCCBs add 20% in rate of 3pole MCCB. <b>Note No. 1 / Page No. 94</b>	1.00	Each	5065.40	(Rupees Five Thousand, Sixty Five And Paise Forty Only)	5,065.40	
1.28	Supplying and erecting extended rotary handle for <b>MCCB</b> with adjustable telescopic rod suitable for <b>up to 250A MCCB.</b> <b>Item No. 5-11-14 / Page No. 104</b>	7.00	Each	1255.00	(Rupees One Thousand, Two Hundred And Fifty Five Only)	8,785.00	
1.29	Supplying and erecting extended rotary handle for <b>MCCB</b> with adjustable telescopic rod suitable for <b>above 250A upto 630A MCCB.</b> <b>Item No. 5-11-15/ Page No. 104</b>	1.00	Each	1866.00	(Rupees One Thousand, Eight Hundred And Sixty Six Only)	1,866.00	
1.30	Supplying and erecting <b>terminal spreaders</b> suitable for 3 pole, <b>up to 100A MCCB</b> (set of 6) <b>Item No. 5-11-1 / Page No. 104</b>	6.00	SET	199.00	(Rupees One Hundred And Ninety Nine Only)	1,194.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
1.31	Supplying and erecting <b>terminal spreaders</b> suitable for 3 pole, <b>up to 250 A</b> MCCB (set of 6) <b>Item No.</b> 5-11-2/ Page No. 104	1.00	SET	940.00	(Rupees Nine Hundred And Forty Only)	940.00	
1.32	Supplying and erecting <b>terminal spreaders</b> suitable for 3 pole, <b>630A</b> MCCB (set of 6) <b>Item No.</b> 5-11-4/ Page No. 104	1.00	SET	1866.00	(Rupees One Thousand, Eight Hundred And Sixty Six Only)	1,866.00	
1.33	Supplying and erecting <b>35 kVAr, 3 phase, 50 Hz., Power contactors Derated for microprocessor APFC controller with MPP /APP type capacitor</b> with 525V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with , consisting of suitable stepsof MPP / APP type capacitor units with detuned aluminium filter 7% reactorswith circuit breaker as main incomer and MCCB for each branch protection. <b>Item No.</b> 6-7-11/ Page No.117. <b>Make:-</b> L&T,Epcos <b>Specification No:-</b> CP-ED/APFC .	4.00	Each	200263.00	(Ruppes Two lacs, Two Hundred And Sixty Three Only)	8,01,052.00	
1.34	Supplying and erecting <b>50 kVAr, 3 phase, 50 Hz., Power contactors Derated for microprocessor APFC controller with MPP / APP type capacitor</b> with 525 V and having minimum overcurrent capacity of 1.8 In, peak inrush current capacity 300 In and minimum life 150000 hours with , consisting of suitable stepsof MPP / APP type capacitor units with detuned aluminium filter 7% reactorswith circuit breaker as main incomer and MCCB for each branch protection. <b>Item No.</b> 6-7-12/ Page No.117. <b>Make:-</b> L&T,Epcos <b>Specification No:-</b> CP-ED/APFC.	1.00	Each	277552.00	(Rupees Two Lacs, Seventy Seven Thousand, Five Hundred And Fifty Two Only)	2,77,552.00	
1.35	Supplying & erecting <b>triple pole and neutral distribution board (TPNDB)</b> ,SP/TP MCBs total 12 ways /36 poles, with door, 1.2mm thickness surface/flush mounted, IP 43 Protection on iron/GI frame (vertical busbar type) <b>Item No.</b> 5-4-6 / Page No. 92. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCBDB.	5.00	Each	7661.00	(Rupees Seven Thousand, Six Hundred And Sixty One Only)	38,305.00	
1.36	Supplying & erecting <b>triple pole and neutral distribution board (TPNDB)</b> , SP/TP MCBs total 8 ways /24 poles, with door, 1.2mm thickness surface/flushmounted, IP 43 Protection on iron/GI frame (vertical busbar type) <b>Item No.</b> 5-4-5 / Page No. 92. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCBDB.	4.00	Each	5696.00	(Rupees Five Thousand, Six Hundred And Ninety Six Only)	22,784.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.37	Supplying and erecting <b>single pole and neutral distribution board (SPNDB)</b> ,with 2 ways for incoming and 10 ways (10 poles) for outgoing SP MCBs,with door, 1.2mm thickness surface / flush mounted, IP 43 Protection on iron /GI frame. <b>Item No.</b> 5-4-9/ Page No. 92. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCBDB.	17.00	Each	1495.00	(Rupees One Thousand, Four Hundred And Ninety Five Only)	25,415.00
1.38	Supplying and erecting <b>single pole and neutral distribution board (SPNDB)</b> ,with 2 ways for incoming and 6 ways (6 poles) for outgoing SP MCBs, with door, 1.2mm thickness surface / flush mounted, IP 43 Protection on iron / GI frame. <b>Item No.</b> 5-4-8/ Page No. 92. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCBDB.	11.00	Each	1244.00	(Rupees One Thousand, Two Hundred And Forty Four Only)	13,684.00
1.39	Supplying and erecting <b>single pole and neutral distribution board (SPNDB)</b> ,with 2 ways for incoming and 2 ways (2 poles) for outgoing SP MCBs, with door, 1.2mm thickness surface / flush mounted, IP 43 Protection on iron / GI frame. <b>Item No.</b> 5-4-7/ Page No. 92. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCBDB.	4.00	Each	1054.00	(Rupees One Thousand And Fifty Four Only)	4,216.00
1.40	Supplying, fixing and commissioning <b>4 pole RCBO 32/40A</b> , with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection, with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication. <b>Item No.</b> 5-6-13 / Page No. 95. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-RCCB/RCBO.	10.00	Each	4047.00	(Rupees Four Thousand And Forty Seven Only)	40,470.00
1.41	Supplying, fixing and commissioning <b>2 pole, RCBO 6/10/16/20/25A</b> , with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection, with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication. <b>Item No.</b> 5-6-9 / Page No. 95. <b>Make:-</b> ABB,Siemens,Legrand. <b>Specification No.</b> SW-RCCB/RCBO	33.00	Each	2986.00	(Rupees Two Thousand, Nine Hundred And Eighty Six Only)	98,538.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.42	Supplying, fixing and commissioning <b>2 pole RCBO 32/40A</b> , with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection, with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication. <b>Item No.</b> 5-6-10/ Page No. 95. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-RCCB/RCBO	4.00	Each	3182.00	(Rupees Three Thousand, One Hundred And Eighty Two Only)	12,728.00
1.43	Providing, erecting & commissioning <b>4 pole RCCB 63A</b> , with added immunity to avoid DC pulse tripping with 30/100/300 mA sensitivity complete. <b>Item No.</b> 5-6-16/ Page No. 95. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-RCCB/RCCB	1.00	Each	6056.00	(Rupees Six Thousand, And Fifty Six Only)	6,056.00
1.44	Supplying, erecting & marking <b>SPMCB 0.5A to 5A, C-series</b> with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board/ pannel. <b>Item No.</b> 5-3-1 / Page No. 90. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-SWR/MCB	15.00	Each	250.00	(Rupees Two Hundred And Fifty Only)	3,750.00
1.45	Supplying, erecting & marking <b>SPMCB 6A to 32A, C-series</b> with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-2 / Page No. 90. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-SWR/MCB	175.00	Each	174.00	(Rupees One Hundred And Seventy Four Only)	30,450.00
1.46	Supplying, erecting & marking <b>SPMCB 6A to 32A, B-series</b> with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-3 / Page No. 90. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-SWR/MCB	120.00	Each	173.00	(Rupees One Hundred And Seventy Three Only)	20,760.00
1.47	Supplying, erecting & marking <b>FPMCB 40A to 63A</b> , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-13 / Page No. 90. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-SWR/MCB	15.00	Each	1329.00	(Rupees One Thousand, Three Hundred And Twenty Nine Only)	19,935.00
1.48	Supplying, erecting & marking <b>DPMCB 6A to 32A, C-series</b> with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-6 / Page No. 90. <b>Make:-</b> ABB, Siemens, Legrand, L&T <b>Specification No.</b> SW-SWR/MCB	30.00	Each	535.00	(Rupees Five Hundred And Thirty Five Only)	16,050.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
1.49	Supplying, erecting & marking <b>TPMCB 6A to 32A</b> , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-10 / Page No. 90. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCB	16.00	Each	751.00	(Rupees Seven Hundred And Fifty One Only)	12,016.00
1.50	Supplying, erecting & marking <b>TPMCB 40A to 63A</b> , with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board. <b>Item No.</b> 5-3-11 / Page No. 90. <b>Make:-</b> ABB,Siemens,Legrand,L&T <b>Specification No.</b> SW-SWR/MCB	8.00	Each	992.00	(Rupees Nine Hundred And Ninety Two Only)	7,936.00
1.51	Supplying and erecting <b>blanking plate</b> of suitable size on MCBDB. <b>Item No.</b> 5-4-14 / Page No.92	155.00	Each	15.00	(Rupees Fifteen Only)	2,325.00
1.52	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V, 63A</b> , <b>Item No.</b> 5-10-31 / Page No. 103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	6.00	Each	306.00	(Rupees Three Hundred And Six Only)	1,836.00
1.53	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V,100A</b> , <b>Item No.</b> 5-10-32/ Page No.103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	3.00	Each	319.00	(Rupees Three Hundred And Nineteen Only)	957.00
1.54	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V,200A</b> , <b>Item No.</b> 5-10-34/ Page No.103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	7.00	Each	547.00	(Rupees Five Hundred And Forty Seven Only)	3,829.00
1.55	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V, 250A</b> , <b>Item No.</b> 5-10-35 / Page No. 103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	715.00	(Rupees Seven Hundred And Fifteen Only)	1,430.00
1.56	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V,315A</b> , <b>Item No.</b> 5-10-36 Page No.103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	815.00	(Rupees Eight Hundred And Fifteen Only)	1,630.00
1.57	Supplying and erecting <b>DIN Type HRC Fuse cartridge 500V,800A</b> , <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	2204.16	(Rupees Two Thousand Two Hundred Four And Paise Sixteen Only)	4,408.32
1.58	Supplying and erecting <b>Fuse Base for DIN type HRC Fuse</b> cartridge 500V, up to 160A. <b>Item No.</b> 5-10-39/ Page No.103 <b>Make:-</b> ABB,Siemens,Legrand,L&T	9.00	Each	559.00	(Rupees Five Hundred And Fifty Nine Only)	5,031.00

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				Figure	Words	
1.59	Supplying and erecting <b>Fuse Base for DIN type HRC Fuse</b> cartridge 500V, above 160A- 250A. <b>Item No.</b> 5-10-40/ Page No.104 <b>Make:-</b> ABB,Siemens,Legrand,L&T	9.00	Each	753.00	(Rupees Seven Hundred And Fifty Three Only)	6,777.00
1.60	Supplying and erecting <b>Fuse Base for DIN type HRC Fuse</b> cartridge 500V, above 250A- 400A. <b>Item No.</b> 5-10-41/ Page No.104 <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	1069.00	(Rupees One Thousand And Sixty Nine Only)	2,138.00
1.61	Supplying and erecting <b>Fuse Base for DIN type HRC Fuse</b> cartridge 500V, above 630A- 800A. <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	2076.48	(Rupees Two Thousand Seventy Six And Paise Forty Eight Only)	4,152.96
1.62	Supplying & erecting <b>CRCA sheet metal enclosures of 1.2mm thickness with 20A, 2 pin plug &amp; earth socket and 20A, 3 pin plug top with 20A/30A singlepole MCB</b> having rated short - circuit breaking capacity (Icn) 10kA complete erected on angle iron/ GI frame. <b>Item No.</b> 5-4-11/ Page No.92 <b>Make:-</b> ABB,Siemens,Legrand,L&T	45.00	Each	824.00	(Rupees Eight Hundred And Twenty Four Only)	37,080.00
1.63	Supplying & erecting <b>CRCA sheet metal one way enclosures of 1.2mm thickness suitable for DP MCB /TP MCB/FP MCB/RCCB/RCBO</b> complete erected on angle iron/GI frame. <b>Item No.</b> 5-4-13/ Page No.92 <b>Make:-</b> ABB,Siemens,Legrand,L&T	10.00	Each	400.00	(Rupees Four Hundred Only)	4,000.00
1.64	Supplying and erecting <b>GI sheet of 1.25 mm. ( 18 SWG ) size 200 X 150 mm.</b> duly painted with red oxide & enamel paint for displaying the department, date of erection of the electrical installation with appoved shade complete. <b>Item No.</b> 6-1-17 / Page No. 107.	6.00	Each	119.00	(Rupees One Hundred And Nineteen Only)	714.00
1.65	Supplying & erecting <b>D.O.L Starter</b> suitable for 415 V, 3 phase 50 cycles with novolt coil and overload element with necessary materials and connected to supply up to 7.5 H.P. <b>Item No.</b> 12-4-2 / Page No. 203. <b>Make:-</b> ABB,Siemens,Legrand,L&T	2.00	Each	1865.00	(Rupees One Thousand, Eight Hundred And Sixty Five Only)	3,730.00
1.66	Supplying & erecting <b>Push button with elements START &amp; STOP, 230 / 250V</b> on provided box / panel with necessary material,wiring & connections etc (Set Of 2). <b>Make:-</b> ABB,TECHNIC	20.00	Set	537.60	(Rupees Five Hundred Thirty Seven And Paise Sixty Only)	10,752.00

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				Figure	Words	Rs. P	
1.67	Supplying & erecting <b>ON DELAY TIMER (0-60Sec), 230 / 250V</b> on provided box / panel with necessary material,wiring & connections etc. <b>Make:- L&amp;T</b>	5.00	Each	728.00	(Rupees Seven Hundred And Twenty Eight Only)	3,640.00	
1.68	Supplying and erecting programmable <b>digital almanac timer microcontroller</b> based with real time clock to operate on derived <b>switching "ON" and switching "OFF"</b> street light as per daily sunset and sunrise respectively automaticallyhaving 4 digit LED continuous time display, relay output 230 V / 10A with 10hrs. battery backup and manual over drive facility capable to drive different capacity contactors timer erected in provided M.S. box. <b>Item No.4-8-6 / Page No. 83.</b>	24.00	Each	6205.00	(Rupees Six Thousand Two Hundred & Five Only)	1,48,920.00	
1.69	Supplying & erecting <b>6" Ex-fan 230 / 250V</b> on provided box / panel with necessary material,wiring & connections etc. <b>Make:-Crompton Greaves, Philips</b>	5.00	Each	784.00	(Rupees Seven Hundred And Eighty Four Only)	3,920.00	
<b>TOTAL FOR SECTION '1'</b>						<b>35,51,296.28</b>	
<b>NOTE:-</b>							
1.0	All electrical panel and fedder pillars shall provide free comprehensive maintenance for three years with effect from the date of installation, testing(date of final bill) and commission of feeder pillar and panels are inclusive. The rate of Rcc (M-30) foundation of required size and thickness as directed by the University Engineer /PMC/ Architect.						
2.0	The detailed description of each item will be adopted as per specification of electrical work as stated in schedule ' B ' item and as directed.						
3.0	For the purpose of panel boards, above rates shall be inclusive of all M.S. works.						
4.0	DBs of only specified manufactures shall be used.						
5.0	The MCB DB are of incoming MCB / MCCB and outgoing SP / TP MCB's and the same should be of the same make						
6.0	All the electrical panels & feeder pillar shall be obtained only from the specified manufactures approved by CPRI and as approved by University Engineer / Architect / PMC.						
7.0	The detailed panel fabrication technical drawings with all details there-in should be submitted to the Architect/PMC for their approval.						
8.0	The contractor shall submit all original warranty / guarantee cards of the Parts used by manufactures for panel & feeder pillar to University Engineer / Architect.						
9.0	The contractor shall give all Literatures & drawings of the parts and all other related documents to Architect / University Engineer.						
10.0	The contractor shall also give guidelines on operation of panels and trained the persons of the University.						
11.0	The contractor shall be responsible for proper comprehensive maintenance during the guarantee / warranty periods.						

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P	
				Figure	Words		
12.0	The detailed technical drawings of fabrication of lighting, power and emergency panel with all details there in should be submitted for approval to the Architect before fabricating each panel.						
13.0	The Architects / The University Engineer may suggest any additional item for any improvement for which the payment shall be made as per the agreed premium stated in work-order.						
14.0	If contents of the item are reduced, the rate shall be reduced as decided by Architects / PMC / University Engineer.						
15.0	The rate of feeder pillar & panels are inclusive of RCC ( In-M 30 ) foundation of required size and thickness as directed by the University Engineer/PMC/Architect						
16.0	For erection of switchgear on existing/provided GI /angle iron frame reduce the over all rate by 5%. ( Note 2 / Page No. 88 )						
17.0	For lighting load 'B' series MCBs are to be provided and for motive / inductive power load 'C' series MCBs are to be provided. ( Note 1 / Page No. 91 )						
18.0	All MCBs shall have rated short-circuit breaking capacity not less than10kA. ( Note 1 / Page No. 93 )						
19.0	Reduce rate by 5% if angle iron frame/ GI frame is not required. ( Note 2 / Page No. 93 )						
20.0	For more than 2 kW load RCCB shall invariably be provided & erected preferably in the same distribution board. (RCCB+MCB) or (RCCB+MCCB etc.). Separate box for RCCB/ELCB is not permissible. ( Note 3 / Page No. 93 )						
21.0	DBs and allied switchgears must be of same make. ( Note 4 / Page No. 93 )						
22.0	DBs with IEC 61439 part 1 & 3 and minimum IK 08 rating shall be preferred. ( Note 5 / Page No. 93 )						
23.0	For use of 4 pole MCCBs in place of 3 pole MCCBs add 20% in rate of 3pole MCCB. ( Note 1 / Page No. 94 )						
24.0	MCCBs which are used as incomer in main panel shall be of four pole only to ensure neutral isolation. ( Note 3 / Page No. 94 )						
25.0	Item no 5-6-15 to 5-6-17 shall be preferably used for Lift and installations with susceptible to harmonic applications to avoid nuisance tripping. ( Note 2 / Page No. 95 )						
26.0	Quantity of iron/sheet metal work shall be considered and worked out as per steel data table. ( Note 1/ Page No. 107 )						
27.0	Provision of CT's shall be made as per individual meters. All meters shall be with calibration certificate. ( Note 1/ Page No. 113 )						
27.0	The Rate includes working & installation at all heights, Including scaffolding with staging & nothing extra shall be paid						

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
<b>2.00</b>	<b>POINT WIRING WITH ACCESSORIES</b>					
2.01	Point wiring for <b>light/bell/exhaust fan</b> in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories. <b>Item No.</b> 1-7-19 / Page No.13 <b>Wires:-</b> Polycab, RR Kabel, Finolex <b>Casing capping :-</b> Precision <b>Modular Switches:-</b> Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban) Legrand-Myrius, L&T-Oris <b>Specification No:</b> WG-PW/SW.	390.00	Point	552.00	(Rupees Five Hundred And Fifty Two Only)	2,15,280.00
2.02	Point wiring for <b>ceiling fan</b> in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories. <b>Item No.</b> 1-7-20 / Page No.13 <b>Wires:-</b> Polycab, RR Kabel, Finolex <b>Casing capping :-</b> Precision <b>Modular Switches:-</b> Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban) Legrand-Myrius, L&T-Oris <b>Specification No:</b> WG-PW/SW	120.00	Each	610.00	(Rupees Six Hundred And Ten Only)	73,200.00
2.03	Point wiring for <b>independent plug</b> in PVC trunking (casing-capping) with 1.5sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories. <b>Item No.</b> 1-7-21 / Page No.13 <b>Wires:-</b> Polycab, RR Kabel, Finolex <b>Casing capping :-</b> Precision <b>Modular Switches:-</b> Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban) Legrand-Myrius, L&T-Oris <b>Specification No:</b> WG-PW/SW	100.00	Point	748.00	(Rupees Seven Hundred And Forty Eight Only)	74,800.00
2.04	Wiring for <b>plug on board</b> with Switch socket surface/concealed type, copper wiring and earthing and with modular accessories. <b>Item No.</b> 1-7-26 / Page No.13 <b>Specification No:</b> WG-PW/CW.	85.00	Point	386.00	(Rupees Three Hundred And Eighty Six Only)	32,810.00
2.05	Supplying and erecting modular type ( <b>two module</b> ) <b>electronic step regulator</b> for fan, duly erected on provided plate and box with wiring connections complete. <b>Item No.</b> 1-6-23 / Page No.9 <b>Make :</b> Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban), Legrand-Myrius, L&T-Oris	120.00	Each	382.00	(Rupees Three Hundred And Eighty Two Only)	45,840.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT
				Figure	Words	Rs. P
2.06	Supplying and erecting modular type <b>bell-push with indicator 2 modules 6A /10A</b> , duly erected on provided plate and box with wiring connections complete. <b>Item No.</b> 1-6-4 /Page No.8. <b>Make</b> :- Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban), Legrand-Myrius,L&T-Oris	7.00	Each	129.00	(Rupees One Hundred And Twenty Nine Only)	903.00
2.07	Supplying and erecting modular type <b>switch 16 / 20 A</b> with indicator, duly erected on provided plate and box with wiring connections complete.. <b>Item No.</b> 1-6-6 / Page No. 8. <b>Make</b> :- Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban), Legrand-Myrius,L&T-Oris	55.00	Each	137.00	(Rupees One Hundred And Thirty Seven Only)	7,535.00
2.08	Supplying and erecting modular type <b>3 pin 6 / 16A multi socket</b> with safety shutter, duly erected on provided plate and box with wiring connections complete. <b>Item No.</b> 1-6-11 / page No. 9. <b>Make</b> :- Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban), Legrand-Myrius,L&T-Oris	55.00	Each	160.00	(Rupees One Hundred And Sixty Only)	8,800.00
2.09	Supplying and erecting <b>PVC Surface modular switch box with double mounting plate for 3 module duly erected.</b> <b>Item No.</b> 1-6-28 / Page No. 9 <b>Make</b> :- Anchor-Roma (Urban) , Legrand-Myrius,L&T-Oris	55.00	Each	148.00	(Rupees One Hundred And Forty Eight Only)	8,140.00
2.10	Supplying and erecting <b>PVC Surface modular switch box with double mounting plate for 2 module duly erected.</b> <b>Item No.</b> 1-6-27 / Page No. 9 <b>Make</b> :- Anchor-Roma (Urban) , Legrand-Myrius,L&T-Oris	8.00	Each	128.00	(Rupees One Hundred And Twenty Eight Only)	1,024.00
2.11	Supplying and erecting modular type <b>blanking plate one module</b> , duly erected on provided plate & box. <b>Item No.</b> 1-6-24 / Page No. 9. <b>Make</b> :- Anchor-Roma (Urban) , Legrand-Myrius,L&T-Oris	115.00	Each	21.00	(Rupees Twenty One Only)	2,415.00
2.12	Point wiring for <b>light/bell/exhaust fan</b> in 20 mm FRLS grade HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire, modular type switch, earthing and required accessories. <b>Item No.</b> 1-7-12 / Page No.12 <b>Wires</b> :- Polycab, RR Kabel, Finolex <b>Conduits</b> :- Precision <b>Modular Switches</b> :- Metallic Finish In Pearl/ chroma:-Anchor-Roma (Urban), Legrand-Myrius, L&T-Oris <b>Specification No:</b> WG-PW/SW.	5.00	Each	776.00	(Rupees Seven Hundred And Seventy Six Only)	3,880.00
<b>TOTAL FOR SECTION '2'</b>						<b>4,74,627.00</b>

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P	
				Figure	Words		
	NOTE:-						
1.0	Method of wiring shall be conformed to relevant IS specifications.						
2.0	In case length of point wiring exceeds 6 meters, add 10% of rate, for every additional length of 1 metre or part thereof. ( Note 1 / Page No. 13 )						
3.0	Point wiring starts from mainboard/intermediate switch board and suitable circuit mains are to be considered from D.B. to first board and between boards.( Note 2 / Page No. 13 )						
4.0	Earth wire of minimum 1.5 Sq.mm. shall be terminated in each point. ( Note 7 / Pg. 13 ).						
5.0	Only FRLSH grade copper wire shall be used.						
6.0	All modular switches, multi sockets, plates and accessories shall be in Polycarbonate with metallic finish as Pearl, Chroma of only prescribed make as of Anchor- Roma (Urban)/ Legrand Myrius/ L&T-Oris. The sample of each shall be submitted for approval.						
7.0	For point wiring of Bathroom & W/C reduce over all rates by 50% of point wiring for light, fan, exhaust fan.						
8.0	The detailed description of each item will be adopted as per specification of Electrical works published by PWD ( Electrical wing ) OR As directed by Architects / University Engineer / PMC.						
9.0	Conduit Wire shall not more than 45% of volume in casing-capping.						
10.0	Continuous running earth wire should be provided at min 1.5 Sq.mm. upto phase wire of 2.5 sq.mm. & further earthwire of half of size of phase wire is to be used only for light & power load.						
11.0	Rate for the earth wire shall be calculated as one half of mains of bunch of two wire & earth wire should with green colour PVC.( Note 3&5 / Pg. 6 ).						
12.0	Rate for PVC Surface modular switch box with double mounting plate to be consider in point wiring						
13.0	The Rate includes working & installation at all heights, Including scaffolding with staging & nothing extra shall be paid						

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
<b>3.0</b>	<b>CIRCUIT MAIN WITH ACCESSORIES</b>					
3.01	Supplying and erecting mains with <b>2x2.5 sq.mm FRLSH copper PVC</b> insulated wire laid in provided <b>conduit/trunking/inside pole/Bus bars</b> or anyother places. <b>Item No.</b> 1-3-2 / Page No. 5. <b>Make:-</b> Polycab, RR Kabel, Finolex <b>Specification No:</b> WG-MA/BW.	2400.00	Mtr.	62.00	(Rupees Sixty Two Only)	1,48,800.00
3.02	Rates for the earth <b>wire shall be calculated as one half rate of mains of bunch of two wire.</b> <b>Note No.</b> 3 / Page No. 6	2400.00	Mtr.	31.00	(Rupees Thirty One Only)	74,400.00
3.03	Supplying and erecting mains with <b>2x4 sq.mm FRLSH copper PVC</b> insulated wire laid in provided <b>conduit/trunking/inside pole/Bus bars</b> or any other places. <b>Item No.</b> 1-3-3 / Page No. 5. <b>Make:-</b> Polycab, RR Kabel, Finolex <b>Specification No:</b> WG-MA/BW	1200.00	Mtr.	89.00	(Rupees Eighty Nine Only)	1,06,800.00
3.04	Rates for the earth <b>wire shall be calculated as one half rate of mains of bunch of two wire.</b> <b>Note No.</b> 3 / Page No. 6	1200.00	Mtr.	44.50	(Rupees Forty Four And Paise Fifty Only)	53,400.00
3.05	Supplying and erecting mains with <b>2x6 sq.mm FRLSH copper PVC</b> insulated wire laid in provided <b>conduit/trunking/inside pole/Bus bars</b> or any other places. <b>Item No.</b> 1-3-4/ Page No. 5. <b>Make:-</b> Polycab, RR Kabel, Finolex <b>Specification No:</b> WG-MA/BW	550.00	Mtr.	132.00	(Rupees One Hundred And Thirty Two Only)	72,600.00
3.06	Rates for the earth <b>wire shall be calculated as one half rate of mains of bunch of two wire.</b> <b>Note No.</b> 3 / Page No. 6	550.00	Mtr.	66.00	(Rupees Sixty Six Only)	36,300.00
3.07	Supplying and erecting <b>PVC trunking (PVC casing-n-capping)</b> of size <b>25 mm</b> with accessories on wall/ceiling. <b>Item No.</b> 1-2-7 / Page No. 4. <b>Make :-</b> Precision. <b>Specification No:</b> WG-MA/CON.	925.00	Mtr.	44.00	(Rupees Forty Four Only)	40,700.00
3.08	Supplying and erecting <b>PVC trunking (PVC casing-n-capping)</b> of size <b>32 mm</b> with accessories on wall/ceiling. <b>Item No.</b> 1-2-8 / Page No. 4. <b>Make :-</b> Precision. <b>Specification No:</b> WG-MA/CON.	940.00	Mtr.	53.00	(Rupees Fifty Three Only)	49,820.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT
				Figure	Words	Rs. P
3.09	Supplying and erecting <b>PVC trunking (PVC casing-n-capping ) of size 40 mm.</b> with accessories on wall / ceiling. <b>Item No.</b> 1-2-9 / Page No. 4. <b>Make</b> : - Precision. <b>Specification No.</b> WG-MA / CON.	785.00	Mtr.	81.00	(Rupees Eighty One Only)	63,585.00
3.10	Supplying and erecting <b>HMS PVC conduit FRLS grade 25 mm dia.</b> With PVC accessories on wall /ceiling. <b>Item No.</b> 1-2-4 / Page No. 4. <b>Make</b> : - Precision <b>Specification No:</b> WG-MA/CON.	1350.00	Mtr.	96.00	(Rupees Ninety Six Only)	1,29,600.00
3.11	Supplying and erecting <b>25 mm dia. corrugated</b> flexible polypropylene conduit . <b>Item No.</b> 1-2-2 / Page No. 4. <b>Make</b> : - Precision	200.00	Mtr.	21.00	(Rupees Twenty One Only)	4,200.00
<b>TOTAL FOR SECTION '3'</b>						<b>7,80,205.00</b>
<b>NOTE:-</b>						
1.0	Method of wiring shall be conformed to relevant IS specifications.					
2.0	Conduit Wire shall not more than 45% of volume in casing-capping and conduits.					
3.0	Rate for the earth wire shall be calculated as one half of mains of bunch of two wire & earth wire should with green colour PVC.( Note 3 &5 / Pg. 6 ).					
4.0	Continuous running earth wire should be provided at min 1.5 Sq.mm. upto phasewire of 2.5 sq.mm. & further earthwire of half of size of phase wire is to be used only for light & power load.					
5.0	Only FRLSH grade copper wire shall be used.					
6.0	The Rate includes working & installation at all heights as upto the height upto ridge of truss and above sloping roof Including scaffolding with staging & nothing extra shall be paid					

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
4.00	CABLES WITH ACCESSORIES						
4.01	Supplying & laying (including excavation) <b>reinforced cement concrete pipe</b> of IS 458:2003 NP-2 class of 250 mm internal diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete. <b>Item No.</b> 7-6-7 / Page No. 140. <b>Make</b> :-Indian Hume Pipe.	1493.75	Mtr.	640.00	(Rupees Six Hundred And Forty Only)	9,56,000.00	
	<b>Note: The work also including laying pipes inside the building as of remaining PCC, soling, and making good as original surface.</b>						
4.02	Supplying & laying (including excavation) <b>half round reinforced cement concrete pipe</b> of IS 458:2003 NP-2 class of 250 mm internal diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete. <b>Item No.</b> 7-6-8 / Page No.140 <b>Make</b> :-Indian Hume Pipe.	550.00	Mtr.	545.00	(Rupees Five Hundred And Forty Five Only)	2,99,750.00	
4.03	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3½ core 300 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses /pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-24 / Page No. 127. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/AL.	2438.88	Mtr.	1636.00	(Rupees One Thousand, Six Hundred And Thirty Six Only)	39,90,000.00	
4.04	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3½core 240 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-23 / Page No. 127. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/AL.	1626.95	Mtr.	1369.00	(Rupees One Thousand, Three Hundred And Sixty Nine Only)	22,27,300.00	
4.05	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3½ core 95 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-19 / Page No. 126. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/AL.	500.00	Mtr	606.00	(Rupees Six Hundred And Six Only)	3,03,000.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
4.06	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3½ core 50 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-17 / Page No. 126. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/AL.	150.00	Mtr	381.00	(Rupees Three Hundred And Eighty One Only)	57,150.00
4.07	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 4 core 25 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-35 / Page No. 132. <b>Cable:-</b> Polycab, RR Kabel, Finolex . <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/CU	60.00	Mtr	1381.00	(Rupees One Thousand, Three Hundred And Eighty One Only)	82,860.00
4.08	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 4 core 16 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-34 / Page No. 132. <b>Cable:-</b> Polycab, RR Kabel, Finolex . <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/CU	60.00	Mtr	863.00	(Rupees Eight Hundred And Sixty Three Only)	51,780.00
4.09	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 4 core 10 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-33 / Page No. 132. <b>Cable:-</b> Polycab, RR Kabel, Finolex. <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/CU	350.00	Mtr	603.00	(Rupees Six Hundred And Three Only)	2,11,050.00
4.10	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 4 core 6 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-32 / Page No. 132. <b>Cable:-</b> Polycab, RR Kabel, Finolex . <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson. <b>Specification No.</b> CB-LT/CU	60.00	Mtr	396.00	(Rupees Three Hundred And Ninety Six Only)	23,760.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
4.11	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 16 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-18 / Page No. 131. <b>Cable:-</b> Polycab, RR Kabel, Finolex . <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson <b>Specification No.</b> CB-LT/CU	120.00	Mtr	664.00	(Rupees Six Hundred And Sixty Four Only)	79,680.00	
4.12	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 10 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-17 / Page No. 131. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson <b>Specification No.</b> CB-LT/CU	150.00	Mtr	476.00	(Rupees Four Hundred And Seventy Six Only)	71,400.00	
4.13	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 6 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid inprovided trench/ pipe. <b>Item No.</b> 7-2-16 / Page No. 131. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson <b>Specification No.</b> CB-LT/CU	1050.00	Mtr	316.00	(Rupees Three Hundred And Sixteen Only)	3,31,800.00	
4.14	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 4 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-15 / Page No. 131. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson <b>Specification No.</b> CB-LT/CU.	250.00	Mtr	242.00	(Rupees Two Hundred And Forty Two Only)	60,500.00	
4.15	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 2.5 sq. mm. copper conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-2-14 / Page No. 131. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs</b> : Dowell, Braco,jainson <b>Specification No.</b> CB-LT/CU	30.00	Mtr	173.00	(Rupees One Hunderd And Seventy Three Only)	5,190.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
4.16	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 2.5 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-7 / Page No. 125. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs :</b> Dowell, Braco,jainson <b>Specification No.</b> CB-LT/AL	300.00	Mtr	116.00	(Rupees One Hunderd And Sixteen Only)	34,800.00
4.17	Supplying, erecting & terminating <b>FR XLPE insulated, galvanised steel formed wire armoured (strip) cable</b> 1100 V, 3 core 4 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe. <b>Item No.</b> 7-1-8 / Page No. 125. <b>Cable:-</b> Polycab, RR Kabel, Finolex <b>Glands &amp; Lugs :</b> Dowell, Braco,jainson <b>Specification No.</b> CB-LT/AL	400.00	Mtr	122.00	(Rupees One Hundred And Twenty Two Only)	48,800.00
4.18	Providing & erecting <b>hot dipped galvanised ladder type cable tray</b> manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width & 75 mm height complete with necessary coupler plates & hardware. <b>Item No.</b> 7-11-6 / Page No. 144. <b>Make:-</b> Profab,Asian ancilary	240.00	Mtr	614.00	(Rupees Six Hundred And Forteen Only)	1,47,360.00
4.19	Providing & erecting <b>hot dipped galvanised ladder type cable tray</b> manufactured from 16 SWG (1.6 mm thick) GI sheet of 200 mm width & 75 mm height complete with necessary coupler plates & hardware. <b>Item No.</b> 7-11-7 / Page No. 144. <b>Make:-</b> Profab,Asian ancilary	120.00	Mtr	699.00	(Rupees Six Hundred And Ninety Nine Only)	83,880.00
4.20	Providing & erecting <b>hot dipped galvanised ladder type cable tray</b> manufactured from 16 SWG (1.6 mm thick) GI sheet of 300 mm width & 75 mm height complete with necessary coupler plates & hardware <b>Item No.</b> 7-11-8 / Page No. 144. <b>Make:-</b> Profab,Asian ancilary	60.00	Mtr	870.00	(Rupees Eight Hundred And Seventy Only)	52,200.00
4.21	Providing & erecting <b>hot dipped galvanised cover suitable for perforated type Cable tray</b> manufactured from 18 SWG (1.2 mm thick) GI sheet of 150 mm width & 20 mm height complete with necessary hardware. <b>Item No.</b> 7-11-11 / Page No. 144. <b>Make:-</b> Profab,Asian ancilary	20.00	Mtr	369.00	(Rupees Three Hundred And Sixty Nine Only)	7,380.00
4.22	Supplying & erecting <b>cast iron cable indicator plate buried along with route of cable for PVC / XLPE armoured cable.</b> <b>Item No.</b> 7-8-1 / Page No. 142. <b>Specification No.</b> CB-CIP	50.00	Each	172.00	(Rupees One Hundred And Seventy Two Only)	8,600.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P	
				Figure	Words		
4.23	Supplying & erecting G.I. pipe 'A' class 25 mm dia. erected for enclosing XLPE armoured cable on wall/pole. Item No. 7-6-1 / Page No. 139. Specification No. CB-CE	55.00	Mtr.	217.00	(Rupees Two Hundred And Seventeen Only)	11,935.00	
4.24	Making trench of suitable width and atleast 1.0 mtr depth in any strata of soil for laying provided L.T cable of any size for electrical work. After laying cable solid burned clay brick of minimum size of 225x110x62.50 mm shall be laid on cable and covered with good quality screemed sand.The remaining portion of trench shall be back filled with excavated material after removing stone ramming etc. with making surface proper,cleaning , disposing surplus material etc. complete. Specification No: CW-EXN/CTR	2020.00	Rmt.	277.00	(Rupees Two Hundred And Seventy Seven Only)	5,59,540.00	
4.25	Providing and constructing brick masonarry inspection chamber 900x600x1000 mm. deep including 100 mm thick cement concrete foundation with 12 mm thick cement plaster all sides including RCC cover of atleast 170 kg etc. complete. At 25mm distance centre to centre	25.00	Nos.	9160.00	(Rupees Nine Thousand, One Hundred And Sixty Only)	2,29,000.00	
	TOTAL FOR SECTION '4'					99,34,715.00	
	NOTE:-						
1.0	Lift casting work shall be fixed as required by lift agency.						
2.0	In case of G.I. Earth wire appropriate gauge, equivalent to the sq.mm. size shall be used.						
3.0	Rate of all cables includes cost of lugs, glands, etc. required for erection and Connection of cable. ( Note 2 / Page No. 129 )						
4.0	All the GI pipes and DWC pipes shall be ISI marked. and of prescribed make. (Note 2 / Page No. 141)						
5.0	For running the cable across the field / along the road, it should be covered by Hume Pipe only (Note 3 / Page No. 141)						
6.0	Both type of cable trays shall be earthed properly.(Note 4 / Page No. 145)						
7.0	Provision for resting arrangement or support for perforated type cable tray shall be made separately as per required iron work. (Note 2 / Page No. 145)						
8.0	Provision of cover for perforated type cable tray shall be made only where it is absolutely necessary and make sure for locking arrangement. (Note 3 / Page No. 145)						
9.0	Anchor fastener & nut bolts of adequate size - 16 nos. (2 nos. per support) (Note 1B / Page No. 145)						
10.0	Quantity of iron / sheet metal work shall be considered & worked out as per steel data table. (Note 1 / Page No. 107)						
11.0	The Rate includes working & installation at all heights, Including scaffolding with staging & nothing extra shall be paid						

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs.	P
<b>5.00</b>	<b>GENERAL FITTINGS &amp; EARTHING WITH ACCESSORIES.</b>						
5.01	Supplying and erecting regular/ standard model <b>ceiling fan with double bearing of 900 /1050 mm.</b> sweep complete erected in position. <b>Item No.</b> 2-10-2/ Page No. 35. <b>Make:-</b> Crompton fans of Standard Model Hi-Speed/ Philips Equivalent <b>Specification No.</b> FG-FN/CF.	11.00	Each	2092.00	(Rupees Two Thousand And Ninety Two Only)	23,012.00	
5.02	Supplying and erecting regular/ standard model <b>ceiling fan with double bearing of 1400mm.</b> sweep complete erected in position. <b>Item No.</b> 2-10-3 / Page No. 35 <b>Make:-</b> Crompton fans of Standard Model Hi-Speed/ Philips Equivalent <b>Specification No.</b> FG-FN/CF.	109.00	Each	2275.00	(Rupees Two Thousand, Two Hundred And Seventy Five Only)	2,47,975.00	
5.03	Supplying & fixing <b>anchor type fastener fan hook</b> , with 2 nos. of 10 mm dia x 75 mm long with necessary materials for ceiling fan.. <b>Item No.</b> 2-11-2 / Page No. 38.	120.00	Each	103.00	(Rupees One Hundred And Three Only)	12,360.00	
5.04	Supplying and erecting ' <b>B' class G.I .pipe / M.S. pipe</b> down rod duly painted for fan complete erected with PVC three core flexible cable 1 sq. mm copper PVC wire. <b>Item No.</b> 2-11-6 / Page No. 38. <b>Make:-</b> Tata, Jindal, Zenith.	50.00	Mtr.	229.00	(Rupees Two Hundred And Twenty Nine Only)	11,450.00	
5.05	Supplying and erecting <b>exhaust fan medium duty 230 V A.C. 50 cycles 225mm. 1400 RPM</b> with condenser complete erected in position with necessary materials. Fan motor with moisture proof treatment and 'E' class insulation. <b>Item No.</b> 2-10-15 / Page No. 36. <b>Make:-</b> Crompton Greeves, Philips	14.00	Each	2032.00	(Rupees Two Thousand And Thirty Two Only)	28,448.00	
5.06	Supplying and erecting <b>ding dong / electronic musical type call bell with heavy duty coil suitable to operate on 230V A.C.</b> supply erected on polished double wooden block/sunmica block of suitable size. <b>Item No.</b> 2-3-13 / Page No. 27. <b>Make :-</b> Anchor-Roma (Urban) , Legrand-Myrius,L&T-Oris	7.00	Each	140.00	(Rupees One Hundred And Forty Only)	980.00	
5.07	Supplying and erecting <b>Street light bracket for erection of Single fitting ontubular welded pole with 40 mm. dia 1.0 m. length "B" class G.I .pipe</b> along with pole cap of 125mm dia 600 mm long duly welded. <b>Item No.</b> 2-7-7 / Page No. 33. <b>Specification No.</b> FG-BKT/BPC.	23.00	Each	1680.00	(Rupees One Thousand, Six Hundred And Eighty Only)	38,640.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P	
				Figure	Words		
5.08	Providing & erecting <b>3 m</b> high (clear height) <b>galvanised octagonal pole with foundation bolts</b> having bottom of 130 mm A/F, top 70 mm A/F on provided foundation. <b>Item No.</b> 8-2-9 / Page No. 149. <b>Specification No.</b> OH-PL/OPL.	22.00	Each	10506.00	(Rupees Ten Thousand, Five Hundred And Six Only)	2,31,132.00	
5.09	Supplying & erecting <b>water tight terminal box of 1.6 mm</b> (16 gauge) CRCA sheet of size 200 x 150 x 150 mm. complete on pole. <b>Item No.</b> 7-8-2 / Page No.142. <b>Specification No.</b> CB-SB.	22.00	Each	482.00	(Rupees Four Hundred And Eighty Two Only)	10,604.00	
5.10	Making cement concrete foundation including excavation ( 45 x 45 x 120 ) cmdeep in 1:3:6 cement concrete, 20 to 25 mm stone metal, (45 x 45 x 45) cm / 45cm dia. x 45 cm height plinth duly plastered, with necessary curing and finishing complete. (for 6 m pole). <b>Item No.</b> 16-3-2 / Page No. 239	22.00	Each	1301.00	(Rupees One Thousand, Three Hundred And One Only)	28,622.00	
5.11	Supplying and erecting <b>integrated LED Highbay Fitting 135W</b> IP65 & IK08 class having die cast aluminium housing with polycarbonate diffuser with integrated optics, having system lumens output of Min. 20000 Lumens, min.efficacy of 145 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90,operating range of 140-240V, inbuilt surge protection of 4kV, Life class of 50,000Hrs. at L50B50 , including driver complete with 3 Year warranty. <b>Item No.</b> 2-6-3 / Page No. 32 <b>Make:-</b> Crompton Greeves, Philips <b>Specification No:</b> FG-ODF/FLS2.	50.00	Each	15460.00	(Rupees Fifteen Thousand, Four Hundred And Sixty Only)	7,73,000.00	
5.12	Supplying and erecting <b>integrated LED street light fitting 70-75W</b> IP65 & IK08class having single piece pressure die-cast aluminium housing, having systemlumens output of Min. 7700 Lumens, min. efficacy of 110 lumen/W, CRI>70,CCT upto 6500K,THD<10%, p.f. >0.95, operating range of 140-270V, inbuiltsurge protection of 10 kV, Life class of 50,000 Hrs. at L70B50, including driver complete with 3 Years warranty. <b>Item No.</b> 2-4-6 / Page No. 28. <b>Make:-</b> Crompton Greeves, Philips <b>Specification No:</b> FG-ODF/FLS2.	45.00	Each	5945.00	(Rupees Five Thousand, Nine Hundred And Forty Five Only)	2,67,525.00	
5.13	Supplying & erecting <b>FRP box of size 150mm x 125mm x 100 mm, 2.7 mm thick complete on pole/wall.</b> <b>Item No.</b> 7-8-8/ Page No. 142 <b>Specification No.</b> CB-SB	23.00	Each	496.00	(Rupees Four Hundred And Ninety Six Only)	11,408.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
5.14	Supplying and erecting <b>bulk head LED fitting max. 10W</b> with high transitivitydiffuser with system lumens output of min. 1100 lumens, min. efficacy of 110 Lumen/W, CRI>80, CCT upto 6500K, Beam Angle of 120 deg.,THD<10%, p.f.>0.95, operating range of 140-260V, in built surge protection of 2.5 kV, Life classof 50,000 Hrs. at L70B50, including driver, IP66, IK09 rated on provided PVC Block / wooden board with 3 years warranty. <b>Item No.</b> 2-1-15 / Page No. 24. <b>Make:-</b> Crompton Greeves, Philips	5.00	Each	1416.00	(Rupees One Thousand, Four Hundred And Sixteen Only)	7,080.00	
5.15	Supplying and erecting <b>LED Panel Light(600mm X 600mm) Max. 35 W</b> having CRCA powder coated housing, polystyrene diffuser having system lumens output of Min 4200 Lumens, min. efficacy of 120 lumen/W, CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f.>0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of50,000 Hrs. at L70B50 including driver, having mounting arrangement withboard for surface type or spring loaded mounting clips complete with 3 yearswarranty.. <b>Item No.</b> 2-1-8 / Page No. 24. <b>Make:-</b> Crompton Greeves, Philips	20.00	Each	2924.00	(Rupees Two Thousand, Nine Hundred And Twenty Four Only)	58,480.00	
5.16	Supplying and erecting anodized aluminium corridor / passage light <b>LED fitting (4 feet) Max. 33W</b> with high transitivity diffuser with system lumens output of Min.4000 lumens , min. efficacy of 120 lumen/W, CRI>80, CCT upto 6500K, Beam Angle of 120 deg., Ripple<5%, THD<10%, p.f. >0.95, operating range of 200-270V, surge protection of 2 kV, Life class of 50,000 Hrs.at L70B50, including driver, with end caps on provided PVC Block / wooden board with 3 years warranty. <b>Item No.</b> 2-1-19 / Page No. 25. <b>Make:-</b> Crompton Greeves, Philips	250.00	Each	1450.00	(Rupees One Thousand, Four Hundred & Fifty Only)	3,62,500.00	
5.17	Supplying and erecting Gate/garden light fitting with 300mm dia. glass bowl suitable for upto <b>12W LED Lamp</b> on provided pipe. <b>Item No.</b> 2-5-2 / Page No. 31. <b>Make:-</b> Philips, Crompton Greeves. <b>Specification No.</b> FGODF/GLT.	6.00	Each	1145.00	(Rupees One Thousand, One Hundred And Forty Five Only)	6,870.00	
5.18	Supplying & erecting <b>3W, 230V integral type LED Lamp</b> suitable for B-22 / E-27 base. <b>Item No.</b> 2-8-9/ Page No. 34. <b>Make:-</b> Crompton Greeves, Philips	8.00	Each	126.00	(Rupees One Hundred And Twenty Six Only)	1,008.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
5.19	Supplying and erecting <b>air circulator 600 mm. sweep oscillating type, wall mounting 1440 RPM</b> without speed regulator, overheat protection unit, totallyenclosed, flame proof motor suitable for 230/250 volts single phase, 50 cyclesA.C. supply, core lead wire and with moisture proof treatment to winding and with 'E' class insulation. <b>Item No.</b> 2-10-6 / Page No. 36. <b>Make:-</b> Philips, Crompton Greeves.	22.00	Each	6915.00	(Rupees Six Thousand, Nine Hundred And Fifteen Only)	1,52,130.00
5.20	Supplying, installing, testing and commissioning <b>Solar street light pole comprising of 12W LED luminaire</b> , 12.8V- 30Ah Li battery, with 75Wp Solar panel, MS Powder Coated Battery Box weatherproof, mounted on 75/80 mm dia. BGrade GI Pole of 6 Mtr. height (5m above ground & 1m below ground), 12W LED Chip of luminaire should be in compliance to IES: LM-80 & Performance parameters of luminaire shall be as per IES LM-79:2008 Or IS 16106 : 2012); along with brackets, foundation, earthing and necessary accessories complete. (With 5 Years warrantee). <b>Item No.</b> 4-3-12 (CSR FOR 21-22) <b>Specification No.</b> MNRE	6.00	Each	13524.00	(Rupees Thirteen Thousand, Five Hundred And TwentyFour Only)	81,144.00
5.21	Providing earthing with <b>copper earth plate size 60 x 60 x 0.315 cm</b> with funnelwith a wire mesh for watering and brick masonry block C.I. cover with minimum 25 kg Carbon based environment friendly back fill Ground Enhancing compound complete with all materials, testing & recording the results Number of terrec compound bags shall be used as per guidelines elaborated <b>Item No.</b> 9-1-6 / Page No. 160. <b>Specification No.</b> ESE-LA.	14.00	Each	15734.00	(Rupees Fifteen Thousand, Seven Hundred And Thirty Four Only)	2,20,276.00
5.22	Supplying and erecting <b>copper strip of high purity required size used for earthingon wall and/or any other purpose with necessary copper clamps</b> fixed on wall painted with bituminous paint with joints required. <b>Item No.</b> 9-2-2 / Page No. 160. <b>Specification No.</b> EAEP.	142.00	KG	883.00	(Rupees Eight Hundred And Eighty Three Only)	1,25,386.00
5.23	Providing earthing with <b>galvanized iron earth plate size 60 x 60 x 0.6 cm</b> withBfunnel with a wire mesh for watering and brick masonry block C.I. cover complete with all materials, testing & recording the results. Number of terrec compound bags shall be used as per guidelines elaborated in specification. <b>Item No.</b> 9-1-3 / Page No. 160. <b>Specification No.</b> EA-EP.	23.00	Each	6055.00	(Rupees Six Thousand And Fifty Five Only)	1,39,265.00

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT	
				Figure	Words	Rs. P	
5.24	Supplying and erecting <b>GI strip of high purity required size used for earthing onwall and/or any other purpose with necessary GI clamps</b> fixed on wall paintedwith bituminous paint with joints required. <b>Item No.</b> 9-2-3 / Page No. 160. <b>Specification No:</b> EA-EP.	200.00	Kg	222.00	(Rupees Two Hundred And Twenty Two Only)	44,400.00	
5.25	Supplying and erecting <b>GI wire of high purity of required sizes used</b> for earthing or any other purposes on wall with necessary G. I. Clamps fixed on wall/ <b>cable/</b> conduit with screws complete. <b>Item No.</b> 9-2-5 / Page No. 161.	650.00	Kg	155.00	(Rupees One Hundred And Fifty Five Only)	1,00,750.00	
5.26	Supplying & erecting <b>conventional spike type air termination suitable to carrylightning stroke made up of heavy gauge 40 mm dia copper pipe of standard length with 5 Nos.</b> copper spikes fixed on copper ball as air terminals duly Threaded in copper pipe erected on provided foundation complete. <b>Item No.</b> 9-3-1 / Page No. 161.	10.00	Each	6079.00	(Rupees Six Thousand And Seventy Nine Only)	60,790.00	
5.27	Supplying & erecting <b>Carbon Dioxide (CO2) fire extinguisher of 4.5 kg.</b> capacity cartridge type conform to IS 2878 /15683 complete erected with necessary clamp made from 50 x 6 mm. M. S. flat with nut & bolts routed in wall complete. <b>Item No.</b> 13-15-1 / Page No. 228. <b>Make:-</b> Firex,Cease Fire, Safex,Newage	35.00	Each	9902.00	(Rupees Nine Thousand, Nine Hundred And Two Only)	3,46,570.00	
5.28	Providing <b>printed instruction chart for treating persons suffering from electric shock, printed in English &amp; Marathi</b> and duly laminated complete. <b>Item No.</b> 10-6-22 / Page No. 182	2.00	Each	151.00	(Rupees One Hundred And Fifty One Only)	302.00	
5.29	Supplying standard <b>first aid box with necessary antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-Aid) adhesive tape for medicinal use,</b> scissors, anti-septic solution,etc. (All above contents shall be of standard makes). <b>Item No.</b> 10-6-24 / Page No. 182	1.00	Each	888.00	(Rupees Eight Hundred And Eighty Eight Only)	888.00	
5.30	Supplying and fixing <b>PVC synthetic elastomer electrically insulating mat</b> with class B insulation conforming to IS: 15652 – 2006 having 2.5 mm thicknessup to 11 kV. <b>Item No.</b> 10-6-26 / Page No. 182.	7.00	Sqm.	5874.00	(Rupees Five Thousand, Eight Hundred And Seventy Four Only)	41,118.00	

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Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
5.31	Supplying & erecting minimum three & above star rated <b>Centrifugal water pump</b> (Monoblock), 415 V, three phase 50 cycles A.C. supply of <b>3.75 KW/ 5HP</b> with discharge 420/120 Litres per Minute (LPM) for head of 18/51 m and 65mm suction/ 50 mm delivery pipe on provided C.C. foundation. <b>Item No.</b> 12-1-8 / Page No.195 <b>Specification No.</b> WP-CGP.	2.00	Each	26934.00	(Rupees Twenty Six Thousand, Nine Hundred And Thirty Four Only)	53,868.00
5.32	Providing and fixing <b>36" turbo fan</b> to sloping roof at height above 18 meter above sloping roof with wings, blade, top plates, bottom rings and all required accessories in SS 304 and base in 2mm polycarbonate with sealing all the joints by silicon silicate or with better sealent alaround the turbo fan/base and all places with testing commissioning with atleast 2 years guarantee from the date of final bill of the complete building .The rate is including cutting the roof sheet and providing required support to the turbo fans required scaffolding, supports etc. The contrator shall fully co-ordinate with civil contractor and other agencies working at site without any financial implication complete. <b>Make.</b> Rihno, Sannavi	12	Each	17000	(Rupees Seventeen Thousand Only)	2,04,000.00
	<b>TOTAL FOR SECTION '5'</b>					<b>36,91,981.00</b>
	<b>NOTE:-</b>					
1.0	All fans & fittings shall be marked with sr. no. & date of erection ( Note 2 / Page No. 39 )					
2.0	The attachments such as Fan hooks & down rods, shackle, nut-bolts, U-clamps, quarter pins & check nuts safety ropes tied with fan hooks shall be checked thoroughly for its proper quality before put in working.					
3.0	System efficacy shall not be less than 100 lumens/watt.( Note 1 / Page No. 34 )					
4.0	Driver and luminaire shall be of same make.( Note 1 / Page No. 31 )					
5.0	LM79 and all other reports of all luminaires shall be from accredited NABL laboratory. ( Note 2 / Page No. 31 )					
6.0	Manufacturer Logo shall be embossed on all pressure die cast luminaires and logo shall not be screen-print/sticker type.( Note 3 / Page No. 31 )					
7.0	All luminaires shall conform to respective IS.( Note 4 / Page No. 31 )					
8.0	There shall be provision for earth wire termination ( Note 5 / Page No. 31 )					
9.0	LED CRI shall be more than 85.					

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No. of Corrections

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<div><div><div>SCHEDULE OF WORKS</div><div>(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for t Bidders are allowed to enter the Bidder Name and Values only)</div></div></div>							<div>PRINT</div>
Sr. No.	Description of work	No. or Qty.	Unit	Estimated Rate		AMOUNT Rs.    P	
				Figure	Words		
10.0	Colour temperature shall be as required between 4000K – 6500K						
11.0	Total Harmonic Distortion Voltage & Current shall be less than 10.						
12.0	Operating range shall be 160 V to 270 V.						
13.0	Power factor of Luminarie shall be more than 0.95.						
14.0	Luminarie and Lamp shall be LM79, LM80 compliant respectively.						
15.0	Luminarie shall withstand surge protection upto 3 KV.						
16.0	Luminarie shall have facility to shift on standby mode in case voltage rises above operating range.						
17.0	Luminarie shall carry minimum three years warranty.						
18.0	CRCA / DIA-CAST Aluminium powder coated led surface fitting of 18 W, 24 W, 36 W. shall be of Philips and of Crompton model like LCTL-SN 24/26-CPL. In case only when PHILIPS OR CROMPTON discontinue any of surface fitting of prescribed model of specified Watt, then three Watts (+) OR (-) Watts shall be used without any financial implication.						
19.0	The contractor shall give guarantee of 3 years for all LED fittings supplied by him on Rs. 100/- stamp-paper and shall replace the same in case of not working within the guarantee period.						
20.0	THD shall adhere to the standards applicable.						
21.0	Earthing for Street light pole should be include and should done as per standard.						
22.0	Resistivity of soil shall be checked at without any extra cost & number of terrec compound bags shall be used as per guidelines elaborated in specification. Requirement of numbers bags of terrec compound shall decided with respect to soil resistivity.						
23.0	Additional GI pipe required from earth pipe & GI wire / strip more than 8 m. in length from earth pit to installation to be provided separately. ( Note 2 / Page. 159 )						
24.0	Record entries for earthing work shall be maintained.						
25.0	Requirement of number of bags of terrec compound shall be decided with respect to soil resistivity and terrec compound shall only be used.						
26.0	The Rate includes working & installation at all heights, Including scaffolding with staging & nothing extra shall be paid						

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