प्लाज़्मा अनुसंधान संस्थान
Institute for Plasma Research
Bhat, Gandhinagar 382 428, Gujarat, (India)
भाट, गांधीनगर ३८२ ४२८, गुजरात, (भारत)

भाग-I तकनीकी बोली

PART – I : TECHNICAL BID

कार्य का नाम /Name of work:

Electrical work (Renovation) of workshop building at IPR, Bhat, Gandhinagar.

ई-निविदा सूचना सं.: IPR/TN/ELEC/01/2022

E-Tender Notice No: IPR/TN/ELEC/01/2022
दो बोली प्रणाली
Two Bid System

निविदा आमंत्रित करने वाले: अध्यक्ष, आई-सीडीसी

प्राधिकारी का नाम और पता: प्लाज़्मा अनुसंधान संस्थान (IPR)
इंदिरा पुल के पास, भाट, गांधीनगर-382428

Address of Tender: Inviting Authority

Chairperson, I-CDC
INSTITUTE FOR PLASMA RESEARCH
Near Indira Bridge,
Bhat – Gandhinagar – Gujarat – 382428

Contact Person: Mr. Shailendra Trivedi,
Officer In-charge, e- Tender, IPR
(E-mail id: etender.icdc@ipr.res.in)
Telephone No. –079-2396 2000 – 2396 4009
Fax No. -079 -2396 2277

नोट : इस दस्तावेज़ के अंग्रेजी तथा हिंदी संस्करण में किसी भी विसंगति के मामले में अंग्रेजी संस्करण प्रबल रहेगा।

NOTE: In case of any contradiction between English and Hindi version, English version will prevail.

INSTITUTE FOR PLASMA RESEARCH
NEAR INDIRA BRIDGE, BHAT, GANDHINAGAR – 382 428
CONTENTS

SECTION – 1 (i) Tender Notice (Newspaper Advertisement)

TENDER NOTICE NO: IPR/TN/ELEC/01/2022 (Two Bid System)

निम्नलिखित कार्य के लिए योग्य बोलीदाताओं से ई-निविदा मोड के माध्यम से दो भागों में ऑनलाइन निविदाएं आमंत्रित की जाती हैं।

Online tenders are invited in **Two Parts** THROUGH e-tendering mode from and Eligible Bidders for the following work.

कार्य का नाम: **Name of Work:**	आईपीआर, भाट, गांधीनगर में कार्यशाला भवन का विद्युत कार्य। Electrical work of workshop building at IPR, Bhat, Gandhinagar.

निविदा दस्तावेज विस्तृत निविदा सूचना के साथ https://eprocure.gov.in/eprocure/app पर निशुल्क देखेने तथा डाउनलोड करने के लिए उपलब्ध है।

Detailed tender notice and Tender Document for the respective work is available on website https://eprocure.gov.in/eprocure/app for free view and downloading.

इस निविदा सूचना की प्रति देखने के लिए संस्थान की वेबसाईट पर भी उपलब्ध है।
A copy of this tender notice is also available on the Institute's website for viewing only http://www.ipr.res.in/documents/tenders.html

SECTION – 1 **(ii) Detailed Tender Notice**

भाग-ए: ई-निविदा और ऑनलाइन जमा करने संबंधी जानकारी एवं निर्देश

PART-A: INFORMATION AND INSTRUCTIONS FOR e-TENDERING AND ONLINE SUBMISSION

Instructions for Online Bid Submission

(Department User may attach this Document as an Annexure in their Tender Document which provides complete Instructions for on line Bid submission for Bidders)

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at: https://eprocure.gov.in/eprocure/app.

REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://eprocure.gov.in/eprocure/app) by clicking on the link "**Online bidder Enrollment**" on the CPP Portal which is free of charge.
2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.

2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or ''Other Important Documents'' area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

Note: *My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in My Documents space, this does not automatically ensure these Documents being part of Technical Bid.*

SUBMISSION OF BIDS

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.

3) Bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.

4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.

5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

7) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

8) Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

9) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

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Additional Notes:

1. Bids shall be submitted online only at CPP Portal website : https://eprocure.gov.in/eprocure/app
2. The agency shall download the pre bid clarification if any for the work and upload the same (scanned copy) duly signed and sealed. The revised documents (if any) shall be uploaded in e tender portal.
3. Tenderers are advised to upload their documents well in advance, to avoid last minutes rush on the server or complications in uploading. Institute for Plasma Research, in any case, shall not be held responsible for any type of difficulties during uploading the documents including server and technical problems whatsoever.
4. Submission of the tender documents after the due date and time (including extended Period, if any) shall not be permitted.
5. Intending Bidders are advised to visit this website regularly till closing date of submission to keep themselves updated as any change/ modification in the tender will be intimated through this website only by corrigendum / addendum/ amendment.
6. Institute reserves the right to accept or reject the tender(s) in full or in part, without assigning any reason thereof. Tenders with any conditions including conditional rebate shall be rejected forthwith.

भाग-बी: मेक इन इंडिया के प्रावधानों के संबंध में बोलीदाताओं को निर्देश।

PART-B: INSTRUCTIONS TO BIDDERS REGARDING PROVISIONS OF MAKE IN INDIA .

The bidder shall submit their quoted bid in compliance with the following provisions for Make in India.

1. MAKE IN INDIA

i. As defined under the Public Procurement (Preference to Make in India), order 2017, Revised order dated: 16/09/2020 or as being revised from time to time, in procurement of goods or services in respect of which the Nodal Ministry/Department has communicated, that there is sufficient local capacity and local competition, only "Class-I local supplier', as defined under the said order, shall be eligible to bid irrespective of purchase value.

ii. Only "Class-I local supplier" and "Class-II local supplier', as defined under the above said order, shall be eligible to bid in procurements under taken by this Institute, except where the mode of procurement is by issue of Global Tender Enquiry. The bidding supplier shall indicate the percentage of local content for the item being offered in their bid.

iii. Where the procurement is by issue of Global Tender enquiry, Non local suppliers, shall also be eligible to bid along with "Class-I local suppliers and Class-II local suppliers". Suppliers/bidders offering imported products will fall under the category of Non-local suppliers.

iv. Subject to the provisions of the above said order, and to any specific instructions issued by the Nodal Ministry or in pursuance of the said order, purchase preference shall be given to "Class-I local Suppliers" in procurements under taken by this Institute, in the manner specified there in the order.

v. The bidders along with their bid/tender shall be required to provide a self-declaration certificate of the local content (where the procurement value is Rs.10 Crore or less) for the item offered and their status as Class-I/Class-II/Non-Local supplier and their eligibility to participate in the tender. In cases of procurement for a value in excess of Rs.10 crores, the "Class-I local supplier'/'Class-II local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of Contractors other than companies) giving the percentage of local content.

vi. Self-declaration certificate should quantify the percentage of local content of the offered product only. It should also indicate the location. However, claiming the services such as transportation, insurance, installation & commissioning, training and after sale service support like AMC/CMC etc., shall not be considered as local content as per OM N.P-45021/102/2019-BE-II-Part(1)(E- 50310) dated:4/03/2021 issued by Ministry of Commerce and Industry, DPIIT.

vii. False declarations/violation of this order terms shall be deemed to be breach of code of integrity resulting in debarment of the firm for a period up to 2 years. Under such circumstances, the supplier shall not be considered for any preferences as proposed in the order.

viii. Wherever the bids are received without accompanying the above said requisite certificate such offers shall be treated as incomplete and not considered.

ix. Bidders/contractor are divided into three categories based on Local Content (The total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent):

1. Class-I local supplier is with local content equal to or more than as prescribed by the NodalMinistry/ NIT, if prescribed, for the item being procured or 50% whichever is higher.

2. Class-II Local supplier is with local content equal to or more than as prescribed by the Nodal Ministry/NIT, if prescribed, for the item being procured or 20% whichever is higher, but less than that applicable for class-I local supplier.

3. Non-local supplier is with local content less than that applicable to class-II local supplier, as stated above.

Note: *Where the estimated value of the procurement is less than Rs.5 Lakhs (or as being amended by the competent authority from time to time) is exempted from the provisions of the above Make in India policy as stated therein the order.*

Self-certification under preference to "Make in India" order **as per Annexure-I** should be submitted along with Tender document.

2. ELIGIBILITY OF BIDDERS FROM SPECIFIED COUNTRIES:

i. Orders issued by the Government of India restricting procurement from bidders of certain countries which shares a land border with India shall apply to this procurement.

ii. Any bidder from a country which shares a land border with India (https://mea.gov.in/india-and-neighbours.html), excluding countries as listed in the website of Ministry of External Affairs (https://meadashbaord.gov.in/indicators/92), to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects – hereinafter called "Restricted countries') shall be eligible to bid in this tender only if the bidder is registered (https://dipp.gov.in/sites/default/files/Revised-Application-Format-for-Registration- of-Bidders-15Oct2020.pdf) with the Registration committee constituted by the Department for promotion of Industry and Internal Trade(DPIIT). The bidders shall enclose valid registration certificate along with their offer. Wherever the bids are received without accompanying the above said requisite certificate such offers shall be treated as incomplete and not considered.

Additional Clause:

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means:-

a. An entity incorporated, established or registered in such a country; or
b. A subsidiary of an entity incorporated, established or registered in such a country; or
c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
d. An entity whose beneficial owner is situated in such a country; or

e. An Indian (or other) agent of such an entity; or
f. A natural person who is a citizen of such a country; or
g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

IV. The beneficial owner for the purpose of (iii) above will be as under :

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation –

a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent. Of shares or capital or profits of the company.

b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. (To be inserted in tenders for Works contracts, including Turnkey contracts). The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the competent Authority.

Self-certification under **ELIGIBILITY DECLARATIONS FROM SPECIFIED COUNTRIES** order as per **Annexure-II** should be submitted along with Tender document.

Contractor's signature and seal
Date:

भाग- सी: विस्तृत निविदा सूचना।
PART-C: DETAILED TENDER NOTICE.

Tender Notice No: IPR/TN/ELEC/01/2022 (Two Bid System)

निदेशक की ओर से **अध्यक्ष, ई-सीडीसी** द्वारा ई-निविदा मोड के माध्यम से ऑनलाइन आइटम दर निविदाएं आमंत्रित की जाती हैं, प्लाज़्मा रिसर्च संस्थान, पास। इंदिरा ब्रिज, भाट, गांधीनगर - गुजरात - 382 428, दो बोलियों में, योग्य ठेकेदारों से निम्नलिखित कार्यो के लिए।

Online item rate tenders are invited through e-tendering mode by the **Chairperson, I-CDC**, on behalf of Director, Institute for Plasma Research, **Nr. Indira Bridge, Bhat, Gandhinagar – Gujarat – 382 428,** in two bids, from eligible contractors for the following works.

1	एनआईटी न. NIT No.	**IPR/TN/ELEC/01/2022**
2	कार्य का नाम Name of work	Electrical work (Renovation) of workshop building at IPR, Bhat, Gandhinagar.
3	काम की अनुमानित लागत Estimated cost of Construction works (Rs)	₹12,63,643/-
4	बयाना राशि (EMD) Earnest Money Deposit (EMD)	**₹ 25, 273/-** की ईएमडी (रुपये मात्र पचिस हजार दौ सौ तिहत्तर) बीमा ज़मानत बांड /डिमांड ड्राफ्ट / पे ऑर्डर / सावधि जमा रसीद के रूप में अनुसूची बैंकों द्वारा प्लाज्मा अनुसंधान संस्थान, भाट, गांधीनगर **- 382428** के पक्ष में जमा की जानी है। **नोट:** **i)** चेक के रूप में ईएमडी स्वीकार नहीं की जाएगी। ईएमडी दस्तावेजों की स्कैन कॉपी अपलोड करने के बाद ही बोली जमा की जा सकती है और बोली जमा करने की अवधि के भीतर मूल ई-निविदा अधिकारी के कार्यालय में जमा की जानी चाहिए। बोली अपेक्षित ईएमडी के बिना प्राप्त बोलियों को सरसरी तौर पर खारिज कर दिया जाएगा। EMD of ₹ 25,273/- (Rupees Twenty Five Thousand Two Hundred and Seventy Three Only) to be submitted in the form of Insurance Surety Bond/Demand Draft / Pay order / Fixed Deposit Receipt by Schedule banks in favour of Institute for Plasma Research, Bhat, Gandhinagar-382428. Note : i. EMD in the form of cheque will not be accepted. The bid can only be submitted after uploading the

		scanned copy of EMD Documents and original should be deposited in office of e-tender officer, within the period of bid submission as mentioned. **Bids received without requisite EMD shall be summarily rejected.**
5	कार्य समापन की अवधि Completion period	**120 days (Including monsoon period, if any) (मानसून अवधि सहित, यदि कोई हो)**
6	निविदा प्रक्रिया शुल्क Tender Processing Fee	**NIL (शून्य)**
7	निष्पादन गारंटी Performance Guarantee	स्वीकृति पत्र जारी करने और कार्यादेश जारी करने से पहले 15 दिनों के भीतर निविदा मूल्य का 3%। 3 % of Tendered Value to be submitted within 15 days upon **issue of Letter of Acceptance and before placing work order.**
8	सुरक्षा जमा राशि Security Deposit	निविदा मूल्य का 2.5% बिलों से काट लिया जाएगा। 2.5% of the Tendered Value shall be deducted from the bills.
9	**CPP Portal** वेबसाइट https://eprocure.gov.in/eprocure/app पर देखने तथा डाउनलोड करने के लिए निवेदा दस्तावेज़ की उपलब्धता Availability of Tender Documents for view and download **on CPP portal website** https://eprocure.gov.in/eprocure/app	**दि. 18/10/2022 को प्रात: 10:00 से 29/11/2022 को 13:00 बजे तक** **From 10:00 Hours on 18/10/2022 Up to 13:00 Hours on 29/11/2022.**
10	साइट विज़िट, यदि हो तो Site Visit, if any	एजेंसियों द्वारा साइट विज़िट(यदि हो) -दि. 09**/11/2022** को 15:00 बजे तक संपर्क अधिकारी - श्री शैलेन्द्र त्रिवेदी, प्रभारी अधिकारी, e-tender, प्लाज़्मा अनुसंधान संस्थान, इंदिरा पुल के पास, भाट, गांधीनगर-382428. प्राथमिकता से ईमल द्वारा: etender.icdc@ipr.res.in या दूरभाष नंबर: -079-2396 2000, 2396 4009 के माध्यम से Site visit by Agencies (if any) – up to 15:00 Hours on **09/11/2022** Contact officer Mr. Shailendra. Trivedi, officer in-charge, e-tender, Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar -382428. Preferably by email: etender.icdc@ipr.res.in or through Tel No:-079-2396 2000, 2396 4009

11	निविदा दस्तावेज पर बोली पूर्व स्पष्टीकरण की मांग Seeking pre-bid clarification on Tender document	आवेदक CPP portal वेबसाइट https://eprocure.gov.in/eprocure/app पर अपने प्रश्नों को अपलोड करके दि. 11**/11/2022 को 15:00 बजे तक** निविदा दस्तावेज़ के बारे में स्पष्टीकरण मांग सकता है। The applicant can seek clarifications regarding Tender document up to **15:00 Hours on 11/11/2022** by uploading their queries on CPP portal website https://eprocure.gov.in/eprocure/app स्पष्टीकरण दि. **15/11/2022** को **15:00** बजे तक उसी वेब पोर्टल पर अपलोड किया जाएगा। The clarifications will be uploaded on the same web portal by **15:00 Hours on 15/11/2022**
12	निविदाओं के ऑनलाइन जमा करने की आरंभ तारीख और समय Start date and time of online submission of tenders	**दि.**16**/11/2022 को 13:00 बजे से** **From 13:00 Hours on 16/11/2022.**
13	निविदाओं के ऑनलाइन जमा करने की अंतिम तारीख और समय Last date and time of closing of online submission of tenders	**दि. 29/11/2022 को 13:00 बजे तक** **13:00 Hours on 29/11/2022.**
14	बयाना राशि जमा करने की अंतिम तारीख। Last date for submission of EMD.	श्री शैलेन्द्र त्रिवेदी, प्रभारी अधिकारी (e-tender), प्लाज़्मा अनुसंधान संस्थान**,** भाट**,** गांधीनगर-382428 के कार्यालय में दि. 30**/11/2022** को **13:00 बजे या उससे □हले** दूरभाष सं. 079 23962000, 079-23964009 On or before **13:00 Hours on 30/11/2022** in the Office of Mr. Shailendra. Trivedi , Officer In-charge (e-tender) , Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar -382428 Phone no. 079 23962000, 079-23964009
15	तकनीकी बोली (भाग-I) के ऑनलाइन खोलने की तारीख और समय Date and time of online opening of Technical Bid (Part –I)	**दि.** 30**/11/2022 को 15:00 बजे** तकनीकी बोली (भाग-I) **प्लाज़्मा अनुसंधान संस्थान**, **भाट**, **गांधीनगर-382428 में** ऊपर दर्शाई गई तारीख और समय पर खोली जाएगी। **On 30/11/2022 at 15:00 Hours** **Technical bid (Part-I) will be opened at Institute for Plasma Research**, Near Indira Bridge, Bhat, Gandhinagar -382428 at the stipulated date and time as above.
16	अर्हता प्राप्त बोलीकर्ताओं की वित्तीय बोलियों (भाग-II) के खुलने की तारीख	इसकी सूचना बाद में दी जाएगी।

	और समय। Date of opening of Price Bids (Part –II) of Technically qualified bidders	Will be notified at a later date.

भाग-डी: पात्रता मापदंड

PART-D: ELIGIBILITY CRITERIA

बोलीदाता, जो स्वयं की निम्नलिखित वश्यकताओं को ूरा करते हैं, केवल वेदन करने के लिए ात्र होंगे। संयुक्त उद्यम स्वीकार नहीं किए जाते हैं।

The Bidders, who fulfill the following requirements on their own, shall only be eligible to apply. Joint ventures are not accepted.

Sr. No.	Eligibility Criteria	Documentary proof for the eligibility (To be Scanned and Uploaded) Note: The bidders are requested to fill up the facts & figure in the prescribed format. Simply filling like Yes or No shall not be accepted.
1.	Should have **satisfactorily completed Similar work (s) in India,** having cost of work as mentioned below, **during last 7 years** as on ending previous day of last date of submission tenders : (i) Three similar works each costing not less than Rs 5**.05** in Lakhs or (ii) Two similar works each costing not less than Rs **7.58** in Lakhs or (iii) One similar work costing not less than Rs **10.10** in Lakhs. Note: **Similar work**" shall means **Electrical work for above mentioned works.** The value of executed works will be brought to current costing level by enhancing the actual value of work at simple rate of 7 % per annum, calculated from the date of completion to last date of receipt of tender.	Work Orders & Completion certificate for each qualifying completed work(s) issued by an officer not below the rank of Executive Engineer or Equivalent officer or Owner or Client. Note: Completion certificates for works issued by Private parties shall be supported by TDS (Tax deducted at Source) Certificates for the said cost.
2.	Should have average annual turnover of ₹ **6.31** lakhs on Electrical work during the last three consecutive years ending 31st March, 2021. Note: Year in which no turnover or Zero is shown, would also be considered for working out the average.	Annexure -Form "A": Financial information, Chartered Accountant certificate for the Annual financial turnover showing Profit & Loss.
3	Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five consecutive years ending on 31st March, 2021.	Annexure –Form "A": Financial information, Chartered Accountant certificate for the Annual financial turnover showing Profit & Loss.
4.	Should have valid minimum Bank solvency of a Scheduled Bank of **Rs. 5.05 lakhs.**	Annexure Form "B"- Form of Bankers Certificate from a scheduled Bank

5.	a. The bidder shall be compliant with the Public Procurement (Preference to Make in India), Order 2017 (as amended from time to time) issued by Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry. Also bidder must submit undertaking along with bid for local content of …. % offered in subject tender. b. "Only 'Class-I local supplier' as defined in Public Procurement (Preference to Make in India), Order 2017, are eligible to participate for subject tender ".	Annexure-I, Self-Certification under preference to Make in India order Certificate
6.	Should have valid Electrical contracting license issued by competent authorities.	Electrical contracting license issued by competent authorities to be submitted

Note :

1. Any entity which has been barred by the Central/State Government, or any entity controlled by them from participating in any project and the bar subsists as on the date of Application, would not be eligible to submit an Application, individually. An Applicant should, in the last three years from the last day of submission of tender, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Applicant, nor been expelled from any project or contract nor have had any contract terminated for breach by such Applicant/ Consortium member.
2. The firm has a valid working license (not expired) and a valid registration on certificate showing that the company is legally established under the law of government of India.
3. The Firm should be qualified and not black listed by any government department / agencies.
4. The bidder Firms should have executed similar nature of project as mentioned above in India only**.**
5. The applicant should not be under liquidation, court receivership or similar proceedings.
6. **FIRM'S RESPONSIBILITY BEFORE PROPOSAL SUBMISSION**

   a. The Bidder shall be responsible for all the costs associated with the preparation of the Proposal and participation in the selection process. IPR will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the selection process.

   b. The Bidder shall ensure that the bid is complete in all respects and conforms to all requirements indicated in the Tender document. Incomplete bids are liable for rejection.

भाग- इ: दस्तावेजों को स्कैन और अपलोड किया जाना चाहिए |
PART- E: DOCUMENTS TO BE SCANNED & UPLOADED

संभावित बोलीदाता सभी पात्रता मानदंडों को पूरा करने और ऑनलाइन निविदा दस्तावेज जमा करने से पहले आवश्यक सभी दस्तावेजों के कब्जे में खुद को संतुष्ट करेंगे। इच्छुक एजेंसियों को बोली जमा करने की अवधि के भीतर निम्नलिखित सूचियों के अनुसार दस्तावेजों को स्कैन / भरना और अपलोड करना आवश्यक है:

Prospective Bidders shall satisfy themselves of fulfilling all the eligibility criteria and in possession of all the documents required before submission of online tender document. The interested agencies are required to scan / fill in and upload the documents as per following lists within the period of bid submission:

ध्यान दें: बोलीदाताओं से अनुरोध है कि वे निर्धारित प्रारू में तथ्यों और ंकड़े को भरें। बस हां या नहीं भरना स्वीकार नहीं किया जाएगा।

Note: The Bidders are requested to fill up the facts & figure in the prescribed format. Simply filling like Yes or No shall not be accepted.

1	Proof of Eligibility Criteria No.1: **(i)** Work Orders & Completion certificate for each qualifying completed work(s) issued by an officer not below the rank of Executive Engineer or Equivalent officer or Owner or Client or contractor. Note: Completion certificates for work orders issued by Private parties shall be supported by TDS (Tax deducted at Source) Certificates for the said cost.
2	Proof of Eligibility Criteria No. 2 Annexure –Form "A": Financial information, Chartered Accountant certificate for the Annual financial turnover showing Profit & Loss.
3	Proof of Eligibility Criteria No. 3 Annexure –Form "A": Financial information, Chartered Accountant certificate for the Annual financial turnover showing Profit & Loss.
4	Proof of Eligibility Criteria No. 4: Annexure Form "B"- Form of Bankers Certificate from a Bank
5	Proof of Eligibility Criteria No 5, Annexure-I , Self-Certification under preference to Make in India order Certificate
6	Proof of Eligibility Criteria No 6, Valid Electrical license issuded by competenet authorities to be submitted
7	Form "C"- Details of all electrical works completed during last 7 years ending last day of submission of tender**.**
8	Form "D"- Details of electrical works Under Execution (Ongoing works)
9	Form "E"- Information about Organization Structure
10	Form "F"- List of Administrative & Technical staff available with the Bidder and that proposed to be deployed to complete this work in time
11	Form "G" Mandate Form for Payment as per Format given.
12	Form "H" Undertaking to be furnished by Bidders

13	Form "I" – Letter of transmittal (To be up-loaded on their letter-head)
14	Form "J" – Performance report Completed works mentioned in Eligibility Criteria 1
15	PAN (Permanent Account Number) Registration / TAN Registration details
16	GST Registration Certificate
17	Integrity Pact: letter from bidder to the Institute as per format in Tender.
18	**ANNEXURE-II** Self-Certification under Eligibility declaration from specified counties
19	Memorandum of Association / Partnership deed
20	Additional documents if any to meet the eligibility criteria
Note : Scanned copy of original certificates to be uploaded	

Note:

1. The applicant may furnish any additional information, which they think necessary to establish their eligibility and capability to successfully complete the envisaged work. No information shall be entertained after last date of online submission of tenders unless it is called by the competent authority. If any information furnished by the applicant is found incorrect at a later stage, they shall be liable to be debarred from tendering /taking up of work in IPR. IPR reserves the right to verify the particulars furnished by the applicant independently and reject any application without assigning any reason. Prospective bidders shall satisfy themselves of fulfilling all the eligibility criteria before submission of the tender. The Institute reserves the right to not consider the tender documents of the bidders not fulfilling the stipulated criteria .

2. It is binding on the bidder to fill the data required for assessment of eligibility criteria in the excel sheet uploaded for the purpose. The technical evaluation shall be done based on the data provided in excel sheet and the relevant documents uploaded to support the same. In case where the relevant information is not filled in the uploaded excel sheets while commensurate supporting documents are uploaded, the supporting documents shall not be considered in evaluation. Therefore the bidders in their own interest shall fill all the relevant information in excel sheets and upload relevant documents. IPR shall not accept any new document after bid opening. IPR may ask for clarification and submission of documents in support of documents/information already submitted.

PART- F

TENDER EVALUATION PROCESS

I. Technical Bid:

The bidders shall be evaluated for Eligibility Criteria as per Part D above. After evaluation of Tender bids as per the Eligibility Criteria as mentioned, a list of qualified bidders shall be prepared.

II. Price Bid:

The prices of item(s) should be quoted in the Price Bid only. The Technically qualified bidders shall be notified about the date and time of opening of Price bid on the CPP Portal.

The Price bid of Technically Qualified bidders shall only be opened.

III. Award of Work:

The lowest quoted bidder i.e. L1 bidder shall be selected.

Note:

The Bidders are required to upload all the required documents on the e-Tender portal only, In case the required documents are not uploaded by the bidders or the bid does not contain mandatory information, the bidder will be summarily disqualified. The decision of Institute in regard of disqualification shall be final and binding. No claim whatsoever shall be admissible.

SECTION – 1 **(iii)**
BRIEF PARTICULARS OF THE WORK

प्रस्तावित साइट इंस्टीट्यूट फॉर प्लाज़्मा रिसर्च परिसर, इंदिरा ब्रिज के पास, भाट, गांधीनगर -382428 में स्थित है

The proposed site is located at Institute for Plasma Research campus, Near Indira Bridge, Bhat, Gandhinagar – 382428

निविदाकार को सलाह दी जाती है कि शैलेन्द्र त्रिवेदी, ऑफिसर इंचार्ज ई-टेंडर, IPR (ईमेल): etender.icdc@ipr.res.in) से संपर्क करके अध्यक्ष, आई-सीडीसी, प्लाज़्मा अनुसंधान संस्थान की पूर्व अनुमति से नोटिस में उल्लिखित निर्दिष्ट अवधि के भीतर, कार्य स्थल की मुलाकात कर सकते है। ताकि वह खुद को साईट के लोकेशन, सामग्री को ढेर करना, तथा संभावित निर्माण के लिए बिजली एवम जल का उपयोग कर ने के लिए जरुरी टेपिंग स्थान से परिचित हो शके। इस कार्य को करने वाला ठेकेदार, संस्थान के सुरक्षा विनियमों और संस्थान/पुलिस प्राधिकारियों द्वारा किसी भी उपकरण का ट्रांसशिपमेंट, संचालन, जल निकासी, सुरक्षा, आदि जहां लागू हो, उस के संबंध में लगाए गए स्थानीय वैधानिक नियमों का सख्ती से पालन करेगा।

The tenderer is advised to visit the site of work with prior permission of Chairperson, I-CDC Institute for Plasma Research by contacting Mr. Shailendra trivedi, Offier In-charge e-tender, IPR (Email: etender.icdc@ipr.res.in) within the specified period as mentioned in Notice, to acquaint himself/herself/themselves with access to sites location for stacking the materials probable tapping points for construction water and electric power. The contractor carrying out this work will strictly abide by security regulation of the Institute and also local statutory regulations imposed by the Institute / Police authorities regarding transshipment of any equipment, operation, drainage, security etc., wherever applicable.

TENTATIVE SCOPE OF WORK:

The Institute desires to renovate it's workshop building at IPR Campus, Bhat, Gandhinagar.

The work is inclusive of providing all materials, labour, etc. with good quality workmanship, complete.

SECTION – 1 - (iv)
INFORMATION & INSTRUCTIONS FOR BIDDERS

1.0 General:-

1.1. All information called for in the enclosed forms should be furnished against the relevant columns in the forms. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a "Nil" or "no such case" entry should be made in that column. If any particulars /queries are not applicable in case of the Bidder, it should be stated as "Not Applicable". The Bidders may please note that giving incomplete/ unclear information called for in the forms, or making any change in the prescribed forms, or deliberately suppressing any information, may result in disqualification of the Bidder summarily. Applications duly filled in / scan copies of original shall be uploaded in web site: https://eprocure.gov.in/eprocure/app before closing date and time of online submission of tender. **No applications shall be received in physical form.**

1.2. The Bidder should sign each page on the application along with enclosures with rubber stamp before scanning / uploading.

1.3. Overwriting should be avoided. Corrections, if any, should be made by neatly crossing out and shall be rewritten with initials and date. Pages of the pre-qualification document are numbered. Additional sheets, if any added by the Bidder, should also be numbered by him. They should be uploaded along with letter of transmittal.

1.4. References, information and certificates from the respective clients certifying suitability, technical knowhow or capability of the Bidder should be signed by an officer not below the rank of Executive Engineer or equivalent.

1.5. The Bidder may furnish any additional information, which he thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous information. No information shall be entertained after submission of tender document unless the Institute calls for it.

1.6. Any information furnished by the Bidder found to be incorrect either immediately or at a later date, would render him liable to be debarred from tendering/taking up of work in **IPR.**

1.7. Any clarification given by the Institute on the basis of queries raised by the Bidders shall be uploaded and shall become part of the tender condition.

1.8. **Confidentiality Clauses: -**

i) Confidentiality:

No party shall disclose any information to any 'Third party' concerning the matters under this contract generally. In particular, any information identified as" Proprietary" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party.

This clause shall apply to the sub-contractors, consultants, advisors or the employees engaged by a party with equal force.

ii) "Restricted information":-

Any contravention of the above-mentioned provisions by any contractor, sub-contractor, consultant, adviser or the employees of a contractor, will invite penal consequences under the above said legislation.

iii) Prohibition against use of **IPR's** name without permission for publicity purposes: The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use **IPR's** name for any publicity purpose through any public media like Press, Radio, TV or Internet without the prior written approval of IPR.

2.0 **Method of Application:**

2.1 If the Bidder is an individual, the application shall be signed by him above his full typewritten name and current address.

2.2 If the Bidder is a proprietary firm, the application shall be signed by the proprietor above his full typewritten name and the full name of his firm with its current address.

2.3 If the Bidder is a firm in partnership, the application shall be signed by all the partners of the firm above their full typewritten names and current addresses or alternatively by a partner holding power of attorney for the firm. In the latter case a certified copy of the power of attorney should accompany the application. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should accompany the application.

2.4 If the Bidder is a limited company or corporation, the application shall be signed by a duly authorized person holding power of attorney for signing the application accompanied by a copy of the power of attorney. The Bidder should also upload a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

3.0 **Final Decision Making Authority:**

The Director, IPR reserves the right to accept or reject any application/s and to annul the pre-qualification process and reject all applications at any time, without assigning any reason or incurring any liability to the Bidders.

4.0 **Particulars provisional:**

The particulars of the work given in Section-1 (iii) are provisional. They are liable to change and must be considered only as advance information to assist the Bidder.

5.0 The Bidder should **own construction equipment** as per list required for the proper and timely execution of the work. Else, he should certify that he would be able to manage the equipment by hiring, etc. and submit the list of firms from whom he proposes to hire.

6.0 The Bidder should have sufficient number **of Technical and Administrative employees** for the proper execution of the contract. The Bidder should submit list of well qualified and experienced Engineers and Supervisors stating clearly how those would be deployed for execution of works.

B - GENERAL RULES & DIRECTIONS

1.0 Scope of bid : The Chairperson- ICDC, IPR invites bids for the work. The successful bidder should provide the services during the period of work as per the terms and conditions specified in the NIT, general condition of contract, technical specifications, special conditions of contract and schedules.

2.0 Eligible bidders

2.1 Bidding is open to all eligible bidders meeting the eligibility criteria as defined in prequalification criteria. Bidders are advised to note the eligibility criteria specified in the notice inviting tender.

2.2 Incomplete bids and bidders not meeting the minimum qualification criteria shall be summarily rejected. It may be noted that mere submission of bid does not imply that your offer shall be considered. Tenders are considered only after IPR themselves assess the

document submitted along with the bid by the bidder meets the eligibility criteria as specified in notice inviting e-tender during evaluation of bid.

2.3 The bidder who has been blacklisted / de-registered / holiday at any of the sites of IPR, DAE, and any other government department shall not be eligible for participation in tenders of IPR for that period.

3.0 One bid per bidder

3.1 Each bidder shall submit only one bid. A bidder who submits or participates in more than one bid will cause the bidder's participation to be disqualified for all the proposals.

4.0 Cost of bidding

4.1 The bidder shall bear all costs associated with the preparation and submission of his bid and the Institute will in no case be responsible and liable for these costs.

5.0 Site visit

5.1 The bidder and any of his authorized personnel or agents may be granted permission by the IPR to enter upon its premises and lands for the purpose of site visit. The Bidder is advised to visit the site of work, at his own cost, and examine it and its surroundings by himself, collect all information that he considers necessary for proper assessment of the prospective assignment. He may contact **Mr. Shailendra Trivedi, officer in-charge, e-tender,** Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar -382428. Preferably by **email: etender.icdc@ipr.res.in** or through **Tel No:-079-2396 2000, 2396 4009,** for fixing appointment prior to visit the site. However, the bidder, his personnel and agents will be responsible against all liability in respect thereof, including death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

5.2 The bidder should inform the Institute at least two days in advance about the proposed site visit.

5.3 The bidder, at his own responsibility and risk is encouraged to visit, inspect and survey the site and its surroundings and satisfy himself before submitting his bid as to the form and nature of the site, the means of access to the site, the accommodation he may require, etc.

5.4 In general, bidders shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site, whether he inspects it or not and no extra claims due to any misunderstanding or otherwise shall be allowed.

5.5 The costs of visiting the site shall be at the bidders' own expense. Any report shared at the site, by the Institute is subject to verification by the contractor. Any deviations of information in the report and the actual site will not be the responsibility of the IPR.

5.6 The bidders are requested to bring photo identification like passport, voters' identity card, and driving license, PAN card, identity card issued by employer, Aadhar card etc. for security regulations. Any electronic devices like mobiles, radio, transistors, camera etc. are not allowed inside IPR premises.

5.7 The bidder shall forward any query/question by e -mail within the stipulated date and time given in NIT. The clarification given by the IPR shall be visible to all the bidders without

disclosing the identity of the bidder raising the query. The questions/query received after stipulated date and time shall not be entertained and no response shall be forwarded. The submission of bid shall mean that the bidder has seen the response and accepts the content.

6.0 Content of bidding documents

6.1 Submission of a bid by a bidder implies that he/they has/have read this notice and all other contract documents, clarification, addendum, corrigendum and has made himself aware of the scope and specifications of the work to be executed and of conditions.

6.2 The bidder shall submit the bid, which satisfies each and every condition laid down in the bid documents, failing which, the bid is liable to be rejected.

6.3 The documents listed below comprise one set of bid document:

- Technical Bid
- Price Bid

7.0 Pre-bid meeting: Not applicable

8.0 Amendment of bid documents

8.1 Before the deadline for submission of bids, IPR may modify the bidding documents by issuing addendum on web site.

8.2 Any addendum so issued shall be part of the bid documents as well as contract document.

8.3 To give prospective bidders reasonable time to take an addendum into account in preparing their bids, the IPR may extend the date for submission of bids, if necessary.

8.4 Corrigendum, addendum or any other information regarding tender shall be uploaded only on web site. Hence, the bidders are requested to visit the web site (https://eprocure.gov.in/eprocure/app) regularly. The above documents shall become part of bid and agreement. Submission of bid shall imply that bidder has noted and accepted content of all the corrigendum/addendum/clarifications and effect of same has been included in price bid.

9.0 Language of the bid

All documents relating to the bid shall be in the English language, unless stated otherwise.

10.0 Earnest Money Deposit

10.1 The Earnest Money Deposit amount may be paid in the modes described below. The IPR shall not pay interest on the same in any case. The bidder is responsible for timely payment of Earnest Money Deposit, so that IPR receives the same before stipulated date and time. If the payment made by the bidder within the stipulated date and time is not received by the IPR due to reasons beyond control of the bidder, bid will be considered as non-responsive and rejected. If the Earnest Money Deposit amount paid by bidder is less than stipulated, the bid shall be rejected. The Earnest Money Deposit to be submitted in the form of Insurance Surety Bonds or demand draft or Pay order of any Scheduled Bank in favour of INSTITUTE FOR PLASMA RESEARCH, Bhat, Gandhinagar, Gujarat. The bid can only be submitted after uploading the scanned copy of DD etc. and original should be deposited in office of Tender Inviting Authority within the period of bid submission. The bidder is solely responsible for timely deposition of Earnest Money Deposit in the correct account.

10.2 (a) Earnest Money Deposit of qualified unsuccessful bidders shall be returned at the earliest after expiry of the final bid validity and latest on or before the 30th day after award of the contract.

(b) In case of two part bid, the Earnest Money Deposit of technically unqualified bidders during first stage i.e. technical evaluation etc. shall be returned within 30 days of declaration of result of first stage i.e. technical evaluation etc.

(c) Earnest Money Deposit of successful bidder will be returned after submission of the performance guarantee of requisite amount.

(d) Earnest Money Deposit of the bidder who has withdrawn the bid shall be returned after opening of the bid.

10.3 The Earnest Money Deposit shall be forfeited, if;

a) The bidder withdraws / modifies his bid or any item thereof after opening of bid.

b) The successful bidder fails within the specified time limit to submit the performance guarantee and commence the work.

10.4 The IPR at its discretion shall refund the Earnest Money Deposit by RTGS/NEFT or through any other electronic mode to the account number as registered by the bidder himself on e – tendering portal.

The bid can only be submitted after uploading the scanned copy of EMD and original should be deposited in office of e-tender officer within the period of bid submission as mentioned.

Bids received without EMD shall be summarily rejected.

Exemption from payment of EMD: The firms registered with Micro & Small Enterprise (MSEs) are exempted from payment of EMD (if applicable) provided valid registration certificate is uploaded along with the offer.

11.0 Bid prices, rates & taxes

11.1 The bidder should quote his/their rates in figures only.

11.2 In the case of item rate tenders, only rates quoted shall be considered. In case of lump sum tender, only lump sum quoted amount shall be considered.

11.3 The rates, prices and total bid price submitted by the contractor shall be inclusive of terminal or other duties, GST, VAT, CST, turnover tax, work contract tax, octroi, cess, or any other similar tax applicable under the existing laws or levy by the statuary authorities/state/central government in performance of this contract including GST. This is an indivisible works contract. The rates quoted shall include all taxes including Goods and Service Tax (GST) at applicable rates and levies, duties, cess etc., payable under respective statues. Deductions as per statutes will be effected from the bill and remitted to the Department concerned.

11.4 Tax deduction at source

At the time of its payments due to the contractor under this contract, the statutory deduction of income tax at source (IT TDS) shall be made from time to time as may be required by the government.

IPR shall provide the necessary tax deduction certificates to the contractor within the time stipulated by the relevant law to enable the contractor to file the same with the government.

11.5 The evaluation of price bid will be done strictly on the basis of rates/total bid price quoted by bidder in the price bid format.

12.0 Currencies of bid and payment

12.1 The unit rates and the prices shall be quoted by the bidder in Indian rupees, unless otherwise specified in the special conditions of contract.

13 Bid validity

13.1 The bids submitted shall remain valid for acceptance for a period of **180 days** from the date of opening of the Technical bid. The bidder shall not be entitled during the period of validity, to revoke or cancel his bid or vary / modify the bid given or any item thereof.

13.2 In exceptional circumstances, prior to expiry of the original bid validity period, IPR may request the bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing. A bidder may refuse the request without forfeiting its Earnest Money Deposit but his bid will not be considered. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its Earnest Money Deposit for the period of the extension.

14.0 Alternative proposals by bidders

14.1 Bidders shall submit offers that comply with the requirements of the bidding documents, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered.

15.0 Submission of the bids

15.1 The date and time of on-line bid submission shall remain unaltered even if the specified date for the submission of the bid is declared as holiday for the office inviting tender.

15.2 The IPR may extend the deadline for submission of bids by issuing an amendment, in which case, all rights and obligations of the Institute and the bidders previously subject to the original deadline will then be subject to the new deadline.

15.3 Any bid received by the IPR after the deadline prescribed above will be rejected.

15.4 The bidders shall note the following before submission of bid

(a) If the digital signature certificate (DSC) holder is sole proprietor of the firm, power of attorney need not be submitted.

(b) In case DSC holder is bidding on behalf of partnership firm, joint venture, consortium etc. power of attorney or any other legally acceptable document viz. partnership deed, board resolution etc. authorizing DSC holder to bid on behalf of the bidder is to be uploaded. In case of non-submission the bid shall be summarily rejected.

16.0 Bid opening

16.1 Tender opening shall be done on-line. On opening, the Bidders can see their bid status. The authorized representative of Bidders may remain present (if so desires) during opening of Bid. The authorized representative should have valid photo identity and original authority letter issued by competent authority of their company. If the date of opening is declared as holiday then bid will be opened on next working day. In exceptional cases opening of tenders can be done on any day or time after scheduled date and time of opening. Corrigendum issued for opening of tender shall be uploaded on website.

16.2 The bids without stipulated Earnest Money Deposit with this tender and other mandatory documents as per NIT shall be summarily rejected.

16.3 In two part tenders financial bid of only qualified bidder shall be opened.

17.0 Clarification of bids

17.1 To assist in the examination and comparison of bids, the IPR may, at its discretion, ask any bidder for clarification of his bid, including breakdown of unit rates. The request for clarification and the response shall be in writing or by email / fax, but no change in the price or substance of the bid shall be sought, offered, or permitted. If the bidder does not respond within the stipulated time, then the bid of the bidder will be evaluated on its own merit.

17.2 Bidder shall not contact the IPR on any matter relating to his bid from the time of the bid opening to the time the contract is awarded.

17.3 Any effort by the bidder to influence the IPR bid evaluation, bid comparison or contract award decisions, may result in the rejection of his bid.

18.0 Examination of bids and determination of responsiveness

18.1 Prior to detailed evaluation of bids, the IPR will determine whether each bid(s) meets
(a) The minimum requirements as per Eligibility criteria
(b) Is accompanied by the required Earnest Money Deposit
(c) Is responsive to the requirements of the bidding documents.
(d) Has been properly signed by authorized signatory as per clause-15.4.

18.2 A responsive bid is one which conforms to all the terms, conditions and specification of the bidding documents.

19.0 Notification of award and signing of agreement

19.1 The bidder whose bid has been accepted will be notified of the award by the IPR prior to expiration of the bid validity period by issue of work order. The notification may also be made through letter of intent, wherein the work order shall follow.

19.2 The details of award can be seen on web site. The bidders can request for debriefing in writing within fifteen days of award. They shall be informed about suitable days to visit the office of the concerned officer. Requests beyond deadline shall not be entertained.

19.3 The work order will constitute the formation of the contract subject only to the furnishing of a performance guarantee within period as specified in schedule F.

19.4 An agreement shall be made and signed by both the parties. The agreement will incorporate all correspondence between the IPR and the successful bidder, bid documents etc. The bid document as uploaded on website https://eprocure.gov.in/eprocure/app shall be forming part of agreement. The successful bidder shall be responsible for compliance at his own cost with the stamp duty act of the state where the agreement is being executed. The non-judicial stamp paper of appropriate value after adjudication shall be submitted by the successful bidder at his own cost.

20.0 Corrupt or fraudulent practices

20.1 The IPR requires that bidders / suppliers / contractors under this contract, observe the highest standard of ethics during the procurement and execution of this contract. In pursuance of this policy, the IPR:

(a) Defines, for the purpose of these provisions, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the IPR, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the IPR of the benefits of free and open competition.

(b) Will reject a proposal for award of work if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

(c) will declare a bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract / contracts if at any time it determines that the bidder has engaged in corrupt or fraudulent practices in competing for, or in executing, the contract.

20.2 The bidder may make representation in connection with processing of tender directly and only to the competent authority (calling tender) as mentioned in the tender document. However, if such representation is found to be un-sustentative and/ or frivolous and if the tender has to be closed because of the delays / disruptions caused by such representations and the job has to be re-tendered, then such bidder will not be allowed to participate in the re-invited tender.

In case, any bidder while making such representation to competent authority also involves other officials of IPR and / or solicits/ invokes external intervention other than as may be permitted under the law and if the tender has to be closed because of the delays / disruptions caused by such interventions and has to be re-tendered, then the particular bidder will not be allowed to participate in the re-invited tender.

21. Purchase Price Preference benefits under MSME including benefits under PPP- Make in India policy (if applicable) will be provided to the Industries as per the policies of Government of India in force at the time of evaluation of the offers provided their offer is in compliance with the terms and conditions of the tender (if it is applicable as per Government rules for this Work tender).

22.0 Disclosures

22.1 Any change in the constitution of the contractor's firm, where it is a partnership firm, joint venture or consortium partnerships as declared in the bid should be disclosed to the IPR, at any time between the submission of bids and the signing of the contract.

SECTION – 1 - (v) STANDARD FORMATS/Annexures

STANDARD FORMATS FOR ELIGIBILITY CRITERIA TO BE UPLOADED

FORM "I": LETTER OF TRANSMITTAL

From:

_____
_____
_____

To
The Chairperson, I-CDC
Institute for Plasma Research,
Bhat,
Gandhinagar – 382428

Kind Attention: Chairperson, I-CDC / Mr. Shailendra Trivedi, Officer In-charge (e-tenders)

Subject: Submission of bids for the Tender for "Electrical work (Renovation) of workshop building at IPR Campus, Bhat, Gandhinagar."

Ref: **E-Tender Notice No.: IPR/TN/ELEC/01/2022**

Sir/Madam,

Having examined the details given in press Notice and Tender document for the above work, I/We hereby submit the bid document and other relevant information.

1. I/We hereby certify that all the statements made and information supplied in the enclosed Forms and accompanying statements are true and correct.

2. I/We have furnished all information and details necessary for eligibility and have no further pertinent information to supply.

3. I/We submit the requisite certified solvency certificate and authorize IPR to approach the Bank issuing the solvency certificate to confirm the correctness thereof. I/We also authorize IPR officials to approach individuals, employers, firms and Institute to verify our competence and general reputation.

4. I/We also authorize IPR officials to approach individuals, employers, firms and corporation to verify our competence and general reputation.

5. I/We submit the following documents/certificates in support of our Eligibility for having successfully completed the following works:

S. No.	Name of work	Certified by/from

It is certified that the information given in the enclosed eligibility bid are correct. It is also certified that I / We shall be liable to be debarred , disqualified / cancellation of enlistment in case any information furnished by me / us is found to be incorrect.

Enclosures.

Date of submission: Seal and signature of bidder

FORM "A":
FINANCIAL INFORMATION

I. Financial Analysis - Details to be furnished duly supported by figures in balance sheet/ profit and loss account for the last five years duly certified by the Chartered Accountant,

Particulars	Financial Year				
	2016-17	2017-18	2018-19	2019-20	2020-21
i) Gross Annual turnover on construction work Rs. (In Lakhs)					
ii) Net Profit / Loss (Profit after tax) (In case of Loss, figure should be entered with negative sign) Rs. (In Lakhs)					

Signature of Chartered Accountant with seal

Signature of bidder(s) with date & seal

FORM "B":
FORM OF BANKER'S CERTIFICATE FROM SCHEDULED BANK

This is to certify that to the best of our knowledge and information that M/s. _____ (with address) as a customer of our bank are / is respectable and can be treated as good for any engagement up to a limit of Rs. _____ (Rupees _____).

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature)
For the Bank

NOTE:
(1) Bankers certificates should be on letter head of the Bank
(2) In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

FORM "C":

Details of all Electrical works completed during last 7 years ending last day of submission of tender.

Details	Work -1	Work -2	Work- 3	……
Project name & Location:				
Owner or client: (Name and Address, contact Number of				
Officer to whom reference can be made)				
Project description:				
1. Type of Building:				
2. Type/nature of works details.				
Whether For Government/Semi Government/ Government undertaking/ Government autonomous bodies:				
Tendered Project Cost:				
Actual Project Cost:				
Project duration (as per contract): (in months)				
Start date (dd/mm/yy):				
Actual date of Completion (dd/mm/yy):				
Actual duration (Months):				
Reasons for delay (if any):				
Any penalty/ Bonus:				
Any Litigation/Arbitration/claim/Dispute pending (with details of claim and award if any):				
Copy of Completion certificate & Work order received from client to be attached				

Note:

1) For similar completed works, Original or attested scanned copies of initial work order and final completion certificate from client/contractor have to be uploaded.
2) The final completion certificate shall mention Name of work, Work order value, Completion value, duration, Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any), Nature of Work etc.
3) Bidder should submit separate form for giving details of work completed for each year, separate sheets if any shall be numbered in sequence.
4) Certified that the above list of work complete and the information given is correct to knowledge and belief.

Signature of bidder(s) with date & seal

FORM "D"

Details of construction works Under Execution (Ongoing works).

Details	Work -1	Work -2	Work- 3	……
a) Project name & Location :				
b) Owner or client: (Name and Address, contact Number of Officer to whom reference can be made):				
c) Project details in brief:				
d) Stipulated start date :				
e) Actual Start date :				
f) Time period :				
g) Stipulated completion date :				
h) Present Status of work in Percentage completion:				
i) Work Order Value Rs. (in lakhs) :				
j) Work done value (RA bill) of work Rs.(in lakhs):				
k) Type/nature of works details.				
l) Reasons for slow progress and for Delay, if any:				
m) Copy of Work order received from client to be attached				

Note:

1) Original or attested scanned copies as well as hardcopies of initial work order from client have to be uploaded.

2) The certificate shall mention Name of work, Work order value, duration, Client name & Address, Location of work, Stipulated start and completion date, Actual Start and Completion date, Reasons for Delay (if any) , Nature of Work etc.

Signature of bidder(s) with date & seal

FORM "E"
INFORMATION ABOUT ORGANISATION STRUCTURE:

Sr. No.	Particulars	Details to be filled
1	Name of Firm	
2	Postal Address	
3	Contact Nos.	
	Office	
	Residence	
	Mobile	
4	Fax No.	
5	Name of Contact Person	
6	E – mail Address	
7	Legal status of Bidder : (Please tick and attach attested copies of original document defining the legal status)	
	(1) An Individual	
	(2) A Proprietary firm	
	(3) A Partnership firm	
	(4) A Pvt. Ltd. Company	
	(5) A Public ltd. Company or Corporation	
8.	Particulars of registration with various Government bodies (scanned & uploaded photocopy)	
	Dept./Organization & Place of registration, Registration No.	
9	Names and Titles of Director & Officers with designation proposed to be concerned with this work	
10	Designation of individuals authorised to act on behalf of the organization.	
11	Was the applicant ever required to suspend work for a period of more than six months continuously after commencement of the work? If so, give the name of the project and reasons of suspension of work.	
12	Has the applicant or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment.	

13	Has the applicant, or any constituent partner in case of partnership firm, ever been debarred / black listed for tendering in any organisation at any time? If so give details.	
14	Has the applicant or any constituent partner in case of partnership firm, ever been convicted by a court of law? If so, give details.	
15	Has the applicant, or any constituent partner in case of partnership firm, ever be under liquidation, court receivership or similar proceeding? If so, give details.	
16	Any other information considered necessary but not included above.	

Note: Bidder should attach separate sheets if required and if space given in the formats is not sufficient but strictly as per above formats only.

Signature of bidder(s) with date & seal

FORM "F"

INFORMATION ABOUT ADMINISTRATIVE & TECHNICAL STAFF AVAILABLE WITH THE BIDDER AND THAT PROPOSED TO BE DEPLOYED TO COMPLETE THIS WORK IN TIME:

The bidders should submit list of technical and administrative employees for proper execution of project. The bidder should submit a list of these employees stating how these would be involved in the project.

Sr. No.	Name	Qualification	Designation	Professional experience and details of work carried out	Since when working in your firm	Total Experience (In years)	Capacity in which will be involved for this work (if to be deployed for this work)	Remarks

Note: Bidder should attach separate sheet if required and if space given in the formats is not sufficient but strictly as per above formats only.

Signature of bidder(s) with date & seal

FORM "G"
MANDATE FORM -FORMAT TO BE ENCLOSED

MANDATE FORM FOR ELECTRONIC PAYMENT THROUGH RTGS/NEFT/ECS

To,
Accounts officer,
Institute for Plasma Research
Near Indira Bridge, Bhat
Gandhinagar - 382 428

Dear Sir,

Sub: Authorization for release of Payment due from **Institute for Plasma Research** through Electronic fund transfer RTGS/NEFT/ECS

(Please fill in the information in CAPITAL LETTERS. Please TICK wherever it is applicable)

1. Name of the Party :.....
2. Address of the Party :-.....

.....
.....
City:.....Pin Code:.....
E-mail Id:.....
Permanent Account Number:.....

3. Particulars of Bank :

Bank Name		Branch Name	
Branch Place		Branch City	
Pin Code		Branch Code	
MICR NO			
(9 Digits code number appearing on the MICR Band of the Cheque supplied by the Bank. Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number)			
Account Type	Savings	Current	Cash Credit
Account Number(as appearing in the Cheque Book)			
RTGS / IFSC Code			

4. Date from which the mandate should be effective:

I hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information, **IPR** shall not hold responsible. I also undertake to advise any change in the particulars of my account to facilitate updation of records for purpose credit of amount through RTGS /NEFT/ECS

Place :
Date : Signature of the Party / Authorized Signatory

Certified that particulars furnished above are correct as per our Records
Bank's Stamp :

Date : (Signature of the Authorized Official from the Bank)

N.B : RTGS Charges, if any, will be borne by the Party

FORM "H"

Tender Form - (To be signed by the bidder and submit / upload along with the tender)

Item Rate Tender & Contract for Works

(A) Tender for the work of :

"Electical work (Renovation) of Workshop building at IPR Campus, Bhat, Gandhinagar."

TENDER

I / We have read and examined the Notice Inviting Tender, Salient Governing Features of the Tender / Work including Schedules A, B, C, D, E & F, **detailed specification,** Drawings and Designs, General Rules & Directions, General Clauses of Contract, Special Clauses of Contract & other documents and rules and all other contents in the tender documents for the work.

I / We, hereby tender for the execution of the work specified for the Director, IPR within the time specified in Schedule "F", viz., Schedule of Quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule 1 of General Rules & Directions and in Clause - 11 of the General Clauses of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

I/We agree to keep the tender open for **(180) One Hundred and Eighty days** from the date of opening of technical bids and not to make any modifications in its terms and conditions.

A sum of **₹ 25, 273/-** is hereby forwarded towards Earnest Money Deposit prescribed in the tender**.** Original scanned copy of both the forms of Earnest money documents are uploaded on the indicated website along with other tender documents and original shall be deposited in the office of IPR **with in the bid submission period.**

Consequent to the award of the subject work, If I / we, fail to furnish the prescribed performance guarantee within prescribed period, I / we agree that the said Director IPR or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely.

Further, if I / we fail to commence work as specified, I / we agree that Director , IPR or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule "F" and those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I / We agree that in case of forfeiture of earnest money or both Earnest Money & Performance Guarantee as aforesaid, I / We shall be debarred for participation in the re-tendering process of the work.

"I / We undertake and confirm that eligible similar work(s) has/ have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of IPR, then I/we shall be debarred for tendering in IPR in future forever. Also, if such a violation comes to the notice of IPR before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit / Performance Guarantee."

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

Signature of Contractor
Postal Address

Dated

Witness
Address
Occupation

A C E P T A N C E

The above tender (as modified by you as provided in the letters mentioned here under) is accepted by me for and on behalf of the Director, IPR for a sum of Rs...../-
Rupees.....).
The letters referred to below shall form part of this contract agreement:
i)
ii)
iii)

Signature
Designation
For & on behalf of the Director IPR

Dated ……..

Form "J"

Performance Report for Completed works mentioned in Eligibility Criteria 1.

Sl No	DETAIL	INFORMATION
1	Name of work/Project & Location.	
2	Agreement No	
3	Estimated Cost	
4	Tendered Cost	
5	Date of start	
6	Date of Completion (i)Stipulated date of completion (ii)Actual date of completion	
7	Amount of compensation levied for delayed completion, if any.	
8	**Overall performance of the contractor***	**Excellent / Very Good / Good / Satisfactory/ Average / Fair / Unsatisfactory / Poor**

Note:

*In case of Average/Fair /Unsatisfactory/Poor performance , the particular work shall not be considered for further evaluation.

Dated:

Name & Signature of Client / Executive Engineer or Equivalent with Stamp

(To be printed in letter head)

ANNEXURE-I

Self-Certification under preference to Make in India order Certificate

In line with Government Public Procurement Order No. P-45021/2/2017-PP (BE-II) dated 04.06.2020 and its amendments, we hereby certify that we M/s. _____ are local supplier meeting the requirement of minimum local content i.e., _____% excluding transportation, insurance, installation, commissioning, testing, training and after sales service support like AMC/CMC etc. as defined in above orders for the material against IPR Enquiry/Tender No. **IPR/TN/ELEC/01/2022.** Details of location at which local value addition will be made as follows: _____.

We also understand, false declarations will be in breach of the code of integrity under rule 175(1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.

Thanking You,

(Signature with date)

(Name and designation)
Duly authorized to sign Bid for and on behalf of

(Name & address of the Bidder and Seal of Company)

(To be printed in letter head)

ANNEXURE-II

Annexure to Bid Form: Eligibility Declaration

(To be submitted as part of tender/Technical Bid)
(On company letter head)
(Along with supporting documents, if any)

Tender No: **IPR/TN/ELEC/01/2022.**

Tender Tile: **Tender for "Electrical work (Renovation) of workshop building at IPR Campus, Bhat, Gandhinagar."**
Bidder's Name: _____
(Address and contact details)
Bidder's Offer No._____ Date: _____

Restrictions on procurement from Bidders from a country or countries, or class of countries under Rule 144(xi) of the General Financial Rules 2017.

1 – Certificate for Tenders:

" I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India: I certify that _____ (Bidder name) is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that _____ (Bidder name) fulfills all requirements in this regard and is eligible to be considered. (Where applicable, evidence of valid registration by the Competent Authority shall be attached)".

2 – Certificate for sub-contracting:

" I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that _____ (Bidder name) is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor form such countries unless such contractor is registered with the Competent Authority. I hereby certify that _____ (Bidder name) fulfills all requirements in this regard and is eligible to be considered. (Where applicable, evidence of valid registration by the Competent Authority shall be attached.)"

Penalties for false or misleading declarations:

We hereby confirm that the particulars given above are factually correct and nothing is concealed and also undertake to advise any further changes to the above details. We understood that any wrong or misleading self-declaration by us would be violation of Code of integrity and would attract penalties as mentioned in this tender document, including debarment.

(Signature with date)

(Name and designation)
Duly authorized to sign Bid for and on behalf of

(Name & address of the Bidder and Seal of Company)

SECTION: 2

Conditions and Clause of Contract

SECTION: 2 - (i) - GENERAL GUIDELINES

1. **This "General Conditions of Contract is applicable for Item rate Tenders.**

2. **Schedule A to F, Additional Conditions of contract, Special Conditions of contract, and Drawings is provided in the Tender Document . This GCC shall form part the Agreement to be drawn and sighed by both the parties after acceptance of tender.**

3. **Duly filled Schedule A to F is attached.**

4. **The intending bidders will quote their rates in Schedule A (Price Bid).**

INSTITUTE FOR PLASMA RESEARCH
NEAR INDIRA BRIDGE
BHAT, GANDHINAGAR- 382 428

ITEM RATE TENDER AND CONTRACT FOR WORKS

SECTION: 2 - (ii) - GENERAL RULES & DIRECTIONS GUIDELINES

1. All work proposed for execution by contract will be notified in a form of invitation to tender posted in public places and signed by the officer inviting tender or by a publication in news papers as the case may be.

   This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the Security and Performance guarantee 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 and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of attorney authorizing him to do so such power of attorney to be produced with the tenders and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.

3. Receipts for payment made on account of work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm, in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.

4. <u>Applicable for item rate tender only</u>

   The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees by Ignoring fifty paise and considering more than fifty paise as rupee one.

   In case the lowest tendered amount (worked out on the basis of quoted rate of individual items) of two or more contractors is same , then such lowest contractors may be asked to submit sealed revised offer quoting rate of each item of the schedule of quantity for all sub sections /sub heads as the case may be ,but the revised quoted rate of each item of schedule of quantity for all sub sections /sub heads should not be higher than their respective original rate quoted already at the time of submission tender. The lowest tender shall be decided on the basis of revised offer.

   If the revised tendered amount (worked out on the basis of quoted rate of individual items)of two or more contractor received in revised offer is again found to be equal , then the lowest tender, among such contactors, shall be decided by draw of lots in the presence of Chairperson, I-CDC, and the lowest contractors those have quoted equal amount of their tenders.

   In case of any such lowest contractor in his revised offer quotes rate of any item more than their respective original rate quoted already at the time of submission of tender, then such

revised offer shall be treated invalid. Such case of revised offer of the lowest contractor or case of refusal to submit revised offer by the lowest contractor shall be treated as withdrawal of his tender before acceptance and 50 % of his earnest money shall be forfeited.

In case all the lowest contractors those have same tendered amount (as a result of their quoted rate of individual items),refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% EMD of each lowest contractors.

Contractors, those earnest money is forfeited because of non-submission of revised offer or quoting higher revised rate(s) of any item (S) than their respective original rates quoted already at the time of submission of bid shall not be allowed to participate in the retendering process of work.

4.A Applicable for percentage Rate tender only

In case of Percentage Rate Tenders, contractor shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. The tender submitted shall be treated as invalid if :-

I. The contractor does not quote percentage above/below on the total amount of tender or any section/sub head of the tender.

II. The percentage above/below is not quoted in figures & words both on the total amount of tender or any section/sub head of the tender.

III. The percentage quoted above/below is different in figures & words on the total amount of tender or any section/sub head of the tender.

Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected.

4B. In case the lowest tendered amount (estimated cost + amount worked on the basis of percentage above/below) of two or more contractors is same, such lowest contractors will be asked to submit sealed revised offer in the form of letter mentioning percentage above/ below on estimated cost of tender including all sub sections/sub heads as the case may be, but the revised percentage quoted above/below on tendered cost or on each sub section/ sub head should not be higher than the percentage quoted at the time of submission of tender. The lowest tender shall be decided on the basis of revised offers.

In case any of such contractor refuses to submit revised offer, then it shall be treated as withdrawal of his tender before acceptance and 50% of earnest money shall be forfeited.

If the revised tendered amount of two more contractors received in revised offer is again found to be equal , the lowest tender, among such contractors, shall be decided by draw of lots in the presence of Chairperson, & the lowest contractors those have quoted equal amount of their tenders.

In case all the lowest contractors those have quoted same tendered amount, refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of EMD of each contractor.

Contractor(s), whose earnest money is forfeited because of non-submission of revised offer, shall not be allowed to participate in the re-tendering process of the work.

5. The officer inviting tender or his duly authorized assistant will open tenders in the presence of any intending contractors who may be present at the time

6. The officers inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.

7. The receipt of an accountant or clerk for any money paid by the contractor will not be considered as any acknowledgment or payment to the officer inviting tender and the contractor shall be responsible for seeing that he procures a receipt signed by the officer inviting tender or a duly authorized Cashier.

8. In the case of Item Rate Tenders, only rates quoted shall be considered. Any tender containing percentage below/above the rates quoted is liable to be rejected. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the rates written in figures and words. However, if a discrepancy is found, the rates which correspond with the amount worked out by the contractor shall unless otherwise proved be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount. In event no rate has been quoted for any item(s), leaving space both in figure(s), word(s), and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.

   However, if a tenderer quotes nil rates against each item in item rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer **and earnest money deposited shall be forfeited .**

9. Applicable for percentage Rate tender only

   In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy.

10. Applicable for percentage Rate tender only

    In Percentage Rate Tender, the tenderer shall quote percentage below/above (in figures as well as in words) at which he will be willing to execute the work. He shall also work out the total amount of his offer and the same should be written in figures as well as in words in such a way that no interpolation is possible. In case of figures, the word 'Rs.' should be written before the figure of rupees and word 'P' after the decimal figures, e.g. 'Rs. 2.15P and in case of words, the word 'Rupees' should precede and the word 'Paisa' should be written at the end.

11. (i) The Contractor whose tender is accepted, will be required to furnish performance guarantee of 3 % (Three Percent) of the tendered amount within the period specified in Schedule F.

(ii) The contractor whose tender is accepted will also be required to furnish by way of Security Deposit for the fulfilment of his contract, an amount equal to 2.5% of the tendered value of the work. The Security deposit will be collected by deductions from the running bills as well as final bill of the contractor at the rates mentioned above. The Security amount will also be accepted in cash or in the shape of Government Securities. Fixed Deposit Receipt of a

Scheduled Bank or will also be accepted for this purpose provided confirmatory advice is enclosed.

12. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.

13. GST or any other tax applicable in respect of inputs procured by the contractor for this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same. However, component of GST at time of supply of service (as provided in CGST Act 2017) provided by the contract shall be varied if different from that applicable on the last date of receipt of tender including extension if any.

14. The contractor shall give a list of IPR employees related to him.

15. The tender for composite work includes, in addition to building work, all other works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads and paths etc.

16. The contractor shall submit list of works which are in hand (progress) in the following form:-

Name of work	Name and particulars of Divn. where work is being	Value of works	Position of work	Remarks
1	2	3	4	5

SECTION: 2 - (iii) - CONDITIONS OF CONTRACT

Definitions

1. The **Contract** means the documents forming the tender and acceptance thereof and the formal agreement executed between the Director, IPR and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-Charge and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

2. In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:

i. The expression **works or work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

ii. The **Site** shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

iii. The **Contractor** shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons comprising such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

iv. The **Director or Director, IPR** means the Director of the Institute for Plasma Research.

v. **The Chairperson, I-CDC, IPR** means Chairperson, I-CDC of the Institute for Plasma Research.Who shall sign the contract on behalf of the Director, IPR as mentioned in Schedule 'F' hereunder.

vi. The **Engineer-in-charge** means the Engineer or Officer who shall supervise and be in - charge of the work

vii. **Department/Institute/**IPR/Principal Employer shall mean the Institute for Plasma Research.

viii. **Accepting Authority** shall mean the authority mentioned in Schedule 'F'.

ix. **Excepted Risk** are risks due to riots (other than those on account of contractor's employees), war (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power, any acts of the Institute/Government, damages from air-crafts, acts of God, such as earth-quake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by the Institute of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Institute's faulty design of works.

x. **Market Rate** shall be rate as decided by the Engineer-in-Charge on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule 'F' to cover, all overheads and profits.

xi. **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the Schedule of Rates mentioned in Schedule 'F' hereunder, with the

amendments thereto issued up to the date of receipt of the tender by concerned competent authority.

xii. **District Specifications** means the specifications followed by the State Government in the area where the work is to be executed.

xiii. **Tendered value** means the value of the entire work as stipulated in the letter of award.

xiv. Date of commencement of work: The date of commencement of work shall be the date of start as specified in schedule 'F' or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.

Scope and Performance

3. Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.

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

5. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

6. **Works to be carried out**

The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities (Schedule-A) shall unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

7. Sufficiency of Tender

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

8. **Discrepancies and Adjustment of Errors**

The several documents forming the Contact are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale dimensions and special conditions in preference to General Conditions.

8.1 In the case of discrepancy between the Schedule of Quantities, the Specifications and/or the Drawings, the following order of preference shall be observed:

i) Description of Schedule of Quantities.

ii) Particular Specification and Special Condition, if any.
iii) Drawings.
iv) C.P.W.D. Specifications.
v) Indian Standard Specifications of B.I.S.

8.2 If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding Authority with regard to the intention of the document and his decision shall be final and binding on the contractor.

8.3 Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

9. **Signing of Contract**

The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall, within 15 days from the stipulated date of start of the work sign the contract consisting of:

i) The notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

ii) Standard Form as mentioned in Schedule 'F' consisting of:

a) Various standard clauses with corrections up to the date stipulated in Schedule 'F' along with annexure thereto.
b) Safety Code.
c) Model Rules for the protection of health, sanitary arrangements for workers employed by Institute or its contractors.
d) Labour Regulations.
e) List of Acts and omissions for which fines can be imposed.

iii) No Payment for the work done will be made unless contract is signed by the contractor.

10. Director or his representative may issue instruction/actions for the said works from time to time, which should be binding on the contractor.

SECTION - 2 - (iv) - CLAUSES OF CONTRACT

GENERAL CLAUSES OF CONTRACT (GCC)

CLAUSE 1 (Performance Guarantee)

i) The contractor shall submit an irrevocable **Performance Guarantee of 3 %** (Three percent) of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (notwithstanding and/or without prejudice to any other provisions in the contract) within the period specified in Schedule F from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Performance Bank Guarantee, to the satisfaction of the Engineer-In-Charge. This guarantee shall be in the form of Insurance Surety Bonds, banker's cheque of any schedule bank /Demand draft of any schedule bank/pay order of any schedule bank or Fixed Deposit Receipt or Guarantee bond of any schedule bank in accordance with the from annexed hereto. In case a fixed deposit receipt is furnished by the contractor to the Institute as part of the Performance Bank Guarantee and the bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Institute to make good the deficit.

ii) The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest. However, in case of contracts involving maintenance of building and services/any other work after construction of same building and services/other work, then 50%of Performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately.

iii) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the Director, IPR is entitled under the contract (notwithstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.

b) Failure by the contractor to pay the Director, IPR any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by the Engineer-in-Charge.

iv) In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Director, IPR.

v) On substantial Completion of any work which has been completed to such an extent that the intended purpose of the work is met and ready to use, then a provisional Completion certificate shall be recorded by the Engineer-in-Charge. The provisional certificate shall have appended with a list of outstanding balance item of work that need to be completed in accordance with the provisions of the contract.

This provisional completion certificate shall be recorded by the concerned Engineer- in–charge with the approval of Chairperson, I-CDC after recording of the provisional Completion Certificate for the work by the competent authority, the 80 % of performance guarantee shall be returned to the contractor, without any interest.

However in case of contracts involving Maintenance of building and services / any other work after construction of same building and services/ other work, then 40% of performance guarantee shall be returned to the contractor, without any interest after recording the provisional Completion certificate.

CLAUSE 1A (Recovery of Security Deposit)

The person / persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit the Institute at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running bill and final bill till, will amount to security deposit of **2.5%** of the tendered value of the work.

Such deductions will be made and held by Institute by way of Security Deposit unless he /they has /have deposited the amount of Security at the rate mentioned above in Cash or in the form of / or Fixed Deposit Receipts. In case a fixed Deposit Receipt of any Scheduled bank is furnished by the contractor to the Institute as a part of the Security Deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the government to make good the deficit.

All compensations or the other sums of money payable by the contractor under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due to or may become due to the contractor by Institute on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the contractor shall within 10 days make good, in cash or fixed deposit receipt tendered by the State Bank of India or by scheduled banks endorsed in favor of the Institute, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills and final bill of the contractor at the rates mentioned above.

The security deposit as deducted above can be released against bank guarantee issued by a Scheduled bank on its accumulations to a minimum of Rs. 5 Lac subject to the condition that amount of such bank guarantee, except last one shall not be less than Rs. 5 Lac. Provided further that the validity of bank guarantee including the one given against the earnest money shall be in conformity with provisions contained in clause 17 which shall be extended from time to time depending upon extension of contract granted under provisions of clause 2 and clause 5.

In case of contracts involving maintenance of building and services/other work, then 50% of performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately.

CLAUSE 2 (Compensation for Delay)

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract or justified extended date of completion, as per clause 5(excluding any extension under Clause 5.5) as well as any extension granted under clauses 12 and 15, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority specified in schedule 'F' (whose decision in writing shall be final and binding) may decide on the amount of Tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 5 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

Compensation for delay of work @ 1.0 % per month of delay to be computed on per day basis on the Tendered value.

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the Tendered Value of work or of the Tendered Value of the Sectional part of work as mentioned in Schedule 'F' for which a separate period of completion is originally given.

In case no compensation has been decided by the Authority in schedule 'F', during the progress of work, this shall be no waiver of right to levy compensation by the said authority if the work remains incomplete on final justified extended date of completion. If the Chairperson, I-CDC decides to give further extension of time allowing performance of work beyond the justified extended date, the contractor shall be liable to pay compensation for such extended period. If any variation in amount of contract takes place during such extended period beyond justified extended date and the contractor becomes entitled to additional time under clause 12, the net period for such variation shall be accounted for while deciding the period for levy of compensation. However, during such further extended period beyond the justified extended period, if any delay occurs by events under sub clause 5.2, the contractor shall be liable to pay compensation for such delay.
Provided that compensation during the progress of work before the justified extended date of completion for delay under this clause shall be for non-achievement of sectional completion or part handing over of work on stipulated/justified extended date for such part work or if delay affects any other works/services. This is without prejudice to right of action by the Engineer in Charge under clause 3 for delay in performance and claim of compensation under that clause.

In case action under clause 2 has not been finalized and the work has been determined under clause 3, the right of action under this clause shall remain post determination of contract but levy of compensation shall be for days the progress is behind the schedule on date of determination, as assessed by the authority in Schedule F, after due consideration of justified extension. The compensation for delay, if not decided before the determination of contract, shall be decided after of determination of contract.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Institute /Government. In case, the contractor does not achieve a particular milestone mentioned in schedule F, or the re-scheduled milestone(s) in terms of Clauses 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied as above. - With-holding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld

amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

CLAUSE 3 (When Contract can be determined)

Subject to other provisions contained in this clause, Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, inferior workmanship, any claims for damages, and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

(i) If the contractor having been given by the Engineer-in-charge a notice in writing to rectify; reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or unworkman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.

(ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

(iii) If the contractor fails to complete the work or section of work with individual date of completion on or before the stipulated or justified extended date, on or before such date of completion; and the Engineer in Charge without any prejudice to any other right or remedy under any other provision in the contract has given further reasonable time in a notice given in writing in that behalf as either mutually agreed or in absence of such mutual agreement by his own assessment making such time essence of contract and in the option of Engineer-in-Charge the contractor will be unable to complete the same or does not complete the same within the period specified..

(iv) If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

(v) If the Contractor shall offer or give or agree to give to any person in Institute or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing of forbearing to do or for having done of forborne to do any act in relation to the obtaining or execution of this or any other contract for Institute.

(vi) If the Contractor shall enter in to a contract with Institute in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Engineer- in- Charge.

(vii) If the contractor shall obtain a contract with Institute as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of Integrity Agreement.

(viii)If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.

(ix) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditors to appoint a receiver or a manager or which entitle the court to make a winding up order.

(x) If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.

(xi) If the contractor assigns,(excluding part(s) of work assigned to other agency(s) by the contractor as per terms of contract), transfers, sublets (engagement of labour on a piece work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with entire works or any portion thereof without the prior written approval of the Engineer-In charge.

When the contractor has made himself liable for action under any of the cases aforesaid, Engineer-in-Charge shall have powers:

(a) To determine the contract as aforesaid so far as performance of work by the contractor in concerned(of which determination notice in writing to the contractor under the hand of the Engineer – in - Charge shall be conclusive evidence). Upon such determination the Earnest Money Deposit, Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the Institute.

(b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined or rescinded as above, shall not be allowed to participate in the tendering process for the balance work. In the event of above courses being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements /agreements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer- in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE 3A

In case, the work cannot be started due to reasons not within the control of the contractor within 1/8th of the stipulated time for completion of work or one month whichever is more, either party may close the contract by giving notice to the other party stating reasons. In such eventuality, the Performance Guarantee of the contractor shall be refunded within following time limits:

(i) If the Tendered value of work is up to Rs. 45 Lac: 15 days.
(ii) If the Tendered value of work is more than Rs. 45 lac and up to 2.5 Crore: 21 days.
(iii) If the Tendered Value of work is more than Rs. 2.5 Crore: 30 days.

Neither party shall claim any compensation for such eventuality. This clause is not applicable for any breach of the contract by either party.

CLAUSE 4 (Contractor Liable to pay Compensation even if action not taken under Clause 3)

In any case in which any of the powers conferred upon the Engineer – in - Charge by Clause-3 thereof, shall have become exercisable and the same are not exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he

may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor 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 these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE 5 (Time and Extension for Delay)

The time allowed for execution of the Works as specified in the Schedule 'F' or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from such time period as mentioned in schedule 'F' or from the date of handing over of the site notified by the Engineer-in-Charge, whichever is later. However the handing over of site by the Engineer-in-Charge, in full or in part (if so provided in contract), shall be completed within two months from issue of acceptance letter. If the contractor commits default in commencing the execution of the work as aforesaid, the performance guarantee shall be forfeited by the Engineer-in-Charge and shall be absolutely at the disposal of the Institute - without prejudice to any other right or remedy available in law, -

5.1 As soon as possible but within twenty one days of award of work and in consideration of
a) Schedule of handing over of site as specified in the Schedule 'F'.
b) Schedule of issue of designs as specified in the Schedule 'F'.

(i) The Contractor shall submit a Time and Progress Chart for each milestone. The Engineer-in-Charge may within 30days thereafter, if required modify, and communicate the program approved to the contractor failing which the program submitted by the contractor shall be deemed to be approved by the Engineer-in-Charge. The work programme shall include all details of balance drawings and decision required to complete the contract with specific dates by which these details are required by contractor without causing any delay in execution of the work. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the Contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per mile stones given in Schedule F.

(ii) In case of non-submission of construction programme by the contractor the program approved by the Engineer-in-Charge shall be deemed to be final.

(iii) The approval by the Engineer-in-Charge of such programme shall not relieve the contractor of any of the obligation under the contract.

(iv) The Contractor shall submit the Time and Progress Chart and progress report using the mutually agreed software or in other format decided by the Engineer-in-Charge for the work done during previous month to the Engineer-in-charge on or before 5th day of each month failing which a recovery Rs. 2500/-(for work costing up to Rs. 20 Crores)/Rs. 5000/-(for work costing more than Rs. 20 Crores) shall be made on per week or part basis in case of delay in submission of the monthly progress report.

5.2 If the work(s) be delayed by:

(i) force majeure, or
(ii) abnormally bad weather, or
(iii) serious loss or damage by fire, or
(iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or
(v) delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract, or
(vi) Non-availability of stores, which are the responsibility of Institute to supply or
(vii) Non-availability or break down of tools and Plant to be supplied or supplied by the Institute or
(viii) Any other cause like above which, in the reasoned opinion of the Engineer-in-Charge is beyond the Contractor's control.

then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge – for entry in the hindrance register (physical or web-based as prescribed in Schedule F but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

The contractor shall have no claim of damages for extension of time granted or rescheduling of milestone/s for events listed in sub clause 5.2.

5.3 In case the work is hindered by any reasons, in the opinion of the contractor, by the Department or for someone for whose action the Department is responsible, the contractor may immediately give notice thereof in writing to the Engineer-in-Charge in the same manner as prescribed under sub Clause 5.2 seeking extension of time or rescheduling of milestone/s. The authority as indicated in Schedule 'F' shall, if justified, give a fair and reasonable extension of time and reschedule the mile stones for completion of work after due consideration of the same within 30 days of receipt of such request. In event of non-application by the contractor for extension of time, Chairperson, I-CDC after affording opportunity to the contractor may give, supported with a programme, a fair and reasonable extension within a reasonable period of occurrence of the event.

Such extension of time or rescheduling of milestone/s shall be without prejudice to any other right or remedy of the parties in contract or in law; provided further that for concurrent delays under this sub clause and sub clause 5.2 to the extent the delay is covered under sub clause 5.2 the contractor shall be entitled to only extension of time and no damages.

5.4 Request for rescheduling of Mile stones or extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay on the prescribed forms i.e. Form of application by the contractor for seeking rescheduling of milestones (Appendix-XVI) or Form of application by the contractor for seeking extension of time (Appendix –XVII) respectively to the authority as indicated in Schedule 'F'. The Contractor shall indicate in such a request the period by which rescheduling of milestone/s or extension of time is desired.

With every request for rescheduling of milestones, or if at any time the actual progress of work falls behind the approved programme by more than 10% of the stipulated period of completion of contract, the contractor shall produce a revised programme which shall include all details of pending drawings and decisions required to complete the contract and also the target dates by which these details should be available without causing any delay in execution of the work. A recovery as specified in Schedule 'F' shall be made on per day basis in case of delay in submission of the revised programme.

5.4.1 In any such case the authority as indicated in Schedule 'F' may give a fair and reasonable extension of time for completion of work or reschedule the mile stones. Such extension or rescheduling of the milestones shall be communicated to the Contractor by the authority as indicated in Schedule 'F' in writing, within 30 days of the date of receipt of such request from the Contractor in prescribed form. In event of non-application by the contractor for extension of time Chairperson, I-CDC after affording opportunity to the contractor, may give, supported with a programme (as specified under 5.4 above), a fair and reasonable extension within a reasonable period of occurrence of the event.

5.5 In case the work is delayed by any reasons, in the opinion of the Chairperson, I-CDC, by the contractor for reasons beyond the events mentioned in clause 5.2 or clause 5.3 or clause 5.4 and beyond the justified extended date; without prejudice to right to take action under Clause 3, the Chairperson, I-CDC may grant extension of time required for completion of work without rescheduling of milestones. The contractor shall be liable for levy of compensation for delay for such extension of time.

CLAUSE 6 (Measurement of Work Done) -Not Applicable

~~Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value in accordance with the contract of work done.~~

~~All measurements of all the items having financial value shall be entered in Measurement Book and/or level field book so that a complete record is obtained of all the items of work performed under the contract.~~

~~All such measurements and levels shall be taken jointly by the Engineer-in-charge or his authorized representative and by the contractor or his authorized representative from time to time during the progress of the work and such measurements shall be signed and dated by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance. If the contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties,~~

~~If for any reason the contractor or his authorized representatives is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and the Department shall not entertain any claim from contractor for any loss or damages on this account. If the contractor on his authorized representative does not remain present at the time of such measurements after the contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor.~~

~~The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements and recording levels~~

~~Except where any general or detailed description of the work expressly shows to the contrary. Measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.~~

~~The contractor shall give not less than seven days' notice to the Engineer-in-charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work. And if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer-in-charge's consent being obtained in writing the same shall be uncovered at the contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.~~

~~Engineer-in-charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.~~

~~It is also a term of this contract that recording of measurement of any work in the measurement book and / or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or materials to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period~~.

CLAUSE 6A (Computerized Measurement Book)

Engineer-in-charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract.

All measurements of all items having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measurement Book having pages of A-4 size as per the format of the department so that a complete record is obtained of all the items of works performed under the contract.

All such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-charge or his authorized representative. After the necessary corrections made by the Engineer-in-charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in-charge for the dated signatures by the Engineer-in-charge and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked / test checked from the Engineer-in-Charge and/or his authorized representative. The Contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft computerized measurements, and submit to the department a computerized measurement book,

duly bound, and with its pages machine numbered. The Engineer-in-Charge and / or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/ test checks.

The final, fair, computerized measurement given by the contractor duly bound, with its pages machine numbered should be 100% correct, and no cutting or over writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound, after getting the earlier MB cancelled by the department. Thereafter the MB shall be taken in the Divisional Office Records, and allotted a number as per the Register of Computerized MBs. This should be done before the corresponding bill is submitted to the Division office for Payment. The contractor shall submit two spare copies of such computerized MBs for the purpose of reference and record by the various officers of the department.

The contractor shall also submit to the Institute separately his computerized abstract of cost and the bill based on these measurements, duly bound and its pages machine numbered along with two spare copies of the "bill". Thereafter, this bill will be processed by the Institute and allotted a number as per the computerized record in the same way as done for the measurement book meant for measurements.

The Contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements/ levels by the engineer-in-charge or his representative.

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications, notwithstanding any provision in the relevant standard method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the bureau of Indian standards and if for any item no such standard is available then a mutually agreed method shall be followed.

The contractor shall give not less than seven days' notice to the Engineer-in-charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work in order that the same may be checked and /or test checked and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of checking and /or test checking measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer in charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of checking and /or test checking measurements without such notice having been given or the engineer in charge's consent being obtained in writing the same shall be uncovered at the contractor's expense or in default thereof no payment or allowances shall be made for such work or the materials with the same was executed.

Engineer- in-charge or his authorized representative may cause either themselves or through another officer of the Institute to check the measurements recorded by contractor and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and / or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

CLAUSE 7 (Payment on Intermediate Certificate to be regarded as Advances)

No payment shall be made for work, estimated to cost Rupees One Lac - or less till after the whole of the work shall have been completed and certificate of completion given. For works estimated to cost over one lac, the interim or running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the Institute in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment if the gross work done together with net payment adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Schedule 'F', in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer- in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. The amount admissible shall be paid by 10th working day after the day of presentation of the bill by the Contractor to the Engineer-in-Charge or his Asst. Engineer together with the account of the material issued by the Institute, or dismantled materials, if any. In the case of works outside the headquarters of the Engineer- in-Charge, the period of ten working days will be extended to fifteen working days. In case of delay in payment of intermediate bills after 45 days of submission of bill by the contractor provided the bill submitted by the contractor found to be in order, a simple interest @ 10% - per annum shall be paid to the contractor from the date of expiry of the prescribed time limit which will be compounded on yearly basis.

All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

Pending consideration of extension of date of completion, interim payments shall continue to be made as herein provided without prejudice to the right of the Institute to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

The Engineer-in-Charge in his sole discretion on the basis of a certificate from the Assistant Engineer to the effect that the work has been completed up to the level in question make interim advance payments without detailed measurements for work done (other than foundations, items to be covered under finishing items) up to lintel level (including sunshade etc.) and slab level, for each floor working out at 75% of the assessed value. The advance payments so allowed shall be adjusted in the subsequent interim bill to be submitted by the contractor within 10 days of the interim payment. In case of delay in submission of bill by the contractor a simple interest @ 10% per annum shall be paid to the Institute from the date of expiry of prescribed time limit which will be compounded on yearly basis. **Payments in Composite Contracts:** In case of composite tenders, running payment for the major component shall be by Engineer-In-Charge of major discipline to the main contractor. Running payment for minor components shall be recommended by the Engineer-in Charge of the discipline of minor component directly to the main contractor.

In case main contractor fails to make the payment to the contractor associated by him within 15 days of receipt of each running account payment, then on the written Complaint of contractor associated for such minor component, Engineer in charge of minor component shall serve the show cause to the main contractor and if reply of main contractor either not received or found unsatisfactory, he may make the payment directly to the contractor associated for minor component as per terms and conditions of the agreement drawn between main contractor and associate contractor fixed by him, Such payment made to the associate contractor shall be recovered by Engineer-in-Charge of major or minor component from the next RA/ final bill to main contractor as the case may be.

CLAUSE 7A

No Running Account Bill Shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-Charge.

CLAUSE 8 (Completion Certificate and Completion Plans)

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within thirty days of the receipt of such notice the Engineer-in-Charge shall inspect the work and if there is no defect in the work, shall furnish the contractor with a final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which they may have had possession for the purpose of the execution thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in- Charge may at the expense of the contractor remove such scaffolding, surplus materials and rubbish etc., and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE 8 A (Contractor to keep Site Clean)

When the annual repairs and maintenance of works are carried out, the splashes and droppings from white washing, colour washing, painting etc., on walls, floor, windows, etc. shall be removed and toe surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc. where the work is done without waiting to the actual completion of all the other items of work in the contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in- Charge shall have the right to get this work done at the cost of the contractor either departmentally or through any other agency. Before taking such action, the Engineer – in - Charge shall give ten days' notice in writing to the contractor.

CLAUSE 8 B (Completion Plans to be Submitted by Contractor)

The Contractor shall submit completion plan as required vide General Specification for Electrical works (Part-I internal) 2005 and (Part-II External) 1994 as applicable, within thirty days of the completion of the work.

In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum of 0.1% of Tendered Value or limit prescribed in Schedule F , Whichever is more as may be fixed by the Institute and in this respect the decision of the Institute shall be final and binding on the contractor.

The Contractor shall submit completion plan for Internal and External Civil, Electrical and Mechanical Services within thirty days of the completion of the work, provided that the service plans having been issued for execution by the Engineer-in-Charge, unless the contractor, by virtue of any other provision in the contract, is required to prepare such plans.

CLAUSE 9 (Payment of Final Bill)

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within the period specified here in under, the period being reckoned from the date of receipt of the bill by the Engineer-in- Charge or his authorized Asst. Engineer, complete with account of materials issued by the Institute and dismantled materials.

i) If the Tendered value of work is up to Rs.45 lakhs : :2 months

ii) If the Tendered value of work is more than Rs.45 lakhs and up to Rs.2.5 Crore:3 months

iii) If the Tendered value of work exceeds Rs.2.5 Crore: :6 months

CLAUSE 9 A (Payment of Contractor's Bills to Banks)

Payments due to the contractor may, if so desired by him, be made to his bank, registered financial, Co-operative or thrift societies or recognized financial Institutions instead of direct to him provided that the contractor furnishes to the Engineer-in-Charge (1) an authorization in the form of a legally valid document such as a power of attorney conferring authority on the bank ,registered financial, Co-operative or thrift societies or recognized financial Institutions to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by Institute or his signature on the bill or other claim preferred against Institute before settlement by the Engineer-in-Charge of the account or claim by payment to the bank, registered financial, Co-operative or thrift societies or recognized financial Institutions. While the receipt given by such banks registered financial, Co-operative or thrift societies or recognized financial Institutions shall constitute a full and sufficient discharge for the payment, the contractor shall whenever possible present his bills duly receipted and discharged through his bank, registered financial, Co-operative or thrift societies or recognized financial Institutions

Nothing herein contained shall operate to create in favour of the bank, registered financial, Co-operative or thrift societies or recognized financial Institutions any rights or equities vise-verse the Director, IPR.

CLAUSE 10 (Materials Supplied by the Institute) – Not Applicable

Materials which the Institute will supply are shown in Schedule 'B' which also stipulates quantum, place of issue and rate(s) to be charged in respect thereof. The contractor shall be bound to procure them from the Engineer-in-Charge.

As soon as the work is awarded, the contractor shall finalize the programme for the completion of work as per clause 5 of this contract and shall give his estimates of materials required on the basis of drawings/or schedule of quantities of the work. The Contractor shall give in writing his requirement to the Engineer-in-Charge which shall be issued to him keeping in view the progress of work as assessed by the Engineer-in-Charge, in accordance with the agreed phased programme of work indicating monthly requirements of various materials. The contractor shall place his indent in writing for issue of such materials at least 7 days in advance of his requirement.

Such materials shall be supplied for the purpose of the contract only and the value of the materials so supplied at the rates specified in the aforesaid schedule shall be set off or deducted, as and when materials are consumed in items of work (including normal wastage) for which payment is being made to the contractor, from any sum then due or which may therefore become due to the contractor under the contract or otherwise or from the security deposit. At the time of submission of bills, the contractor shall certify that balance of materials supplied is available at site in original good condition.

The contractor shall submit along with every running bill (on account or interim bill) material - wise reconciliation statements supported by complete calculations reconciling total issue, total consumption and certified balance (diameter/section-wise in the case of steel) and resulting variations and reasons therefore. Engineer-in-Charge shall (whose decision shall be final and binding on the contractor) be within his rights to follow the procedure of recovery in clause 42 at any stage of the work if reconciliation is not found to be satisfactory.

The contractor shall bear the cost of getting the material issued, loading, transporting to site, unloading, storing under cover as required, cutting assembling and joining the several parts together as necessary. Notwithstanding anything to the contrary contained in any other clause of the contract and (or the CPWA Code) all stores/materials so supplied to the contractor or procured with the assistance of the Institute shall remain the absolute property of Institute and the contractor shall be the trustee of the stores/materials, and the said stores/materials shall not be removed/disposed off from the site of the work on any account and shall be at all times open to inspection by the Engineer-in-Charge or his authorized agent. Any such stores/materials remaining unused shall be returned to the Engineer-in-Charge in as good a condition in which they were originally supplied at a place directed by him, at a place of issue or any other place specified by him as he shall require, but in case it is decided not to take back the stores/materials the contractor shall have no claim for compensation on any account of such stores/materials so supplied to him as aforesaid and not used by him or for any wastage in or damage to in such stores/materials. On being required to return the stores/materials, the contractor shall hand over the stores/ materials.

On being required to return the stores /materials , the contractor shall hand over the stores/materials on being paid or credited such price as the Engineer-in-Charge shall determine, having due regard to the condition of the stores/materials. The price allowed for credit to the contractor, however, shall be at the prevailing market rate not exceeding the amount charged to him, excluding the storage charge, if any. The decision of the Engineer-in-Charge shall be final and conclusive. In the event of breach of the aforesaid condition, the contractor shall in addition to throwing himself open to account for contravention of the terms of the license or permit and/or for criminal breach of trust, be liable to Institute for all advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach. Provided that the contractor shall in no case be entitled to any compensation or damages on account of any delay in supply or non-supply thereof all or any such materials and stores provided further that the contractor shall be bound to execute the entire work if the materials are supplied by the Institute within the original scheduled time for completion of the work plus 50% thereof or schedule time

~~plus 6 months whichever is more if the time of completion of work exceeds 12 months, but if a part of the materials only has been supplied within the aforesaid period, then the contractor shall be bound to do so much of the work as may be possible with the materials and stores supplied in the aforesaid period. For the completion of the rest of the work, the contractor shall be entitled to such extension of time as may be determined by the Engineer-in-Charge whose decision in this regard shall be final and binding on the contractor.~~

~~The contractor shall see that only the required quantities of materials are got issued. Any such material remaining unused and in perfectly good/original condition at the time of completion or determination of the contract shall be returned to the Engineer-in-Charge at the stores from which it was issued or at a place directed by him by a notice in writing. The contractor shall not be entitled for loading, transporting. Unloading and stacking of such unused material except for the extra lead, if any involved, beyond the original place of issue.~~

CLAUSE 10A (Materials to be provided by the Contractor)

The contractor shall, at his own expense, provide all materials, required for the works other than those which are stipulated to be supplied by the Institute.

The contractor shall, at his own expense and without delay, supply to the Engineer-in- Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in- Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall within thirty days of supply of samples or within such further period as he may require intimate to the Contractor in writing whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer-in-Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications.The Engineer-in-Charge or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access.

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default, the Engineer-in-

Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall be borne by the Contractor.

The Contractor shall at his own expense, provide a material testing lab at the site for conducting routine field tests. The lab shall be equipped at least with the testing equipment as specified in Schedule F.

CLAUSE 10 B

(i) Secured Advance on Non-perishable Materials

The contractor, on signing an indenture in the form to be specified by the Engineer-in-Charge, shall be entitled to be paid during the progress of the execution of the work up to 75% of the assessed value of any materials which are in the opinion of the Engineer-in- Charge **nonperishable, non-fragile and noncombustible and are in accordance with the contract** and which have been brought on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this sub-clause are incorporated in the work, the amount of such advance shall be recovered / deducted from the next payment made under any of the clause or clauses of this contract.

Such secured advance shall also be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-in-Charge provided the contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-in-Charge shall be final and binding on the contractor in this matter. No secured advance, shall however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel etc.

(ii) Mobilization Advance: (Not applicable)

~~Mobilization advance not exceeding 10% of the tendered value may be given, if requested by the contractor in writing within one month of the order to commence the work. Such advance shall be in two or more installments to be determined by the Engineer-in-Charge at his sole discretion. The first installment of such advance shall be released by the Engineer-in-charge to the contractor on a request made by the contractor to the Engineer-in-Charge in this behalf. The second and subsequent installments shall be released by the Engineer-in- Charge only after the contractor furnishes a proof of the satisfactory utilization of the earlier installment to the entire satisfaction of the Engineer-in-Charge~~.

~~Before any installment of advance is released, the contractor shall execute Bank Guarantee Bonds not more than 6 in number form Schedule Bank for the amount equal to 110% of the amount advance and valid for the period till recovery of advance. This (Bank Guarantee from Schedule Bank for the amount equal to 110% of the balance amount of advance) shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery.~~

~~Provided always that provision of clause 10B (ii) shall be applicable only when so provided in schedule 'F'~~.

(iii) Plant Machinery & Shuttering Material Advance (Not applicable)

~~An advance for plant, machinery & shuttering material required for the work and brought to site by the Contractor may be given if requested by the contractor in writing within one month of bringing such plant and machinery to site. Such advance shall be given on such plant and machinery, which in the opinion of the Engineer-in-Charge will add to the expeditious execution of work and improve the quality of work. The amount of advance shall be restricted to 5% percent~~

of the tender value. In the case of new plant and equipment to be purchased for the work, the advance shall be restricted to 90% of the price of such new plant and equipment paid by the contractor for which the contractor shall produce evidence satisfactory to the Engineer-in-Charge. In the case of second hand and used plants and equipment, the amount of such advance shall be limited to 50% of the depreciated value of plant and equipment as may be decided by the Engineer-in-Charge. The contractor shall, if so required by the Engineer-in-Charge, submit the statement of value of such old plant and equipment duly approved by a Registered Valuer recognized by the Central Board of Direct Taxes under the Income-Tax Act, 1961. No such advance shall be paid on any plant and equipment of perishable nature and on any plant and equipment of a value less than Rs. 50,000/- Seventy five percent of such amount of advance shall be paid after the plant & equipment is brought to site and balance twenty five percent on successfully commissioning the same.

Leasing of equipment shall be considered at par with purchase of equipment and shall be covered by tripartite agreement with the following:

1. Leasing company which gives certificate of agreeing to lease equipment to the contractor.
2. Engineer in Charge, and
3. The contractor

This advance shall further be subject to the condition that such plant and equipment (a) are considered by the Engineer-in-Charge to be necessary for the works; (b) and are in working order and are maintained in working order; (c) hypothecated to the Institute as specified by the Engineer-in-Charge before the payment of advance is released. The contractor shall not be permitted to remove from the site such hypothecated plant and equipment without the prior written permission of the Engineer-in-Charge. The contractor shall be responsible for maintaining such plant and equipment in good working order during the entire period of hypothecation failing which such advance shall be entirely recovered in lump sum. For this purpose, steel scaffolding and form work shall be treated as plant and equipment.

The contractor shall insure the Plant and Machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site. Any amounts not recovered from the insurer will be borne by the contractor.

(iv) Interest & Recovery :

The mobilization advance and plant and machinery advance in (ii) & (iii) above bear simple interest at the rate of 10 per cent per annum and shall be calculated from the date of payment to the date of recovery, both days inclusive, on the outstanding amount of advance. Recovery of such sums advanced shall be made by the deduction from the contractor's bills commencing after first ten per cent of the gross value of the work is executed and paid, on pro-rata percentage basis to the gross value of the work billed beyond 10% in such a way that the entire advance is recovered by the time eighty per cent of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of recovery of the installment.

(v) If the circumstances are considered reasonable by the Engineer-in-Charge, the period mentioned in (ii) and (iii) for request by the contractor in writing for grant of mobilization advance and plant and equipment advance may be extended in the discretion of the Engineer-in-Charge.

CLAUSE 10 C (Payment on Account of Increase in Prices / Wages due to Statutory Order(s))

If after submission of the tender, if the price of any material incorporated in the works (excluding the materials covered under Clause 10CA and not being a material supplied from the Engineer-in-Charge's stores in accordance with Clause 10 hereof) and/or wages of labour increases as a direct result of the coming into force of any fresh law, or statutory rule or order (but not due to any variation of rate in GST applicable on such material(s) being consider under this clause) beyond the price/wages prevailing at the time of the last stipulated date of receipt of tenders including extensions, if any, for the work during contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, then the amount of the contract shall accordingly be varied

If after submission of the tender, the price of any material incorporated in the works (excluding the materials covered under Clause 10CA and not being a material supplied from the Engineer-in-Charge's stores in accordance with Clause 10 thereof) and/or wages of labour as prevailing at the time of last stipulated date of receipt of tender including extensions, if any, is decreased as a direct result of the coming into force of any fresh law or statutory rules or order (but not due to any changes in sales tax/VAT Central/State Excise/Custom Duty) Institute shall in respect of materials incorporated in the works (excluding the materials covered under Clause 10CA and not being materials supplied from the Engineer-in-Charge's stores in accordance with Clause-10 hereof) and/or labour engaged on the execution of the work after the date of coming into force of such law statutory rule or order be entitled to deduct from the dues of the contractor, such amount as shall be equivalent to the difference between the prices of the materials and/or wages as prevailed at the time of the last stipulated date for receipt of tenders including extensions if any for the work and the prices of materials and/or wages of labour on the coming into force of such law, statutory rule or order. This will be applicable for the contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2.

Engineer-in-Charge may call books of account and other relevant documents from the contractor to satisfy himself about reasonability of increase in prices of materials and wages.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such materials and/or wages of labour, give notice thereof to the Engineer-in- Charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in position to supply.

For this purpose, the labour component of 85% of the value the work executed during period under consideration shall not exceed the percentage as specified in Schedule F, of the value of work done during that period the increase/decrease in labour shall be considered on the minimum daily wages in rupees of any unskilled adult male mazdoor, fixed under any law, statutory rule or order. The cost of work for which escalation is applicable (W) is same as cost of work done worked out as indicated in sub-para (ii) of clause 10CC except the amount of full assessed value of secured Advance.

CLAUSE 10 CA (Payment due to variation in prices of materials after receipt of tender) (not applicable)

~~If after submission of the tender, the price of materials specified in Schedule F increases/decreases beyond the price(s) prevailing at the time of the last stipulated date for receipt of tenders (including extensions, if any) for the work, then the amount of the contract shall accordingly be varied and provided further that any such variations shall be effected for stipulated period of Contract including the justified period extended under the provisions of Clause 5 of the Contract without any action under Clause 2.~~

~~However for work done during the justified period extended as above, it will be limited to indices prevailing at the time of updated stipulated date of completion considering the effect of extra~~

work (extra time to be calculated on pro-rata basis only as cost of extra work x stipulated period/tendered cost).

The increase/decrease in prices of cement, steel reinforcement and structural steel and POL shall be determined by the price indices issued by the Director General (Works), CPWD. For other items provided in the Schedule 'F' shall be determined by the All India Wholesale Price Indices of Material as published by Economic Advisor to Government of India, Ministry of Commerce and Industry and base price for cement, steel reinforcement , structural steel & POL as issued under the authority of Director General (Works) CPWD applicable for Delhi including Noida, Gurgaon, Faridabad & Ghaziabad and base price of other materials issued as indicated in Schedule „F" as valid on the last stipulated date of receipt of tender, including extension if any and for the period under consideration. In case, price index of a particular material is not issued by the ministry of Commerce and Industry, then the price index of nearest similar material as indicated in Schedule 'F' shall be followed

The amount of the contract shall accordingly be varied for all such materials and will be worked out as per the formula given below for individual material:-

a) Adjustment for component of individual material

V = P x Q x (Cl-Cl0) / Cl0

Where,

V = Variation in material cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

P = Base Price of material as issued under authority of DG(W), as indicated in Schedule 'F'.

For Projects and Original works

Q = Quantity of material brought at site for bonafide use in the works since previous bill excluding such quantity consumed in the deviated quantities of items beyond deviation limit and extra/substituted item, paid /to be paid at rates derived on the basis of market rate under clause 12.2..

Cl0 = Price index for cement, steel reinforcement bars and structural steel and POL as issued by the DG, CPWD and corresponding to the time of base price of respective material indicated in Schedule 'F'. For other items, if any, provided in Schedule 'F', All India Wholesale Price Index for the material as published by the Economic Advisor to Government of India, Ministry of Industry and Commerce and corresponding to the time of base price of respective material indicated in Schedule 'F'.

CI = Price index for cement, steel reinforcement bars , structural steel and POL as issued under the authority of DG, CPWD for period under consideration. For other items, if any, provided in Schedule 'F' All India Wholesale Price Index for material for period under consideration as published by Economic Advisor to Institute of India, Ministry of Industry and Commerce.

(i) In respect of the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, the index prevailing at the time of updated stipulated date of completion considering the effect of extra work (extra time to be calculated on prorate basis only as cost of extra work x stipulated date of completion/ tendered cost) shall be considered.

Provided always that provisions of the preceding Clause 10 C shall not be applicable in respect of Materials covered in this clause.

(ii) f during progress of work or at the time of completion of work, it is noticed that any material brought at site is in excess of requirement, then amount of escalation if paid earlier on such excess quantity of material shall be recovered on the basis of cost indices as applied at the time of payment of escalation or as prevailing at the time of effecting recovery, whichever is higher.

(iii) Cement mentioned wherever in this clause includes Cement component used in RMC brought at site from outside approved RMC plants, if any.

(iv) The date wise record of ready mix concrete shall be kept in a register and the cement consumption for the same shall be calculated accordingly.

(v) If built up steel items are brought at site from work shop, then the variation shall be paid for the structural steel up to the period when the built up item /finished product us brought at site.

CLAUSE 10 CC (Payment due to Increase/Decrease in Prices/Wages (Excluding materials covered under clause 10 CA) after receipt of Tender for works) (Not applicable)

If the prices of materials (not being materials supplied or services rendered at fixed prices by the Institute in accordance with clause 10 & 34 thereof) and/or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contract shall accordingly be varied, subject to the condition that such compensation for escalation in prices and wages shall be available only for the work done during the stipulated period of the contract including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2. However, for the work done during the justified period extended as above, the compensation as detailed below will be limited to prices/wages prevailing at the time of stipulated date of completion or as prevailing for the period under consideration, whichever is less. No such compensation shall be payable for a work for which the stipulated period of completion is equal to or less than the time as specified in Schedule F. Such compensation for escalation in the prices of materials and labour, when due, shall be worked out based on the following provisions:-

(i) The base date for working out such escalation shall be the last stipulated date of receipt of tenders including extension, if any.

(ii) The cost of work on which escalation will be payable shall be reckoned as below:

a) Gross value of work done up to this quarter: (A)
b) Gross Value of work done up to the last quarter: (B)
c) Gross value of work done since previous quarter (A-B): (C)
d) Full assessed value of Secured Advance (excluding materials covered under clause 10CA) fresh paid in this quarter (D)
e) Full assessed value of Secured Advance (excluding materials covered under clause 10CA) recovered in this quarter: (E)
f) Full assessed value of Secured Advance for which escalation is payable in this quarter (D-E): (F)
g) Advance payment made during this quarter: (G)
h) Advance payment recovered during this quarter: (H)
i) Advance payment for which escalation is payable in this quarter (G-H) (I)
j) Extra Items/deviated quantities of items paid as per Clause 12 based on prevailing market rates during this quarter: (J)
Then, M=C+F+I-J
N = 0.85 M

k) Less cost of material supplied by the Institute as per Clause 10 and recovered during the quarter (K)

l) less cost of services rendered at fixed charges as per Clause 34 and recovered during the quarter (L)

Cost of work for which escalation is applicable: W=N-(K+L)

(iii) Components for materials (except cement, reinforcement bars, structural steel, POL or other materials covered under clause 10 CA), labour, etc. shall be pre- determined for every work and incorporated in the conditions of contract attached to the tender papers included in Schedule 'F' The decision of the Engineer-in- Charge in working out such percentage shall be binding on the contractors.

(iv) The compensation for escalation for other materials (excluding cement, reinforcement bars, structural steel ,POL or other materials covered under clause 10 CA shall be worked as per the formula given below:

(a) Adjustment for civil component (except cement, structural steel, reinforcement bars, POL and other materials covered under clause 10CA)/electrical component of construction 'Materials'

(b) $Vm = \frac{W \times Xm}{100} \times \frac{Ml - Ml_0}{Ml_0}$

Vm=Variation in material cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W = Cost of Work done worked out as indicated in sub para (ii) of Clause 10CC

Xm = Component of 'materials'(except cement, structural steel, reinforcement bars, POL and other materials covered under clause 10CA) expressed as percent of the total value of work

MI = All India Wholesale Price Index for civil component/electrical component* of construction material as worked out on the basis of all India wholesale price index for individual commodities/group items for the period under consideration as published by the Economic Advisor to Gov. of India Ministry of Industry & Commerce and applying weightages to the individual commodities/group items. (In respect of the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, the index prevailing at the time of stipulated date of completion considering the effect of extra work (extra time to be calculated on prorate basis only as cost of extra works x stipulated period / tendered cost, shall be considered.)

Ml_0 = All India Wholesale Price Index for civil component/electrical component* of construction material as worked out on the basis of all India wholesale price index for individual commodities/group items valid on the last stipulated date of receipt of tender including extension, if any, as published by the Economic Advisor to Gov. of India Ministry of Industry & Commerce and applying weightages to the individual commodities/group items.

*Note: relevant component only will be applicable.

(v) The following principles shall be followed while working out the indices mentioned in para (iv) above.

(a) The Compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of the

said quarter. The date of preparation if bills as finally entered in measurement book by the Assistant Engineer/date of submission of bill finally by the contractor to the department in case of computerized measurement books shall be the guiding factor to decide the bills relevant to the quarterly interval. The first such payment shall be made at the end of three months after the month (excluding the month in which tender was accepted) and thereafter at three months' interval. At the time of completion of work, the last period for payment might become less than 3 months, depending on the actual date of completion.

(b) The index (MI/FI etc.) relevant to any quarter /period for which such compensation is paid shall be the arithmetical average of the indices, relevant to the three calendar months. If the period up to date of completion after quarter covered by the last such installment of payment, is less than three months, the index MI and FI shall be the average of the indices for the months falling within that period.

(vi) The compensation for escalation for **labour** shall be worked out as per the formula given below:

$$VL = W \times \frac{Y}{100} \times \frac{Ll - Ll_0}{Ll_0}$$

VL : Variation in labour cost i.e. amount of increase or decrease in rupees to be paid or recovered.

W=Value of work done, worked out as indicated in sub-para (ii) above.

Y : Component of labour expressed as a percentage of the total value of the work.

LI: Minimum wage in rupees of an unskilled adult male mazdoor fixed under any law, statutory rule or order as applicable on the last date of the quarter previous to the one under consideration. (In respect of the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, the minimum wage prevailing on the last date of quarter previous to the quarter pertaining to updated stipulated date of completion considering effect of extra work (extra time to be calculated on prorate basis only as cost of extra work x stipulated period / tendered cost, shall be considered.)

LI0= Minimum daily wage in rupees of an unskilled adult male mazdoor, fixed under any law, statutory rule or order as on the last stipulated date of receipt of tender including extension, if any.

(vii) The following principles will be followed while working out the compensation as per sub-para (vi) above.

(a) The minimum wage of an unskilled male mazdoor mentioned in sub-para (vi) above shall be the higher of the wage notified by Government of India, Ministry of Labour and that notified by the local administration both relevant to the place of work and the period of reckoning.

(b) The escalation for labour also shall be paid at the same quarterly intervals when escalation due to increase in cost of materials and/or P.O.L. is paid under this clause. If such revision of minimum wages takes place during any such quarterly intervals, the escalation compensation shall be payable at revised rates only for work done in subsequent quarters.

(c) Irrespective of variations in minimum wages of any category of labour, for the purpose of this clause, the variation in the rate for an unskilled adult male mazdoor alone shall form the basis for working out the escalation compensation payable on the labour component.

(viii) In the event the price of materials and/or wages of labour required for execution of the work decrease/s, there shall be a downward adjustment of the cost of work so that such price of materials and/or wages of labour shall be deductible from the cost of work under this contract and in this regard the formula herein before stated under this Clause 10CC shall mutatis mutandis apply, provided that:

(a) no such adjustment for the decrease in the price of materials and/or wages of labour aforementioned would be made in case of contracts in which the stipulated period of completion of the work is equal to or less than the time as specified in Schedule „F.

(b) The Engineer-in-Charge shall otherwise be entitled to lay down the procedure by which the provision of this sub-clause shall be implemented from time to time and the decision of the Engineer-in-Charge in this behalf shall be final and binding on the contractor.

(ix) Provided always that :

(a) Where provisions of clause 1OCC are applicable provisions of clause 10C will not be applicable but provisions of clause 10 CA will be applicable.

(b) Where provisions of Clause 1OCC are not applicable, provisions of clause 10C and 10 CA will become applicable.

Note: Updated stipulated date of completion (period of completion plus extra time for extra work for compensation under clause 10 C, 10 CA and 10 CC, the factor of 1.25 taken in to account for calculating the extra item under clause 12.1 for extra time shall not be considered while calculating the updated stipulated date of completion for this purpose in clause 10 C, Clause – 10 CA, and clause 10 CC.

CLAUSE 10D (Dismantled Material of Institute Property)

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as Institute's property and such materials shall be disposed off to the best advantage of the Institute according to the instructions in writing issued by the Engineer-in-Charge.

CLAUSE 11 (Work 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 both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specifications, designs, drawings and instructions that are not included in the standard specifications of works specified in Schedule 'F' or in any Bureau of Indian Standard or any other, published standard or code or, Schedule of Rates or any other printed publication referred to elsewhere in the contract.

The contractor shall comply with the provisions of the contract and with the care and diligence execute and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take

full responsibility for adequacy, suitability and safety of all the works and methods of construction.

CLAUSE 12: (Deviations / Variations Extent and Pricing)

The Engineer-in-Charge shall have power (i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

The Completion cost of any agreement for Maintenance works including works of up gradation, aesthetic, special repair, and addition/alteration shall not exceed 1.25 times of the Tendered amount. Any further deviation beyond this limit up to 1.5 times of tendered amount shall be approved by Chairperson, I-CDC with recorded reason and in exceptional case, The Director shall have full power to approve the deviation beyond 1.50 times of tendered amount with recorded reason and take suitable corrective action.

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered be extended, if requested by the contractor, as follows:

(i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus

(ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

12.2 **Deviation, Extra Items and Pricing:**

A. For Projects and original works :

In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, which shall include invoices, voucher etc. and Manufacture's specification for the work failing which the rate approved later by the Engineer-in-Charge shall be binding and the Engineer-in-Charge shall within the prescribed time limit of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined, failing which it will be deemed to have been approved.

B. For Maintenance works including works of up gradation, aesthetic ,special repair, addition/alteration:

In the case of Extra Items(s) being the schedule items **(Delhi schedule of rate-2021 items)** ,these shall be paid as per Schedule rate plus cost index (at the time of tender) plus /minus percentage above or below quoted contract amount.

Payment of extra items in case of non-scheduled items **(NON DSR-2021 Items)** shall be made as per the prevailing market rate.

12.2a Deviation, Substituted Items, Pricing:

A. For Project and Original works :

In the case of substituted items, (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para.

(a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

(b)If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

B. For Maintenance works including works of up gradation, aesthetic, special repair, addition/alternation:

In the case of substituted item(s) being the schedule items (CPWD DSR items) these shall be paid as per the schedule rate plus cost index (at the time of tender) plus /minus percentage above /below quoted contract amount. Payment of Substitute in case of non-schedule items **(NON** CPWD DSR items**)** shall be made as per prevailing market rate.

12.2b Deviation, Deviated Quantities, Pricing

A. For Project and original works:

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis, for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities the Engineer-in-Charge shall within prescribed time limit of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

B. For Maintenance works including works of up gradation, aesthetic, special repair, addition/alteration:

In the case of contract items, which exceed the limits laid down in schedule F, the contractor shall be paid rates specified in the schedule of quantities / market rates which ever is lower.

The prescribed time limit for finalizing rates for extra item(s), Substitute item (s) and Deviated quantities of contract items is within 30days after submission of proposal by the contractor without observation of the Engineer-in-Charge.:

12.3 **A. For Project and Original works:**

The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule F, and the Engineer-in- Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

B. For Maintenance works including works of up gradation, aesthetic, special repair, addition/alteration:

In case of decrease in the rates prevailing in the market of items for the work in excess of the limits laid down in Schedule F, the Engineer-In-Charge shall after giving notice to the contractor within one month of occurrence of excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rate for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

The prescribed time limit for finalizing rates for extra item(s), Substitute item (s) and Deviated quantities of contract items is within 30days after submission of proposal by the contractor without observation of the Engineer-in-Charge.

12.4 The contractor shall submit to the Engineer-in-Charge once every three months an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right. However, the Engineer in charge may authorize consideration of such claims on merits.

12.5 For the purpose of operation of Schedule F, the following works shall be treated as works relating to foundation unless & otherwise defined in the contract:

i) For building: All works up to 1.2 meters above ground level or up to floor 1 level whichever is lower.,
ii) For abutments, piers, and well staining: All works up to 1.2 m above the bed level.
iii) For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/tanks and other elevated structures: All works up to 1.2 meters above the ground level.
iv) For reservoirs/tanks (other than overhead reservoirs/tanks): All works up to 1.2 meters above the ground level.
v) For basement: All works up to 1.2 m above ground level or up to floor 1 level whichever is lower.
vi) For Roads all items of excavation and filling including treatment of sub-base.

12.6 Any operation incidental to or necessarily has to be in contemplation of tenderer while filling tender, or necessary for proper execution of the item included in the Schedule of Quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

CLAUSE 13 (Foreclosure of Contract due to Abandonment or Reduction in Scope of Work)

If at any time after acceptance of the tender or during the progress of the work, the purpose or object for which the work is being done changes due to any supervening cause and as a result of which the work has to be abandoned or reduced in scope the Engineer-in-Charge shall give notice in writing to that effect to the contractor stating the decision as well as the cause for such decision and the contractor shall act accordingly in the matter. The contractor shall have no claim to any

payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates full amount for works executed at site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilized on the work to the full extent in view of the foreclosure:

i) Any expenditure incurred on preliminary site work, e.g. temporary access roads, temporary labour huts, staff quarters and site office; storage accommodation and water storage tanks.

ii) Institute shall have the option to take over contractor's materials or any part thereof either brought to site or of which the contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work) provided, however, Institute shall be bound to take over the materials or such portions thereof as the contractor does not desire to retain. For materials taken over or to be taken over by Institute, cost of such materials as detailed by Engineer-in-Charge shall be paid. The cost shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the contractor.

iii) If any materials supplied by Institute are rendered surplus, the same except normal wastage shall be returned by the contractor to Institute at rates not exceeding those at which these were originally issued less allowance for any deterioration or damage which may have been caused whilst the materials were in the custody of the contractor. In addition, cost of transporting such materials from site to Institute stores, if so required by Institute, shall be paid.

iv) Reasonable compensation for transfer of T & P from site to contractor's permanent stores or to his other works, whichever is less. If T & P are not transported to either of the said places, no cost of transportation shall be payable.

v) Reasonable compensation for repatriation of contractor's site staff and imported labour to the extent necessary.

The contractor shall, if required by the Engineer- in-Charge furnish to him books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition.

The reasonable amount of items on (i), (iv) and (v) above shall not be in excess of 2% of the cost of the work remaining incomplete on the date of closure, i.e. total stipulated cost of the work as per accepted tender less the cost of work actually executed under the contract and less the cost of contractor's materials at site taken over by the Institute as per item (ii) above. Provided always that against any payments due to the contractor on this account or otherwise, the Engineer-in-Charge shall be entitled to recover or be credited with any outstanding balances due from the contractor for advance paid in respect of any tool, plants and materials and any other sums which at the date of termination were recoverable by the Institute from the contractor under the terms of the contract.

In the event of action being taken under Clause 13 to reduce the scope of work, the contractor may furnish fresh Performance Guarantee on the same conditions, in the same manner and at the same rate for the balance tendered amount and initially valid up to the extended date of completion or stipulated date of completion if no extension has been granted plus 60 days beyond that. Wherever such a fresh Performance Guarantee is furnished by the contractor the Engineer-in-Charge may return the previous Performance Guarantee.

CLAUSE 14: Carrying out part work at risk & cost of contractor:

If contractor,
(i) At any time makes default during currency of work or does not execute any part of the work with the due diligence and continues to do so even after a notice in writing of 7 days from the Engineer-in-Charge; or

(ii) Commits default to complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given in that behalf by the Engineer-in-Charge; or

(iii)Fails to complete the works or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge;

The Engineer-in-Charge without invoking action under clause 3 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to Institute, by a notice in writing to take the part work/part incomplete work of any item(s) out of his hands and shall have powers to:

(a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or
(b) Carry out the part work/ part incomplete work of any item(s) by any means at the risk and cost of the contractor.

The Engineer-in-Charge shall determine the amount, if any, is recoverable from the contractor for completion of the part work/part incomplete work of any items(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by Institute because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Engineer-in-Charge as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the department are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.
Any excess expenditure incurred or to be incurred by the Institute in completing the part works/ part incomplete work of any item(s) or the excess loss or damages suffered or may be suffered by the Institute as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Institute in law or as per agreement be recovered from any money due to the contractor on any account and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractor's unused materials, constructional plant implements temporary building at site, etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.

In the event of above course being adopted by the Engineer-in-Charge, the contractor shall have no claims to compensation for any loss sustained by him by reason of his having purchased any

materials or entered into any engagements or made any advance on any account or with view to the execution of the work or the performance of the contract.

CLAUSE 15 (Suspension of Work)

(i) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge, (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of the following reasons:

(a) On account of any default on the part of the contractor or;
(b) For proper execution of the works or part thereof for reasons other than the default of the contractor; or
(c) For safety of the works or part thereof.

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

ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above:

(a) the contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;

(b) If the total period of all such suspensions in respect of an item or group of items or work for which a separate period of completion is specified in the contract exceeds thirty days, the contractor shall, in addition, be entitled to such compensation as the Engineer-in-Charge may consider reasonable in respect of salaries and/or wages paid by the contractor to his employees and labour at site, remaining idle during the period of suspension, adding thereto 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within fifteen days of the expiry of the period of 30 days.

iii) If the works or part thereof is suspended on the orders of the Engineer-in-Charge for more than three months at a time, except when suspension is ordered for reason (a) in sub-para (i) above, the contractor may after receipt of such order serve a written notice on the Engineer-in-Charge requiring permission within fifteen days from receipt by the Engineer-in-Charge of the said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the contractor, if he intends to treat the suspension, where it affects only a part of the works as an omission of such part by the Institute or where it affects whole of the works, as an abandonment of the works by the Institute, shall within ten days of expiry of such period of 15days give notice in writing of his intention to the Engineer-in-Charge. In the event of the contractor treating the suspension as an abandonment of the contract by the Institute, he shall have no claim to payment of any compensation on account of any profit or advantage which he might have derived from the execution of the work in full but which he could not derive in consequence of the abandonment. He shall, however, be entitled to such compensation, as the Engineer-in-Charge may consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within 30 days of the expiry of the period of 3 months.

CLAUSE 15 A (Compensation in case of Delay of Supply of Material by Institute)

The contractor shall not be entitled to claim any compensation from Institute for the loss suffered by him on account of delay by Institute in the supply of materials in schedule "B'' where such delay is covered by difficulties relating to the supply of wagons, force majeure or any reasonable cause beyond the control of Institute.

This clause 15 A will not be applicable for works where no material is stipulated.

CLAUSE 16 (Action in case Work not done as per Specifications)

All works under or in course of execution or executed in pursuance of the contract shall at all times be open and accessible to the inspection and supervision of the Engineer-in- charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Assurance unit of the Institute or any organization engaged by the Institute for Quality Assurance and of the Chief Technical Examiner's Office, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has 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 agent shall be considered to have the same force as if they had been given to the contractor himself.

If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the Chief Engineer in charge of Quality Assurance or his subordinate officers or the officers of the organization engaged by the Institute for Quality Assurance or to the Chief Technical Examiner or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract the contractor shall, on demand in writing which shall be made (six months in the case of work costing Rs. 10 Lac and below except road work) of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of, notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 2 of the contract (for non-completion of the work in time) for this default.

In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the authority specified in Schedule 'F' may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

CLAUSE 17 (Contractor Liable for Damages, defects during maintenance period) I

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kern, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within twelve months (six months in the case of work costing Rs. Ten lacs and below except road work) after a certificate, final or otherwise, of

its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge shall cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall not be refunded before the expiry of twelve months (six months in the case of work costing Rs. Ten lacs and below except road work) after the issue of the certificate, final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later. Provided that in the case of road work if in the opinion of the Engineer-in-Charge, half of the security deposit is sufficient, to meet all liabilities of the contractor under this contract, half of the security deposit will be refundable after six months and the remaining half after twelve months of the issue of the said certificate of completion or till the final bill has been prepared and passed whichever is later.

In case of Maintenance and Operation works of E&M services, the security deposit deducted from contractors shall be refunded within one month from the date of final payment or within one month from the date of completion of the maintenance contract whichever is earlier.

CLAUSE 18 (Contractor to Supply Tools & Plants, etc.)

The contractor shall provide at his own cost all materials (except such special materials, if any, as may in accordance with the contract be supplied from the Engineer-in-Charge's stores), machinery, tools & Plants as specified in Schedule F. In addition to this, appliances, implements, other plants ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in- Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer-in-Charge at the expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portions thereof.

CLAUSE 18 A (Recovery of Compensation paid to Workmen)

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

CLAUSE 18 B (Ensuring Payment and Amenities to Workers if Contractor fails)

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971,

Institute is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act and the rules under Clause 19 H or under the Contractors Labour Regulations, or under the Rules framed by Institute from time to time for the protection of health and sanitary arrangements for workers employed by Contractors. Institute will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the Institute under sub-section(2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, Institute shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Institute to the contractor whether under this contract or otherwise Institute shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the Institute full security for all costs for which Institute might become liable in contesting such claim.

CLAUSE 19 (Labour Laws to be complied by the Contractor)

The contractor shall obtain a valid license under the Contract Labour (R&A) Act 1970, and the Contract Labour (Regulation and Abolition) Central Rules 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. **The contractor shall also comply with provision of the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979.**

The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfill these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.

CLAUSE 19 A

No labour below the age of Eighteen years shall be employed on the work.

CLAUSE 19 B (Payment of wages)

Payment of wages:

(i) The contractor shall pay to labour employed by him either directly or through sub contractors, wages not less than fair wages as defined by the Government, Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

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

(iii)In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the contractor's Labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions

unauthorized made, maintenance of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

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

(b) Under the provision of Minimum Wages (Central) Rules 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned.

In the case of Union Territory of Delhi, however, as the all-inclusive minimum daily wages fixed under Notification of the Delhi Administration No.F.12(162)MWO/DAB/ 43884-91, dated 31-12-1979 as amended from time to time are inclusive of wages for the weekly day of rest, the question of extra payment for weekly holiday would not arise.

(v)The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

(vi)The contractor shall indemnify and keep indemnified the Institute against payments to be made under and for the observance of the laws aforesaid and the Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-contractors.

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

(viii) Whatever is the minimum wage for the time being, or if the wage payable is higher than such wage, such wage shall be paid by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.

(ix) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.

CLAUSE 19 C

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per C.P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid, he shall be liable to pay a penalty of Rs.200/- for each default and in addition the Engineer-in- Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

CLAUSE 19D

The contractor shall submit by the 4th and 19th day of every month, to the Engineer-in-Charge a true statement showing in respect of the second half of the preceding month and the first half of the current month respectively:

(1) The number of labourers employed by him on the work,
(2) Their working hours,
(3) The wages paid to them,
(4) The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them, and
(5) The number of female workers who have been allowed maternity benefit according to Clause 19 F and the amount paid to them.

Failing which the contractor shall be liable to pay to the Institute, a sum not exceeding Rs.200/- for each default or materially incorrect statement. The decision of the Engineer-In-Charge shall be final in deducting from any bill due to the contractor the amount levied as fine and be binding on the contractor.

CLAUSE 19 E

In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with all the rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by the Institute and its contractors.

CLAUSE 19 F

Leave and pay during leave shall be regulated as follows

1. Leave:

(i) in the case of delivery - maternity leave not exceeding 8 weeks, 4 weeks up to and including the day of delivery and 4 weeks following that day.

(ii) In the case of miscarriage – up to 3 weeks from the date of miscarriage.

2. Pay:

(i) In the case of delivery - leave pay during maternity leave will be at the rate of the women's average daily earnings, calculated on total wages earned on the days when full time work was done during a period of three months immediately preceding the date on which she gives notice that she expects to be confined or at the rate of Rupee one only a day whichever is greater.

(ii) In the case of miscarriage - leave pay at the rate of average daily earning calculated on the total wages earned on the days when full time work was done during a period of 3 (three) months immediately preceding the date of such miscarriage.

3. Conditions for the grant of Maternity Leave:

No maternity leave benefit shall be admissible to a woman unless she has been employed for a total period of not less than 6 (six) months immediately preceding the date on which she proceeds on leave.

4. The contractor shall maintain a register of Maternity (Benefit) in the Prescribed Form as shown in Appendix - I and II, and the same shall be kept at the place of work.

CLAUSE 19 G

In the event of the contractor(s) committing a default or breach of any of the provisions of the Contractor's Labour Regulations and Model Rules for the protection of health and sanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and Rules which is materially incorrect, he/they shall, without prejudice to any other liability, pay to the Institute a sum not exceeding Rs.200/- for every default, breach or furnishing, making, submitting, filing such materially incorrect statements and in the event of the contractor(s) defaulting continuously in this respect, the penalty may be enhanced to Rs.200/- per day for each day of default subject to a maximum of 5 % of the estimated cost of the work put to tender. The decision of the Engineer in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the contractor(s) is/are not properly observing and complying with the provisions of the Contractor's Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R& A) Central Rules 1971,for the protection of health and sanitary arrangements for work-people employed by the contractor(s) (hereinafter referred as "the said Rules") the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that the said Rules be complied with and the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the contractor(s) shall fail within the period specified in the notice to comply with and/observe the said Rules and to provide the amenities to the work-people as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities herein before mentioned at the cost of the contractor(s). The contractor(s) shall erect, make and maintain at his/their own expense and to approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed, according to approved standards, the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that the said huts and sanitary arrangements be remodeled and/or reconstructed according to approved standards, and if the contractor(s) shall fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the contractor(s).

CLAUSE 19 H

The contractor(s) shall at his/their own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land outside Institute campus. (Note: Labour camp is not permitted inside Institute campus)

(i) (a) the minimum height of each hut at the eaves level shall be 2.10 m (7 ft.) and the floor area to be provided will be at the rate of 2.7 sqm. (30 sq.ft.) For each member of the worker's family staying with the labourer.

(b) The contractor(s) shall in addition construct suitable cooking places having a minimum area of 1.8 m x 1.5 m (6'x5') adjacent to the hut for each family.

(c) The contractor(s) shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per each one hundred of the total strength, separate latrines and urinals being provided for women.

(d) The contractor(s) shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened.

(ii)(a) All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall be at least 15cm (6") above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the contractor shall ensure that throughout the period of their occupation the roofs remain water-tight.

(b) The contractor(s) shall provide each hut with proper ventilation.
(c) All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.

(d) There shall be kept an open space of at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft.) according to the availability of site with the approval of the Engineer-in-Charge. Back to back construction will be allowed.

(iii) **Water Supply** - The contractor(s) shall provide adequate supply of water for the use of labourers. The provisions shall not be less than two gallons of pure and wholesome water per head per day for drinking purposes and three gallons of clean water per head per day for bathing and washing purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, tanks which may be of metal or masonry, shall be provided. The contractor(s) shall also at his/ their own cost make arrangements for laying pipe lines for water supply to his/their labour camp from the existing mains wherever available, and shall pay all fees and charges therefore.

(iv) The site selected for the camp shall be high ground, removed from jungle.

(v) **Disposal of Excreta-**

The contractor(s) shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the contractor(s) shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of labourers employed so that arrangements may be made by such Committee/authority for the removal of the excreta. All charges on this account shall be borne by the contractor and paid direct by him to the Municipality/authority. The contractor shall provide one sweeper for every eight seats in case of dry system.

(vi) **Drainage – The** contractor(s) shall provide efficient arrangements for draining away sludge water so as to keep the camp neat and tidy.

(vii) The contractor(s) shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.

(viii) **Sanitation** - The contractor(s) shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities.

CLAUSE 19 I

The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors' employ upon the work who may be incompetent or misconduct himself and the contractor shall forthwith comply with such requirements. In respect of maintenance/repair or renovation works etc. where the labour have an easy access to the individual houses, the contractor shall issue identity cards to the labourers, whether temporary or permanent and he shall be responsible for any untoward action on the part of such labour. Engineer in Charge will display a list of contractors working in the colony/Blocks on the notice board in the colony and also at the service center, to apprise the residents about the same.

CLAUSE 19 J

It shall be the responsibility of the contractor to see that the building under construction is not occupied by anybody unauthorized during construction, and is handed over to the Engineer-in-Charge with vacant possession of complete building. If such building though completed is occupied illegally, then the Engineer-in-Charge shall have the option to refuse to accept the said building/buildings in that position. Any delay in acceptance on this account will be treated as the delay in completion and for such delay a levy up to 5% of tendered value of work may be imposed by the Chairperson, I-CDC, IPR whose decision shall be final both with regard to the justification and quantum and be binding on the contractor.

However, the Chairperson, I-CDC, IPR, through a notice, may require the contractor to remove the illegal occupation any time on or before construction and delivery.

CLAUSE 19K (Employment of skilled /semi-skilled workers)

The Contractor shall, at all stages of work, deploy skilled / semiskilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute / Industrial Training Institute /National institute of Construction Management & Research (NICMAR) / National Academy of Construction, CIDC or any similar reputed and recognized institutes managed / certified by State / Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled / semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in each respect of the trade, it's scheduling and list of qualified tradesman along with requisite certificates from recognized institute to Engineer-in-charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesman within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-In-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by the contractor at the rate of Rs.100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.

Provided always, that the provisions of this clause shall not be applicable for works with estimated cost put to tender being less than Rs. 5 Crores.

CLAUSE 19L (Contributions of EPF and ESI)

The ESI and EPF contributions on the part of employer in respect of this contract shall be paid by the contractor.

CLAUSE 20 (Minimum Wages Act to be Complied with)

The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time to time and rules

framed there under and other labour laws affecting contract labour that may be brought into force from time to time.

CLAUSE 21 (Work not be sublet. Action in case of insolvency)

The contract shall not be assigned or sublet without the written approval of the Engineer-in-Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employ of Institute in any way relating to his office or employment, or if any such officer. or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the Director, IPR shall have power to adopt the course specified in Clause 3 hereof in the interest of Institute and in the event of such course being adopted, the consequences specified in the said Clause 3 shall ensue.

CLAUSE 22

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

CLAUSE 23 (Changes in firm's Constitution to be intimated)

Where the contractor is a partnership firm, the previous approval in writing of the Engineer- in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of Clause 21 hereof and the same action may be taken, and the same consequences shall ensue as provided in the said Clause 21.

CLAUSE 24

All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge 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 25 (Settlements of Disputes & Arbitration)

Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

(i) If the contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer-in-Charge or if the Engineer in Charge considers any act or decision of the contractor on any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable and is disputed, such party shall promptly within 15 days of the arising of the disputes request the

Chairperson, I-CDC who shall refer the disputes to Dispute Redressal Committee (DRC) within 15 days along with a list of disputes with amounts claimed if any in respect of each such dispute. The Dispute Redressal Committee (DRC) shall give the opposing party two weeks for a written response, and, give its decision within a period of 60 days extendable by 30 days by consent of both the parties from the receipt of reference from Chairperson, I-CDC. The constitution of Dispute Redressal Committee (DRC) shall be as indicated in Schedule 'F'. Provided that no party shall be represented before the Dispute Redressal Committee by an advocate/legal counsel etc.

If the Dispute Redressal Committee (DRC) fails to give its decision within the aforesaid period or any party is dissatisfied with the decision of Dispute Redressal Committee (DRC) or expiry of time limit given above, then either party may within a period of 30 days from the receipt of the decision of Dispute Redressal Committee (DRC), give notice to the Director IPR, for appointment of arbitrator on prescribed proforma as per Appendix XV under intimation to the other party.
It is a term of contract that each party invoking arbitration must exhaust the aforesaid mechanism of settlement of claims/disputes prior to invoking arbitration.

The Director IPR, shall in such case appoint the sole arbitrator within 30 days of receipt of such a request and refer such disputes to arbitration. It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed, if any, in respect of each such dispute along with the notice for appointment of arbitrator and giving reference to the decision of the DRC.

Parties, before or at the time of appointment of Arbitrator may agree in writing for fast track arbitration as per the Arbitration and Conciliation Act, 1996 (26 of 1996) as amended in 2015.

Subject to provision in the Arbitration and Conciliation Act, 1996 (26 of 1996) as amended in 2015 whereby the counter claims if any can be directly filed before the arbitrator without any requirement of reference by the appointing authority,

The arbitrator shall adjudicate on only such disputes as are referred to him by the appointing authority and give separate award against each dispute and claim referred to him and in all cases where the total amount of the claims by any party exceeds Rs. 1,00,000/-, the arbitrator shall give reasons for the award. It is also a term of the contract that if any fees are payable to the arbitrator, these shall be paid as per the Act.

The place of arbitration shall be as mentioned in Schedule F.

CLAUSE 26 (Contractor to indemnify Institute against Patent Rights)

The contractor shall fully indemnify and keep indemnified the Director, IPR against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under or action brought against Institute in respect of any such matters as aforesaid, the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise there from, provided that the contractor shall not be liable to indemnify the Director, IPR if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

CLAUSE 27 (Lump sum Provisions in Tender)

When the estimate on which a tender is made includes lump sum 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 are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in- Charge payable of

measurement, the Engineer-in-Charge may at his discretion pay the lump-sum amount entered in the estimate, and the certificate in writing of the Engineer-in- Charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of the clause.

CLAUSE 28 (Action where no Specifications are specified)

In the case of any class of work for which there is no such specifications as referred to in Clause 11, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturer's specifications, if not available then as per State / District Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

CLAUSE 29 (With-holding and lien in respect of sums due from contractor)

(i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, the Engineer-in-Charge or the Institute shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-Charge or the Institute shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Engineer-in-Charge or the Institute shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge of the Institute or any contracting person through the Engineer-in-Charge pending finalization of adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or Institute will be kept withheld or retained as such by the Engineer-in-Charge or Institute till the claim arising out of or under the contract is determined by the arbitrator (if the contract is governed by the arbitration clause) by the competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge or the Institute shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner limited company as the case may be, whether in his individual capacity or otherwise.

(ii) Institute shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for Institute to recover the same from him in the manner prescribed in sub-clause (i) of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it the amount of such under payment shall be duly paid by Institute to the contractor without any interest thereon whatsoever

Provided that the Institute shall not be entitled to recover any sum overpaid nor the contractor shall be entitled to payment of any sum paid short where such payment has been agreed upon between the Chairperson, I-CDC, IPR on the one hand and the contractor on the other under any term of the contract permitting payment for work after assessment by the Chairperson, I-CDC, IPR

CLAUSE 29A (Lien in respect of claims in other contracts)

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or the Institute or any other contracting person or persons through Engineer-in-Charge against any claim of the Engineer-in-Charge or Institute or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer- in-Charge or the Institute or with such other person or persons.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or the Institute will be kept withheld or retained as such by the Engineer-in-Charge or the Institute or till his claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitration clause or by the competent court, as the case may be and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

CLAUSE 30 Employment of coal mining or controlled area labour not permissible

The contractor shall not employ coal mining or controlled area labour falling under any category whatsoever on or in connection with work or recruit labour from area within a radius of 32 km (20 miles) of the controlled area. Subject as above the contractor shall employ imported labour only i.e., deposit imported labour or labour imported by contractors from area, from which import is permitted.

Where ceiling price for imported labour has been fixed by state or Regional Labour Committee not more than that ceiling price shall be paid to the laour by the contractor.

The contractor shall immediately remove any labourer who may be pointed out by the Engineer-in-charge as being a coal mining or controlled area labourer. Failure to do so shall render the contractor liable to pay to Government a sum calculated at the rate of Rs. 10/- per day per labourer. The certificate of the Engineer-in Charge about the number of coal mining or controlled area labourer and the number of days for which worked shall be final and binding upon all parties to this contract.

It is declared and agreed between the parties that the aforesaid stipulation in this clause is one in which the public are interested within the meaning of the exception in Section 74 of Indian Contract Act, 1872.

Explanation: - Controlled Area means the following areas:

Districts of Dhanbad, Hazaribagh, Jamtara – a Sub-Division under Santhal Pargana Commissioner, Districts of Bankuara, Birbhum, Burdwan, District of Bilaspur.

Any other area which may be declared a controlled Area by or with the approval of the Central Government.

CLAUSE 31 (Unfiltered water supply)

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions.

i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.
ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor(s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in- Charge, unsatisfactory.

CLAUSE 31 A (Institute water supply, if available)

Water if available may be supplied to the contractor by the Institute subject to the following conditions:

(i) The water charges @ 1% shall be recovered on gross amount of the work done.
(ii) The contractor(s) shall make his/their own arrangement of water connection and laying of pipelines from existing main of source of supply.
(iii) The Institute do not guarantee to maintain uninterrupted supply of water and it will be incumbent on the contractor(s) to make alternative arrangements for water at his/ their own cost in the event of any temporary break down in the Institute water main so that the progress of his/their work is not held up for want of water. No claim of damage or refund of water charges will be entertained on account of such break down.

CLAUSE 32 (Alternate water arrangements)

(i) Where there is no piped water supply arrangement and the water is taken by the contractor from the wells or hand pump constructed by the Institute, no charge shall be recovered from the contractor on that account. The contractor shall, however, draw water at such hours of the day that it does not interfere with the normal use for which the hand pumps and wells are intended. He will also be responsible for all damage and abnormal repairs arising out of his use, the cost of which shall be recoverable from him. The Engineer-in-Charge shall be the final authority to determine the cost recoverable from the contractor on this account and his decision shall be binding on the contractor.

(ii) The contractor shall be allowed to construct temporary wells in Institute land for taking water for construction purposes only after he has got permission of the Engineer-in-Charge in writing. No charges shall be recovered from the contractor on this account, but the contractor shall be required to provide necessary safety arrangements to avoid any accidents or damage to adjacent buildings, roads and service lines. He shall be responsible for any accidents or damage caused due to Construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of the work.

CLAUSE 33 (Return of Surplus materials) – Not Applicable

~~Notwithstanding anything contained to the contrary in this contract where any materials for the execution of the contract are procured with the assistance of Institute either by issue from Institute stocks or purchase made under orders or permits or licenses issued by Institute the contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose them off without the written permission of the Institute and return, if required by the Engineer-in-Charge, all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on being paid or credited such price as the Engineer-in-Charge shall determine having due regard to the condition of the materials. The price allowed to the contractor however shall not exceed the amount charged to him excluding the element of storage charges. The decision of the Engineer- in-Charge shall be final and conclusive. In the event of breach of the aforesaid condition, the contractor shall in~~

~~addition to throwing himself open to action for contravention of the terms of the license or permit and/or for criminal breach of trust, be liable to Institute for all moneys, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.~~

CLAUSE 34 (Hire of Plant & Machinery)

(i) The contractor shall arrange at his own expense all tools, plant, machinery and equipment (hereinafter referred to as T&P) required for execution of the work .

CLAUSE 35 (Condition relating to use of asphaltic material) – Not Applicable

~~(i) The contractor undertakes to make arrangement for the supervision of the work by the firm supplying the tar or bitumen used.~~

~~(ii) The contractor shall collect the total quantity of tar or bitumen required for the work as per standard formula, before the process of painting is started and shall hypothecate it to the Engineer-in-Charge. If any bitumen or tar remains unused on completion of the work on account of lesser use of materials in actual execution for reasons other than authorized changes of specifications and abandonment of portion of work, a corresponding deduction equivalent to the cost of unused materials as determined by the Engineer-in-Charge shall be made and the material return to the contractors. Although the materials are hypothecated to Institute, the contractor undertakes the responsibility for their proper watch, safe custody and protection against all risks. The materials shall not be removed from site of work without the consent of the Engineer-in-Charge in writing.~~

~~(iii) The contractor shall be responsible for rectifying defects noticed within a year from the date of completion of the work and the portion of the security deposit relating to asphaltic work shall be refunded after the expiry of this period.~~

CLAUSE 36 (Employment of Employees Technical Staff and employees)

Contractors Superintendence, Supervision, Technical Staff and Employees

(i) The contractor shall provide all necessary superintendence during execution of the work and as along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

The contractor shall immediately after receiving letter of acceptance of the tender and before commencement of the work, intimate in writing to the Engineer-in-Charge the name, qualifications, experience, age, address and other particulars along with certificates, of the principal technical representative to be in charge of the work and other technical representative(s) and their qualifications and experience shall not be lower than specified in Schedule 'F'. The Engineer-in-Charge shall within 3 days of receipt of such communication intimate in writing his approval or otherwise of such a representative to the contractor. Any such approval may at any time be withdrawn and in case of such withdrawal, the contractor shall appoint another such representative according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at Site before start of work.

All the provisions applicable to the principal technical representative under the clause will also be applicable to other technical representative(s). The principal technical representative and other technical representative(s) shall be present at site of work for supervision at all times when any construction activity is in progress and also present himself/ themselves, as required, to the Engineer in charge and/ or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to

have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be actually available the decision of the Engineer-in –Charge as recorded in the site order book and measurement recorded checked/test checked in measurement books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable technical principal technical representative and/or other technical representative(s) and if such appoint person are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-charge shall have full powers to suspend the execution of the work until such date as suitable other technical representative(s) is/are appointed and the contractor shall be held responsible for the delay so caused to the work. The contractor shall submit a certificate of employment of the technical representative(s) along with every on account bill/final bill and shall produce evidence if at any time so required by the Engineer-in-Charge at site fully during all stages of execution of work, during recording/ checking/ test checking of measurements of works and whenever so required by the Engineer In charge and shall also note down instructions conveyed by the Engineer-in-charge or his designated representative(s) in the site order book and shall affix his/ their signature in token of noting down the instructions and in token of acceptance of measurements/ checked measurements/ test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (non-refundable) shall be effected from the contractor as specified in Schedule 'F' and the decision of the Engineer-In-Charge as recorded in the site order book and measurement recorded checked/test checked in measurement books shall be final and binding on the contractor. Further , if the contractor fails to appoint suitable technical Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of work until such date as suitable other technical representative(s) is /are appointed and the contractor shall be held responsible for the delay so caused to the work. The Contractor shall submit a certificate of employment of the technical representative (s) (in the form of copy of Form -16 or CPF deduction issued to the Engineer employed by him) along with every on account bill , final bill and shall produce evidence if at any time so required by the Engineer-in-charge.

(ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work.

The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work.

The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer- in-Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

CLAUSE 37 (Levy / Taxes payable by Contractor)

(i) GST, Building and other Construction Workers Welfare Cess or any other tax, levy or Cess in respect of input for or output by this contract shall be payable by the contractor and Government shall not entertain any claim whatsoever in this respect except as provided under Clause 38.

(ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red bajri, stone, kankar, etc. from local authorities.

If pursuant to or under any law, notification or order any royalty cess or the like becomes payable by the Institute / Government of India and does not any time become payable by the contractor to the State Government, Local authorities in respect of any material used by the contractor in the works then in such a case, it shall be lawful to the Institute / Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.

CLAUSE 38 (Conditions for reimbursement of levy / taxes if levied after receipt of tenders)

(i) All tendered rates shall be inclusive any tax, levy or cess applicable on last stipulated date of receipt of tender including extension if any. No adjustment i.e. increase or decrease shall be made for any variation in the rate of GST, Building and Other Construction Workers Welfare Cess or any tax, levy or cess applicable on inputs.

However, effect of variation in rates of GST or Building and Other Construction Workers Welfare Cess or imposition or repeal of any other tax, levy or cess applicable on output of the works contract shall be adjusted on either side, increase or decrease.

Provided further that for Building and Other Construction Workers Welfare Cess or any tax (other than GST), levy or cess varied or imposed after the last date of receipt of tender including extension if any, any increase shall be reimbursed to the contractor only if the contractor necessarily and properly pays such increased amount of taxes/levies/ cess.

Provided further that such increase including GST shall not be made in the extended period of contract for which the contractor alone is responsible for delay as determined by authority for extension of time under Clause 5 in Schedule F.

(ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Institute and/or the Engineer-in-Charge and further shall furnish such other information/document as the Engineer-in-Charge may require from time to time.

(iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy or cess, , give a written notice thereof to the Engineer-in-Charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 39 (Termination of Contract on death of contractor)

Without prejudice to any of the rights or remedies under this contract if the contractor dies, Chairperson, I-CDC, IPR on behalf of the Director, IPR shall have the option of terminating the contract without levy of compensation to the contractor.

CLAUSE 40 (If Relative working in Institute then the contractor not allowed to tender)

The contractor shall not be permitted to tender for works in the Institute (Division in case of contractors of Horticulture/Nursery categories) responsible for award and execution of contracts) in which his near relative is posted as Accountant or as an officer in any capacity. He shall also intimate the names of persons who are working with him in any capacity or are subsequently

employed by him and who are near relatives to any officer in the Institute. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of Institute. If however the contractor is registered in any other department, he shall be debarred from tendering in Institute for any breach of this condition.

NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in-laws.

CLAUSE 41 (No Gazetted Engineer to work as Contractor within one years of retirement)

No engineer of gazette rank or other officer employed in engineering or administrative duties in an engineering department of Government of India shall work as a contractor or employee of a contractor for a period of one year after his retirement from government service without the previous permission of Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of Government of India as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

CLAUSE 42 (Theoretical consumption of Material)

(i) After completion of the work and also at any intermediate stage in the event of non-reconciliation of materials issued, consumed and in balance - (see Clause 10), theoretical quantity of materials used in the work shall be calculated on the basis and method given hereunder:

(a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required for different items of work as shown in the Schedule of Rates mentioned in Schedule 'F'. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above mentioned schedule/statement or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer-in-Charge.

(b) Theoretical quantity of steel reinforcement or structural steel sections shall be taken as the quantity required as per design or as authorized by Engineer-in- Charge, including authorized laps, chairs etc. plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual issues each diameter wise, section wise and category wise separately.

(c) Theoretical quantity of G.I. & Cl. or other pipes, conduits, wires and cables, pig lead and G. I. / M S. sheets shall be taken as quantity actually required and measured plus 5% for wastage due to cutting into pieces (except in the case of G. I. / M. S. sheets it shall be 10%), such determination & comparison being made diameter wise & category wise.
(d) For any other material as per actual requirements.

(ii) Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Schedule 'F'.

For non-scheduled items, the decision of the Chairperson, I-CDC, IPR regarding theoretical quantities of materials which should have been actually used, shall be final and binding on the contractor.

(iii) The said action under this clause is without prejudice to the right of the Institute to take action against the contractor under any other conditions of contract for not doing the work according to the prescribed specifications.

CLAUSE 43 (Compensation during warlike situations)

The work (whether fully constructed or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and other things connected therewith shall be at the risk of the contractor until the work has been delivered to the Engineer-in-Charge and a certificate from him to that effect obtained. In the event of the work or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or warlike operation, the contractor shall when ordered (in writing) by the Engineer-in-Charge to remove any debris from the site, collect and properly stack or remove in store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site of debris, stacking or removal of serviceable material and for reconstruction of all works ordered by the Engineer- in-Charge, such payments being in addition to compensation up to the value of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for, the compensation shall be assessed by the Chairperson, I-CDC, IPR up to Rs. 5000/- and by the Director concerned for a higher amount. The contractor shall be paid for the damages/destruction suffered and for the restoring the material at the rate based on analysis of rates tendered for in accordance with the provision of the contract. The certificate of the Engineer-in-Charge regarding the quality and quantity of materials and the purpose for which they were collected shall be final and binding on all parties to this contract.

Provided always that no compensation shall be payable for any loss in consequence of hostilities or warlike operations (a) unless the contractor had taken all such precautions against air raid as are deemed necessary by the Engineer-in-Charge (b) for any material etc. not on the site of the work or for any tools, plant, machinery, scaffolding, temporary building and other things not intended for the work.

In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Chairperson, I-CDC, IPR.

CLAUSE 44 (Apprentices Act provisions to be complied with)

The contractor shall comply with the provisions 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 Chairperson, I-CDC, IPR 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 said Act.

CLAUSE 45 (Release of Security deposit after labour clearance)

Security Deposit of the work shall not be refunded till the contractor produces a clearance certificate from the Labour Officer. As soon as the work is virtually complete the contractor shall apply for the clearance certificate to the Labour Officer under intimation to the Engineer-in-Charge. The Engineer-in-Charge, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending, on record till after 3 months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the Security Deposit will be released if otherwise due.

SECTION: 2 - (v) (a) Integrity Pact.

To,

_____

_____

Subject: NIT No. _____ For the work _____

Dear Sir,

It is hereby declared that Institute for Plasma Research is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid document, failing which the tenderer/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall from part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of Integrity Agreement on the behalf of Institute for Plasma Research.

Yours faithfully,

Chairperson- I-CDC, IPR

Integrity Pact

To,
Chairperson, I-CDC, IPR

Subject: Submission of Tender for the work of _____

Dear Sir,

I/We acknowledge that Institute for Plasma Research is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender /bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I /We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE OF THIS CONDITION OF THE NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by Institute for Plasma Research. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my /our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, IPR shall have unqualified, absolute and unfettered right to disqualify the tenderer /bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully,

(Duly Authorized signatory of the Bidder)

To be signed by the bidder and same signatory competent / authorized to sign

The relevant contract on behalf of IPR

INTEGRITY AGREEMENT

This Integrity Agreement is made at ..... on this .....day of .....20…....

BETWEEN

Director, IPR represented through Chairperson, I-CDC, Institute for Plasma Research, Bhat Gandhinagar-
382428……,
(Hereinafter referred as the **'Principal/Owner'**, which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....
.....

(Name and Address of the Individual/firm/Company)

Through..... …… (Hereinafter referred to as the

(Details of duly authorized signatory)

"Bidder/Contractor" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns).

Preamble

WHEREAS the Principal / Owner has floated the Tender (NIT No. ……) (hereinafter referred to as "Tender/Bid") and intends to award, under laid down organizational procedure, contract for

……..……
……

(Name of Work)

Hereinafter referred to as the "Contract".

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

(1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

(2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

(1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

(2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

(a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

(b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

(c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(d)The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on

behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

(e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

(3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

(4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.

(5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

(1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days' notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

(2) Forfeiture of EMD/Performance Guarantee/Security Deposit: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

(3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

(1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

(3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

(1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/sub-vendors.

(2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

(3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, IPR.

Article 7- Other Provisions

(1) This Pact is subject to Indian Law, place of performance and jurisdiction is the Headquarters of the Division of the Principal/Owner, who has floated the Tender.
(2) Changes and supplements need to be made in writing. Side agreements have not been made.
(3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
(4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
(5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:

1. .....
(Signature, name and address)

2. .....
(Signature, name and address)

Place:
Dated:

SECTION: 2 - (vi) - SPECIAL CLAUSES OF CONTRACT (SCC)

1. GENERAL:

The following special clauses of contract shall be read in conjunction with general clauses of contract enclosed herein before. The following clauses shall be considered as an extension and not limitation of the obligations of the contractor. In case the discrepancy between these special clauses of contract and the General Clauses of contract, these Special Clauses shall take precedence over the General clauses of the Contract.

2. SCOPE AND LOCATION OF WORK: (Please refer to Schedule "A")

The contractor carrying out this works will be strictly abide by the Local /Municipal / Statutory Bodies/Police/ Institute's regulations as well as security regulations imposed by such authorities from time to time regarding transshipment of equipment ,operations, drainage, late hour working , working on holidays, bringing /taking away of materials ,disposal of debris , excavated /surplus materials etc. as and wherever applicable.

The contractor for this work shall co-ordinate for his work along with other contractors who will be simultaneously carrying out the work in same area.

All workmen working at height beyond 1st floor shall be provided with safety belts and the workers should be directed to wear safety belts as long as they are working. The instructions issued by the Engineer-In-Charge with regard to security of workmen from time to time to be strictly followed. All other safety measures stipulated in the tender document shall be strictly followed failing which the Engineer-In –Charge shall take immediate action deemed fir and the same shall be binding on the contractor.

The work shall be completed as per the detailed time schedule which shall be prepared after the issue of work order. However, the entire work shall be completed within the stipulated completion period as specified in the Tender Notice.

3. **SITE INVESTIGATIONS**:

The tenderer is advised to visit the site of work with prior permission of Chairperson, I-CDC or his authorized representative of Institute for Plasma Research to acquaint themselves as to the nature and location of the work, access to the site, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labour, water, electric power and road, as also uncertainties of weather or similar physical conditions of the site, the formation and conditions of the ground, the character, quality and quantity of surface and sub-surface materials to be encountered, including subsoil water levels, the character of equipment and facilities needed preliminary to and during the progress of the work, and all other matters which can be, in any way, effect the work or the cost thereof under the contract.

4. **STAKING OUT BASE LINES AND LEVELS**:

The contractor shall establish at site the layout of the building/road etc. for the work from base lines and grids established by the Institute and shall be responsible for all measurements in connection therewith. The contractor shall, at his own expenses, furnish all stakes, templates, platform, equipment's, ranges and labour that may be required in setting out or laying out any part of the work. The contactor to carry out the Centre lines of the proposed buildings with the total station (survey equipment) and to set out with no extra cost. The contractor shall be held responsible for the proper execution of the work to such lines, levels and grids as may be

established or indicated on the drawings and specifications, the contractor shall check the bench marks and stakes existing at the site for laying out lines and levels.

The contractor has to construct and maintain proper bench marks at all salient positions in order that the lines and levels may be accurately checked at all times.

Total Station, Theodolite, levels, prismatic compass, chain, steel and metallic tapes and all other surveying instruments found necessary on the works shall be provided by the contractors for use at site in connection with this work.

5. COMMENCEMENT AND COMPLETION OF WORK AND PROPER SCHEDULE:

The work shall be completed within the stipulated period of completion.

The Contractor shall submit detailed time schedule within 15 days from the date of issue of work order, for completion of work, indicating all the important activities of execution of the work/ group of the items in sequence of its operation etc. including making ready the sample finishes / finished sample flat for building works, in consultation with Engineer-In-Charge and submit the same for approval of the work awarding authority. This time schedule, after approval, shall form part of the contract and the work in all respect shall be carried out as per this time schedule.

Time shall be the essence of the contract. The rate of progress of the whole work as well as for all the important individual items of work shall not be slower than as laid down in the attached progress schedule.

The contractor shall properly assess his capability and fully satisfy himself before tendering that he will be able to adhere the specified schedule. In this connection the attention of the tenderer is specially invited to clause 2 of the General Conditions of the Contract.

The contractor shall furnish to the Engineer-in-Charge weekly progress report in triplicate on Saturday of every week indicating the following:

Sr.No.	Item of work for the	Schedule progress in week	Actual short fall if any	Reasons for the short fall	Steps taken to make up the short fall

5 (a) The contractor shall employ sufficient number of skilled and unskilled labour required for the work for maintaining the progress of work as stipulated in the time schedule. The trade –wise labour strength should be intimated to the Engineer-in-Charge every day in writing. The skilled labour shall be increased if required by Engineer-in-Charge to maintain the progress of work.

6. SEQUENCE OF WORK:

The contractor shall execute the work as per the sequence given by the Engineer-in-Charge from time to time so that the other items of work to be executed by other agencies are completed progressively along with the main work.

7. CO-OPERATION WITH OTHER CONTRACTORS:

The contractor shall extend all facilities and give complete co-operation for the execution of various connected work if required to be carried out simultaneously by other agencies while his own work is in progress. The co-ordination will be effected in consultation with the Engineer-in-

Charge of the work. Other contractors are also likely to be authorized by the Institute to work in the same area during the construction stage for work.

Since Electrical/Air-conditioning/other agencies will have to carry out their works such as installations of conduits, junction boxes, wiring, distribution boxes, switches, fittings and fixtures etc. in a planned manner in stages which will be in relation the status and progress of civil construction works, the civil contractor shall accept and take over the inventories of installation of Electrical/Air-conditioning/other agencies when their works are in part/full completion stage. The same inventory in the same condition will have to be handed over back to the electrical/air-conditioning/other agencies for carrying out their remaining works after the stage wise completion of the civil works. During final handing over of the building(s) to the Institute / Users, the civil contractor will again take over the installation/inventories of fittings and fixtures of electrical/air-conditioning/other agencies and will complete all his balance finishing works and hand over his works along with the installations of other agencies to Institute/Users.

8. CO-ORDINATION:

The contractor will carry out the entire work in a planned manner by coordinating his work, with the other contractors, who will simultaneously carrying out the work in the same area and also co-ordinate in connection with the position of various fixtures, inserts, embedment's and other allied work connected with the completion of building / subject work.

In case of any dispute between the contractors engaged on the same work, decision of Engineer-in-Charge shall be final and binding.

9. APPROACH ROADS AND TRANSPORTATION OF EQUIPMENT AND MATERIALS:

Contractor will be permitted to use the existing roads in the establishment area for the purpose of transporting equipment and materials and for use of labour etc. The Engineer-in-Charge, however, will not undertake to provide any approach roads to the actual site of work. It shall be the entire responsibility of the contractor to provide and maintain such temporary approach roads including cross drainage works if any at his own cost for the purpose of movement of men, materials and equipment. Layout of such approach roads shall be submitted to Engineer-in-Charge for his approval before undertaking the construction of the same. Such approach roads shall be made available to other agencies for carrying out the work in the same area in consultation with the Engineer-in-Charge of the works without any cost.

10. OPERATIONS AND STORAGE AREAS:

All operations of the contractor shall be confined to areas authorized by the Engineer-in-Charge and storage of materials shall be over the areas specially indicated by the Engineer-in-Charge. Materials like sand and metal of different sizes shall be stored in properly constructed bins with hard floor to avoid inter mixing as well as mixing with objectionable materials. The contractor shall be obliged to keep the premises in hygienic conditions by proper drainages of the area provided with suitable approaches throughout the period of contract. He shall rectify all damages caused to the Institute property within the areas thus allotted. He shall be responsible to clear all rank, vegetation at site at his own cost.

11. CONTRACTOR'S STORAGE AND SITE OFFICE:

Suitable area near the site of work shall be allocated to the contractor, @ Re.1/- per month as compensation for storing his equipment, plant, materials etc. and for his site office and cement godown. He will, however, be solely responsible for watching or guarding his property and materials issued to him by the Institute. Contractor shall cover all materials at site with requisite

insurance against theft, larceny, dacoits, fire , tempest and flood. He, however, will have to dismantle the shed and vacate the land after the receipt of due notice from the Engineer-in-Charge if the same is obstructing any work.

The tenderer should obtain necessary permission/approval (If any) from statutory authorities of Local bodies for construction of temporary structures at site of work such as cement godown, stores, site office etc. It will be responsibility of the tenderers to prepare proper plans, to pay any requisite fees to statutory authorities and to execute the work for the temporary structure at their own cost as per the conditions and rules laid by statutory authorities.

12. TEMPORARY BUILDINGS:

Warehouse, shed, workshop and office facilities as required by the contractor shall be provided by him at his own expense. Area for the same will be made available by the Institute @ Re.1/- per month as token compensation. Prior approval of the Engineer-in-Charge shall be obtained in respect of location and layout and details of those buildings. After the work is over all these temporary facilities shall be removed by the contractor at his own expense to the satisfaction of the Engineer-in-Charge within 10 days from the date of completion.

No labour shall be permitted to stay at site or in the partly completed building at any time and no land for erection of temporary huts for labourers will be made available by the Institute. The contractor shall make his own arrangements for labour hutments elsewhere outside the Institute's premises/area at his own cost. Unauthorized occupation of any area/partly completed building by the contractor's labourer will be treated as trespass and action will be taken to evict them including termination of contract if deemed fit. Sanitary as well as water supply and drainage facilities as required by the labour laws in force, are to be provided by the contractor at his own cost.

13. TRAFFIC INTERFERENCE & INCONVENIENCE TO THE PUBLIC:

The contractor shall conduct his operations so as to interfere as little as possible with the traffic/public. When interfere to traffic is inevitable, a notice of such Interference shall be given to the Engineer-in-Charge well In advance (at least 2 days at any stage, if it becomes necessary to divert the traffic, the contractor shall obtain permission from the local traffic authorities at his own expense. The Institute will render reasonable assistance in the matter. The contractor shall take all precaution and other measure, such as providing warning signals, temporary diversion etc. all as directed by the Engineer-in-Charge.

The Contractor shall not deposit materials anywhere at work site which will seriously inconvenience the public. The Engineer-In-Charge may require the contractor to remove any materials which are considered to be a danger or in convenience to the public or cause them to be removed at the contractor’s cost.

The contractor shall exercise full care to ensure that no damage is caused by him or his workmen during the operation to the existing water supply and power lines. The cost of any such damage and risks arising out of this shall be entirely borne by the contractor.

14. DRAINAGE AROUND THE BUILDING AND FOUNDATION FOR OTHER WORKS:

The contractor shall be entirely responsible for the provision and maintenance of efficient drainage arrangements in the work site to lead of all water whatsoever pumped from the excavations on account of rains, floods, springs or any other source whatsoever. The foundation trenches shall be kept free from water while all the works below ground level are in progress.

Flooding or ponding of water in the work site shall not be permitted under any circumstances whatsoever and the contractor shall take all necessary precautions to prevent the same by providing suitable pumps and other dewatering arrangement.

The cost of repairing damages if any, to the work under execution or to any Institute property in and around the site shall be entirely borne by the contractor where such damages are due to his noncompliance with the above conditions.

15. SPECIFICATIONS AND DRAWINGS:

15.1 The drawings furnished to the contractor for this work shall be interpreted by the use of given dimensions and nomenclature only and the drawings shall not be scaled. Drawings to a large scale shall have precedence over those to a smaller scale. Prior to the execution of the work, the contractor shall check all drawings, specifications and shall immediately report all errors, discrepancies and/or omissions discovered therein to the Engineer-in-Charge and obtain appropriate orders on same. Any adjustment made by the contractor without prior approval of the Engineer-in-Charge shall be at his own risk. Description of item in the schedule of quantities is brief and therefore, shall be read in conjunction with the relevant drawings and the specifications and the contractor's rate shall be deemed to be for such complete work unless otherwise specified by the contractor while tendering.

15.2 In case any difference or discrepancy between the description in the schedule of quantities and the specifications, the schedule of quantities shall take precedence.
In case any difference or discrepancy between the description in the schedule of quantities and the drawing, the description in schedule of quantities shall take precedence.

In case of any difference or discrepancy between drawing and specifications the specifications shall take precedence.

15.3 Prior to submission of drawing called for as per specifications or any other drawings, contractor may intend to submit for approval, the contractor shall be responsible for thoroughly checking of all drawings to ensure that they comply with the intend and the requirements of the contract specifications and that they fit in with the overall layout. Drawing found to be inaccurate or otherwise in error will be returned to the contractor for corrections.

15.4 For all drawings to be submitted by the contractor, for the approval of the Engineer-in-Charge, the contractor shall submit 6 (six) copies of each drawing & soft copy (pdf or autocad as well as editable) of drawing.

15.5 The approval of the drawings by the Engineer-in-Charge shall not be construed as a complete dimensional check but will indicate only that the general method of construction as detailed is satisfactory. The contractor shall be responsible for the dimensions and designs of adequate connection supports, details and satisfactory construction of the work.

15.6 Cost of all shop drawings, fabrication drawings or formwork drawings and details to be furnished by the contractor shall be deemed to be included in his tendered rates. Approval of shop drawings shall not be construed as authorized additional work of increased costs to the Institute.

16. SAMPLES:

Samples of all materials to be incorporated in the work shall be submitted to the Engineer-in-Charge for his approval without any extra cost. The approved samples will be kept with Engineer-in-Charge till the completion of the work. Materials not conforming strictly to the approved samples will be rejected.

Samples of various materials required for testing shall be provided free of charge by the contractor. Testing charges if any shall be borne by the contractor. All other expanses required to be incurred for taking the samples; conveyance packing etc. shall be borne by the contractor.

16.1 in addition to submission of samples of materials, The contractor, shall make as sample flat or (Sample finishing in case of Non-Residential buildings) ready in all respect, including finishing items of works of civil works including installation of fittings as well as those of water supply, plumbing and sanitation work and electrical work, internal fittings, fixtures and wiring etc. to determine the acceptable standard of maternal and workmanship. The sample flat or Sample finishing in case of Non-Residential buildings) with all final finishes items of work in the building (s). Each of these samples of items of work/ trade / materials approved by the Engineer-In Charge will be endorsed as " Guide line samples", as per which further works shall be executed in strict conformity with standard of materials and workmanship.

The Provision of co-ordination and co-operation with other agencies shall be mutatis-mutandis applicable to the above mentioned "Sample flat / sample finishing works" also.

17. EXECUTION OF WORK AND INSPECTION:

The work shall be conducted under the general direction of the Engineer-in-Charge and is subject to inspection by his appointed representative to ensure strict compliance with the terms of the contract. No failure of the Engineer-in-Charge or his designated representative during the progress of the work to discover or to reject materials, or work not in accordance with the requirement of this contract shall be deemed as on acceptance thereof or a waiver of defects therein and no payment by the Engineer-in-Charge or partial or entire occupancy of the premises shall be construed to be an acceptance of work or materials which are not strictly in accordance with the requirements of the contract. No changes whatsoever to any provision of specifications shall be made without authorization from the Engineer-in-Charge.

18. SUPPLY OF WATER FOR CONSTRUCTION PURPOSE:

Note : In case of non-stipulation of departmental (Institute) water supply as per Schedule – "B" of Schedules (Salient Governing features of Tender / work) the contractor shall make his own arrangement of water required for this work, at his own cost, subject to the approval of Engineer-In-Charge.

The contractor shall arrange to provide a minimum storage of 5000 Ltrs. (or two days requirement whichever is higher) of water at building location and all necessary pumps for storage of water shall be built by the contractor at his own cost at location to be approved by the Engineer-in Charge.

The water storage tanks should be leak proof and wastage and misuse or water is strictly prohibited. Contamination and pollution of water to be strictly avoided. Construction water should not be used for drinking or for domestic purpose. Contractor will make his own arrangement for water required for drinking purposes at site of work and for all purposes at the labour camp at his own cost.

19. SUPPLY OF ELECTRICITY FOR CONSTRUCTION PURPOSE:

In case of stipulation of departmental (Institute) supply of Electricity for construction purpose under Schedule "B" of Schedules (Salient Governing features of Tender /work), the same shall be dealt with as under:

(In case of non-stipulation of departmental supply of Electricity for construction purpose in **Schedule "B"**, the contractor shall make his own arrangement for the same as required at his own cost.)

19.1 General:

Temporary electric power, if required by the contractor shall be provided for bonafide construction purpose required for the site job but limited to a total max. Of **5 KW (connected) at 3 phase, 410 volts, and 50 cps.** Some of the important conditions governing the power supply are as follows:

(a) The power will be supplied (on receipt of application in prescribed form) at one point within **1000 M.** of the building premises. The contractor shall install his own main switch, cables, electric cupboard/switch room etc. of adequate capacity of suitable type to receive, control and further distribute the power involved. The exact location and further details about supply point will on receipt of the contractor's application, be decided upon by the Institute, whose decision in the matter will be final and binding. The total final connected load and the anticipated maximum demand shall be furnished by the contractor about a month in advance of the actual initial requirement and for any addition in load subsequent to the initial supply, date, at least one week's notice from the date of submission of installation test report for the said additional load will be given.

(b) The contractor shall provide his own switches, a tested KWH Meter, earth station, earth leakage circuit breakers cable/lines of approved make and of adequate capacity from the aforesaid supply point to the various utilization points and also be responsible to maintain the same in good and safe condition at all times as per relevant codes and electricity rules. He will also be fully responsible at all times for any accident/mishap in his electrical installation/appliances etc. (including the consequential aspects) if the same are found to be due to defective construction/maintenance etc. of his installation or negligence in observation of rules, or safety precautions. The layout and other details of these lines shall be got approved in advance by the Institute and no change in the same shall be subsequently carried out without Institute prior approval. The Institute's Electrical Engineer may any time summarily disconnect, in the interest of safety, the power supply without notice, if any dangerous situation is seen in the contractor's installation or if the contractor has failed to maintain the installation satisfactorily in spite of a written notice served on him. The responsibility for such a disconnection will always be with the contractor who will have no claim whatsoever in this respect on the Institute.

(c) The contractor's electrical installation shall conform in all respects to the relevant rules, regulations, statutory provision and codes of practice as also be in accordance with the rules of the local licensee undertaking (as the case may be) as existing new or as may be amended/enforced from time to time in the future. Installation test reports shall invariably be furnished by the contractor before any load is connected. Periodical test reports by every 3 months for the complete installation shall also be submitted by the contractor in accordance with I.E.E Rules for temporary installation.

(d) Power will be supplied at the point mentioned in para (a) above at the usual 400 V, 3 Phase, 50 cycles. 4 wire or single phase 230 V, 2-wire system as the case may be subject to permissible variations in voltage and frequency. In case 3 phase supply the individual single phase loads if any shall be suitably connected so that the total load over three phases at the supply point is balanced as much as possible. No individual single phase equipment or a single phase system shall normally exceed a rating of 2 K.W.

(e) The Institute may install, depending on availability, in the covered space provided by the contractor at the aforesaid supply point necessary energy meter (additional) for registering the electricity (i.e. KWH) supplied. It may be necessary to install separate Institutes meter (rental

amount as mentioned above) for lighting consumption and in that case the contractor shall have to provide separate lighting circuits.

(f) The supply of electricity shall be charged at the rates specified in the **Schedule "B**" at the rate fixed by the Institute from time to time which will be generally at par with the temporary/supply tariff of State Electricity Board. The contractor shall be responsible for the safety of the Institute's meter, cut outs etc. installed at his site.

NOTE:
The electricity will normally be billed once every month at the prevailing supply rate from time to time. In case if any increase in supply rate, the same shall be charged with an addition of departmental charges as per **Schedule –"B".**

(g) The power supply shall be subject to all such restrictions, regulations etc., as are in existence now and as may be (enforced from time to time in future by the licensee/Government/Department or by any other competent authority for which the contractor have no claim whatsoever. Although all efforts shall be made to provide a continuous supply, the contractor shall have no claim whatsoever due to any breakdown or interruption etc. in the supply at any time.

19.2 CONSTRUCTION AND MAINTENANCE BY THE CONTRACTOR:

As mentioned above, the contractor shall maintain his entire electrical installation, appliances etc. in good and safe condition as required under relevant rules and codes of practice. However, the following precautions and directives shall be followed in addition to observing other essential rules:

(i) The minimum clearance (measured at the lowest sag point) to be maintained for all overhead lines shall be 4 Mtrs. cross country or along roads and 6.1 meters across roads.

(ii) Metallic poles as a general rule should be avoided and if used should be earthed individually.

(iii) All loose hanging of wires and cables should be avoided. The line wires should be properly supported and an approved method of fixing shall be adopted.

(iv) Installation shall not cause any hindrance to the normal movement of men and materials at site.

(v) All cables and wires should be adequately protected against mechanical damage during construction activity of all contractors, working at site.

(vi) In case the cable is required to be laid in ground, it should be adequately protected by covering the same with bricks, R.C.C. tiles or any other approved means and cable markers provided at suitable intervals as per approval of the Institute.

(vii) Laying of cable and wires directly on floor shall not be allowed but if absolutely necessary for some very short lengths, the same shall be taken through suitable mechanical covering like G.I. /M.S. Pipes etc.

(viii) All the outdoor switch boards, equipment's etc., should be adequately protected against rain or preferably they should not be exposed to weather.

(ix) If overhead lines using bare conductors are installed, a guard wire system of adequate size shall run along the cables /wires and earthed effectively.

(x) The connection for portable machines shall be taken only through suitably rated 3 pin socket points. Iron clad industrial type out lets are preferred. While taking supply through socket outlet a plug top must be used, avoiding inserting of loose wires in the sockets. The third pin of the plug shall invariably be earthed and 3 core wire of appropriate specifications and capacity shall be used.

(xi) All three phase equipment shall be provided with duplicate earthling. All metallic frames, light fixtures, portable equipment's etc. should be effectively earthed to main earthing.

(xii) Duly authorized persons having valid wireman's license/competence certificate must be employed under the supervision of a qualified and experienced Electrical Supervisor for carrying out electrical work and repair of electrical equipment's, installation and maintenance etc. at site.

19.3 Additional Power:

Power in excess of the limit stipulated above, May subject to availability, be provided if applied for by the contractor by installing additional cables/lines from the changeover nearby. These additional lines along with necessary switches etc. shall be provided by the contractor.

20. TENDERED RATES:

The rates quoted by the tenderer in the schedule shall be inclusive of all taxes including GST, Sales Tax, VAT, Purchase Tax, workers welfare cess and other statutory levies imposed by the Government or other public bodies from time to time. The rates quoted shall also cover the cost of necessary protection including labour, materials and equipment to ensure safety and protection against risk or accident, compensation for injury to life and damage to property if any, caused by the contractor's operations connected with this work. The rates shall be firm and shall not be subject to change due to variations during the entire period of execution of the work in cost of materials, labour and conditions, or any other conditions whatsoever except for the provisions contained in clause 10 C, 10 CA and 10 CC of General conditions of contract as applicable for this work.

The rates quoted by the tenderer shall also be inclusive of State Sales Tax on the transfer of property in goods involved in execution of works contract Act (in other words WCT/ Turn over Tax), if any which is to be paid by the tenderer to the government from time to time during the execution of the contract/works. No separate claim on this account will be entertained by the Institute. Also no certificate(s) for exemption of Octroi / Entry tax shall be issued by the Institute.

Unless otherwise stated in schedule of quantities, rates for item quoted by the tenderer should be for the complete work including supply and fixing with all materials and should be for all heights and depths, lifts and leads, lengths and widths involved in the work.

Any cement slurry added over the base surface (or) for continuation of concreting , for better bond , is added to have been in-built in the item (unless otherwise explicitly stated and nothing extra shall be payable and no extra cement considered in consumption on this account.)

Rate for all items, in which use of cement is involved, shall include charges for curing.

The contractor when called for by the Institute should furnish detailed rate analysis in support of the rates quoted by him against each item of the tender. The Institute reserves the right to utilize the analysis thus supplied in setting any deviations or claims arising on this contract.

For any deviations or claims or extra items arising out of this contract, the contractor will be entitled for overheads and profits of 2.5% (Two and half) only towards handling, storing etc. of such materials which are supplied by the Institute under schedule 'B' at fixed issue rates/procurement rates in case of free issue materials.

21. CLAIMS AGAINST THE CONTRACTOR:

Whenever any claim against the contractor for the payment of a sum or money arises out of or under the contract, Institute shall be entitled to recover such sum by appropriating in part or whole, the security deposit of the contractor and to sell any Institute promissory notes etc. forming the whole or part of such security. In the event of the security deposit having been taken from the contractor, the balance or the total sum recoverable, as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due from the contractor, under this or any other contract with Institute, should this sum be not sufficient to cover the full amount recoverable, the contractor shall pay to Institute on demand the balance remaining due. Institute shall have the right to cause an audit and technical examination of the work and the final bill of the contractor including all supporting vouchers, abstracts etc. to be made after payment of the final bill and if as a result of the due audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract or any work claimed by him to have been done under the contract and found not have been executed, the contractor shall be liable to refund the amount of the over payment and it shall be lawful for Institute to recover the same from him in the manner prescribed above of this clause or in any other manner legally permissible and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, amount of such under payment shall be duly paid by Institute to the contractor.

Provided that Institute shall not be entitled to recover any sum overpaid, nor the contractor shall be entitled to payment of any such paid short where such payment has been agreed upon between the Engineer-in-Charge on one hand and the contractor on the other, under any term of the contract permitting payment for work after assessment by the Engineer-in-Charge.

Provided further no recovery of an over payment and no payment of any sum paid short shall be made where such over payment or under payment has remained undiscovered for a period of three years after the date of payment of the final bill.

22. MODE OF MEASUREMENTS:

Measurements for all hidden items once taken jointly and so accepted by the tenderer in the bills, in writing shall be final and binding. No re-recording of measurements for hidden items of work be permitted.

The contractor shall provide at his own cost suitable weighing and measuring arrangements at site for checking the weight/ dimensions as may be necessary for execution of the work. All measuring tapes (of steel), scaffolding and ladders which may be required for taking measurements shall be supplied by the contractor.

If the contractor fails to accompany the Engineer-in-Charge of his authorized person to take measurements then he shall be bound by the measurements recorded by the Engineer-in-Charge or his representative.

23. STORES AND MATERIALS AT SITE:

Stores and materials required for the works are to be deposited by the contractor only in places to be indicated by the Engineer-in-Charge. The Engineer-in-Charge shall have a right at any time to

inspect and examine any stores and materials intended to be used in or on the works either on the site or at any factory or workshops or other places where such stores or materials are being constructed or manufactured or processed or any place from where they are being obtained and the contractor shall give such facilities as required to be given for such inspection and examination.

The Engineer-in-Charge shall be entitled to have tests made without any extra cost to the Institute at an approved laboratory for any stores and or materials supplied by the Contractor, who shall provide at his own expense all the facilities which the Engineer-in-Charge may require for this purpose.

Any stores and materials brought to site for use on the work shall not be removed off the site without prior written approval of the Engineer-in-Charge, but on final completion of the work, the contractor shall at his own expenses remove from the site all surplus stores and materials originally brought by him.

24. PROPER DRAWINGS AND INSTRUCTIONS:

The Engineer-In-charge shall have full powers and authority to supply to the contractor from time to time during progress of the work such further drawings and instructions as shall be necessary for the purpose of proper and adequate execution and maintenance of the work and the contractor shall carry out the work and be bound by the same.

One copy each of the drawings furnished to the contractor shall be kept by the contractor at the site and the same shall at all reasonable times be made available for inspection and use by the Engineer-In-Charge and any other person authorized by the Engineer-In-charge

25. EMPLOYMENT OF STAFF FOR PLUMBING & ELECTRICAL WORKS:

25.1 Employment of certified plumber:

Certified plumbers should be employed by the contractor on the work for main sewer, filtered and unfiltered main.

25.2 Employment of licensed electrical foreman:

The contractor should employ a licensed electrical foreman to supervise the Electrical works.

26. GOVERNMENT LABOUR ACT:

The contractor has to follow strictly the Government labour Acts, which are and will be in force during the period of execution of work, all necessary arrangement for labourer's safety, insurance will have to be made by the contractor as per Municipal rules / Contractor's Labour regulations / other Central or Local statutory body / Institute' rules. **The Contractor shall insure his labourers with Insurance Policy and all risk insurance policies etc. at his own cost**.

27. DEDUCTION OF INCOME TAX:

As per Section 194-C of Income tax Act 1961, as amended from time to time the, income tax and Surcharge thereon will be deducted at the rate prescribed by Ministry of Finance , Department of Revenue, Central board of Direct Taxes from time to time , of the gross value of the work done from the bills. A certificate for the amount so deducted will be issued by the Institute.

28. URGENT REPAIRS:

If by reason of any accident or failure or other event occurring to or in connection with the work or any part thereof either during the period of maintenance, any remedial or other work or repair shall in the opinion of the Engineer-in-Charge be urgently necessary for security and the contractor is unable or unwilling, at once, to do such work or repair, the Engineer-in-Charge may be his own or other workmen do such work or repair as he may consider necessary. If the work or repair so done which in the opinion of the Engineer-in-Charge the contractor was liable to do at his own expenses under the contract and all cost and charges properly incurred by the Engineer-in-Charge in so doing shall on demand be paid by the contractor or may be deducted from any sum due or which may become due to the contractor provided always that the Engineer-in-Charge shall soon after the occurrence of any such emergency as may be reasonable, practicable, notify the contractor thereof in writing.

29. SECURITY REGULATIONS:

The contractors have to strictly follow the regulations of the Institute at the work site regarding entry of personnel, material etc. and any other regulation that might be enforced from time to time. All materials and articles brought by the contract to the work site shall have to declare at the security gate. Similarly no materials shall be taken out from the Institute premises without proper gate pass, which will be issued by the Engineer-in-Charge to the contractor on written request. It is to be noted that loading of contractor's materials in vehicles and trucks shall be done in the presence of Institute personnel. The contractor's representative will have to escort the materials till the security check is over.

The contractors, suppliers, vendors, workers engaged in work/business will be issued with renewable entry permit to avoid unauthorized entry in the Institute premises/site on scrutiny of applications in prescribed form.

For working on Saturdays, Sundays, Holidays and late hours even though permission will be accorded by the Engineer-in-Charge, the contractor will have to make application to the Institute and keep them informed well in advance.

The area where the proposed work is to be carried is area under the control of Security authorities of Institute. Entry to the site of work shall be through the main gate of Institute only. The contractor shall follow strictly the security regulations of the Institute at site of work regarding entry of personnel, materials etc. and other regulations of the Institute that might be enforced from time to time at the work site and also in the campus for smooth and efficient operation. The Contractor, his agents, representatives, workmen etc. and his materials, carts, trucks or other means of transport etc., will be allowed to enter through and leave from such point of entry/exit at such times, the authorities in-charge of the area at their sole discretion may permit.

The contractor, his agents and representatives are required to be in possession of the individual identity /muster cards passes. The muster cards or passes are examined by the security staff at the time entry/exit inside the Institute area and also at any time or number of times within such area.

The contractor will have to apply for entry/muster permits of likely number of labour to be engaged during the week for the workers and authorize their representatives to collect the entry permits for labour from the Institute Authority.

It will be the responsibility of the contractor to maintain the list of labourers permitted to work inside the premises a register and the representative of contractor's labour will have to issue entry pass to each labour after making necessary entry in the registers.

The contractor, his agents, representatives, workmen shall strictly observe the orders pertaining to fire precautions prevailing within the area.

In addition to the above, other regulations as may be imposed by the security authorities / Engineer-In charge shall be complied with / observed by the contractor and his workmen.

Any breach of above security regulations and rules in force from time to time will be viewed seriously. No claim whatsoever will be entertained by the department on account of the observations of the Security regulations.

Special Notes:

(a) The Contractor should submit an undertaking to assume responsibility in respect of all the workers / persons deployed by him at site. In case, if it is more than 15 days, a copy of police verification certificate in respect of those all labours / persons to be deployed at site should be furnished along with undertaking well in advance.

(b) **The entry and exit of contractor's labours / workers / persons should be in presence of contractors authorized supervisor who will issue muster / entry passes/ identity card after proper entry in the muster at the main gate.**

(c) It will be the responsibility of the contractor for proper safety and security of their materials including materials & laborer's for which secured advances have been given by the Institute at his own cost.

(d)The contractor should ensure that his workers / personnel should not enter in to the other area of Institute campus other than specified as site.

(e) No housing colony/ labour colony will be permitted inside Institute campus. Any person/labour will not be allowed to stay inside the Institute campus after working hours.

(f) No staff or worker of the contractor will be permitted to enter the premises without valid photo Identity card / entry pass duly attested by the Administrative officer of IPR.

30. WATCH AND WARD AND LIGHTING:

The contractor shall in connection with the works provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or as required by the Engineer-in-Charge and duly constituted authority for the protection of the workers or for safety and convenience of the public or others. The contractor shall be responsible for all damages and accidents caused due to negligence in this regard. It will be the entire responsibility of the contractor to protect the work(s) carried out by them including the fittings, fixtures and other accessories provided by them till the entire work is satisfactorily handed over to the users.

31. INSTITUTE'S DRAWINGS, SPECIFICATIONS, PROTO-TYPE ETC.:

All drawings, specifications, patterns, samples, models and proto-types furnished to the contractor by the Institute are intended to be complementary and to provide for and comprise everything necessary for the completion of work/supply and are the property of the Institute. These are not to be used for any work or purpose other than those for which these have been provided and shall be returned to the Institute immediately on completion of work/supply in good condition.

32. CONFIDENTIAL INFORMATION:

The drawings, specifications, proto-type, samples and such other information furnished to the contractor relating to the supply/work, sub-systems/equipment etc. are to be treated as confidential

which shall be held by the contractor in confidence and shall not be divulged to any third party without the prior written consent of the Institute. The contractor, therefore, binds himself, his successors, heirs, executors, administrators, employees and the permitted assignees or such other persons or agents directly or indirectly concerned with the work/supply to the confidential nature of the drawings, specifications, proto-type samples etc. It is a further condition of the contract that the contractor shall not, without prior written permission from the Institute, transmit, transfer, exchange, and gift or communicate any such confidential information, and also the component, sub assembly, products, by-products etc. pursuant to the fabrication under taken by the contractor, to any third party.

32. (a) Patents and Patent Rights Indemnification:

All specifications, drawings, patents and such other relevant information furnished to the contractor by the Institute shall be the property of the Institute. If, during the process of execution of the contract, any improvement, refinement or technical changes and modifications are affected by the contractor, such changes shall not affect the title to the property of the Institute and all the information, specifications, drawings etc. including the improvement/modifications, affected by the contractor shall continue to be the property of the Institute. The Institute shall also have the absolute right to assign, transfer, sublet, use and transmit all such information and details to the Institute's consultants, agents and collaborators and the contractor shall not have any claim or rights whatsoever in respect of the Institute's drawings, specifications, patents, prototypes etc. even where improvement, refinement, modifications etc. were affected by the contractor.

32. (b) Endorsement to be made by the Contractor on Fabrication Drawings for the protection of Institutes Interest:

This design/drawing is the property of Institute and it must be returned with quotation or upon delivery of the materials/equipment and must not be used except with the permission of the owner.

33. Jurisdiction:

This Contract/Agreement shall be subject to the jurisdiction of courts at Ahmedabad/Gandhinagar only.

34. Engagement of Specialized Agencies:

Contractor should submit the credentials of Water Proofing, Anti Termite Treatment, HVAC works , Firefighting works & Electrical Work specialized agencies to be engaged (from the list of approved make / manufacturer / vendor) by the contractor for the approval of Engineer- In-Charge. For the approval the contractor should submit the complete details of agencies along with the credentials including their experience of similar works to be executed immediately on receipt of the work order.

35. Labour Colony / Labour camp:

No housing colony/labour colony will be permitted inside Institute campus. Any person/labour will not be allowed to stay inside the Institute campus.

36. Temporary Fencing around Site: (Not Applicable)

~~Contractor should erect a temporary GI corrugated sheet fencing with MS framing of at least 6.0 ft. height on Periphery of the proposed construction site to restrict the entry of laborers in the existing campus from start of the work till the completion of entire work and same shall be removed after completion of work. The quoted total amount should be inclusive of the cost for the same.~~

37. Engagement of Construction Management Consultant (CMC/ PMC) for day to day supervision & project management:

Institute may engage project Management consultant (PMC) / Construction Management Consultant (CMC) for the day to day supervision, project management and other related activities pertaining to the project management and execution of work. In such case, PMC/ CMC shall be considered as an authorized representative of Engineer –in Charge. The contractor has to carry out as per instruction of PMC / CMC in addition to Engineer-In-Charge. Final Authority rests with the Engineer-In-charge of the Institute.

38. Validity of quoted Tender:

The quoted tender by the Tenderers shall be valid for a minimum period of 180 days from the date of opening of tender.

39. Contractor to maintain Site records & Registers:

The Contractor should maintain all the records pertaining to the project at site such as Daily reports , Material registers& File, Drawing Register , Labour registers, site Instruction book, Test Registers , Test Report files etc. as per instructions of EIC.

The Contractor should submit the Daily report of site activities, Labours strength, Material inward, etc. in the approved format to the EIC through e-mail as well as duly singed in hard copy duly countersigned by supervising agency of the Institute. The Contractors should also submit the photo Copy of material receipt Challans along with daily reports.

The said registers shall be handed over to EIC after the completion of works.

If the Institute demands the bill of any / all materials, the contractor should provide the photocopy of the bill (s) along with original bill for verification. Original bill shall be returned after verification.

40. Contractor to attend the meetings related to site progress:

The Contractor should attend all the periodical (Weekly or every Ten days or Fortnightly) site meetings and Progress Review meetings (Monthly) and any other the meetings related to the project as per the schedule decided by EIC at the Institute either at site / Institute for Plasma Research or at Architects office as and when decided upon at his own cost. The Necessary documents /data including progress of work etc. may be submitted by the Contractor as and when asked. The meeting shall be attended by the authorized person of Contractor.

41. INCONVENIENCE TO INSTITUTE'S ACTIVITIES:

The contractor shall not deposit materials on any site which will seriously leads to inconvenience to any of the Institute's activities. The Engineer-in-Charge may instruct the contractor to remove any materials which are considered by him to be dangerous or inconvenient to the activities of the Institute or get them removed at the contractor's cost.

42. Employees Provident Funds:

The Contractor shall abide by the provisions of the Employees Provident Funds and misc. provisions act 1952. The Contractor should provide the copy of registration under the above act

and ensure fulfillment of the said act in addition to all the regulations mentioned in the General Clauses of contract and contractor's Labour Regulations.

43 Environment Protection:

The Contractor should also comply following conditions related to environment protection during construction phase:

WATER:

a) The Contractors shall make his own arrangement of water required for construction.
b) Sewage generated during the construction phase shall be disposed off through the septic tank - soak pit.
c) Water demand during construction shall be reduced by use of curing agents, super plasticizers and other best construction practices.

AIR:

e) Peripheral barricading shall be done to prevent dust emission spreading outside the project premises.
f) Water sprinkling shall be done in vulnerable areas for controlling fugitive emission.
g) Material shall be covered during transportation to avoid the fugitive emission.
h) The roads inside the project area and roads connected to the main road shall be paved or shall be water sprinkled to avoid the fugitive emissions during construction.
i) The ambient air quality shall be monitored in and around the project area during construction phase.
j) The construction materials and debris shall be properly stored and handled to avoid negative impacts such as air pollution and public nuisances by blocking the roads and public passages.

SAFETY:

k) Structural design of the project shall strictly adhere to the seismic zone norms for earthquake resistant structures.
l) During construction Personal Protective Equipment shall be provided to the construction workers and its usage shall be ensured and supervised.
m) First Aid Box shall be made readily available in adequate quantity at all the times.
n) Training shall be given to all workers on construction safety aspects.

NOISE:
o) The overall noise level in and around the project area shall be kept well within the prescribed standards by providing noise control measures including acoustic insulation, hoods, silencers, enclosures vibration dampers etc. on all sources of noise generation. The ambient noise levels shall confirm to the standards prescribed under the Environment (Protection) Act and Rules.
p) The noise generating equipment's, machinery and vehicles shall not be operated during the night hours and shall be maintained properly to avoid generation of high noise due to lack of wear and tear.
q) Use of diesel generator sets during construction phase shall be strictly with acoustic enclosure and shall confirm to EPA Rules for air and noise emission standards.

OTHER:

r) The safe disposal of wastewater and solid wastes generated during the construction phase shall be ensured.

s) Barricade of adequate height shall be provided on the periphery of the construction site with adequate signages.

t) Vehicles hired for bringing construction material at site shall be in good conditions and confirm to applicable air and noise emission standards and shall be operated only during day time and non-peak hours.

u) Necessary sanitary, hygiene and first aid measures shall be provided before starting the construction activities and to be maintained throughout the construction phase.

v) Adequate accommodation, drinking water, sanitary facilities, first aid center, utensils and cooking fuel shall be provided for construction workers at the site.

44 Door-Window Hardware – The Contractor to procure all the Hardware's and accessories of same make from the list of approved makes.

45 SITE **TO BE CLEAN:**

The contractor undertakes to have the site clean, free from rubbish to the satisfaction of the Engineer-in-Charge. All surplus materials, rubbish, etc. will be removed to the place fixed by the Engineer-in-Charge and nothing extra will be paid. Mud or debris obtained during the course of construction by way of dismantling or on completion of the various items of work or otherwise, shall be disposed off by the contractor at the low lying areas, anywhere in the project site/colony area without any extra cost to the Institute, as directed by the Engineer-in-Charge and the contractor shall not be permitted to take the dismantled materials/debris outside the Project site/Colony Area.

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SECTION: 2 - (vii) PROFORMA OF SCHEDULES

Salient Governing Features of the Tender / Work

SCHEDULE 'A' :	Schedule of quantities		
Schedule of Quantities -		Attached	*As per price bid*
	Location : Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar – 382 428		

SCHEDULE 'B' :		Schedule of Materials to be issued to the contractor – **No materials to be Supplied to the Contractor.**		
Sr. No	***Description of item***	***Quantity***	***Rates in figures and words at which the material will be charged to the contractor.***	***Place of issue***
1	*2*	*3*	*4*	*5*
1.	*Water for construction Purpose*		Free	--------
2.	*Electricity for construction purpose*		Free	---------

SCHEDULE 'C' :	Tools and Plants to be hired to the contractor		
Sr.No	**Description**	**Hire charges**	**Place of issue**
1	2	3	4
	NIL	*NIL*	*NIL*
Note	*Labour hutments / labour camp*	*No labour hutment permitted at site within campus*	

SCHEDULE 'D'	
Extra schedule for specific requirements / documents for the work, if any	Particularly for Security Regulations as per Conditions of contract

SCHEDULE 'E' :	**Reference to General Conditions of Contract.**	**As per Tender document**
Name of Work: Electrical work (Renovation) of workshop building at IPR, Bhat, Gandhinagar.		
Estimated cost of work :		**₹ 12,63,643/-**
i) Earnest money		**25,273/- needs to be submitted.**
ii) Performance Guarantee		**3 % of Tendered Value**
iii) Security Deposit		**2.5% of Tendered Value**

SCHEDULE 'F' :

General Rules & Directions :	
Officer inviting tender :	On the behalf of Director , IPR by Chairperson, I-CDC, Institute for Plasma Research,

	Near Indira Bridge, Bhat, Gandhinagar -382428 Contact Person: Mr. Shailendra Trivedi, Officer In-charge, e- Tender, IPR (E-mail id: etender.icdc@ipr.res.in) Telephone No. –079-2396 2000 – 2396 4009 Fax No. -079 -2396 2277
Maximum percentage for quantity of Items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3.	See below

Definitions : Conditions of Contract			
15	**2(v)**	Engineer-in-charge	Engineer-in-Charge or his representatives who shall supervise the work
16	2(viii)	Accepting Authority	Director, Institute for Plasma Research
17	2(x)	Percentage on cost of materials and labour to cover all overheads & profits	15% (Fifteen percent)
18	2(xi)	SAC (SOR)	SAC SOR- 20018-19
19	2(xii)	Department / Institute	Institute for Plasma Research
20	9(ii)	Standard Contract Form	Item Rate Tender as per tender document

Clause – 1	
i) Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance	15 days
ii) Maximum allowable extension with late fee @0.1% per day of Performance Guarantee amount beyond the period (provided in – i) above.	7 days

Clause – 2	Authority for fixing compensation under clause 2.	Chairperson, I-CDC, IPR

Clause – 5	Number of days from the date of issue of WO for reckoning date of start.	***7 days***

Mile stone(s) as per table given below:			
TABLE OF MILE STONE(S)			
Sl. No.	Description of Milestone (Physical)	Time Allowed in days (from date of start) Work order	Amount to be with-held in case of non-achievement of milestone
	-	-	-
	-	-	-
TIME ALLOWED FOR EXECUTION OF WORK			**120 Days (including monsoon period , if any)**

Authority to decide:

(vi) Extension of time : Chairperson, I-CDC **, IPR**

(vii) Rescheduling of mile stones : Chairperson, I-CDC**, IPR**

(viii) Shifting of start in case of delay in handing over site : Chairperson, I-CDC**, IPR**

Clause applicable – (6 or 6A):	Clause 6 for Manual Billing or Clause 6A for Computerized Billing	*Clause 6A* : **Computerized Billing is applicable**

Clause – 7	Gross work to be done together with net payment / adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment.	***Monthly Running Bill***

21 Clause – 10A:	List of testing equipment's to be provided by the contractor / testing laboratory / site as required.	
Clause – 10B(ii): Mobilization Advance	Not Applicable	

Clause – 10B(iii):Plant Machinery & Shuttering Material Advance	Not applicable

Clause – 10C:	Component of labour expressed as percent of value of work Component of P.O.L. expressed as percent of value of work	***25%***

Clause – 10CA : Not applicable			
Sr. No	Materials Covered under this Clause	Nearest Materials (other than cement* reinforcement bars ,the structural steel and POL) for which All India Wholesale Price Index is to be followed	**Base price and its corresponding period of all the materials covered under clause 10CA***
	Not applicable	***Not applicable***	***Not applicable***

Note: ~~Base price for materials given above are only for regulating operation of clause 10-CA. The tenderers are requested to consider prevailing market rates while quoting the rates.~~

Clause – 10CC: *NOT APPLICABLE*			
Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column.		***This CLAUSE NOT APPLICABLE***	
Schedule of component of other materials, labour etc. for price escalation.			
	Component of civil (except materials covered under clause 10CA) / Electrical construction value of work:	Xm	***---%***
	Component of Labour	Y	***---%***

Note: Xm percentage should be equal to (100) – (Materials covered under clause 10CA i.e. cement, still, POL and other materials specified in clause 10CA +component of Labour)

Clause – 11:	
Specifications to be followed for execution of this work	***As per tender documents***

Clause – 12: Type of Work - Projects and Original Works

12.2 & 12.3	Deviation Limit beyond which clauses 12.2 & 12.3 **(i)** Superstructure & foundation work (except items mentioned in earthwork and related items)	**30** %
	(ii) Items mentioned in earth work and related items.	**100**%

Clause – 16:	Competent Authority for deciding reduced rates :	**Chairperson, I-CDC, IPR**

Clause – 18:	List of mandatory machinery, tools & plants to be deployed by the contractor at site ***(To be decided based on nature and magnitude of the work, as and when required, as decided by EIC)***

Note: The list of machinery, tools & plants to be deployed by the contractor at site are minimum. The contractor shall deploy additional machinery, tool & plants in order to maintain the progress of the work without any extra cost to the department.

Clause 25	Constitute of Dispute Redressal Committee (DRC)	**To be appointed by Director IPR as and when required.**
	Place of Arbitration	**Institute For Plasma Research (IPR), Bhat Gandhinagar- 382428 (Gujarat)**

Clause – 36(i):			**Requirement of Technical Representative(s) & recovery Rate**			
Sl. No.	Minimum Qualification of Technical Representative	**Discipline**	Designation (Principal Technical / Technical representative)	Min. Exp.	No.	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i).
1	Graduate (Degree)/ Diploma Engineer	Electrical	Project Manager cum planning/ quality/Site/billing Engineer	2/ 5	1	Rs. 15,000/-

Note: Assistant Engineer retired from Government services that are holding Diploma will be treated at par with Graduate Engineers

Clause – 42:		
(i)	(a) Schedule / statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule Rates---------- Printed by CPWD:	Schedule/statement for determining theoretical quantity of cement & bitumen on the basis given in the tender
(ii)	**Variations permissible on theoretical quantities.**	
A	**Cement**	
	i) For works with estimated cost put to tender not more than ***Rs.5 Lakhs***	***3% plus / minus***
	ii) for works with estimated cost put to tender more than ***Rs.5 Lakhs***	***2% plus / minus***
b	Bitumen for All works	***2.5% plus & only & nil on minus side***
c	Steel reinforcement and structural steel sections for each diameter, section and category.	***2.0% plus /minus***

D	All other materials.	**Nil**

RECOVERY RATES			
S. No.	**Description of Item**	**Rates in figures & words at which recovery shall be made from the Contractor- Not Applicable**	
		Excess beyond permissible variation	Less use Beyond permissible variation
1	Cement OPC	***Nil***	***Nil***
2	Cement PPC	***NIL***	***NIL***
3	Rebar's	***Nil***	***Nil***

SECTION: 3

Safety Codes and labour Regulations

SECTION: 3 - (i) SAFETY CODE

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a 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 hand-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1/4 to 1 (1/4 horizontal and 1 vertical.)

2. Scaffolding of staging more than 3.6 m (1 2ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6 m (l2ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.

4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm. (3ft.)

5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder up to and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least 1/4" for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.

6. (a) Excavation and Trenching - All trenches 1.2 m. (4ft.) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof Ladder shall extend from bottom of the trench to at least 90 cm. (3ft.) above the surface of the ground. The side of the trenches which are 1 .5 m. (5ft.) 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 collapsing. The excavated materials shall not be placed within 1 .5 m. (5ft.) 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 undercutting shall be done.

(b) Safety measures for digging Boreholes:-

(i) If the bore well is successful .It should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned one should completely refilled to avoid caving and collapse;

(ii)During drilling, Sign boards should be erected near the site with the address of the drilling contractor and the Engineer-In-Charge of the work.

(iii) Suitable fencing should be erected around the well during the drilling and after the Installation of the rig on the point of drilling, flags shall be put 50m around the point of drilling to avoid entry of people;

(iv)After drilling the bore well, cement platform (0.50m x0.50 m x1.20 m) 0.60 m above ground level and 0.60 m below ground level should be constructed around well casing;

(v) After the completion of the bore well , the contractor should cap the bore well properly by welding steel plate, cover the bore well with drilled wet soil and fix thorny shrubs over the soil .This should be done even while repairing the pump;

(vi) After the bore well is drilled the entire site should be brought to the ground level.

7. Demolition - Before any demolition work is commenced and also during the progress of the work,

(i) All roads and open areas adjacent to the work site shall either be closed or suitably protected.

(ii) No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

(iii) All practical steps shall be taken to prevent danger to persons 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.

8. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned: - The following safety equipment shall invariably be provided.

(i) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

(ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes shall be provided with protective goggles.

(iii) Those engaged in welding works shall be provided with welder's protective eye-shields.

(iv) Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

(v) When workers are employed in sewers and manholes, which are in active use, the contractors shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into the manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public. In addition, the contractor shall ensure that the following safety measure are adhered to :-

(a) Entry for workers into the line shall not be allowed except under supervision of the JE or any other higher officer.
(b) At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manhole for working inside.

(c) Before entry presence of Toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and gives indication of their presence.

(d) Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

(e) Safety belt with rope should be provided to the workers. While working inside the manholes such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

(f) The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

(g) No smoking or open flames shall be allowed near the blocked manhole being cleaned.

(h) The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

(I) Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-in-Charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

(j) Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

(k) Air-blowers should be used for flow of fresh air through the manholes. Whenever called for portable air blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at least 2 meters away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

(l) The workers engaged for cleaning the manholes/sewers should be properly trained before allowing to work in the manhole.

(m) The workers shall be provided with Gumboots or non-sparking shoes bump helmets and gloves non sparking tools safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

(n) Workmen descending a manhole shall try each ladder stop or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

(o) If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.

(p) The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-in-Charge regarding the steps to be taken in this regard in an individual case will be final.

(vi) The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following precaution should be taken:

(a) No paint containing lead or lead .Products shall be used except in the form of paste or readymade paint.

(b) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scraped.

(c) Overalls shall be supplied by the contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on the cessation of work.

9. An additional clause (viii) (i) of Institute Safety Code (iv) the Contractor shall not employ women and men below the age of 18 on the work of painting with product containing lead in any form. Where ever men above the age of 18 are employed on the work of lead painting, the following principles must be observed for such use:

(i) White lead, sulphate of lead or product containing these pigment, shall not be used in painting operation except in the form of pastes or paint ready for use.

(ii) Measures shall be taken, wherever required in order to prevent danger arising from the application of a paint in the form of spray.

(iii) Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scraping.

(iv) Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.

(v) Overall shall be worn by working painters during the whole of working period.

(vi) Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled by painting materials.

(vii) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority of Institute.

viii) Institute may require, when necessary medical examination of workers.

(ix) Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

10. When the work is done near any place where there is risk of drowning, all necessary equipment's 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 obtained during the course of the work.

11. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions

(i) (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.

(b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

(ii) Every crane driver or hoisting appliance operator, shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding winch or give signals to operator.

(iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

(iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regards contractor's machines the contractors shall notify the safe working load of the machine to the Engineer-in-Charge whenever he brings any machinery to site of work and get it verified by the Electrical Engineer concerned.

12. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings watches and carry keys or other materials which are good conductors of electricity

13 All scaffolds ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

14. These 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.

15. 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 or Engineer in Charge of the department or their representatives.

16. notwithstanding the above clauses from (1) to (15) there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

SECTION: 3 - (ii) SAFETY WITH SCAFFOLDINGS:

INTRODUCTION:

1. Following paragraphs deals with the safety regulations and precautions to be followed in the construction use, maintenance, etc. of scaffolds. This will serve as a guide to users of scaffolds in the construction and maintenance operation.

2. Suitable scaffolds are used for performing work that cannot be done from the ground, part of a permanent structure a ladder or other available means of support.

Scaffolds are used in many construction and maintenance operations. Fall of person is the most common hazard accompanying the use of scaffolds because of the height usually involved.

1. General Requirements:

1.1 Every scaffold and its supporting members should be designed to support given load, with a safety factor of at least four. No alterations should be made that might impair the strength of such structures, no improvised, make-shift or substandard scaffold should be permitted even for the most temporary use.

1.2 All work in connection with such structures, including construction, alteration and removal should be carefully done under the direction and supervision of persons who have had experience in such works.

2. **Materials of Construction:**

2.1 Every scaffold and every part thereof, including supports, should be of good construction, sound material, of adequate strength for the purpose which it is meant to be used and should be properly maintained. Planks should be laid flat with an overlap, lengthwise, of at least 30 cm. with the center of the overlap directly over a bearer. Boards and planks used for the floors should be of uniform thickness, closely laid and securely fastened in place.

2.2 All lumber used in the construction of scaffolds should be sound, straight-grained, free from cross-grains, shakes and loose or dead knots. It should also be free from dry rot, large checks, worm holes, or other defects impairing its strength or durability.

2.3 All nails used in the construction of scaffolds, staging and supports should be of ample size and used in sufficient quantities at each connection to develop the designed strength of scaffold. Nails should penetrate to the holding piece to a depth of at least 12 times the diameter of nail.

2.4 Barrels, boxes, loose tile blocks, loose piles of bricks or other unstable objects should not be used to support planks used as working platforms.

3. **Platforms, Railings and Tee-Boards:**

3.1 The minimum uniformly distributed design load per Sq. m. of platforms should be 250 kg. Any concentrated load at any point in the span should not exceed the designed uniformly distributed load. Planks should not be less than 50 mm thick.

3.2 The rear of outer side of every scaffolding, platform and ramp more than 2M above the surrounding ground or solid' construction, or adjacent to deep holes, excavations, railroad tracks, high tension electrical wires, should be provided with a substantial guard rail of standard construction consisting of top and intermediate rails, and toe-boards all supported by posts and securely connected to scaffold at intervals of not more than 2.4 M (See figure - 1).

3.3 The width of the scaffolds should be such as to provide a clear walkway 50 cm. wide. If part of the width of scaffold is to be used for keeping materials such as brick, mortar or lumber, the scaffold should be made wider so as to provide a walkway of the required width.

3.4 Where scaffolds are erected over sidewalks or over areas in which persons must work or pass, the space between the railing and toe-board should be fitted with side screens.

3.5 There should be a screen or other protection suspended from the scaffold to catch materials that may fall from above. Screens should extend beyond the edge of the scaffold to catch any materials that may fall over the edges.

4. **Means of Access:**

4.1 A safe and convenient means of access should be provided to the platform or scaffold. This requirement does not apply to swinging scaffolds or those with convenient access from adjacent floors (see figure - 2). Means of access may be a portable ladder. Fixed ladder, ramp or it may be a stairway. The use of cross braces or frame work as means of access to the working surface should not be permitted.

4.2 If scaffolds are to be used to a great extent or for a long period of time, a regular plank stairway, wide enough to allow two persons to pass, should be erected. Such stairways should have handrails on both sides.

4.2.1 No stairway or run of slope exceeding 2 in 3 should be used.

4.2.2 Where the slope of a stairway or run renders additional foot hold necessary, and in every case where the slope is more than 1 in 4, there should be provided proper stepping laths which should:
(a) Have a minimum section of 50 x 30 mm and be placed at maximum interval of 45 cm and

(b) Be of length to cover the full width of the stairway of run except that they may be interrupted over a width of not more than 10 cm to facilitate the movement of barrows.

5. **Overhead Protection:**

5.1 Overhead protection should be provided on the scaffold whenever persons are working at higher places. This protection should be not more than 3m above the scaffold floor and should be of planks or other suitable materials.

6. **Use of Scaffolds:**

6.1 Good housekeeping should be maintained at all times upon scaffolding, platforms and ramps. Excessive storage of materials thereon should be avoided. Care must be taken to avoid accumulating of small objects, such as boards, tools, pieces of reinforcing steel, waste concrete which may easily be disturbed on knock off. Hand rails should be kept in good repair and securely nailed or otherwise fastened down. Scaffold should be cleared of all tools, materials and rubbish at the end of each working day/shift.

6.2 Persons should not be permitted on scaffolds when the platform or guard rails are slippery. Persons should not be permitted to work on scaffolds during a storm or strong winds.

6.3 Suspended scaffolds should never be used for the storage of stone or heavy materials. Two or more swinging scaffolds should not at any time be combined into one by bridging the distance between them with planks or any other form of connection. Life lines securely fastened from above

should be provided for each person working on a swinging scaffold. Safety belts should be tied to the life lines (See figure - 3).

7. **Inspection:**

7.1 As scaffolds have to remain in position normally for many weeks, they must be inspected at least once a week to make sure that nothing has gone wrong since erection. In addition, they must always be inspected after a spell of bad weather which might have affected their stability.

7.2 The inspections must be carried out by someone who knows the faults to look for and how they may be put right. It is important to know that the work of inspection has been completed and what faults have been found, the results of each Inspection must, therefore be recorded. Any scaffold damaged or weakened from any cause should be immediately repaired and persons should not be allowed to use it until repairs have been completed.

8. **Dismantling:**

8.1 The dismantling of scaffold should be carefully done under experienced supervision. Care should be taken not to drop small, loose objects when removing scaffold planks. All nails should be promptly removed from scaffold planks and the planks safely piled.

9. **Precautions against particular Hazards:**

9.1 Care should be taken to see that no un-insulated electric wire exists within 3M. Of the working platform, stairway etc. of the scaffold.

9.2 While carrying bars, rods or pipes of any conducting material of length greater than 3 M. in the vicinity of electric wires, special care should be taken that these bars do not touch the electric wires.

9.3 Care should be taken against any possibility of wooden scaffold catching fire. In suspended scaffolds, if a blow torch or other flame is used for removing paints, only wire ropes not less than 10mm in diameter should be used.

9.4 Care should be taken to see that no part of a scaffold is struck by a truck or other heavy moving equipment and no material should be dumped against it.

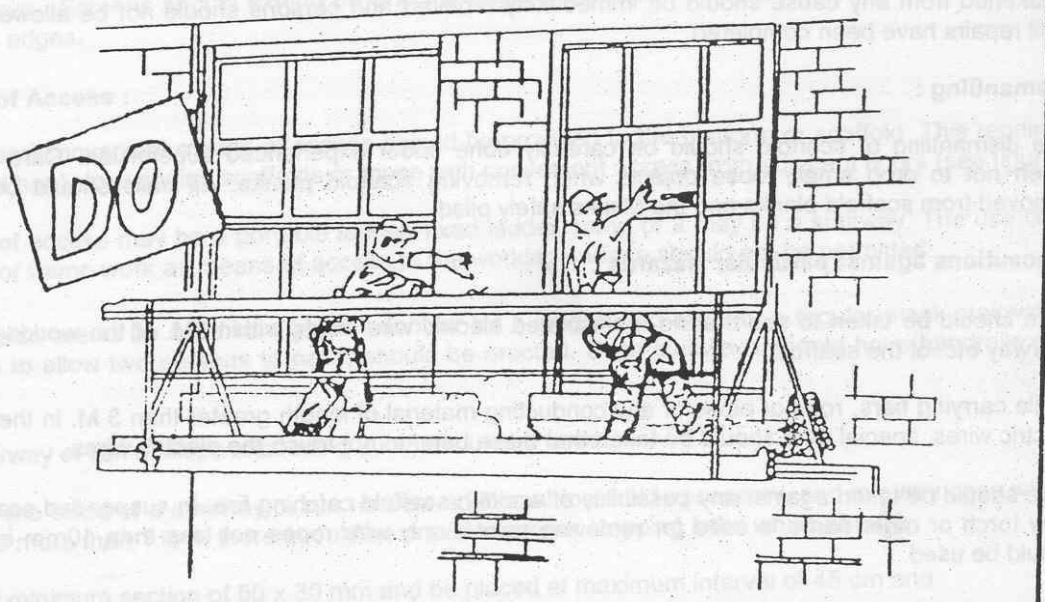
9.5 Scaffolds on thoroughfare should be provided with light.

9.6 Access to cable tunnels, hydrants, etc. should remain free at all times.

9.7 Care should be taken from damaging underground cables and equipment. This is especially important when parts of scaffolds for other fasteners have to be driven in the ground.

• GUARD RAILS •

THE REAR ON OUTER SIDE OF THE SCAFFOLD SHOULD BE PROVIDED WITH A SUBSTANTIAL GUARD RAIL OF STANDARD CONSTRUCTION



PERSONS SHOULD NOT BE ALLOWED TO WORK ON SCAFFOLDS WHERE THE EDGES ARE UNGUARDED. A SLIGHT SLIP WILL RESULT IN SERIOUS INJURY OR EVEN DEATH

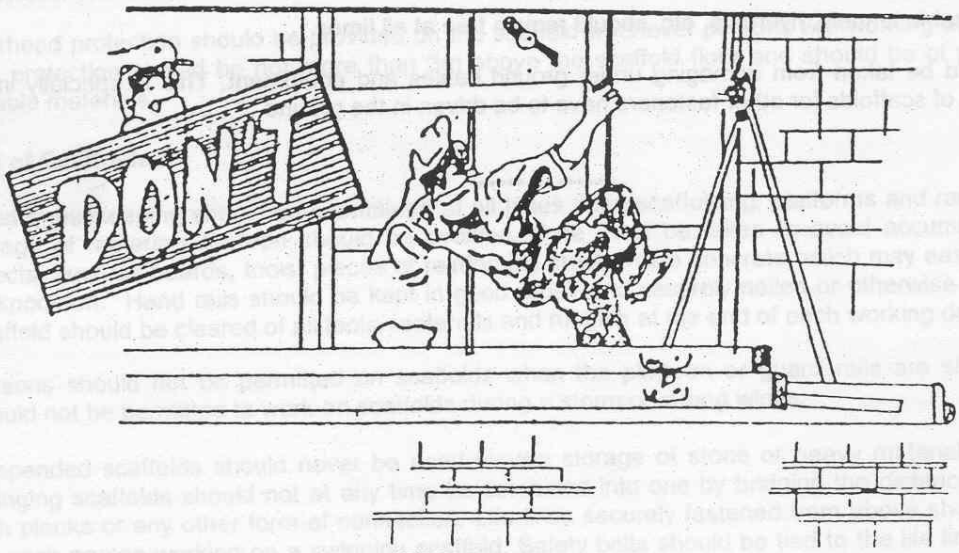
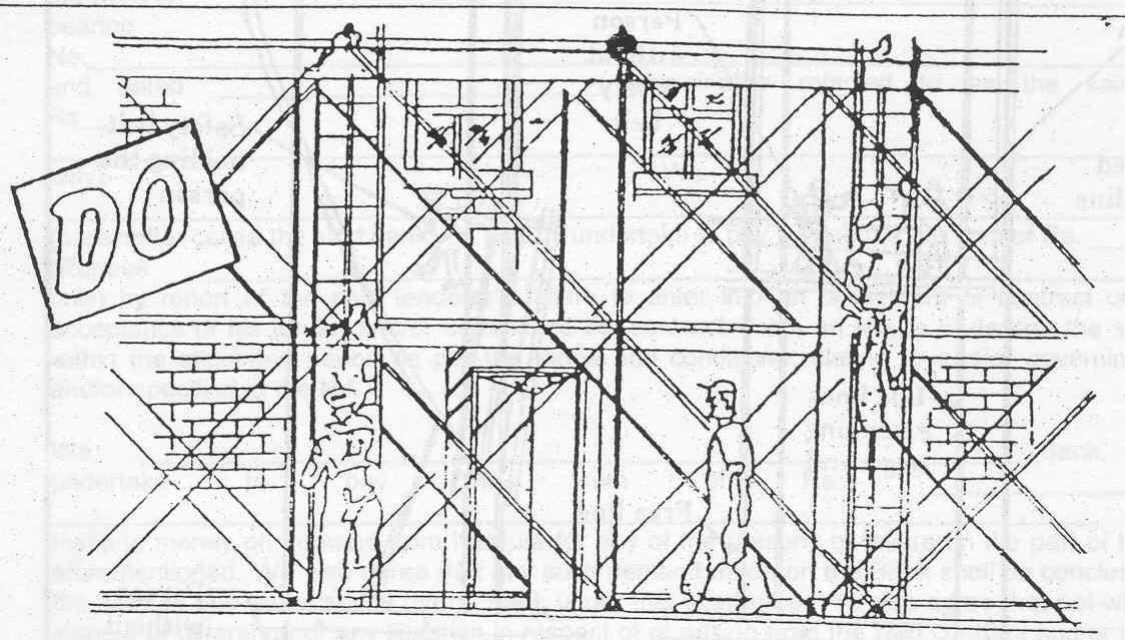


FIGURE — 1

FROM INDUSTRIAL SAFETY CHARTS-US DEPT. OF LABOUR.

• ACCESS •

A SAFE CONVENIENT MEANS OF ACCESS SHOULD BE PROVIDED TO THE SCAFFOLD



THE USE OF CROSS BRACES OR FRAME WORK AS MEANS OF ACCESS TO THE WORKING SURFACE SHOULD NOT BE PERMITTED

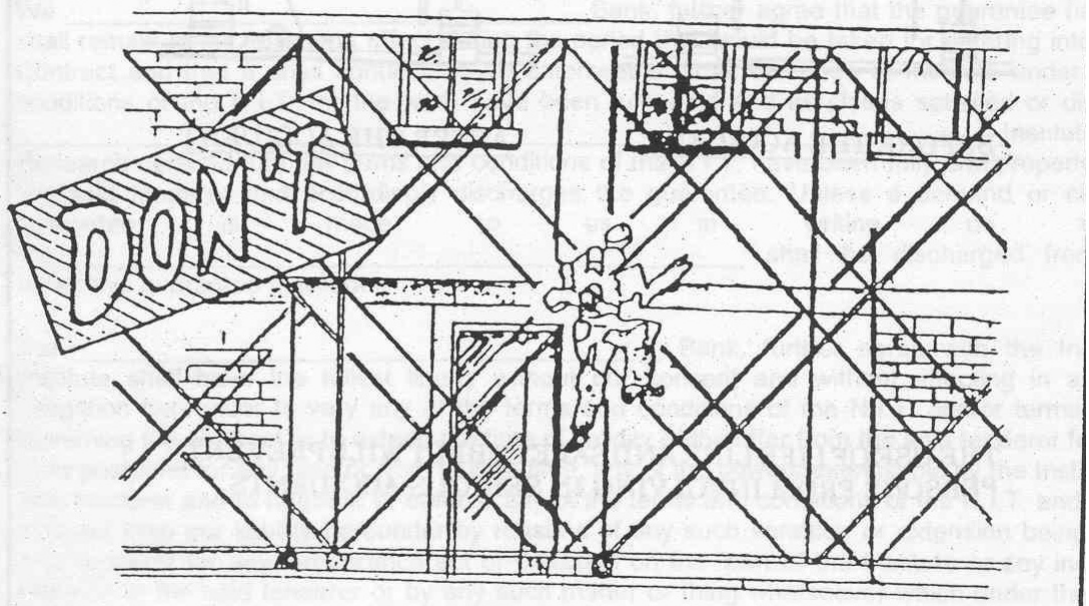
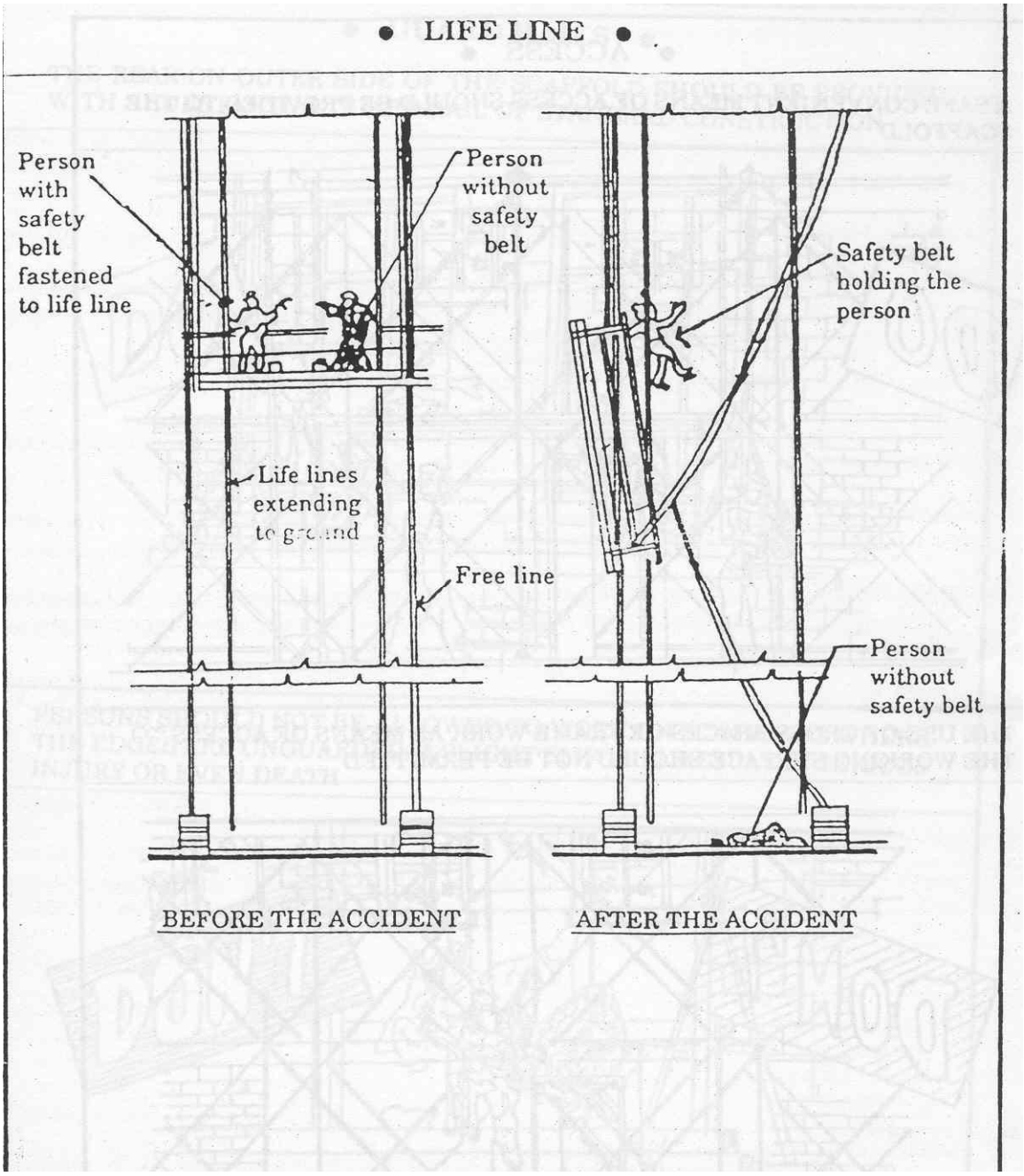


FIGURE — 2

FROM INDUSTRIAL SAFETY CHARTS-US DEPT. OF LABOUR.



THE USE OF LIFE LINE AND SAFTEY BELT WILL PREVENT PERSON FORM INVOLVING IN SERIOUS ACCIDINT

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SECTION: 3 - (iii) IPR Additional Safety Code

Note: In case of discrepancy between Safety code, Safety with Scaffolding and IPR Additional Safety code, the stringent one shall be followed.

	INSTITUTE FOR PLASMA RESEARCH	**Revision: 00**
	SAFETY PROTOCOL FOR CONTRACTORS OF ELECTRICAL/MAJOR INSTALLATION OF ELECTRICAL EQUIPMENTS/ MACHINARIES AND OTHER RELATED ACTIVITIES	**Eff. Date: 20.03.2014**

1. PURPOSE

The purpose of this protocol is to establish, implement and execute a safe and effective program for the prevention of incidents that may cause injury to persons or damage to the property. The specified responsibilities remain with the contractor for compliance.

2. SCOPE

2.1 This protocol shall be considered minimum requirements necessary for all works performed inside the Institute for Plasma Research (IPR) and associated centers/units/departments.

2.2 All the contractor while at IPR and associated centers/units/departments work site are required to ensure that themselves, their workers and employees, sub-contractors, suppliers, vendors and visitors, must comply with the provisions of this protocol.

2.3 The contractor shall review and educate their workers and employees about the stipulations of this protocol.

2.4 This protocol is in addition to the responsibility of the contractor towards safety, health and environmental compliance envisaged under law, code or statutory requirements.

3. PROTOCOL

3.1 The contractor has to provide appropriate Personal Protective Equipment's (PPE) like safety shoes, safety helmets, goggles, hand gloves, full body safety harnesses, etc. as required for safety of themselves, their workers and employees, sub-contractors, suppliers, vendors and visitors at site. All PPE must conform to relevant Indian and/or International Standards. These should be maintained in recommended condition by suitable storage, maintenance and inspection. IPR shall have right to examine the PPE and determine their suitability, reliability, acceptability and adaptability.

3.2 The contractor shall provide and maintain proper illumination, fencing, guards, stairs, ladders, scaffolding, warning signs, caution boards, etc. As required to ensure safe working conditions at site.

3.3 The contractor shall ensure that all floor and wall openings are fixed and properly guarded/barricaded during the course of work and at the end of each day's work with appropriate caution board.

3.4 The contractor must adhere to the requirements of Safety, Health and Environment (SHE) Policy of IPR, salient features of which are:

a. Continual improvement in its Safety, Health & Environment Performance,

b. Conservation of natural resources,

c.Waste minimization,

d. Compliance with applicable statutory and regulatory requirements,
e. Creating safety & environmental awareness to its employees and associates.

3.5 The contractor has to ensure to employ only persons who are medically fit and having sufficient skills for execution of work. The contractor must ensure efficient job supervision through educated, qualified, experienced and responsible supervisors to ensure safety at site.

3.6 All staff persons including workers must undergo Safety Induction Training prior to depute them at IPR and associated centers/units/departments for any kind of work. Training module may include video film, clippings, photographs etc. related to work execution. In addition to this, Job specific training must be imparted to the concerned workers periodically.

3.7 The contractor has to ensure that Daily Tool Box Talk shall be conducted at least for new workers by responsible work in-charge/supervisor for each activity and its record to be maintained.

3.8 The contractors themselves, their workers and employees, sub-contractors, if any, shall comply with the instructions given by the Safety Officer or his authorized nominee or IPR's representative regarding safety precautions, protective measures, housekeeping requirements, etc. IPR shall have the right at its sole discretion to stop the work, if the work is being carried out in such a way that it may cause accidents or harm to the workers or damage to the equipment's. Contractor shall get the unsafe condition removed and report to IPR.

3.9 The contractor shall have no right to claim any damages/compensations for stoppage of work due to safety reasons as provided in para 3.8 .The period of such stoppage of work will not be taken as an extension of time for completion of work or exemption from liquidated damages/compensation delay.

3.10 The contractor should ensure that water, fuel and energy are used judiciously. The water & power points must be closed / put off when not in use.

3.11 Good housekeeping practices must be followed strictly.

3.12 All equipment's used for electrical work, installation of electrical equipment's/machineries and other related work by the contractor must meet Indian/International standards. In case such standards do not exist, the contractor must ensure these to be absolutely safe. All equipment's shall be strictly operated and maintained in accordance with manufacturers' operation manual and safety instructions.

3.13 The contractor must not interfere or disturb electric, fuses, cables and other electrical equipment's belonging to IPR or another agency under any circumstances whatsoever unless expressly permitted in writing by IPR.

3.14 Contractor shall arrange adequate facilities for first aid, medical aid and treatment for his staff and workers engaged at the work site.The contractor has to fully be responsible for the behavior and conduct of themselves, their workers and employees and sub-contractors. Any cost of loss or damage to client's property caused by contractor's employees or workers will be recovered from the contractor.

3.15 In case of any accident that occurs during the maintenance/ fabrication/erection or associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to themselves, their workers and employees, sub-contractors due to any reason, it shall be the responsibility of the contractor to promptly inform IPR's Work in-charge and Safety Officer in prescribed form of IPR. This should also be informed to statutory authority, if required, under the applicable laws. The contractor shall maintain a register of accidents. In case the contractor fails to fulfil statutory requirements, IPR shall have the right to withhold contractors payments till the requirement are fulfilled.

3.16 The contractor shall plan his activities so as to avoid interference with the assignments of other departments and contractors at the site. In case of any interference, necessary coordination must be sought by the contractor from IPR for safe and smooth working.

3.17 All necessary precautions shall be taken to prevent outbreak of fires at the site. Adequate provisions or as recommended by Safety Officer of IPR must be made by the contractor to extinguish fires.

3.18 The contractor shall issue photo identity card for themselves, their workers and employees, sub-contractors to be deployed at site. They are required to be displayed prominently during the period of their stay within IPR and associated centers/units/departments.

3.19 The contractor shall obtain gate pass from IPR and associated centers/units/departments for entries and exists of all materials and equipment's.

3.20 Smoking and eating/chewing of tobacco is strictly prohibited at site.

3.21 Any person under the influence of any intoxicating beverage, even to the slightest degree shall not be permitted at work site.

3.22 Person below the age of 18 years must not be employed for any work at site

3.23 IPR may from time to time, add or amend to these protocols and issue directions.

3.24 The contractor shall comply with Safety Instructions as laid down in as per Annexure-I.

	INSTITUTE FOR PLASMA RESEARCH	Revision: 00
	SAFETY INSTRUCTIONS FOR CONTRACTORS OF ELECTRICAL/MAJOR INSTALLATION OF ELECTRICAL EQUIPMENTS/ MACHINARIES AND OTHER RELATED ACTIVITIES	Eff. Date: 20.03.2014

CONTENTS

1. GENERAL INFORMATION

1.1 The purpose of safety instruction document is to establish, implement and execute a practical and effective method for preventing accidents, injuries and property damage.

1.2 This document will help contractors and their associates to recognize, evaluate and control hazardous activities within their areas of responsibility.

1.3 This document defines the procedure with which safety practice will be administered, identifies responsibilities and ensures control of work area safety.

1.4 Contract agreement signed with contractors and the provisions of this document are intended to complement each other to ensure safe working conditions.

1.5 The provisions of this document apply to IPR and associated centers/units/departments.

1.6 Throughout this document, reference to a contractor means the contractor's company and the associated subcontractors, consultants, vendors and suppliers. Reference to contractor's management means personnel responsible for managing, supervising or directing contract activities and employees.

1.7 Non-compliance of this document is treated as non-compliance of contract agreement that may result in warning/penalty. Willful or repeated non-compliance may result in contractor dismissal and contract termination.

1.8 This document for contractors is a supplementary document to statutory rules, codes and regulations having jurisdiction, and does not negate, abrogate or minimize any provisions of these rules, codes and regulations. It is intended to supplement and enforce the individual program of the contractor and to coordinate the overall safety effort. Contractors are responsible for the safety and health of their employees, subcontractors, consultants, vendors, suppliers, and visitors while in IPR and associated centers/units/departments.

1.9 Contractor's managers and supervisors are responsible for preventing incidents or conditions that could lead to incidents, injuries, illness or fatalities. The ultimate success of the safety program depends on the cooperation of everyone. The contractor's management must ensure that safety provisions are enforced and that effective training and education programs are employed.

2. ROLE OF THE CONTRACTOR

2.1Top Management of the Contractor

The commitment of top management of the contractor towards safety is very important. Top management needs to ensure the following:

2.1.1 To implement safe methods and practices, deploy appropriate machineries, tools & tackles, experienced supervision and skilled workforce, etc. required for execution.

2.1.2 To ensure that employees and workers deployed are physically and mentally fit. They should possess requisite skill, qualification, experience etc.

2.1.3 To deploy qualified and trained safety supervisor, safety officers and/or safety manager reporting to site In-charge for supervision, co-ordination and liaison for the implementation of safety.

2.1.4 To ensure that the employees and workers have appropriate health and safety training. The certification of such training should be produced for verification, on demand.

2.1.5 To obtain all necessary and applicable licenses, permits, and insurance policy of his employees and workers before executing any work. A copy of the same must be submitted to the relevant authority at IPR.

2.1.6 To ensure that all incidents (minor/major injuries, fatality, fire, property damage etc.) including near misses shall be reported to the relevant authority at IPR immediately verbally as well as in written format of IPR. Also, keep record for the same.

2.1.7 The liability for any compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.
2.1.8 To provide personal protective equipment's required for the safety and first-aid kits at worksite.
2.1.9 To maintain appropriate records of all employees and workers deployed to carry out the work at site.
2.1.10 Contractor shall not employ any labour below 18 years of age.
2.1.11 A photo gate pass duly approved by IPR administration shall be issued by the contractor to their personnel, employees, subcontractors, etc.
2.1.12 To co-operate with all the security arrangements of IPR.
2.1.13 Contractor may ask for clarifications required in safety related issues, whenever a need arises.
2.1.14 To follow and implement all the safety rules and regulations of the local bodies, state, national and international. Contractor shall also comply with all the statutory requirements and notifications, as applicable, in relation to employment of his employees issued time to time by the concerned authorities.

2.2Contractor Safety Officer, Safety Supervisor and/or Job Supervisor

The duties and responsibilities of the contractor safety officer, safety supervisor and/or job supervisor shall include the following:

2.2.1 To assess the hazards associated with work at site in consultation with all concerned and establish safe working procedure.
2.2.2 To establish a written records of factors that can cause injuries, illness or other safety related problems.
2.2.3 To undertake routine/surprise inspections of all work sites to ensure compliance with safety standards, codes, rules, regulations and orders applicable to the work concerned.
2.2.4 To check whether the proposed working arrangements/procedures are safe and satisfactory, particularly at the interface between contractors planned work and IPR facilities.
2.2.5 To ensure that required guards and protective equipment are provided, used and properly maintained.
2.2.6 To ensure that the workers understand the working procedures for carrying out the work safety and the hazards that may be encountered.
2.2.7 To take immediate actions to correct any violation of safety rules observed or reported.
2.2.8 To ensure that appropriate warning signboards and tags are displayed.
2.2.9 To report each incident and/or injury in accordance with established procedures and assists during investigation.
2.2.10 To arrange tool box meeting daily and shall continue this process to make workmen safety conscious. To keep a constant liaison with the relevant authority at IPR on safety issues.

2.3Contractor Employees

The duties & responsibilities of the contractor employees should include the following:

2.3.1 The contractors' employees must be trained for safety standards, procedure to carry out high risk job (if involved), use of Personal Protective Equipment's (PPEs) in general and specific for a particular job, emergency preparedness and fire extinguisher and medical first-aid.
2.3.2 To perform work safely as per the job requirements/instructions and wear appropriate PPEs.
2.3.3 To inform promptly to their management regarding all work related incidents resulting in personal injury, illness and/or property damage, etc.
2.3.4 To take all necessary and appropriate safety precautions to protect themselves, other personnel and the environment.

3. PENALTY FOR NON-COMPLIANCE

The following penalties shall be imposed on the contractor by the IPR and shall be deducted from his running/final bill.

Sr. No.	Non-Compliance/Violation of Safety Protocols/Rules/Norms	Penalty
1.	Non-use of PPE like Safety Helmet / Safety Shoes etc.	Rs. 100 per day/person
2.	Over speeding (> 30Km/Hr.) / rash driving or improper parking	Rs. 100 per occasion
3.	Non-use ELCB/MCB, Use of non-standard socket, poor cable joint, laying wire/cables on floor, non-use of socket, electrical jobs by incompetent person	Rs. 200 per day/case
4.	Working at height without full body safety harness, using non-standard scaffolding and not arranging fall protection arrangement	Rs. 500 per day/case
5.	Handling of compressed gas cylinders without trolley and double gauge regulator, Improper keeping/storage of gas cylinder	Rs. 200 per day/case
6.	Use of domestic LPG for cutting purpose.	Rs. 200 per day/case
7.	No fencing/barricading of excavated/open areas.	Rs. 200 per day/case
8.	No provision of firefighting equipment during hot works. Use of firewater for purpose other than firefighting.	Rs. 200 per day/case
9.	No reporting of Nearmiss/First-aid/Injury/Property damage/Minor fire etc. incidents	Rs. 500 per case
10.	Poor Housekeeping	Rs. 200 per day/case
11.	No deployment of safety officer/safety supervisor responsible for safety at work site as mentioned in Chapter No. 5	Rs. 500 per day

Safety Officer or any other officer authorized by IPR will report safety violation to the concerned Engineer In-charge for imposing necessary penalty. Engineer-in-charge shall ensure that the penalty amount has been deducted from the running bill of contractor. Imposing any penalty for violation of safety norms does not absolve the contractors from their contractual obligation/ responsibility. Contractor shall be fully responsible for any accident and/or injury to their employees or property due to violation of safety norms.

4. PROVISION FOR SAFETY SUPERVISOR/SAFETY OFFICER OF CONTRACTOR

The contractor shall depute at least one Safety Supervisor / Safety Officer for critical activities as follows,

i. Work at height (working beyond 2.5 mtr. above ground).
ii. Materials and Material Handling which includes movement of heavy material by crane, movement of tractor trolley on slopes, Manual lifting of heavy material to height, erection of heavy machinery, equipment, etc.
iii. Loading and unloading of equipment, structural materials, machineries, etc., Fabrication and erection work.
iv. Working near high voltage lines, electrical installations, etc., charging of electrical system, transformers, switch yard, switch gears, etc.
v. Work related to welding, gas cutting, grinding, etc.

In addition to above list, IPR may also recommend for some specific tasks, which are not covered, to depute Safety Officer/Safety Supervisor.

Safety supervisor shall be qualified of minimum Diploma in Engineering/ Graduate in Science with approved course in the field of safety and/or fire. He shall able to read and understand English and speak regional/national language. He shall have experience as safety supervisor for a period of

minimum one year.

Safety Officer shall be qualified of minimum Bachelor in Engineering/ Post Graduate in Science with approved course in the field of Safety and/or Fire. Safety Officer shall have good communication and written skill to liaison with the client. He shall have good command in English and regional/national language. He shall have experience for a period of minimum three years of supervisory level.

5. GENERAL SAFETY PROVISIONS

5.1 Personal Protective Equipment

The contractor is responsible to provide all necessary standard make (ISI marked) personal protective equipment (PPE) suitable to give sufficient protection against hazards involved in their work / job to their employees, as per the job requirement and insist/enforce their staff to put on the same while atworks and ensure that the PPEs are properly used and maintained in a condition suitable for immediate use. The contractor shall have sufficient stock of various PPEs to avoid any shortage of supply and shall take adequate steps to ensure proper use of equipment by those concerned. The ongoing work is liable to be stopped at any time if the contractor's staff is found working without PPEs.

5.1.1 All persons employed at site shall use safety helmets. For other types of works, persons working in that area shall also use safety helmets, if advised by Safety Engineer/Engineer-In-Charge.

5.1.2 Persons engaged in welding and gas-cutting works shall use suitable welding face shields. The persons who assist the welders shall use suitable goggles. Protective goggles shall be worn while chipping and grinding.

5.1.3 All persons working at heights more than 2.5 m above ground or floor and exposed to risk of falling down shall use full body safety harness, unless otherwise protected by cages, guard railings, etc. In places where the use of safety harness is impractical, suitable net of adequate strength fastened to substantial supports shall be employed.

5.1.4 When workers are employed in sewers and inside manholes, which are in use, the Contractor shall ensure that the manholes are opened and are adequately ventilated at least for an hour. After it has been well ventilated, the atmosphere inside the Space shall be checked for the presence of any toxic gas or oxygen deficiency and recorded in the register before the workers are allowed to get into the manholes. The manholes opened shall be cordoned off with suitable railing and provided with warning signals or caution boards to prevent accidents. There shall be proper illumination in the night.

5.1.5 The following is the list of various PPEs to be used for various works/worksites,

List of Safety Equipment's

Sr. No.	PPE	Purpose
01	Industrial Safety Helmet	For protection of head against falling objects or during fall of person from height.
02	Safety Goggles (Grinding, Welding, etc.).	For protection of eyes against flying particles / dust, chemical splash, spark, arc, flashover etc.
03	Face shield	For protection of face against flying particles / dust, chemical splash, spark, arc, flashover etc.
04	Ear plug / Ear muffs	For ear / hearing system protection while working in high noise level area.

05	Apron(PVC /cry/Cotton)	For body protection against chemicals, oils, cryogenics, sharp edged objects, heat, hot objects etc.
06	Gloves (Nitrile/Leather, cry, Electrical shock proof)	For protection of hands against chemicals, oils, cryogenics, sharp edged objects, heat, hot metals/objects, electricity etc.
07	Safety Shoes	For protection of leg/feet against falling objects, sharp-edged objects, heat, hot metals/objects, electricity etc.
08	Full body safety harness/	For fall prevention while working at heights or in depth, working in vessel or in confined space.
09	Dust Respirator	Protection of respiratory system against dust.
10	Self-contained breathing apparatus (SCBA) set	Working in oxygen deficient areas.

5.2 Electricity

The following are provided for general guidance of the Contractor and shall be read as specific requirement, in addition to complying with Indian Electricity Act, Indian Electricity Rules and IS Specifications.

5.2.1 Only qualified electricians familiar with code requirements are allowed to perform electrical work.

5.2.2 Employees are not permitted to work near an unprotected electrical power circuit unless they are protected against electrical shock by de-energizing the circuit and grounding it, or are protected by effective insulation or other means, and are wearing .required personal protective equipment.

5.2.3 The electric power supply will be generally made available at one point in the works site of the contractor by the IPR.

5.2.4 All three phase equipment shall be provided with double earthing. All light fixtures and portable equipment shall be effectively earthed to main earthing.

5.2.5 All earth terminals shall be visible. No gas pipes and water pipes shall be used for earth connection. Neutral conductor shall not be treated as earth wire.

5.2.6 The contractor shall not connect any additional load without prior permission of IPR.

5.2.7 Joints in earthing conductors shall be avoided. Loop earthing of equipment shall not be allowed. However tapings from an earth bus may be done.

5.2.8 Electrical equipment and installations shall be installed and maintained as to prevent danger from contact with live conductors and to prevent fires originating from electrical causes like short circuits, overheating etc. Installation shall not cause any hindrance to movement of men and materials.

5.2.9 Materials for all electrical equipment shall be selected with regard to working voltage, load and working environment. Such equipment shall conform to the relevant standards.

5.2.10 Electric fuses and/or circuit breakers installed in equipment circuits for short circuit protection shall be of proper rating. It is also recommended that high rupturing capacity (HRC) fuses be used in all circuits. For load of 5 KW or more earth leakage circuit breaker of proper rating shall be provided in the circuits.

5.2.11 Wires and cables shall be properly supported and approved method of fixing shall be adopted. Cables shall not be left on floor/ground. Loose hanging of wires & cables shall be avoided. Lightning and power circuits shall be kept distinct and separate.

5.2.12 Reinforcement rods or any metallic part of structure shall not be used for supporting wires and cables, fixtures, equipment, earthing etc.

5.2.13 All cables and wires shall be adequately protected mechanically against damages. In case, the cable required to be laid underground, it shall be adequately protected by covering the same with bricks, Plain Cement Concrete (PCC), tile or any other approved means.

5.2.14 All armored cables shall be properly terminated by using suitable cable glands. Multi-stranded

conductor cables shall be connected by using cable lugs/ sockets. Cable lugs shall preferably be crimped. They shall be of proper size and shall correspond to the current rating and size of the cable. Twisted connections will not be allowed.

5.2.15 All the Distribution Boards, Switch Fuse units, Bus bar chambers, ducts, cubicles etc. shall have MS enclosures and shall be dust, vermin and waterproof. The Distribution Boards, switches etc. shall be so fixed that they shall be easily accessible.

5.2.16 The Contractor shall provide proper enclosures/covers of approved size and shape for protection of all switch boards, equipment etc. against rain.

5.2.17 Isolating switches shall be provided close to equipment for easy disconnection of electrical equipment or conductors from the source of supply, when repair or maintenance work has to be done.

5.2.18 All connections to lighting fixtures, starters or other power supplies shall be provided with PVC insulated, PVC sheathed twin/three/four core wires to have better mechanical protection for preventing possible damage to equipment or injury to personnel. Taped joints shall not be allowed and the connections may be made in looping system. Electric starter of motors, Switches shall not be mounted on .wooden boards. Only sheet steel mounting or iron framework shall be used.

5.2.19 Only PVC insulated and PVC sheathed wires or armored PVC insulated and sheathed cables shall be used for external power supply connections of temporary nature. Weatherproof rubber wires shall not be used for any temporary power supply connections. Taped joints in the wires shall not be used.

5.2.20 All portable appliances shall be provided with three-core cable and three-pin plug. The third pin of the plug shall invariably be earthed. It shall be ensured that the metal part of the equipment shall be effectively earthed.

5.3 House Keeping

5.2.1 The Contractor shall at all times keep his work spot, site office and surroundings clean and tidy from rubbish, scrap, surplus materials and unwanted tools and equipment so as not to create unsafe condition or fire hazard.

5.2.2 Welding and other electrical cables shall be properly routed.

5.2.3 No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

5.2.4 Cleaning of the work area at the end of the day and upon completion of work is a part of the job.

5.2.5 The Engineer-in-charge has the right to stop work if the Contractor fails to improve upon the housekeeping after having been notified.

5.3 Fire Safety

5.2.6 All necessary precautions shall be taken to prevent outbreak of fires at the site. Adequate provisions shall be made to extinguish fires, if it still breaks out.

5.2.7 Quantities of combustible materials like timber, bamboos, coal, paints, etc., shall be kept minimum in order to avoid unnecessary accumulation of combustibles at site.

5.2.8 Containers of paints, thinners and allied materials shall be stored in a separate room which shall be well ventilated and free from excessive heat, sparks, flame or direct rays of the sun. The containers of paint shall be kept covered or properly fitted with lid and shall not be kept open except while using.

5.2.9 Fire extinguishers shall be located at the site at appropriate places.

5.2.10 Adequate number of workmen shall be given education and training in firefighting and extinguishing methods.

5.4 Scaffolding:

5.2.11 Accidents are also caused by the ladders falling or the climber losing his balance or failure of scaffolds. As such, utmost care should be taken as ladder and scaffolding are extensively used for maintenance and construction purpose. Some of the safe practices as listed below are to be observed before commencement of work.

5.2.12 Adequate and safe means of access and exit shall be provided for all work places, at all elevations. Using of scaffolding members (avoiding a ladder) for approach to high elevations shall not be permitted.

5.2.13 Suitable scaffolds shall be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short duration work as can be done safely from ladders. Ladder shall be of rigid construction having sufficient strength for the intended loads and made either of good quality wood or metal and all ladders shall be maintained well for safe working condition.

5.2.14 Short ladder must not be tied together to give greater lengths. All ladders of 6 m or above should be tied to the structure on which they are resting to prevent from. An extra worker shall be engaged for holding the ladder if ladder is not securely fixed. If the ladder is used for carrying materials, suitable foot holds and handholds shall be provided on the ladder. The ladder shall be given an inclination not steeper than 1 in 4(1 horizontal and 4 vertical). Ladders shall not be used for climbing carrying materials in hands. While climbing both the hands shall not be free.

5.2.15 The free length must extend by 1.5 meters above the point of landing but should not be more than 1/4th of the ladder length. No portable single ladder shall be over 9 meter in length. Metal ladders may not be used for electrical work.

5.2.16 Scaffolding or staging more than 3.5 m above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a standard guard rail properly attached, bolted, braced or otherwise secured at least 1.0 m high above the floor or platform of such scaffolding or staging. The guard rail shall extend along the entire exposed length of the scaffolding with only such opening as may be necessary for the delivery of materials. Standard railing shall have posts not more than 2 m apart and an intermediate rail halfway between the floor and platform of the scaffolding and the top rail. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure. Scaffolding and ladder shall conform to relevant IS specification (IS: 3696). Timber/Bamboo scaffolding shall not be used.

5.5.1 Working platforms of scaffolds shall have toe boards at least 15 cm in height to prevent materials from falling down.

5.5.2 Every part of scaffolding must be of sound construction. Steel planks used in scaffolds should be carefully inspected and should be tied on both sides with suitable fixing arrangements to the pipes. Scaffolding must not be overloaded.

5.5.3 The Steel pipe & clamp to be used must be of good quality. The spacing between the vertical & horizontal members of the scaffolding should not be more than 1.5m and 1 meter respectively. The scaffolding should be further strengthened with cross bracing and stays.

5.5.4 The scaffolds should be provided with short climbs ladders for safe ascending/ descending of workmen in the job. Only those workmen who are well trained/ experienced in erecting scaffolding should be engaged for scaffolding work. The men working in the actual erection/dismantling of the scaffolding and all persons using the scaffolding must use appropriate PPEs.

5.5.5 A sketch of the scaffolding proposed to be used shall be prepared and approved by the Engineer-in charge, prior to start of erection of scaffolding. All scaffolds shall be examined by Engineer-In-Charge before use.

5.5.6 Working platform, gangways and stairways shall be so constructed that they shall not sag unduly or unequally and if the height of the platform or gangway or stairway is more than 3.5 m above ground level or floor level, they shall be closely boarded, shall have adequate width

for easy movement of persons and materials and shall be suitably guarded.

5.5.7 The planks used for working platform shall not project beyond the end supports to a distance exceeding four times the thickness of the planks used. The planks shall be rigidly tied at both ends to prevent sliding and slippage. The thickness of the planks shall be adequate to take load of men and materials and shall not collapse.

5.5.8 Each opening in the floor of a building or at a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing.

5.5.9 Safe means of access shall be provided to all working platforms and other elevated working places. Every ladder shall be securely fixed. No single portable ladder shall be over 9 m in length. For ladders up to 3m in length the width between side rails in the ladder shall in no case be less than 300 mm. For longer ladders this width shall be increased by at least 20 mm for each additional meter of length. Step spacing shall be uniform and shall not exceed 300 mm.

5.5.10 Adequate precautions shall be taken to prevent danger from electrical lines and equipment. No scaffolding, ladder, working platform, gangway runs, etc. shall exist within 3 meters of any uninsulated electric wire. Whenever electric power and lighting cables are required to run through (pass on) the scaffolding or electrical equipment's are used, such scaffolding structures shall have minimum two earth connections with earth continuity conforming to IS Code of Practice.

5.5 Lifting/Hoisting Equipment and Erection

Accidents do happen while working overhead or due to failure or unsafe use of hoisting equipment. As such, adequate care must be taken to prevent it. The following are some of the precautions to ensure safety of the workmen engaged by the contractor:

5.5.1 Contractors involved in handling of any material overhead must install necessary barricades, warning signs or take any other steps necessary to prevent others from walking/standing beneath the load.

5.5.2 Hoisting machines, tackles including their attachments, anchorage and supports must conform to the good mechanical construction, sound materials and adequate strength and free from patent defect and shall be preserved in good condition.

5.5.3 All equipment's like crane, chain blocks, sling, and rope including all other material handling equipment's must have valid load test certificates.

5.5.4 Thorough inspection and load testing of lifting machines and tackles shall be done by a competent person at least once every 12 months and records of such inspection and testing shall be maintained.

5.5.5 Every crane driver or hoisting appliances operator shall be properly qualified and no person below the age 21 years should be in charge of any hoisting machine.

5.5.6 Every hoisting machine and all gears shall be plainly marked with the safe working load. No part of any machine or gear shall be loaded beyond the safe working load (SWL).

5.5.7 In case of IPR's machines, the safe working load shall be notified by Engineer-in-charge. For contractor's machines, the contractor shall notify the safe working load to Engineer-in-charge.

5.5.8 Motors, gearing transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with safe guards.

5.5.9 No cranes shall be left unattended with hanging load and on completion of work, the boom/jib of the crane may be brought down and kept in horizontal condition.

5.5.10 No crane including hydra crane shall be allowed to move on road with suspended load.

5.6 Welding and Gas Cutting

5.6.1 Welding and gas cutting operations shall be done only by qualified and authorized persons and as per IS specifications and Code of Practice.

5.6.2 Welding and gas cutting shall not be carried out in places where flammable or combustible materials are kept and where there is danger of explosion due to presence of gaseous mixtures.

5.6.3 Welding and gas cutting equipment including hoses and cables shall be maintained in good condition.

5.6.4 Barriers shall be erected to protect other persons from harmful rays from the work. When welding or gas cutting is in elevated positions, precautions shall be taken to prevent sparks or hot metal falling on persons or flammable materials. Adequate ventilation shall be provided while welding in confined space.

5.6.5 Suitable type of protective clothing consisting of fire resistant gauntlet gloves, leggings, boots and aprons shall be provided to workers as protection from heat and hot metal splashes. Welding shields with filter glasses of appropriate shade shall be worn as face protection.

5.6.6 Welding and gas cutting shall not be done on drums, barrels, tanks or other containers unless they have been emptied, cleaned thoroughly and it is made certain that no flammable material is present.

5.6.7 Fire extinguisher shall be available near the location of welding operations. Prior permission shall be obtained from safety section for working at vulnerable areas and operating areas before flame cutting/welding is taken up.

5.6.8 Tarpaulin, if used should be of fire retardant.

5.6.9 For electric (Arc) welding the following additional safety precautions shall be taken:

- When electrical welding is undertaken near pipe lines carrying flammables, such pipe lines shall not be used as part of earth conductor but a separate earth conductor shall be connected to the machine directly from the job.
- Personnel contact with the electrode or other live parts of electric welding equipment shall be avoided.
- Extreme caution shall be exercised to prevent accidental contact of electrodes with ground.

5.6.10 The cylinders containing poisonous/toxic or inflammable / explosive gas like Oxygen, Acetylene, Hydrogen, Ammonia, Chlorine, CO_2 etc. shall be handled safely taking due cares. To handle / shift such cylinders a special trolley / cage meant for it must be used but in no case it should be rolled.

5.6.11 No domestic LPG cylinder is allowed for Hot Work such as Gas Welding / Gas Cutting.

5.6.12 A person must remain in the area for a minimum period of 30 minutes after hot work is completed to ensure the site is safe. Welding machine shall be switched off after the completion of work.

5.7 Grinding

5.7.1 All portable grinders shall be used only with their wheel guards in position to reduce the danger from flying fragments should the wheel break during the use.

5.7.2 Grinding wheels of specified diameter only shall be used on a grinder- portable or pedestal - in order not to exceed the prescribed peripheral speed.

5.7.3 Goggles shall be used during grinding operation.

5.8 Electrical Equipment – Installation and/or Maintenance

5.8.1 Consider all the equipment as live before touching until they are proved to be dead.

5.8.2 Before attempting maintenance on electrical equipment, ensure electrical isolation &earthing. Follow "permit to work on electrical system" procedures.

5.8.3 Be sure about isolation by physical verification. Check isolation tags on feeders/breakers.

5.8.4 Keep electrical insulating mat/paint in front of electrical panel/ switches.

5.8.5 Inspect the equipment thoroughly before normalization.

5.8.6 Follow SIDE rule before starting maintenance work on electrical equipment. (S=Switch off, I=Isolate, D=Discharge, E=Earthing).

5.8.7 Have minimum number of cable joints and insulate properly all the cable joints.

5.8.8 If water cooling is used, ensure that water connections are fitted correctly with no chance of leakage onto HV system.

5.8.9 Supply of energy to every electrical installation, other than low voltage installation below 5 kW, shall be controlled by an earth leakage protective device so as to disconnect the supply instantly on the occurrence of earth fault or leakage current.

5.8.10 Don't work alone in and around high voltage system.

5.8.11 Lifting of electrical equipment as per manufacturer's instructions.

5.8.12 Do not allow visitors to enter into high voltage zones without escorting by an authorized person.

5.8.13 Never depend on verbal communication for isolation of electrical equipment.

5.8.14 Do not wear metallic ornament while working on electrical equipment.

5.8.15 Do not overload the power cable beyond its current carrying capacity.

5.8.16 Do not insert bare wires of appliances in the plug socket.

5.8.17 Only trained, experience and authorized personnel should carrying out maintenance, repair, adjustment etc.

5.8.18 Identified tools should be used to carry out such works.

5.8.19 Eli Chips and debris must be swept up and properly disposed.

6.0 **REPORTING FORM**

6.1 Near Miss Reporting Form

(This form may be filled and submitted to the Safety Section within 48 hours from the incident time)

1. Name of Person Affected/Observed Near miss:	2. Group/Division/Section:
3. Designation:	4. Location of Near Miss:
5. Date & Time of Near Miss:	6. Contact no:/Ext. No.:
7. Near Miss Description: (*Describe fully, the protocol / procedure been followed including all substances, equipment and machinery being used which was related to the near miss.)* --- --- --- --- --- --- ---	
8. Possible Damage that might have happened: (i) (ii)	
9. Corrective Actions Proposed to prevent reoccurrence of such near miss incident(s):	

Submitted By:

Signature:

Name:

Date:

6.1 Incident Reporting Form

(This form is to be filled and submitted for all incidents except near miss to safety section within 72 hours from the incident time)

A. PERSONNEL INFORMATION

Name of Injured:		PR No.:
Group:		Contact No./ Ext. No.:
Incident Site:	**Employee Category:** ( ) Permanent Employee ( ) Project Employee ( ) Contract ( ) AMC ( ) TPIA ( ) Service Provider/Vendor ( ) Other Category	

B. CATEGORY OF INCIDENT

First aid case	
Medical case	
Asset/Equipment/Property damage	
Vehicle incident	
Fire	
Fatal Accident	

C. INCIDENT INFORMATION

Date / Time of Incident	Date/Time Reported To Group Leader
Person Reporting Incident	
Incident Description:	
Injury / Illness Description:	

D. TREATMENT INFORMATION

Treatment Description		
Treatment Administered By	Date Of Treatment	Time Of Treatment
Phone No of clinic / hospital	Name of Clinic/Hospital:	
Pl. attach medical officer's prescription for medical treatment: -	Released from Hospital Date / Time: -	

E. INITIAL CORRECTIVE ACTION INFORMATION

Immediate Causes of incident:
Initial Corrective actions taken 1. 2. 3.

Prepared By:

Sign:
Name:
Designation:
Date:

Reviewed By:

Sign:
Name:
Designation:
Date:

	INSTITUTE FOR PLASMA RESEARCH	Revision: 00
	SAFETY PROTOCOL FOR CONTRACTORS OF MECHANICAL/ MAINTENANCE/ FABRICATION/ERECTION AND OTHER RELATED ACTIVITIES	Eff. Date: 20.03.2014

1. PURPOSE

The purpose of this protocol is to establish, implement and execute a safe and effective program for the prevention of incidents that may cause injury to persons or damage to the property. The specified responsibilities remain with the contractor for compliance.

2. SCOPE

2.1 This protocol shall be considered minimum requirements necessary for all works performed inside the Institute for Plasma Research (IPR) and associated centers/units/departments.

2.2 All the contractor while at IPR and associated centers/units/departments work site are required to ensure that themselves, their workers and employees, sub-contractors, suppliers, vendors and visitors, must comply with the provisions of this protocol.

2.3 The contractor shall review and educate their workers and employees about the stipulations of this protocol.

2.4 This protocol is in addition to the responsibility of the contractor towards safety, health and environmental compliance envisaged under law, code or statutory requirements.

3. PROTOCOL

3.1 The contractor has to provide appropriate Personal Protective Equipment's (PPE) like safety shoes, safety helmets, goggles, hand gloves, full body safety harnesses, etc. as required for safety of themselves, their workers and employees, sub-contractors, suppliers, vendors and visitors at site. All PPE must conform to relevant Indian and/or International Standards. These should be maintained in recommended condition by suitable storage, maintenance and inspection. IPR shall have right to examine the PPE and determine their suitability, reliability, acceptability and adaptability.

3.2 The contractor shall provide and maintain proper illumination, fencing, guards, stairs, ladders, scaffolding, warning signs, caution boards, etc. As required to ensure safe working conditions at site.

3.3 The contractor shall ensure that all floor and wall openings are fixed and properly guarded/barricaded during the course of work and at the end of each day's work with appropriate caution board.

3.4 The contractor must adhere to the requirements of Safety, Health and Environment (SHE) Policy of IPR, salient features of which are:

f. Continual improvement in its Safety, Health & Environment Performance,
g. Conservation of natural resources,
h. Waste minimization,
i. Compliance with applicable statutory and regulatory requirements,
j. Creating safety & environmental awareness to its employees and associates.

3.5 The contractor has to ensure to employ only persons who are medically fit and having sufficient skills for execution of work. The contractor must ensure efficient job supervision through educated, qualified, experienced and responsible supervisors to ensure safety at site.

3.6 All staff persons including workers must undergo Safety Induction Training prior to depute them at IPR and associated centers/units/departments for any kind of work. Training module may include video film, clippings, photographs etc. related to work execution. In addition to this, Job specific training must be imparted to the concerned workers periodically.

3.7 The contractor has to ensure that Daily Tool Box Talk shall be conducted at least for new workers by responsible work in-charge/supervisor for each activity and its record to be maintained.

3.8 The contractors themselves, their workers and employees, sub-contractors, if any, shall comply with the instructions given by the Safety Officer or his authorized nominee or IPR's representative regarding safety precautions, protective measures, housekeeping requirements, etc. IPR shall have the right at its sole discretion to stop the work, if the work is being carried out in such a way that it may cause accidents or harm to the workers or damage to the equipment's. Contractor shall get the unsafe condition removed and report to IPR.

3.9 The contractor shall have no right to claim any damages/compensations for stoppage of work due to safety reasons as provided in para 3.8 .The period of such stoppage of work will not be taken as an extension of time for completion of work or exemption from liquidated damages/compensation delay.

3.10 The contractor should ensure that water, fuel and energy are used judiciously. The water & power points must be closed / put off when not in use.

3.11 Good housekeeping practices must be followed strictly.

3.12 All equipment's used for maintenance, fabrication and assembly work, etc. by the contractor must meet Indian/International standards. In case such standards do not exist, the contractor must ensure these to be absolutely safe. All equipment's shall be strictly operated and maintained in accordance with manufacturers' operation manual and safety instructions.

3.13 The contractor must not interfere or disturb electric, fuses, cables and other electrical equipment's belonging to IPR or another agency under any circumstances whatsoever unless expressly permitted in writing by IPR.

3.14 Contractor shall arrange adequate facilities for first aid, medical aid and treatment for his staff and workers engaged at the work site.

3.15 The contractor has to fully be responsible for the behavior and conduct of themselves, their workers and employees and sub-contractors. Any cost of loss or damage to client's property caused by contractor's employees or workers will be recovered from the contractor.

3.16 In case of any accident that occurs during the maintenance/ fabrication/erection or associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to themselves, their workers and employees, sub-contractors due to any reason, it shall be the responsibility of the contractor to promptly inform IPR's Work in-charge and Safety Officer in prescribed form of IPR. This should also be informed to statutory authority, if required, under the applicable laws. The contractor shall maintain a register of accidents.

3.17 In case the contractor fails to fulfil statutory requirements, IPR shall have the right to withhold contractors payments till the requirement are fulfilled.

3.18 The contractor shall plan his activities so as to avoid interference with the assignments of other departments and contractors at the site. In case of any interference, necessary coordination must be sought by the contractor from IPR for safe and smooth working.

3.19 All necessary precautions shall be taken to prevent outbreak of fires at the site. Adequate provisions or as recommended by Safety Officer of IPR must be made by the contractor to extinguish fires.

3.20 The contractor shall follow the stipulated procedure regarding work in the radiation area and other works related with radiography. The contractor shall be fully responsible for the safe storage and handling of his and his sub-contractor's radio-active sources in accordance with AERB rules and other applicable provisions.

3.21 The contractor shall issue photo identity card for themselves, their workers and employees, sub-contractors to be deployed at site. They are required to be displayed prominently during the period of their stay within IPR and associated centers/units/departments.

3.22 The contractor shall obtain gate pass from IPR and associated centers/units/departments for entries and exists of all materials and equipment's.

3.23 Smoking and eating/chewing of tobacco is strictly prohibited at site.

3.24 Any person under the influence of any intoxicating beverage, even to the slightest degree shall not be permitted at work site.

3.25 Person below the age of 18 years must not be employed for any work at site

3.26 IPR may from time to time, add or amend to these protocols and issue directions.

3.27 The contractor shall comply with safety instructions as laid down in as per Annexure-I.

	INSTITUTE FOR PLASMA RESEARCH	Revision: 00
	SAFETY INSTRUCTIONS FOR CONTRACTORS OF MECHANICAL/MAINTENANCE/FABRICATION/ ERECTION AND OTHER RELATED ACTIVITIES	Eff. Date: 20.03.2014

CONTENTS

1.0 GENERAL INFORMATION

1.1 The purpose of safety instruction document is to establish, implement and execute a practical and effective method for preventing accidents, injuries and property damage.

1.2 This document will help contractors and their associates to recognize, evaluate and control hazardous activities within their areas of responsibility.

1.3 This document defines the procedure with which safety practice will be administered, identifies responsibilities and ensures control of work area safety.

1.4 Contract agreement signed with contractors and the provisions of this document are intended to complement each other to ensure safe working conditions.

1.5 The provisions of this document apply to IPR and associated centers/units/departments.

1.6 Throughout this document, reference to a contractor means the contractor's company and the associated subcontractors, consultants, vendors and suppliers. Reference to contractor's management means personnel responsible for managing, supervising or directing contract activities and employees.

1.7 Non-compliance of this document is treated as non-compliance of contract agreement that may result in warning/penalty. Willful or repeated non-compliance may result in contractor dismissal and contract termination.

1.8 This document for contractors is a supplementary document to statutory rules, codes and regulations having jurisdiction, and does not negate, abrogate or minimize any provisions of these rules, codes and regulations. It is intended to supplement and enforce the individual program of the contractor and to coordinate the overall safety effort. Contractors are responsible for the safety and health of their employees, subcontractors, consultants, vendors, suppliers, and visitors while in IPR and associated centers/units/departments.

1.9 Contractor's managers and supervisors are responsible for preventing incidents or conditions that could lead to incidents, injuries, illness or fatalities. The ultimate success of the safety program depends on the cooperation of everyone. The contractor's management must ensure that safety provisions are enforced and that effective training and education programs are employed.

1. ROLE OF THE CONTRACTOR

2.1Top Management of the Contractor

The commitment of top management of the contractor towards safety is very important. Top management needs to ensure the following:

2.1.1 To implement safe methods and practices, deploy appropriate machineries, tools & tackles, experienced supervision and skilled workforce, etc. required for execution.

2.1.2 To ensure that employees and workers deployed are physically and mentally fit. They should possess requisite skill, qualification, experience etc.

2.1.3 To deploy qualified and trained safety supervisor, safety officers and/or safety manager reporting to site In-charge for supervision, co-ordination and liaison for the implementation of safety.

2.1.4 To ensure that the employees and workers have appropriate health and safety training. The certification of such training should be produced for verification, on demand.

2.1.5 To obtain all necessary and applicable licenses, permits, and insurance policy of his employees and workers before executing any work. A copy of the same must be submitted to the relevant authority at IPR.

2.1.6 To ensure that all incidents (minor/major injuries, fatality, fire, property damage etc.) including near misses shall be reported to the relevant authority at IPR immediately verbally as well as in written format of IPR. Also, keep record for the same.

2.1.7 The liability for any compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.

2.1.8 To provide personal protective equipment's required for the safety and first-aid kits at worksite.
2.1.9 To maintain appropriate records of all employees and workers deployed to carry out the work at site.
2.1.10 Contractor shall not employ any labour below 18 years of age.
2.1.11 A photo gate pass duly approved by IPR administration shall be issued by the contractor to their personnel, employees, subcontractors, etc.
2.1.12 To co-operate with all the security arrangements of IPR.
2.1.13 Contractor may ask for clarifications required in safety related issues, whenever a need arises.
2.1.14 To follow and implement all the safety rules and regulations of the local bodies, state, national and international. Contractor shall also comply with all the statutory requirements and notifications, as applicable, in relation to employment of his employees issued time to time by the concerned authorities.

2.2Contractor Safety Officer, Safety Supervisor and/or Job Supervisor

The duties and responsibilities of the contractor safety officer, safety supervisor and/or job supervisor shall include the following:

2.2.1 To assess the hazards associated with work at site in consultation with all concerned and establish safe working procedure.
2.2.2 To establish a written records of factors that can cause injuries, illness or other safety related problems.
2.2.3 To undertake routine/surprise inspections of all work sites to ensure compliance with safety standards, codes, rules, regulations and orders applicable to the work concerned.
2.2.4 To check whether the proposed working arrangements/procedures are safe and satisfactory, particularly at the interface between contractors planned work and IPR facilities.
2.2.5 To ensure that required guards and protective equipment are provided, used and properly maintained.
2.2.6 To ensure that the workers understand the working procedures for carrying out the work safety and the hazards that may be encountered.
2.2.7 To take immediate actions to correct any violation of safety rules observed or reported.
2.2.8 To ensure that appropriate warning signboards and tags are displayed.
2.2.9 To report each incident and/or injury in accordance with established procedures and assists during investigation.
2.2.10 To arrange tool box meeting daily and shall continue this process to make workmen safety conscious. To keep a constant liaison with the relevant authority at IPR on safety issues.

2.3 Contractor Employees

The duties & responsibilities of the contractor employees should include the following:

2.3.1 The contractors' employees must be trained for safety standards, procedure to carry out high risk job (if involved), use of Personal Protective Equipment's (PPEs) in general and specific for a particular job, emergency preparedness and fire extinguisher and medical first-aid.
2.3.2 To perform work safely as per the job requirements/instructions and wear appropriate PPEs.
2.3.3 To inform promptly to their management regarding all work related incidents resulting in personal injury, illness and/or property damage, etc.
2.3.4 To take all necessary and appropriate safety precautions to protect themselves, other personnel and the environment.

2. PENALTY FOR NON-COMPLIANCE

The following penalties shall be imposed on the contractor by the IPR and shall be deducted from his

running/final bill.

Sr. No.	Non-Compliance/Violation of Safety Protocols/Rules/Norms	Penalty
1.	Non-use of PPE like Safety Helmet / Safety Shoes etc.	Rs. 100 per day/person
2.	Over speeding (> 30Km/Hr.) / rash driving or improper parking	Rs. 100 per occasion
3.	Non-use ELCB/MCB, Use of non-standard socket, poor cable joint, laying wire/cables on floor, non-use of socket, electrical jobs by incompetent person	Rs. 200 per day/case
4.	Working at height without full body safety harness, using non-standard scaffolding and not arranging fall protection arrangement	Rs. 500 per day/case
5.	Handling of compressed gas cylinders without trolley and double gauge regulator, Improper keeping/storage of gas cylinder	Rs. 200 per day/case
6.	Use of domestic LPG for cutting purpose.	Rs. 200 per day/case
7.	No fencing/barricading of excavated/open areas.	Rs. 200 per day/case
8.	No provision of firefighting equipment during hot works. Use of firewater for purpose other than firefighting.	Rs. 200 per day/case
9.	No reporting of Nearmiss/First-aid/Injury/Property damage/Minor fire etc. incidents	Rs. 500 per case
10.	Poor Housekeeping	Rs. 200 per day/case
11.	No deployment of safety officer/safety supervisor responsible for safety at work site as mentioned in Chapter No. 5	Rs. 500 per day

Safety Officer or any other officer authorized by IPR will report safety violation to the concerned Engineer In-charge for imposing necessary penalty. Engineer-in-charge shall ensure that the penalty amount has been deducted from the running bill of contractor. Imposing any penalty for violation of safety norms does not absolve the contractors from their contractual obligation/ responsibility. Contractor shall be fully responsible for any accident and/or injury to their employees or property due to violation of safety norms.

3. PROVISION FOR SAFETY SUPERVISOR/SAFETY OFFICER OF CONTRACTOR

The contractor shall depute at least one Safety Supervisor / Safety Officer for critical activities as follows,

i. Work at height (working beyond 2.5 mtr. above ground)
ii. Materials and Material Handling which includes movement of heavy material by crane, movement of tractor trolley on slopes, Manual lifting of heavy material to height, erection of heavy machinery, equipment, etc.
iii. Loading and unloading of equipment, structural materials, machineries, etc., Fabrication and erection work
iv. Working near high voltage lines, electrical installations, etc., charging of electrical system, transformers, switch yard, switch gears, etc.
v. Work on pressure vessels/lines.
vi. Work in confined space
vii. Radiography work
viii. Work related to welding, gas cutting, grinding, etc.
ix. Work with pneumatic tools/compressed air
x. Leak detection testing / Hydraulic testing

In addition to above list, IPR may also recommend for some specific tasks, which are not covered, to depute Safety Officer/Safety Supervisor.

Safety supervisor shall be qualified of minimum Diploma in Engineering/ Graduate in Science with approved course in the field of safety and/or fire. He shall able to read and understand English and speak regional/national language. He shall have experience as safety supervisor for a period of minimum one year.

Safety Officer shall be qualified of minimum Bachelor in Engineering/ Post Graduate in Science with approved course in the field of Safety and/or Fire. Safety Officer shall have good communication and written skill to liaison with the client. He shall have good command in English and regional/national language. He shall have experience for a period of minimum three years of supervisory level.

4. GENERAL SAFETY PROVISIONS

5.1 Personal Protective Equipment

The contractor is responsible to provide all necessary standard make (ISI marked) personal protective equipment (PPE) suitable to give sufficient protection against hazards involved in their work / job to their employees, as per the job requirement and insist/enforce their staff to put on the same while atworks and ensure that the PPEs are properly used and maintained in a condition suitable for immediate use. The contractor shall have sufficient stock of various PPEs to avoid any shortage of supply and shall take adequate steps to ensure proper use of equipment by those concerned. The ongoing work is liable to be stopped at any time if the contractor's staff is found working without PPEs.

5.1.1 All persons employed at site shall use safety helmets. For other types of works, persons working in that area shall also use safety helmets, if advised by Safety Engineer/Engineer-In-Charge.

5.1.2 Persons engaged in welding and gas-cutting works shall use suitable welding face shields. The persons who assist the welders shall use suitable goggles. Protective goggles shall be worn while chipping and grinding.

5.1.3 All persons working at heights more than 2.5 m above ground or floor and exposed to risk of falling down shall use full body safety harness, unless otherwise protected by cages, guard railings, etc. In places where the use of safety harness is impractical, suitable net of adequate strength fastened to substantial supports shall be employed.

5.1.4 When workers are employed in sewers and inside manholes, which are in use, the Contractor shall ensure that the manholes are opened and are adequately ventilated at least for an hour. After it has been well ventilated, the atmosphere inside the space shall be checked for the presence of any toxic gas or oxygen deficiency and recorded in the register before the workers are allowed to get into the manholes. The manholes opened shall be cordoned off with suitable railing and provided with warning signals or caution boards to prevent accidents. There shall be proper illumination in the night.

5.1.5 The following is the list of various PPEs to be used for various works/worksites,

List of Safety Equipment's

Sr. No.	PPE	Purpose
01	Industrial Safety Helmet	For protection of head against falling objects or during fall of person from height.
02	Safety Goggles (Grinding,	For protection of eyes against flying particles / dust,

	Welding, etc.).	chemical splash, spark, arc, flashover etc.
03	Face shield	For protection of face against flying particles / dust, chemical splash, spark, arc, flashover etc.
04	Ear plug / Ear muffs	For ear / hearing system protection while working in high noise level area.
05	Apron(PVC /cry/Cotton)	For body protection against chemicals, oils, cryogenics, sharp edged objects, heat, hot objects etc.
06	Gloves (Nitrile/Leather, cryogenics, Electrical shock proof)	For protection of hands against chemicals, oils, cryogenics, sharp edged objects, heat, hot metals/objects, electricity etc.
07	Safety Shoes	For protection of leg/feetagainst falling objects, sharp edged objects, heat, hot metals/objects, electricity etc.
08	Full body safety harness/ I Rope /Life line/ Fall prevention system etc.	For fall prevention while working at heights or in depth, working in vessel or in confined space.
09	Dust Respirator	Protection of respiratory system against dust.
10	Self-contained breathing apparatus (SCBA) set	Working in oxygen deficient areas.

5.2 Electricity

The following are provided for general guidance of the Contractor and shall be read as specific requirement, in addition to complying with Indian Electricity Act, Indian Electricity Rules and IS Specifications.

5.2.1 Only qualified electricians familiar with code requirements are allowed to perform electrical work.

5.2.2 Employees are not permitted to work near an unprotected electrical power circuit unless they are protected against electrical shock by de-energizing the circuit and grounding it, or are protected by effective insulation or other means, and are wearing .required personal protective equipment.

5.2.3 The electric power supply will be generally made available at one point in the works site of the contractor by the IPR.

5.2.4 All three phase equipment shall be provided with double earthing. All light fixtures and portable equipment shall be effectively earthed to main earthing.

5.2.5 All earth terminals shall be visible. No gas pipes and water pipes shall be used for earth connection. Neutral conductor shall not be treated as earth wire.

5.2.6 The contractor shall not connect any additional load without prior permission of IPR.

5.2.7 Joints in earthing conductors shall be avoided. Loop earthing of equipment shall not be allowed. However tapings from an earth bus may be done.

5.2.8 Electrical equipment and installations shall be installed and maintained as to prevent danger from contact with live conductors and to prevent fires originating from electrical causes like short circuits, overheating etc. Installation shall not cause any hindrance to movement of men and materials.

5.2.9 Materials for all electrical equipment shall be selected with regard to working voltage, load and working environment. Such equipment shall conform to the relevant standards.

5.2.10 Electric fuses and/or circuit breakers installed in equipment circuits for short circuit protection shall be of proper rating. It is also recommended that high rupturing capacity (HRC) fuses be used in all circuits. For load of 5 KW or more earth leakage circuit breaker of proper rating shall be provided in the circuits.

5.2.11 Wires and cables shall be properly supported and approved method of fixing shall be adopted. Cables shall not be left on floor/ground. Loose hanging of wires & cables shall be avoided. Lightning and power circuits shall be kept distinct and separate.

5.2.12 Reinforcement rods or any metallic part of structure shall not be used for supporting wires and

cables, fixtures, equipment, earthing etc.

5.2.13 All cables and wires shall be adequately protected mechanically against damages. In case, the cable required to be laid underground, it shall be adequately protected by covering the same with bricks, Plain Cement Concrete (PCC), tile or any other approved means.

5.2.14 All armored cables shall be properly terminated by using suitable cable glands. Multi-stranded conductor cables shall be connected by using cable lugs/ sockets. Cable lugs shall preferably be crimped. They shall be of proper size and shall correspond to the current rating and size of the cable. Twisted connections will not be allowed.

5.2.15 All the Distribution Boards, Switch Fuse units, Bus bar chambers, ducts, cubicles etc. shall have MS enclosures and shall be dust, vermin and waterproof. The Distribution Boards, switches etc. shall be so fixed that they shall be easily accessible.

5.2.16 The Contractor shall provide proper enclosures/covers of approved size and shape for protection of all switch boards, equipment etc. against rain.

5.2.17 Isolating switches shall be provided close to equipment for easy disconnection of electrical equipment or conductors from the source of supply, when repair or maintenance work has to be done.

5.2.18 All connections to lighting fixtures, starters or other power supplies shall be provided with PVC insulated, PVC sheathed twin/three/four core wires to have better mechanical protection for preventing possible damage to equipment or injury to personnel. Taped joints shall not be allowed and the connections may be made in looping system. Electric starter of motors, Switches shall not be mounted on .wooden boards. Only sheet steel mounting or iron framework shall be used.

5.2.19 Only PVC insulated and PVC sheathed wires or armored PVC insulated and sheathed cables shall be used for external power supply connections of temporary nature. Weatherproof rubber wires shall not be used for any temporary power supply connections. Taped joints in the wires shall not be used.

5.2.20 All portable appliances shall be provided with three-core cable and three-pin plug. The third pin of the plug shall invariably be earthed. It shall be ensured that the metal part of the equipment shall be effectively earthed.

5.3 House Keeping

5.3.1 The Contractor shall at all times keep his work spot, site office and surroundings clean and tidy from rubbish, scrap, surplus materials and unwanted tools and equipment so as not to create unsafe condition or fire hazard.

5.3.2 Welding and other electrical cables shall be properly routed.

5.3.3 No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

5.3.4 Cleaning of the work area at the end of the day and upon completion of work is a part of the job.

5.3.5 The Engineer-in-charge has the right to stop work if the Contractor fails to improve upon the housekeeping after having been notified.

5.4 Fire Safety

5.4.1 All necessary precautions shall be taken to prevent outbreak of fires at the site. Adequate provisions shall be made to extinguish fires, if it still breaks out.

5.4.2 Quantities of combustible materials like timber, bamboos, coal, paints, etc., shall be kept minimum in order to avoid unnecessary accumulation of combustibles at site.

5.4.3 Containers of paints, thinners and allied materials shall be stored in a separate room which shall be well ventilated and free from excessive heat, sparks, flame or direct rays of the sun. The containers of paint shall be kept covered or properly fitted with lid and shall not be kept open except while using.

5.4.4 Fire extinguishers shall be located at the site at appropriate places.

5.4.5 Adequate number of workmen shall be given education and training in firefighting and extinguishing methods.

5.5 Scaffolding

5.5.1 Accidents are also caused by the ladders falling or the climber losing his balance or failure of scaffolds. As such, utmost care should be taken as ladder and scaffolding are extensively used for maintenance and construction purpose. Some of the safe practices as listed below are to be observed before commencement of work.

5.5.2 Adequate and safe means of access and exit shall be provided for all work places, at all elevations. Using of scaffolding members (avoiding a ladder) for approach to high elevations shall not be permitted.

5.5.3 Suitable scaffolds shall be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short duration work as can be done safely from ladders. Ladder shall be of rigid construction having sufficient strength for the intended loads and made either of good quality wood or metal and all ladders shall be maintained well for safe working condition.

5.5.4 Short ladder must not be tied together to give greater lengths. All ladders of 6 m or above should be tied to the structure on which they are resting to prevent from. An extra worker shall be engaged for holding the ladder if ladder is not securely fixed. If the ladder is used for carrying materials, suitable foot holds and handholds shall be provided on the ladder. The ladder shall be given an inclination not steeper than 1 in 4(1 horizontal and 4 vertical). Ladders shall not be used for climbing carrying materials in hands. While climbing both the hands shall not be free.

5.5.5 The free length must extend by 1.5 meters above the point of landing but should not be more than 1/4th of the ladder length. No portable single ladder shall be over 9 meter in length. Metal ladders may not be used for electrical work.

5.5.6 Scaffolding or staging more than 3.5 m above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a standard guard rail properly attached, bolted, braced or otherwise secured at least 1.0 m high above the floor or platform of such scaffolding or staging. The guard rail shall extend along the entire exposed length of the scaffolding with only such opening as may be necessary for the delivery of materials. Standard railing shall have posts not more than 2 m apart and an intermediate rail halfway between the floor and platform of the scaffolding and the top rail. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure. Scaffolding and ladder shall conform to relevant IS specification (IS: 3696). Timber/Bamboo scaffolding shall not be used.

5.5.7 Working platforms of scaffolds shall have toe boards at least 15 cm in height to prevent materials from falling down.

5.5.8 Every part of scaffolding must be of sound construction. Steel planks used in scaffolds should be carefully inspected and should be tied on both sides with suitable fixing arrangements to the pipes. Scaffolding must not be overloaded.

5.5.9 The Steel pipe & clamp to be used must be of good quality. The spacing between the vertical & horizontal members of the scaffolding should not be more than 1.5m and 1 meter respectively. The scaffolding should be further strengthened with cross bracing and stays.

5.5.10 The scaffolds should be provided with short climbs ladders for safe ascending/ descending of workmen in the job. Only those workmen who are well trained/ experienced in erecting scaffolding should be engaged for scaffolding work. The men working in the actual erection/dismantling of the scaffolding and all persons using the scaffolding must use appropriate PPEs.

5.5.11 A sketch of the scaffolding proposed to be used shall be prepared and approved by the Engineer-in charge, prior to start of erection of scaffolding. All scaffolds shall be examined by Engineer-In-Charge before use.

5.5.12 Working platform, gangways and stairways shall be so constructed that they shall not sag

unduly or unequally and if the height of the platform or gangway or stairway is more than 3.5 m above ground level or floor level, they shall be closely boarded, shall have adequate width for easy movement of persons and materials and shall be suitably guarded.

5.5.13 The planks used for working platform shall not project beyond the end supports to a distance exceeding four times the thickness of the planks used. The planks shall be rigidly tied at both ends to prevent sliding and slippage. The thickness of the planks shall be adequate to take load of men and materials and shall not collapse.

5.5.14 Each opening in the floor of a building or at a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing.

5.5.15 Safe means of access shall be provided to all working platforms and other elevated working places. Every ladder shall be securely fixed. No single portable ladder shall be over 9 m in length. For ladders up to 3m in length the width between side rails in the ladder shall in no case be less than 300 mm. For longer ladders this width shall be increased by at least 20 mm for each additional meter of length. Step spacing shall be uniform and shall not exceed 300 mm.

5.5.16 Adequate precautions shall be taken to prevent danger from electrical lines and equipment. No scaffolding, ladder, working platform, gangway runs, etc. shall exist within 3 meters of any uninsulated electric wire. Whenever electric power and lighting cables are required to run through (pass on) the scaffolding or electrical equipment's are used, such scaffolding structures shall have minimum two earth connections with earth continuity conforming to IS Code of Practice.

5.6 Lifting/Hoisting Equipment and Erection

Accidents do happen while working overhead or due to failure or unsafe use of hoisting equipment. As such, adequate care must be taken to prevent it. The following are some of the precautions to ensure safety of the workmen engaged by the contractor:

5.6.1 Contractors involved in handling of any material overhead must install necessary barricades, warning signs or take any other steps necessary to prevent others from walking/standing beneath the load.

5.6.2 Hoisting machines, tackles including their attachments, anchorage and supports must conform to the good mechanical construction, sound materials and adequate strength and free from patent defect and shall be preserved in good condition.

5.6.3 All equipment's like crane, chain blocks, sling, and rope including all other material handling equipment's must have valid load test certificates.

5.6.4 Thorough inspection and load testing of lifting machines and tackles shall be done by a competent person at least once every 12 months and records of such inspection and testing shall be maintained.

5.6.5 Every crane driver or hoisting appliances operator shall be properly qualified and no person below the age 21 years should be in charge of any hoisting machine.

5.6.6 Every hoisting machine and all gears shall be plainly marked with the safe working load. No part of any machine or gear shall be loaded beyond the safe working load (SWL).

5.6.7 In case of IPR's machines, the safe working load shall be notified by Engineer-in-charge. For contractor's machines, the contractor shall notify the safe working load to Engineer-in-charge.

5.6.8 Motors, gearing transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with safe guards.

5.6.9 No cranes shall be left unattended with hanging load and on completion of work, the boom/jib of the crane may be brought down and kept in horizontal condition.

5.6.10 No crane including hydra crane shall be allowed to move on road with suspended load.

5.7 Welding and Gas Cutting

5.7.1 Welding and gas cutting operations shall be done only by qualified and authorized persons and as per IS specifications and Code of Practice.

5.7.2 Welding and gas cutting shall not be carried out in places where flammable or combustible materials are kept and where there is danger of explosion due to presence of gaseous mixtures.

5.7.3 Welding and gas cutting equipment including hoses and cables shall be maintained in good condition.

5.7.4 Barriers shall be erected to protect other persons from harmful rays from the work. When welding or gas cutting is in elevated positions, precautions shall be taken to prevent sparks or hot metal falling on persons or flammable materials. Adequate ventilation shall be provided while welding in confined space.

5.7.5 Suitable type of protective clothing consisting of fire resistant gauntlet gloves, leggings, boots and aprons shall be provided to workers as protection from heat and hot metal splashes. Welding shields with filter glasses of appropriate shade shall be worn as face protection.

5.7.6 Welding and gas cutting shall not be done on drums, barrels, tanks or other containers unless they have been emptied, cleaned thoroughly and it is made certain that no flammable material is present.

5.7.7 Fire extinguisher shall be available near the location of welding operations. Prior permission shall be obtained from safety section for working at vulnerable areas and operating areas before flame cutting/welding is taken up.

5.7.8 Tarpaulin, if used should be of fire retardant.

5.7.9 For electric (Arc) welding the following additional safety precautions shall be taken:

- When electrical welding is undertaken near pipe lines carrying flammables, such pipe lines shall not be used as part of earth conductor but a separate earth conductor shall be connected to the machine directly from the job.
- Personnel contact with the electrode or other live parts of electric welding equipment shall be avoided.
- Extreme caution shall be exercised to prevent accidental contact of electrodes with ground.

5.7.10 The cylinders containing poisonous/toxic or inflammable / explosive gas like Oxygen, Acetylene, Hydrogen, Ammonia, Chlorine, CO_2 etc. shall be handled safely taking due cares. To handle / shift such cylinders a special trolley / cage meant for it must be used but in no case it should be rolled.

5.7.11 No domestic LPG cylinder is allowed for Hot Work such as Gas Welding / Gas Cutting.

5.7.12 A person must remain in the area for a minimum period of 30 minutes after hot work is completed to ensure the site is safe. Welding machine shall be switched off after the completion of work.

5.8 Grinding

5.8.1 All portable grinders shall be used only with their wheel guards in position to reduce the danger from flying fragments should the wheel break during the use.

5.8.2 Grinding wheels of specified diameter only shall be used on a grinder- portable or pedestal - in order not to exceed the prescribed peripheral speed.

5.8.3 Goggles shall be used during grinding operation.

5.9 Painting

5.9.1 The Contractor shall not employ women on the work of painting with products containing lead in any form. Only men above the age of 18 years shall be employed on the work with lead paint.

5.9.2 Smoking, open flames or sources of ignition shall not be allowed in places where paints and other flammable substances are stored, mixed or used. A caution board, with the instructions written in national/regional language, "SMOKING - STRICTLY PROHIBITED" shall be displayed in the vicinity where painting is in progress or where paints are stored.

5.9.3 When painting work is done in a closed room or in a confined space, adequate ventilation

shall be provided. If adequate ventilation cannot be provided, workers shall wear suitable respirators.

5.9.4 Epoxy resins and their formulations used for painting shall not be allowed to come in contact with the skin. The workers shall use plastic gloves and/or suitable barrier creams.

5.9.5 Workers shall thoroughly wash hands and feet before leaving the work. Work clothes shall be changed and laundered frequently.

5.10 Radiography

5.10.1 Only properly trained, qualified personnel shall be allowed to use radiation producing equipment or handle radioactive source.

5.10.2 Radiography works may be carried out preferably after office hours or on holidays.

5.10.3 The following are some basic rules to be followed:

- The ionization radiation source shall not be left unattended.
- Radiation film and dose meter shall be used.
- The exposed area shall be clearly identified, barricaded by rope or other effective means and internationally recognized symbol for radiation shall be placed around the perimeter of any area which may be affected by radiation.
- Contractor shall coordinate with safety officer to ensure that the dose rate at barricade does not exceed 0.75 milirems per hour.

5.11 Maintenance of Equipment

5.11.1 Disconnect the electrical power before starting the mechanical maintenance of the equipment/machine.

5.11.2 During the maintenance of equipment/machine, it should be doubly ensured that the machine does not move unexpectedly causing injury to the person involved.

5.11.3 Full proof lockout system or power lock off system should be followed. Power lock off system shall include the electrical power, energy stored in springs, suspended parts or any other potential power sources.

5.11.4 A highly legible information plate should be kept near the equipment/ machine under maintenance giving the details of work being carried-out, warning instructions etc., to enable the workers, supervisors or any visitors to keep away.

5.11.5 Removal of such plates immediately after the maintenance, repair etc., shall be -insured.

5.11.6 Instructions from the machine manufacturers' service/installation book should be followed during maintenance of the equipment.

5.11.7 Only trained personnel should be employed for carrying out maintenance, repair, adjustment etc.

5.11.8 Identified tools should be used to carry out such works.

5.11.9 Guards should be replaced immediately after the maintenance work.

5.11.10 Eli Chips and debris must be swept up and properly disposed.

6.0 REPORTING FORM

6.1 Near Miss Reporting Form

(This form may be filled and submitted to the Safety Section within 48 hours from the incident time)

1. Name of Person Affected/Observed Near miss:	2. Group/Division/Section:
3. Designation:	4. Location of Near Miss:
5. Date & Time of Near Miss:	6. Contact no:/Ext. No.:
7. Near Miss Description: (*Describe fully, the protocol / procedure been followed including all substances, equipment and machinery being used which was related to the near miss.)* --- --- --- --- --- --- ---	
8. Possible Damage that might have happened: (i) (ii)	
9. Corrective Actions Proposed to prevent reoccurrence of such near miss incident(s):	

Submitted By:

Signature:

Name:

Date:

6.3 Incident Reporting Form

(This form is to be filled and submitted for all incidents except near miss to safety section within 72 hours from the incident time)

B. PERSONNEL INFORMATION

Name of Injured:		PR No.:
Group:		Contact No./ Ext. No.:
Incident Site:	**Employee Category:** ( ) Permanent Employee ( ) Project Employee ( ) Contract ( ) AMC ( ) TPIA ( ) Service Provider/Vendor ( ) Other Category	

B. CATEGORY OF INCIDENT

First aid case	
Medical case	
Asset/Equipment/Property damage	
Vehicle incident	
Fire	
Fatal Accident	

C. INCIDENT INFORMATION

Date / Time of Incident	Date/Time Reported To Group Leader
Person Reporting Incident	
Incident Description:	
Injury / Illness Description:	

F. TREATMENT INFORMATION

Treatment Description		
Treatment Administered By	Date Of Treatment	Time Of Treatment
Phone No of clinic / hospital	Name of Clinic/Hospital:	
Pl. attach medical officer's prescription for medical treatment: -	Released from Hospital Date / Time: -	

G. INITIAL CORRECTIVE ACTION INFORMATION

Immediate Causes of incident:
Initial Corrective actions taken 1. 2. 3.

Prepared By:

Sign:
Name:
Designation:
Date:

Reviewed By:

Sign:
Name:
Designation:
Date:

SECTION: 3 - (iv) Model Rules for the Protection of Health and Sanitary Arrangements for Workers Employed by Institute or its Contractors

1. APPLICATION

These rules shall apply to all buildings and construction works in charge of Institute for Plasma Research in which twenty or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the contract work is in progress.

2. DEFINITION

Work place means a place where twenty or more workers are ordinarily employed in connection with construction work on any day during the period during which the contract work is in progress.

3. FIRST-AID FACILITIES

(i) At every work place there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 contract labour or part thereof ordinarily employed.

(ii) The first-aid box shall be distinctly marked with a red cross on white back ground and shall contain the following equipment:

(a) For work places in which the number of contract labour employed does not exceed 50 - Each first-aid box shall contain the following equipment's:-

1. 6 small sterilized dressings.
2. 3 medium size sterilized dressings.
3. 3 large size sterilized dressings.
4. 3 large sterilized burn dressings.
5. 1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.
6. 1 (30 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
7. 1 snakebite lancet.
8. 1 (30 gms.) bottle of potassium permanganate crystals.
9. 1 pair scissors.
10. 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
11. 1 bottle containing 100 tablets (each of 5 gms.) of aspirin.
12. Ointment for burns.
13. A bottle of suitable surgical antiseptic solution.

(b) For work places in which the number of contract labour exceed 50.
Each first-aid box shall contain the following equipment's.

1. 12 small sterilized dressings.
2. 6 medium size sterilized dressings.
3. 6 large size sterilized dressings.
4. 6 large size sterilized burn dressings.
5. 6 (15 gms.) packets sterilized cotton wool.

6. 1 (60 ml.) bottle containing a two per cent alcoholic solution iodine.
7. 1 (60 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
8. 1 roll of adhesive plaster.
9. 1 snake bite lancet.
10. 1 (30 gms.) bottle of potassium permanganate crystals.
11. 1 pair scissors.
12. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institutes/Government of India.
13. A bottle containing 100 tablets (each of 5 gms.) of aspirin.
14. Ointment for burns.
15. A bottle of suitable surgical antiseptic solution.

(iii) Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

(iv) Nothing except the prescribed contents shall be kept in the First-aid box.

(v) The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

(vi) A person in charge of the First-aid box shall be a person trained in First-aid treatment, in the work places where the number of contract labour employed is 150 or more.

(vii) In work places where the number of contract labour employed is 500 or more and hospital facilities are not available within easy distance from the works. First-aid posts shall be established and run by a trained compounder. The compounder shall be on duty and shall be available at all hours when the workers are at work.

(viii) Where work places are situated in places which are not towns or cities, a suitable motor transport shall be kept readily available to carry injured person or person suddenly taken ill to the nearest hospital.

4. DRINKING WATER

(i) In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

(ii) Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

(iii) Every water supply or storage shall be at a distance of not less than 50 feet from any latrine drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn form it for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and waterproof.

(iv) A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. WASHING FACILITIES

(i) In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of contract labour employed therein.

(ii) Separate and adequate cleaning facilities shall be provided for the use of male and female workers.

(iii) Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

6. LATRINES AND URINALS

(i) Latrines shall be provided in every work place on the following scale namely:-

(a) Where female are employed there shall be at least one latrine for every 25 females.

(b) Where males are employed, there shall be at least one latrine for every 25 males.

Provided that where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females as the case may be up to the first 100, and one for every 50 thereafter.

(ii) Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

(iii)Construction of latrines: The inside walls shall be constructed of masonry or some suitable heat-resisting materials and shall be cement washed inside and outside at least once a year, Latrines shall not be of a standard lower than borehole system.

(iv)(a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers "For Men only" or "For Women Only" as the case may be.

(b) The notice shall also bear the figure of a man or of a woman, as the case may be.

(v) There shall be at least one urinal for male workers up to 50 and one for female workers up to fifty employed at a time, provided that where the number of male or female workmen, as the case may be exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females up to the first 500 and one for every 100 or part thereafter.

(vi)(a)The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

(b) Latrines and urinals other than those connected with a flush sewage system shall comply with the requirements of the Public Health Authorities.

(vii) Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

(viii) Disposal of excreta:-Unless otherwise arranged for by the local sanitary authority, arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternately excreta may be disposed of by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm. layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn to manure).

(ix) The contractor shall at his own expense, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of night soil and other conservancy work in respect of the contractor's workmen or employees on the site. The contractor shall be responsible for payment of

any charges which may be levied by Municipal or Cantonment Authority for execution of such on his behalf.

7. PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost, four suitable sheds, two for meals and the other two for rest separately for the use of men and women labour. The height of each shelter shall not be less than 3 meters (10 ft.) from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sq.m. (6 sq. ft) per head.

Provided that the Engineer-in-Charge may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8. CRECHES

(i) At every work place, at which 20 or more women worker are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room shall be used as a play room for the children and the other as their bedroom. The rooms shall be constructed with specifications as per clause 19H (ii) a, b & c.

(ii) The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

(iii) The contractor shall supply adequate number of toys and games in the play room and sufficient number of cots and beddings in the bed room.

(iv) The contractor shall provide one ayaa to look after the children in the crèche when the number of women workers does not exceed 50 and two when the number of women workers exceeds 50.

(v) The use of the rooms earmarked as crèches shall be restricted to children, their attendants and mothers of the children.

9. CANTEENS

(i) In every work place where the work regarding the employment of contract labour is likely to continue for six months and where in contract labours numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the contractor for the use of such contract labour.

(ii) The canteen shall be maintained by the contractor in an efficient manner.

(iii) The canteen shall consist of at least a dining Hall, kitchen, storeroom, pantry and washing places separately for workers and utensils.

(iv) The canteen shall be sufficiently lighted at all times when any person has access to it.

(v) The floor shall be made of smooth and impervious materials and inside walls shall be lime-washed or colour washed at least once in each year. Provided that the inside walls of the kitchen shall be lime-washed every four months.

(vi) The premises of the canteen shall be maintained in a clean and sanitary condition.

(vii) Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

(viii) Suitable arrangements shall be made for the collection and disposal of garbage.

(ix) The dining hall shall accommodate at a time 30 per cent of the contract labour working at a time.

(x) The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs shall not be less than one square meter (10 sft) per diner to be accommodated as prescribed in sub-Rule 9.

(xi) (a) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number.

(b) Washing places for women shall be separate and screened to secure privacy.

(xii) Sufficient tables stools, chair or benches shall be available for the number of diners to be accommodated as prescribed in sub-Rule 9.

(xiii) (a)1. There shall be provided and maintained sufficient utensils crockery, furniture and any other equipment's necessary for the efficient running of the canteen.

2. The furniture utensils and other equipment shall be maintained in a clean and hygienic condition.

(b)1. Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.
2. A service counter, if provided, shall have top of smooth and impervious material.

3. Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment's.

(xiv) The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the contract labour.

(xv) The charges for food stuffs, beverages and any other items served in the canteen shall be based on No profit, No loss" and shall be conspicuously displayed in the canteen.

(xvi) In arriving at the price of foodstuffs, and other article served in the canteen, the following items shall not be taken into consideration as expenditure namely:

(a) The rent of land and building.
(b) The depreciation and maintenance charges for the building and equipment's provided for the canteen.
(c) The cost of purchase, repairs and replacement of equipment's including furniture, crockery, cutlery and utensils.
(d) The water charges and other charges incurred for lighting and ventilation.
(e) The interest and amounts spent on the provision and maintenance of equipment's provided for the canteen.
(xvii) The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10. ANTI-MALARIAL PRECAUTIONS

The contractor shall at his own expense, conform to all anti-malarial instructions given to him by the Engineer-in-Charge including the filling up of any borrow pits which may have been dug by him.

11. The above rules shall be incorporated in the contracts and in notices inviting tenders and shall form an integral part of the contracts.

12. AMENDMENTS

Institute may, from time to time, add to or amend these rules and issue directions, it may consider necessary for the purpose of removing any difficulty which may arise in the administration thereof.

SECTION: 3 - (v) Contractor's Labour Regulations with Annexures.

1. SHORT TITLE

These regulations may be called the Institute Contractors Labour Regulations.

2. DEFINITIONS

(i) **Workman** means any person employed by Institute or its contractor directly or indirectly through a subcontractor with or without the knowledge of the Institute to do any skilled, semiskilled or unskilled manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment are expressed or implied but does not include any person:-

(a) Who is employed mainly in a managerial or administrative capacity: or

(b) Who, being employed in a supervisory capacity draws wages exceeding five hundred rupees per mensem or exercises either by the nature of the duties attached to the office or by reason of powers vested in him, functions mainly of managerial nature : or

(c) Who is an out worker, that is to say, person to whom any article or materials are given out by or on behalf of the principal employers to be made up cleaned, washed, altered, ornamental finished, repaired adopted or otherwise processed for sale for the purpose of the trade or business of the principal employers and the process is to be carried out either in the home of the out worker or in some other premises, not being premises under the control and management of the principal employer. No person below the age of 18 years shall be employed to act as a workman.

(ii) **Fair Wages** means wages whether for time or piece work fixed and notified under the provisions of the Minimum Wages Act from time to time.

(iii) **Contractors** shall include every person who undertakes to produce a given result other than a mere supply of goods or articles of manufacture through contract labour or who supplies contract labour for any work and includes a subcontractor.

(iv) **Wages** shall have the same meaning as defined in the Payment of Wages Act.

3(i) normally working hours of an adult employee should not exceed 9 hours a day. The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

(ii) When an adult worker is made to work for more than 9 hours on any day or for more than 48 hours in any week, he shall be paid over time for the extra hours put in by him at double the ordinary rate of wages.

(iii)(a) Every worker shall be given a weekly holiday normally on a Sunday, in accordance with the provisions of the Minimum Wages (Central) Rules 1960 as amended from time to time irrespective of whether such worker is governed by the Minimum Wages Act or not.

b) Where the minimum wages prescribed by the Government under the Minimum Wages Act are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages

at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

(c) Where a contractor is permitted by the Engineer-in-Charge to allow a worker to work on a normal weekly holiday, he shall grant a substituted holiday to him for the whole day on one of the five days immediately before or after the normal weekly holiday and pay wages to such worker for the work performed on the normal weekly holiday at overtime rate.

4. DISPLAY OF NOTICE REGARDING WAGES ETC.

The contractor shall before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain in a clear and legible condition in conspicuous places on the work, notices in English and in the local Indian languages spoken by the majority of the workers giving the minimum rates of wages fixed under Minimum Wages Act, the actual wages being paid, the hours of work for which such wage are earned, wages periods, dates of payments of wages and other relevant information as per Appendix 'III'.

5. PAYMENT OF WAGES

(i) The contractor shall fix wage periods in respect of which wages shall be payable.
(ii) No wage period shall exceed one month.
(iii) The wages of every person employed as contract labour in an establishment or by a contractor where less than one thousand such persons are employed shall be paid before the expiry of seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.
(iv) Where the employment of any worker is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.
(v) All payment of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of the last working day.
(vi) Wages due to every worker shall be paid to him direct or to other person authorized by him in this behalf.
(vii) All wages shall be paid in current coin or currency or in both.
(viii) Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.
(ix) A notice showing the wages period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the contractor to the Engineer-in-Charge under acknowledgment.
(x) It shall be the duty of the contractor to ensure the disbursement of wages in the presence of the Junior Engineer or any other authorized representative of the Engineer in-Charge who will be required to be present at the place and time of disbursement of wages by the contractor to workmen.
(xi) The contractor shall obtain from the Junior Engineer or any other authorized representative of the Engineer-in-Charge as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage-cum Muster Roll" as the case may be in the following form:
"Certified that the amount shown in column No……. has been paid to the workman concerned in my presence on…….. at……..."

6. FINES AND DEDUCTIONS WHICH MAY BE MADE FROM WAGES

(i) The wages of a worker shall be paid to him without any deduction of any kind except the following
(a) Fines
(b) Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.
(c) Deduction for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money or any other deduction which he is required to account, where such damage or loss is directly attributable to his neglect or default.
(d) Deduction for recovery of advances or for adjustment of overpayment of wages, advances granted shall be entered in a register.
(e) Any other deduction which the Central Government may from time to time allow.

(ii) No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved of by the Chief Labour Commissioner. Note: - An approved list of Acts and Omissions for which fines can be imposed is enclosed at Appendix-X

(iii) No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

(iv) The total amount of fine which may be imposed in any one wage period on a worker shall not exceed an amount equal to three paise in a rupee of the total wages, payable to him in respect of that wage period.

(v) No fine imposed on any worker shall be recovered from him by installment, or after the expiry of sixty days from the date on which it was imposed.

(vi) Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

7. LABOUR RECORDS

(i) The contractor shall maintain a **Register of persons employed** on work on contract in Form XIII of the CL (R&A) Central Rules 1971 (Appendix IV)

(ii) The contractor shall maintain a **Muster Roll** register in respect of all workmen employed by him on the work under Contract in Form XVI of the CL (R&A) Rules 1971 (Appendix V).

(iii) The contractor shall maintain a **Wage Register** in respect of all workmen employed by him on the work under contract in Form XVII of the CL (R&A) Rules 1971 (Appendix VI)

(iv) **Register of accidents** - The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:

a) Full particulars of the labourers who met with accident.
b) Rate of Wages.
c) Sex
d) Age

e) Nature of accident and cause of accident.
f) Time and date of accident.
g) Date and time when admitted in Hospital.
h) Date of discharge from the Hospital.
i) Period of treatment and result of treatment.
j) Percentage of loss of earning capacity and disability as assessed by Medical Officer.
k) Claim required to be paid under Workmen's Compensation Act.
I) Date of payment of compensation.
m) Amount paid with details of the person to whom the same was paid.
n) Authority by whom the compensation was assessed.
o) Remarks

(v) The contractor shall maintain a **Register of Fines** in the Form XII. of the CL (R&A) Rules 1971 (Appendix-Xl)
The contractor shall display in a good condition and in a conspicuous place of work the approved list of acts and omissions for which fines can be imposed (Appendix-X)

(vi) The contractor shall maintain a **Register of deductions for damage or loss** in Form XX of the CL (R&A) Rules 1971 (Appendix-XII)

(vii)The contractor shall maintain a **Register of Advances** in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIII)

(viii)The contractor shall maintain a **Register of Overtime** in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIV)

8. ATTENDANCE CARD-CUM-WAGE SLIP

(i) The contractor shall issue an **Attendance card-cum-wage slip** to each workman employed by him in the specimen format (Appendix-VII

(ii) The card shall be valid for each wage period.

(iii) The contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work.

(iv) The card shall remain in possession of the worker during the wage period under reference...

(v) The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference.

(vi) The contractor shall obtain the signature or thumb impression of the worker on the wage slip at the time of disbursement of wages and retain the card with himself.

9. EMPLOYMENT CARD
The contractor shall issue an **Employment Card** in Form XIV of the CL (R&A) Central Rules 1971 to each worker within three days of the employment of the worker (Appendix-VIII).

10. SERVICE CERTIFICATE

On termination of employment for any reason whatsoever the contractor shall issue to the workman whose services have been terminated, a **Service certificate** in Form XV of the CL (R&A) Central Rules 1971 (Appendix-IX)

11. PRESERVATION OF LABOUR RECORDS

All records required to be maintained under Regulations Nos. 6&7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-in-Charge or Labour Officer or any other officers authorized by the Ministry of Urban Development in this behalf.

12. POWER OF LABOUR OFFICER TO MAKE INVESTIGATIONS OR ENQUIRY

The Labour Officer or any person authorized by Central Government on their behalf shall have power to make enquires with a view to ascertaining and enforcing due and proper observance of Fair Wage Clauses and the Provisions of these Regulations. He shall investigate into any complaint regarding the default made by the contractor or subcontractor in regard to such provision.

13. REPORT OF LABOUR OFFICER

The Labour Officer or other persons authorized as aforesaid shall submit a report of result of his investigation or enquiry to the Executive Engineer concerned indicating the extent, if any, to which the default has been committed with a note that necessary deductions from the contractors bill be made and the wages and other dues be paid to the labourers concerned. In case an appeal is made by the contractor under Clause 13 of these regulations, actual payment to labourers will be made by the Engineer in Charge after Chairperson, I-CDC, IPR has given his decision on such appeal.

i) The Chief Administrative Officer shall arrange payments to the labour concerned within 45 days from the receipt of the report from the Labour Officer or the XChairperson, I-CDC, IPR as the case may be.

14. APEAL AGAINST THE DECISION OF LABOUR OFFICER

Any person aggrieved by the decision and recommendations of the Labour Officer or other person so authorized may appeal against such decision to the Chairperson, I-CDC, IPR within 30 days from the date of decision, forwarding simultaneously a copy of his appeal to the Chief Administrative Officer but subject to such appeal, the decision of the officer shall be final and binding upon the contractor.

15. PROHIBITION REGARDING REPRESENTATION THROUGH LAWYER

(i) A workman shall be entitled to be represented in any investigation or enquiry under these regulations by:

a) An officer of a registered trade union of which he is a member.

b) An officer of a federation of trade unions to which the trade union referred to in clause (a) is affiliated.

c) Where the employer is not a member of any registered trade union, by an officer of a registered trade union, connected with the industry in which the worker in employed or by any other workman employed in the industry in which the worker is employed.

(ii) An employer shall be entitled to be represented in any investigation or enquiry under these regulations by:-

a) An officer of an association of employers of which he is a member.

b) An officer of a federation of associations of employers to which association referred to in clause (a) is affiliated.

c) Where the employers is not a member of any association of employers, by an officer of association of employer connected with the industry in which the employer is engaged or by any other employer, engaged in the industry in which the employer is engaged.

(iii) No party shall be entitled to be represented by a legal practitioner in any investigation or enquiry under these regulations.

16. INSPECTION OF BOOKS AND SLIPS

The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Officer or any other person, authorized by the Central Government on his behalf.

17. SUBMISSIONS OF RETURNS

The contractor shall submit periodical returns as may be specified from time to time.

18. AMENDMENTS

The Institute / Government may from time to time add to or amend the regulations and on any question as to the application/Interpretation or effect of those regulations the decision of the Chairperson, I-CDC, IPR shall be final.

PROFORMA OF REGISTERS

Appendix 'I'
Register of Maternity Benefits (Clause 19F)

1. Name and address of the contractor:

2. Name and location of the work:-

Name of the Employee	Father's / Husband's Name	Nature of employment	Period of actual employment	Date on which notice of confinement given
1	2	3	4	5

Date of delivery /miscarriage	**Date on which maternity leave commenced and ended**			
	In case of Delivery		**in case of miss-carriage**	
	Commenced	Ended	Commenced	Ended
6	7	8	9	10

Leave pay paid to the employee

In case of delivery		In case of miscarriage		Remarks
Rate of leave pay	Amount paid	Rate of leave pay	Pay amount paid	
11	12	13	14	15

Appendix 'II'

SPECIMEN FORM OF THE REGISTER, REGARDING MATERNITY BENEFIT ADMISSIBLE TO THE CONTRACTOR'S LABOUR

Name and address of the contractor

Name and location of the work

1. Name of the woman and her husband's name:
2. Designation:
3. Date of appointment:
4. Date with months and year in which she is employed:
5. Date of discharge / dismissal, if any:
6. Date of Production of certificates in respect of pregnancy:
7. Date on which woman informs about the expected delivery:
8. Date of delivery / miscarriage/ death:
9. Date of production of certificate in respect of delivery / miscarriage:
10. Date with amount of maternity / death benefit paid in advance of expected delivery:
11. Date with amount of subsequent payment of maternity benefit:
12. Name of person nominated by the women to receive the payment of the maternity benefit after her death:
13. If the woman dies, the date of her death, the name of the person to whom maternity benefit amount was paid, the month thereof and the date of payment:
14. Signature of the contractor authenticating entries in the register:
15. Remark column for the use of inspecting officer:

Appendix 'III'

Labour Board

1. Name of Work:
2. Name of Contractor:
3. Address of contractor
4. Name of Labour Officer of institute:
5. Name of Labour Enforcement Officer:
6. Address of Enforcement officer;

SI. No.	Category	Minimum Wage fixed	Actual Wage paid	Number Present	Remarks

Weekly Holiday:

Wage Period:

Date of Payment of wages:

Working Hours:

Rest interval:

Appendix ' IV'

Form XIII (See Rule 75)

Register of workmen employed by contractor

Name and Address of contractor

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of Principal Employer.

Sr. No.	Name and surname of workman	Age as on	Father's / Husband 's name	Nature employment / designation	Permanent home address of workman (Village and Tehsil, Taluk and District)	Local Address	Date of commencement of employment	Signature or thumb impression of Workmen	Date of termination of employment	Reason for terminations	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

Appendix 'V'

Form XVI

Muster Roll

Name and Address of contractor:

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of Principal Employer.

For the month of / fortnight:

Sr. No.	Name of Workman	Father's / Husband's Name	Sex	Dates					Remarks
1	2	3	4	5					6
				1	2	3	4	5	

Appendix 'VI'

Form XVII (see rule 78(2)(a))

REGISTER OF WAGES

Name and Address of contractor:

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of Principal Employer.

Wages period ---------- Monthly/fortnight

Sr. No	Name of workman	Serial No. in the register of workman	Designation/nature of work done	No. of days worked	Units of work done	Daily rate of wages /price rate	Amount of wages earned					Deduction(If any Indicate nature)	Net amount paid	Signature or thumb impression of the workman	Initial of contractor or his represente tive
							Basic Wage	Dearness allowance	Over Time	Other Cash payments (Indicate nature)	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Appendix 'VII'

Wage Card No.

WAGE CARD

Name and address of contractor Date of Issue

Name and location of work Designation

Name of workman Month/Fortnight

Rate of wages

1 2 3 4 5 6 7 8 9 10 11 12 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Morning: Rate:

Evening: Amount

Initial:

Received from the sum of Rs. On amount of my wages

The wages card is valid for one month from the date of issue.

Signature

Appendix 'VII'

FORM XIX

(See Rule 78(2)(b))

WAGES SLIP

Name and address of contractor:

Name and Father's/Husband's name of workman:

Nature and location of work:

For the week/Fortnight/Month ending:

1. No. of days worked:
2. No. of units worked in case of piece:
3. Rate of daily wages/piece rate:
4. Amount of overtime wages:
5. Gross wages payable:
6. Deduction, if any:
7. Net amount of waged paid:

Initial of the contractor or his representative

Appendix 'VIII'

FORM XIV

(See Rule 76)

EMPLOYMENT CARD

Name and address of Contractor:

Name and address of establishment under which contract is carried on :

Name of work and location of work:

Name and address of principal employer:

1. Name of the workman:
2. Sr.No. in the register of workman:
3. Nature of employment/designation
4. Wage rate (with particulars of unit in:

   Case of piece work)
5. Wage period
6. Tenure of employment
7. Remark:

Signature of Contactor

Appendix 'IX'

FORM XV

(See Rule 77)

SERVICE CERTIFICATE

Name and Address of contractor:

Nature and location of work:

Name and address of establishment under which contract is carried on.

Name and address of workman.

Father's / Husband's Name.

Identification Mark.

Age or date of birth.

Name and address of principal employer

Sr.No	Total period for which employed		Nature of work	Rate of wage (with particulars of unit in case of piece work)	Remark
	From	To			
1	2	3	4	5	6

Signature:

Appendix 'X'

LIST OF ACTS AND OMISSIONS FOR WHICH FINES CAN BE IMPOSED

In accordance with rule7 (v) of the Contractor's Labour Regulations to be displayed prominently at the site of work both in English and local Language

1. Wilful insubordination or disobedience, whether alone or in combination with other.
2. Theft fraud or dishonesty in connection with the contractors beside a business or property of Institute
3. Taking or giving bribes or any illegal gratifications
4. Habitual late attendance.
5. Drunkenness fighting, riotous or disorderly or indifferent behavior.
6. Habitual negligence.
7. Smoking near or around the area where combustible or other materials are locked.
8. Habitual indiscipline.
9. Causing damage to work in the progress or to property of the Institute or of the contractor.
10. Sleeping on duty.
11. Malingering or slowing down work.
12. Giving of false information regarding name, age father's name, etc.
13. Habitual loss of wage cards supplied by the employers.
14. Unauthorized use of employer's property of manufacturing or making of unauthorized practices at the workplace.
15. Bad workmanship in construction and maintenance by skilled workers which is not approved by the Department and for which the contractors are compelled to undertake rectifications.
16. Making false complaints and / or misleading statements.
17. Engaging on trade within the premises of the establishments.
18. Any unauthorized divulgence of business affairs of the employees.
19. Collection or canvassing for the collection of any money within the premises of an establishment unless authorized by the employer.
20. Holding meeting inside the premises without previous sanction of the employers.
21. Threatening or intimating any workman or employer during the working hours within the premises.

Appendix 'XI'

FORM XII

(See Rule 78(2)(d))

REGISTER OF FINE

Name and Address of contractor:

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of principal employer

Sr. No.	Name of workman	Father's/ Husband's name	Designation/nature of employment	Act/omission for which fine imposed	Date of Offence	Weather Workmanshowed cause against fine	Name of person in whose presence employee's explanation was heard	Wage period and wage payable	Amount of fine Imposed	Date on which fine released	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

FORM XX

(See Rule 78(2)(b))

REGISTER OF DEDUCTION FOR DAMAGE OR LOSS

Name and Address of contractor:

Name and address of establishment in/under which contract is carried on.

Naure and location of work.

Name and address of principal employer

Sr. No.	Name of workman	Father's/ Husband's name	Designation/nature of employment	Particular of damage or loss	Date of damage or loss	Weather Workman showed cause against deduction	Name of person in whose presence employee's explanation was heard	Amount of deduction Imposed	No. of Instalment	Date 0f Recovery		Remarking
										First Instalment	Last Instalment	
1	2	3	4	5	6	7	8	9	10	11	12	13

Appendix 'XIII'

FORM XXII

(See Rule 78(2)(d))

REGISTER OF ADVANCES

Name and Address of contractor:

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of principal employer

Sr. No.	Name of workman	Father's/Husband's name	Designation /nature of employment	Wage period and wages payable	Date of amount of advance given	Purpose(s) for which advance made	No. of instalment by which advance to be paid	Date and amount of each instalment Repaid	Date on which last instalment was repaid	Remarks
1	2	3	4	5	6	7	8	9	10	11

Appendix 'XIV'

FORM XXIII

(See Rule 78(2)(e))

REGISTER OF OVERTIME

Name and Address of contractor:

Name and address of establishment under which contract is carried on.

Nature and location of work.

Name and address of principal employer

Sr. No.	Name of workman	Father's/Husband's name	Sex	Designation/ nature of employment	Dates on which overtime worked	Total overtime worked or production in case of Piece rated	Normal rates of wages	Overtime rates of wages	Overtime earning	Rates on which overtime paid	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

APPENDIX XV

Note for appointment of Arbitrator [Refer Clause 25]

To
The Director, Institute for Plasma Research, Bhat, Gandhinagar –382 428

Dear Sir,
In terms of clause 25 of SECTION -2-(ii)-CLAUSES OF CONTRACT, GENERAL CLAUSES OF CONTRACT (GCC) of the agreement, particulars of which are given below, I/we hereby give notice to you to appoint an arbitrator for settlement of disputes mentioned below:

1. Name of applicant
2. Whether applicant is Individual/Prop. Firm/Partnership Firm/Ltd. Co.
3. Full address of applicant
4. Name of the work and contract number in which arbitration sought
5. Name of the Division which entered into contract
6. Contract amount in the work
7. Date of contract
8. Date of initiation of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of request made to Chairperson, I-CDC, IPR for decision
17. Date of receipt of Chairperson, I-CDC decision
18. Date of appeal to you
19. Date of receipt of your decision.

Specimen signatures of the applicant
(only the person/authority who signed the contract should sign)

I/we certify that the information given above is true to the best of my/our knowledge, I/we enclose following documents.

I/We have exhausted provision of DRC as per clause 25 of this agreement

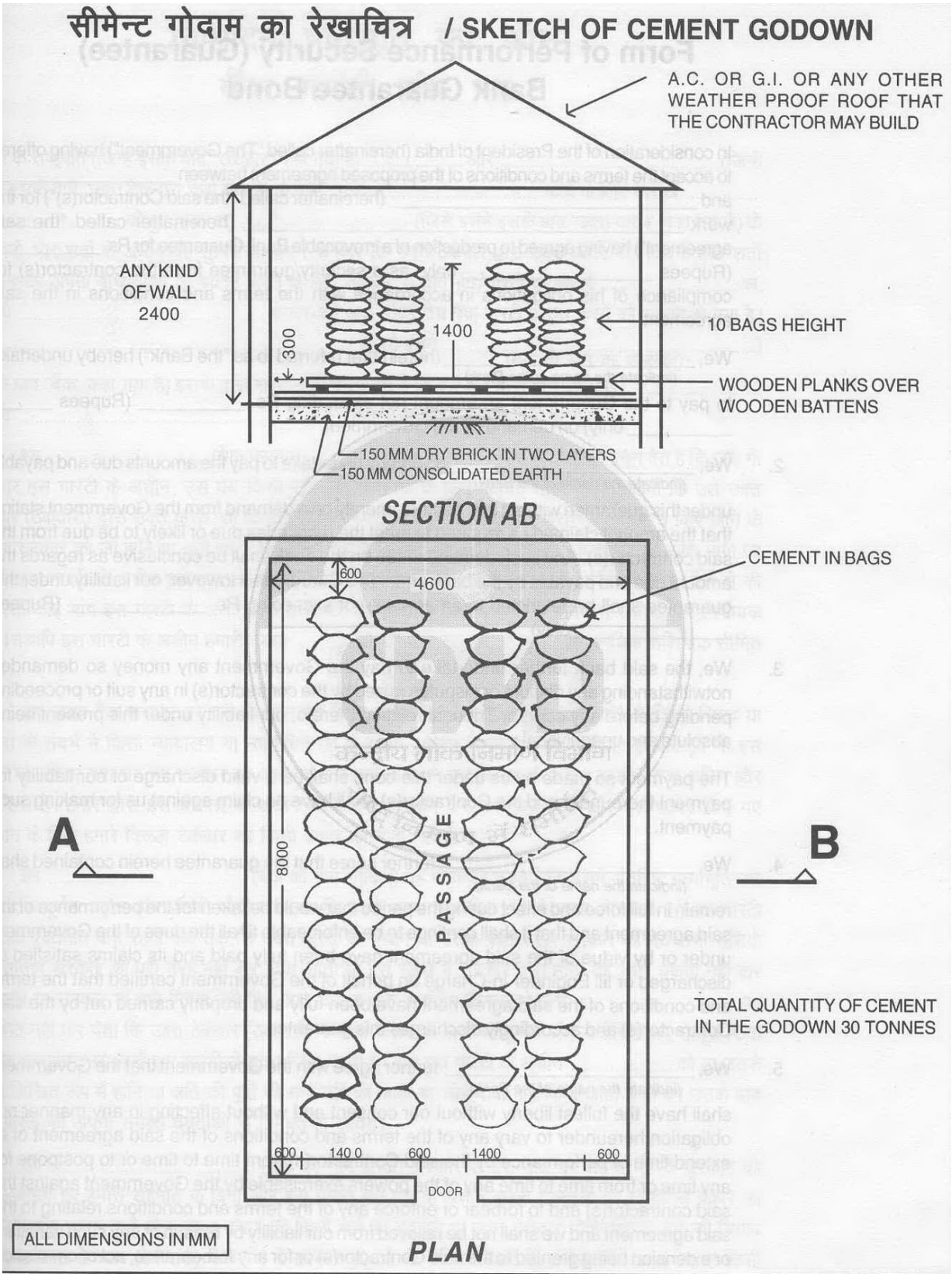
1. Statement of claims with amount of claims.
2.

Yours faithfully,

(Signatures)

Copy in duplicate to: The Chairperson, I-CDC of Institute,

सीमेन्ट गोदाम का रेखाचित्र / SKETCH OF CEMENT GODOWN



TOTAL QUANTITY OF CEMENT IN THE GODOWN 30 TONNES

SECTION: 4

Format / Performa/ Guarantee Bonds

Form of Earnest Money Deposit

Bank Guarantee Bond

WHEREAS, contractor……..... (Name of Contractor) (hereinafter called "the Contractor") has submitted his tender dated…..……(date) for the construction of…….…….……..(Name of work) (hereinafter called "the tender") KNOW ALL PEOPLE by these presents that we……..(name of Bank) having our registered office at……...(hereinafter called "the bank") are bound unto(Name and division of Executive Engineer)) **(hereinafter called the Engineer-In-Charge)** in the sum of Rs……(Rs. In worlds……) for which payment well and truly to be made to the said Institute the bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this……. day of ……..20……. .

THE CONDITIONS of this obligation are:

1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the form of Tender;
2) If the contractor having been notification of the acceptance of his tender by the Institute ;
   (a) Fails or refuses to execute the form of Agreement in accordance with the Instruction to contractor, if required;

   OR

   (b) Fails or refuses to furnish the performance Guarantee, in accordance with the provisions of tender document and instructions to contractor,

We undertake to pay to the Institute for Plasma Research either up to the above amount or part thereof upon receipt of his first written demand, without the Institute having to substantiates his demand, provided that in his demand the Institute will note that the amount claimed by his is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date*……. After the deadline for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the Institute for Plasma Research, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE…….. SIGNATURE OF THE BANK

WITNESS…… SEAL
(SIGNATURE, NAME AND ADDRESS)

*Date to be worked out on the basis of validity period of 6 months form last date of receipt of tender.

Form of Performance Security (Guarantee)
Bank Guarantee Bond

Inconsideration of the Director ,IPR (hereinafter called The Institute) having offered to accept the terms and conditions of the proposed agreement between **Institute For Plasma Research, Bhat, Gandhinagar** and _____ (hereinafter called "the said Contractor(s)") for the work _____ _____ (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs. _____ (Rupees_____ only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We, _____ (hereinafter referred to as "the Bank") hereby undertake to pay to the Institute an amount not exceeding Rs. _____ (Rupees only) on demand by the Institute.

2. We, _____(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Institute /Government stating that the amount claimed as required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____only)

3. We, the said bank further undertake to pay the Institute / Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.

4. We, _____ (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Institute / Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-Charge on behalf of the Institute / Government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

5. We, _____(indicate the name of the Bank) further agree with the Institute / Government that the Institute / Government) shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Institute/Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the Institute/Government or any indulgence by the Institute/Government to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

7. We, _____ (indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Institute / Government in writing.

8. This guarantee shall be valid up to _____ unless extended on demand by the Institute / Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. _____ (Rupees_____ only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the _____ day of _____for_____ (indicate the name of the Bank)

INDENTURE FOR SECURED ADVANCE

(For use in cases in which the contract is for finished work and the contractor has entered into an agreement for the execute of a certain specified quantity of work in a given time.)

Institute for Plasma Research
State: Gujarat **Administration:** Institute for plasma research

THIS INDENTURE made the _____day of _____20 _____ BETWEEN (hereinafter called the Contractor which expression shall where the context so admits or implies be deemed to include his executors, administrators and assigns) of the one part and the Institute (hereinafter called the Institute which expression shall where the context so admits or implies be 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 Institute that he may be allowed advance on the security of materials absolutely belonging to him and brought by him to the site of the works, he subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges).

AND WHEREAS the Institute has agreed to advance to the contractor the sum of Rupees _____ on the security of materials, the quantities and other particulars of which are detailed in -Part-II of a Running Account Bill (B) for the said works signed by the contractor on and the Institute has reserved to himself the option of making any further advances on the security of other materials brought by the contractor to the site of the said works.

NOW THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees _____ on or before the execution of these presents paid to the contractor by the Institute (the receipt where of the contractor both hereby acknowledge and of such further advance, if any, as may be made to him as aforesaid the contractor both hereby convenient and agree with the Institute and declare as follows:

1. That the said sum of Rupees _____so advanced by the Institute 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 expenditure the execution of the said works and for no other purpose whatsoever.

2. That the materials detailed in the said Running Account Bill (B) which have been offered to and accepted by the Institute 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 receives a further advance on the security of materials which are not absolutely his own property and free from encumbrance of any kind and the contractor indemnifies and Institute against all claims to any materials in respect of which an advance has been made to him as aforesaid.

3. That the materials detailed in the said Running Account Bill (B) and all other materials on the security of which any further advance or advances may hereafter to be made as aforesaid (hereinafter called the said materials) shall be used by the contractor solely in the execution of

the said works in accordance with the directions of the Engineer-in charge of the said works, Institute (hereinafter called "the Engineer-in charge) and in the terms of the said agreement.

4. That the contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe- custody and protections against all risks of the said materials and that until used in construction as aforesaid said materials shall remain at the site of the said works in the contractor's custody and on his own responsibility and shall at all times be open to inspection by the Engineer-in charge or any officer authorized by him. In the event of the materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree that is due to reasonable use and wear thereof the contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Engineer-in charge.

5. That the said materials shall not on any account be removed from the site of the works except with the written permission of the Engineer-in charge or an officer authorized by Institute.

6. That the advance shall be repayable in full when or before contractor receives payment from the Institute of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the contractor on account of work done thereon the occasion of each such payment the Institute will be at liberty to make a recovery from the contractor's bill for such payment by deduction there from the value of the said materials than actually used in the construction and in respect of which recovery has not been made previously the value for this purpose being determined in respect of the each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

7. That if the contractor shall at any time make any default in the performance or observance 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 what may still be owing to the Institute shall immediately on the happening of such default be repayable by the contractor to the Institute together with interest thereon at twelve percent per annum from the date of respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Institute in or for the recovery thereof or the enforcement of this security or otherwise by reasons of the default of the contractor and contractor hereby convenient and agrees with the Institute to repay and pay the same respectively, to him accordingly.

8. That the contractor hereby charges all the said materials with the repayment to the Institute of the said sum of Rs. _____, and any further sum or sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is-hereby agreed and declared that not-withstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the convenient for Payment and repayment herein before contained shall become enforceable and the money owing shall not be paid in accordance there with the Institute may at any time thereafter adopt all or any of the following courses as he may deemed 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 provisions 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 present 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 thereby provided. If the balance is against the contractor he is to pay same to the Institute on demand.

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 sum, aforesaid repayable or payable to the Institute under these presents and pay over the surplus (if any) to the contractor.
c) Deduct all or any part of the money owing out of the security deposit or any sum due to the contractor under the said agreement.

9. That except in the event of such default on the part of the contractor as aforesaid interest on the said advances shall not be payable.

10. That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been herein before expressly provided for the same shall be referred to the Project Administrator / Associate Dean/ Dean / Director of the Institute, time being in force shall apply to any such reference.

IN WITNESS thereof the said _____and _____by the order under the direction of the Institute have hereinto set their respective hands the day and year first above written. Signed, sealed and delivered by the said contractor in the presence of:

Signature

Name

Address

Witness

Signed by

By the order and direction of the Institute in the presence of:

Signature
Name
Address
Witness

SECTION: 5

Detailed Specifications

SECTION - 5 –(i) Detailed Specifications –

1. The items of the work as mention in schedule of quantities are to be carried out as per the Specification mentioned in this tender document.

2. In case of non-availability of detailed specification, Specification of the same shall be executed as per clauses mentioned in GCC and / or as directed by Engineer-In-Charge, whose decision shall be final. No extra shall be payable for execution of items as mentioned in Schedule of Quantities as a result of adopting detailed specification or India Standard of relevant or Other Standards thereon.

3. All respective items should be as per the preferred make / brands / list attached, or as approved by EIC.

SECTION - 5 –(ii)

List of Materials and their respective IS Codes/ Materials conforming to respective Test Certificates.

Latest revision of relevant standards/Codes/Norms/Acts/Rules/Regulations etc shall be referred.

All the items shall conform to the relevant IS codes, whether the code is specifically mentioned / listed in the tender OR not. Where relevant IS code is not available, relevant Standard manufacturer's specification shall be followed. For Electrical works if relevant IS code is not available, relevant Indian Electricity code shall be followed.

Electrical works:

1.	Methods of High Voltage Testing.	IS-2071 (P1 to P3)
2.	Classification of degrees of protection provided by enclosures of electrical equipment.	IS-12063
3.	Code of Practice for Earthing	IS-3043
4.	Guide for marking of insulated conductors.	IS-5578
5.	Guide for uniform system of marking & identification of conductors & apparatus terminals.	IS-11353
6.	High Voltage Test Techniques	IEC-60 (Part 1 to P4)
7.	Electro-technical Vocabulary	IS: 1885
8.	Code of Practice for Fire Safety of Buildings (General) : Electrical Installations.	IS : 1646
	CUBICLES AND PANELS & OTHER RELATED EQUIPMENTS	
9.	Electrical relays for power system protection	IS-722 IS-1248 IS-3231 (P-3)
10.	Distributed pillars for Voltages not exceeding 1000 Volts.	IS:5039
11.	Specification for Switchgear & Control Assemblies.	IS: 8623: (Part I to 3)
	WIRES AND CABLES	
12.	PVC insulated cables for working voltages up to and including 1100 Volts.	IS-694
13.	PVC insulated cables for working voltages up to and including 1100 Volts.	IS-694
14.	Code of practice for installation and maintenance of power cables up to and including 33 kV rating	IS-1255
15.	PVC insulated (heavy duty) electric cables (part 1) for working voltage up to and including 1100 V.- Part (2) for working voltage from 3.3 kV up to and including 22 kV.	IS-1554 (P1 and P2)
16.	Aluminium conductor for insulated cables	IS:1753

17.	Copper Conductor in insulated cables.	IS:2982
18.	Recommended current ratings for cables.	IS-3961 (P1 to P5)
19.	Mild steel wires formed wires and tapes for armouring of cables.	IS-3975
20.	PVC insulating and sheath of electric cables.	IS-5831
21.	Elastomeric insulating and sheath of electric cables.	IS-6380
22.	Cross linked polyethylene insulated PVC sheathed cables for working voltage up to and including 1100 volts.	IS-7098
23.	Cross-linked polyethylene insulated PVC sheathed cables for working voltage from 3.3kV up to and including 33 kV.	IS-7098
24.	Conductors for insulated electrical cables and flexible cords.	IS-8130
25.	Specification for drums for electric cables.	IS-10418
26.	Code of Practice for Fire Safety in Cable Runs	IS-12459
	GALVANIZING	
27.	Zinc Ingot	IS-209 -
28.	Recommended Practice for Hot-Dip galvanizing on iron and steel.	IS-2629 -
29.	Methods for testing uniformity of coating of zinc coated articles.	IS-2633 -
30.	Hot Rolled medium and high Tensile Strength Steel.	IS-2062
31.	General Construction in Steel – Code of Practice.	IS-800
	PAINTING	
32. .	Code of practice for phosphating of iron and steel.	IS-6005
33.	Colours for Ready Mixed Paints and Enamels.	IS - 5
	FIRE EXTINGUISHERS	
34. 3 .	Code of practice for fire extinguishing installations and equipment on premises	IS:5306 -
	LIGHTING FIXTURES AND ACCESSORIES	
35. .	General and safety requirements for electric lighting fittings.	IS:1913
36.	Water proof electric lighting fittings.	IS:3528
37.	Dust proof electric lighting fittings.	IS:4012
38.	Dust tight proof electric lighting fittings.	IS:4013
39.	Industrial lighting fittings with metal reflectors.	IS:10322
40.	Industrial lighting fittings with plastic reflectors.	IS:10322
41.	(non flame proof type).	IS:2206
42.	Specification for flood light.	IS:10322
43.	Specification for decorative lighting outfits.	IS:10322
44.	Luminaries for street lighting	IS:10322
45.	Tubular lamps	IS:2418
46.	High pressure mercury vapor lamps.	IS:9900
47.	Capacitors for use in lighting fittings.	IS:1569
48.	Starters for lamps.	IS:2215
49.	Holders for starters for tubular lamps	IS:3324

50.	GLS lamps	IS:418
51.	Water tight electric fittings	IS:3553
52.	Tubular steel poles	IS:2713
53.	Ballasts for tubular fluorescent lamps – performance requirements– Part 1 For switch start circuits	IS 1534 (Part 1)
54.	Particular requirements for ballasts for fluorescent lamps	IS 15885
55.	(Part 1 and Part 2) AC supplied electronic ballast for tubular fluorescent lamps – performance requirement	IS 13021
56.	Electromagnetic compatibility Part 3 Limits for harmonic current emissions	IS 14700 (Part 3/Sec2)
57.	Limits and methods of measurement of radio disturbance characteristics	IS 6873 (Part5)
	Electrical lighting and similar equipment	
58.	Electric Ceiling Type Fans and Regulators	IS-374
59.	Electronic Type Fan Regulators.	IS-11037
60.	General Lighting - LEDs and LED modules – Terms and Definitions	IS- 16101:2012
61.	Self- Ballasted LED Lamps for General Lighting Services Part 1 Safety Requirements	IS- 16102(Part 1) : 2012
62.	Self-Ballasted LED Lamps for General Lighting Services Part 2 Performance Requirements	IS- 16102(Part 2) : 2012
63.	Led Modules for General Lighting Part 1Safety Requirements	IS- 16103(Part 1) : 2012
64.	Led Modules for General Lighting Part 2 Performance Requirements	IS- 16103(Part 2) : 2012
65.	Safety of Lamp Control Gear Part 2 Particular Requirements Section 13 d.c. or a.c. Supplied Electronic Controlgear for Led Modules	IS- 15885(Part2/Sec13): 2012
66.	Luminaires Performance Part 1 General Requirements	IS- 16107(Part 1):2012
67.	Luminaires Performance Part 2 Particular Requirements Section 1 LED Luminaire	IS- 16107-1:2012
	CONDUITS ACCESSORIES AND JUNCTION BOXES	
68.	Rigid non-metallic conduits for electrical wiring.	IS: 9537 (Part – 1 & 3)
69.	Rigid steel conduits for electrical wiring	IS:9537 (Part-2)
70.	Flexible steel conduits for electrical wiring	IS:3480
71.	Fittings for Rigid non-metallic conduits.	IS: 3419
72.	Fittings for rigid steel conduits for electrical wiring	IS:2667
73.	Accessories for rigid steel conduits for electrical wiring	IS:3837
74.	Adaptors for flexible steel conduits.	IS:4649
75.	Steel and Cast Iron Boxes	IS:5133
	LIGHTING PANELS	
76.	LV Switchgear and Control gear (Part 1 to 5)	IS:13947
77.	Circuit breakers for over current protection for house hold and similar installations.	IS:8828
78.	Ready mix paints	IS:5

79.	Danger notice plates	IS:2551
80.	Current transformers	IS:2705
81.	HRC Cartridge fuse links for voltage above 650V(Part-2)	IS:9224
82.	Wrought aluminium and Al. alloys bars rods tubes and sections for electrical purposes.	IS:5082
83.	Factory built Assemblies of Switchgear and Control Gear for voltages up to and including 1000V AC and 1200V DC.	IS:8623
84.	Direct Acting electrical indicating instruments	IS:1248
85.	Copper	IS:191:2007
86.	Copper Rods and Bars for Electrical Purposes.	IS:613:2007
87.	Method of Chemical Analysis for Copper	IS:440:1964
	ELECTRICAL INSTALLATION	
88.	3 pin plug	IS:1293
89.	Two to three ceiling roses	IS:371
90.	Switches for domestic and similar purposes	IS:3854
91.	Guide for safety procedures and practices in electrical work.	IS:5216
92.	Code of practice for electrical wiring installation (system voltage not exceeding 650 Volts.)	IS:732
93.	Code of practice for earthing.	IS:3043
94.	Code of practice of interior illumination part II & III.	IS:3646
95.	Code of practice for lighting of public through fares.	IS:1944
96.	Guide for selection of electrical equipment for hazardous Areas.	IS:5571
97.	Code of practice for use of structural steel in general building construction.	IS:800
98.	Methods of Testing uniformity of coating on zinc coated articles.	IS:2633
99.	Code of practice for phosphating iron and steel.	IS:6005
100.	Copper	IS:191: 2007
101.	Copper Rods and Bars for Electrical Purposes.	IS:613: 2007
102.	Method of Chemical Analysis for Copper	IS 440: 1964
	LT SWITCHGEAR	
103.	Specification for low voltage switchgear and control gear assemblies	IS:8623 (Part-I)
104.	Specification for low voltage switchgear and control gear	IS:13947 (Part-I) Part 1 General Rules.
105.	Specification for low voltage switchgear and control gear	IS:13947 (part-2) Part 2 circuit breakers.
106.	Specification for low voltage switchgear and control gear. Part 3 Switches	IS:13947 (part-3) Disconnectors
	Switch - disconnectors and fuse combination units	
107.	Specification for low voltage switchgear & control gear.	IS:13947 (part-4)
108.	Specification for low voltage switchgear & control gear.	IS:13947 (part-5)
109.	Specification for low voltage switchgear & control gear.	IS:13947 (part-6)

	Multiple function switching devices.	
110.	Specification for low voltage switchgear & control gear.	IS:13947 (part-7)
	Ancillary equipments	Part 7
111.	Degree of protection provided by enclosures	IS:12063
112.	Current Transformers	IS:2705
113.	Voltage Transformers	IS:3156
114.	Electrical relays for power system protection	IS:3231
115.	Electrical indicating instruments	IS:1248
116.	AC Electricity meters	IS:722
117.	Guide for Marking of insulated conductors of apparatus terminals	IS:5578
118.	Low voltage fuses for voltage not exceeding 1000V AC or 1500V DC Part 1	IS:13703 (part 1)
	General Requirements	
119.	Low voltage fuses for voltage not exceeding 1000V AC or 1500V DC	IS:13703 (part 2)
	Fuses for use of authorized persons	
120.	Code of practice of phosphating iron and steel	IS:6005
121.	Wrought Aluminium and Aluminium alloys for electrical purposes	IS:5082
122.	Hot dip galvanising	IS:2633
123.	Specification for Copper.	IS: 191
124.	Copper Rods and Bars for Electrical Purposes	IS 613: 2000
125.	Method of chemical Analysis of Copper	IS: 440: 1964
	MISCELLENOUS ITEMS	
126.	For Cable jointing & Termination kits	IS: 13573
127.	Specification for Copper	IS: 191: 1980
128.	Solid Drawn Copper Tubes for General Engineering Purposes	IS: 2501:1995
129.	Code of Practice for Electrical Wiring Installations	IS: 732

SECTION - 5 –(iii)

Electrical Material Specifications

ELECTRICAL MATERIAL SPECIFICATION

GENERAL INSTRUCTIONS

1.0 Scope of work:

1.1 The contractor's scope of work covers supply, installation, commissioning and testing of the complete Electrical installation as specified in material specification, item specification, drawings and schedule of quantities.

2.0 Location:

2.1 The works are to be carried out at Institute for Plasma Research, Bhat, Gandhinagar. All electrical equipment and gear shall be designed for an average ambient of 50°C with a peak of 55°C and relative humidity 55%.

3.0 Drawings, Specifications & Deviations:

3.1 The drawings and specifications lay down minimum standards of equipment and workmanship. In the absence of any deviations, it will be deemed that the tenderer is fully satisfied with the intents of the specifications and drawings and their compliance with the statutory provisions and local codes.

3.2 In case of discrepancy between the drawings, BoQ and specifications, the BoQ will prevail and furnish his rates accordingly.

3.3 The Contractor shall prepare fabrication and working drawings and all work shall be as per the 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.

3.4 Equipment data shall be submitted along with the filled tender. The contractor shall be responsible for any unfilled data of the data sheets and the same shall be executed according to the requirements of the Engineer in charge without any extra cost.

3.5 All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.

4.0 Tools and Spare Parts:

4.1 All the tools, tackle, scaffolding and staging require for erection and assembly of the equipment and installation covered by the contract shall be obtained and maintained by the contractor himself. All other materials such as foundation bolts, nuts, anchor fasteners etc. required for the installation of the plant/poles shall also be supplied and included in the contract.

5.0 Testing & Handing over:

5.1 The contractor shall carry out tests on different equipment as specified in various sections in the presence of representatives of Engineers in order to enable them to determine whether the plant, equipment and installation in general comply with the specifications.

5.2 All equipment shall be tested after carrying out necessary adjustments and balancing to establish equipment ratings and all other design conditions. At least two sets of readings shall be taken for each item tested and submitted.

5.3 The project shall be handed over after satisfactory testing along with Two sets of documentation each consisting of :

i) Detailed equipment data as approved by the Consulting Engineers/Employer.

ii) Manufacturer's maintenance and operating instructions.

iii) Set of drawings, showing plant layouts, piping, ducting, cabling etc

iv) Approved Test reading.

v) List of recommended spares.

5.4 Submission of the above documentation shall form a precondition for the final acceptance of the plant and installation and final payment.

6.0 All electrical equipment/items shall be suitable for Seismic Zone V. 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.

7.0 Payment to civil contractor.

The electrical contractor will have to pay to the civil contractor for any work done on behalf of the electrical contractor like laying of pipes, filling of zarries etc.

8.0 Temporary wiring

Whenever any temporary wiring is done, it has to be done so that all precaution for safety is taken and temporary wiring shall be also done so that, it is not hazardous to anybody. Any accidents happen because of temporary or permanent installation, it will be entire responsibility of contractor for all compensation to concern parties.

Institute shall not be responsible for such accidents, mistake etc.

9.0 Completion Drawing:

The contractor shall to submit 2 sets of as built drawings showing all electrical arrangement i.e. power and control circuit diagrams, layouts etc. and soft copy of the same.

10.0 GA Drawings

Successful tenderer shall submit General Arrangement drawings for approval of Engineer-in-Charge before manufacturing of any part of equipment.

11.0 Works to be done by the Contractor

11.1 The contractor shall also furnish 2 copies of detailed installation, operation and maintenance manuals of manufacturers for all items of equipment together with all relevant data sheet, spare parts catalogues, repairs, assembly and adjustment procedure etc.

11.2 The contractor shall furnish such facilities as will be necessary for inspection of the equipment before dispatch at the manufacturer's works and also for witnessing such tests, at the works, if so required by employer/consultant.

11.3 Copies of all documents for routine, acceptance and type test certificates of the equipment carried out at the manufacturers premise shall be furnished to the employer along with supply of equipment.

11.4 The contractor shall coordinate his work and cooperate with other agencies by exchange of all technical information like details of foundation, weight, overall dimensions, clearances and other technical data required for successful and proper completion of his portion of the work in relation to the work of others without any reservation. No remuneration shall be claimed for such cooperation.

11.5 Care shall be taken, while handling/installing the equipment to avoid damage to the building as well as equipment. On completion of installation, the contractor shall arrange to repair all damages to the building and equipment caused during installation so as to bring to the original condition without any extra cost.

11.6 Sealing of all floor openings provided for electrical pipes and cables, from fire safety point of view, after laying the same without any extra cost.

11.7 Testing and commissioning of completed installation.

11.8 All tools and tackles required for handling of equipment and material at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.

11.9 The contractor shall co-ordinate with all other agencies involved in the work so that the work is not hampered due to delay in his work. Recessed conduit and other works, which directly affect the progress of building work, should be given priority.

11.10 No structural member in the building shall be damaged / altered, without prior approval. All openings provided by others for electrical services shall be grouted / filled by the contractor after installing the cables/conduits etc. as the case may be, by any suitable means as approved by the engineer in charge without any extra cost. All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost as per instruction of architect to the original architectural finish of the building.

11.11 All the electrical works shall be carried out in accordance with the provisions of Indian electricity act, 1910 and Indian electricity rules, 1956 amended up to date(date of call of tender).All components shall confirm to relevant Indian standard specifications, wherever

existing, amended up to date.

11.12 For all kind of fabricated equipment, the contractor will first submit dimensional detailed drawings for approval before fabrication is taken up in the factory. Suitable stage inspection at factory also will be made to ensure proper use of materials, workmanship and quality control.

11.13 All testes prescribed in specification, to be done before, during and after installation, shall be carried out, and the test results shall be submitted to the engineer in charge in prescribed Performa, forming part of the completion certificate.

11.14 Completion plan (AS BUILT) drawn to the scale to be submitted for each building with location of main switch board, distribution boards, panels, circuit diagram, conduit layouts, points, outlets, light fixtures etc complete in all respect as per instruction of engineer in charge.

11.15 Equipment & Machinery on Work Site

The contractor shall provide and maintain in working order power driven machines like welding, drilling machine, zarri cutters, meggar, multimeter, continuity tester etc. till the completion of work.

11.16 The quantity for measurement will be actual quantity used in electrification:

I) The contractor shall bear all incidental charges for the storage and safe custody of the materials at site at his own responsibility.
II) The contractor shall make arrangement at the site of works for safe custody of materials to protect from damage by rain, dampness, fire, theft etc.
III) In case any materials get damaged the contractor shall replace the same at his own cost.
IV) The contractor shall furnish to Engineer-in-Charge sufficiently in advance a statement showing his requirements of quantities of materials to be supplied by Owner if any and the time when he will require the same.
V) A day to day account of the material supplied by Owner/Contractor shall be maintained by the contractor in the agreed Performa.

11.17 Engineer-In-charge will provide operative instructions on regular basis related to project during contract execution period, which are not covered in this tender document. Contractor and his staff at site shall comply all these instructions.

11.18 Engineer-in-Charge approval will be final in all concerned matters.

11.19 It is required that all insurance formalities & workman's compensation policy should be followed by the contractor.

11.20 The contractor will have to provide Electrical site engineer during the execution of work.

11.21 The Electrical contractor must be licensed Electrical contractor.

11.22 The Electrical contractor must have available all kind of necessary equipment at site.

11.23 All wiring person must be in possession of wireman license.

11.24 Electrical contractor should have valid electrical contractor license, issued by concern authority.

11.25 Electrical contractor should have carried our similar nature of work, similar means Electrical work of building along with SITC of street light pole, LED light fixtures, Laying of Electrical cable, etc.

11.26 Defect liability period shall be commence from the One year from acceptance of work.

MATERIAL SPECIFICATION

SUMMARY PAGE

I. Electrical Works

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A. Material Specification

Section - 1	E-1	LT Switchgear & POWER PANEL
Section - 2	E-2, 3	LT Cabling and Termination
Section - 3	E-4	Cable Trench
Section - 3	E-4	LT Distribution Board
Section - 4	E-7	Internal Wiring
Section - 5	E-8	Light Fixtures and Fans
Section - 6	E-9	Earthing

B. Applicable Standards – IS codes

C. List of Approved make

ELECTRICAL MATERIAL SPECIFICATION

E - 1 LT SWITCHGEAR & POWER PANEL

1.1 Scope :

The scope covers supply, installation, testing and commissioning of power panels, incorporating circuit breakers, fuse units, busbars, interconnections, earthing etc., meeting the requirements shown in equipment schedule and the drawings.

1.2 Standards :

AS PER SCHEDULE OF INDIAN STANDARD; ATTACHED WITH THE DOCUMENT.
The PCCs & MCCs shall comply with the latest edition of relevant Indian standards and Indian Electricity rules and regulations. The following Indian Standards shall be complied with:

IS : 4237	:	General requirements for switch gear and control gear for voltage not exceeding 1000 v.
IS : 375	:	Switchgear bus-bars, main connection and auxiliary wiring, marking and arrangement.
IS : 2147	:	Degree of protection provided by enclosures for low voltage switch gear and control gear.
IS : 8197	:	Terminal marking for electrical measuring instrument and their accessories.
IS : 2557	:	Danger notice plates.
IS : 2516	:	Specification for AC circuit breaker.
IS : 1818	:	Specification for AC isolator and earthing switch.
IS : 3072	:	Code of practice for installation and maintenance of switchgear.
IS : 8623	:	Specification for factory built as symbolize of switch gear and control gear for voltage up to and including 1000v. A.C.& 1200 v. D.C.
IS : 8828	:	Miniature Circuit Breaker.
IS : 4064	:	Fuse switch and switch fuse unit.
IS : 9224	:	HRC fuse unit.
IS : 2705	:	Current transformer.
IS : 3155	:	Voltage transformer.
IS : 3231	:	Electrical relay for protection.
IS : 1248	:	indicating instrument.
IS : 722	:	Integrating instrument.

IS : 6875 : Control switches & push buttons.

IS : 2959 : Auxiliary contactor.

IS : 1822 : AC motor starters of voltage not exceeding 1000V.

1.3 TYPE OF LT SWITCH GEAR:

1.3.1 All the PCC's / PDB's / MCC's shall be metal clad, totally enclosed, rigid, floor / wall mounted, air - insulation, cubical type suitable for operation on three phase / single phase, 415 / 230 volts, 50 Hz. neutral effectively / Non effectively grounded at transformer and short circuit level not less than 30 MVA at 415 volts.

1.3.2 The PCC's / MCC's shall be designed to withstand heaviest condition at site, with minimum expected ambient temperature of 55 degree celsius, 90 percent humidity and dusty weather.

1.3.3 Should confirm to Indian Electricity Act and rules. (as amended up to date) & approval of FIA of India.

1.4 STRUCTURE:

1.4.1 The PCCs, MCCs & PDBs shall be metal clad enclosed and be fabricated out of high quality CRCA sheet, suitable for indoor installation having dead front operated and floor mounting type.

1.4.2 All CRCA sheet steel used in the construction of PCCs / MCCs / PDBs shall be 2 mm thick and shall be folded and braced as necessary to provide a rigid support for all components. Joints of any kind in sheet shall be seam welded, all welding slag grounded off and welding pits wiped smooth with plumber metal.

1.4.3 The PCCs / MCCs / PDBs shall be totally enclosed, completely dust and vermin proof and degree of protection being not less than IP-43 for Indoor panels & IP -54 for outdoor panels . Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof. All doors and covers shall be fully gasket with foam rubber and / or rubber strips and shall be lockable.

1.4.4 All panels and covers shall be properly fitted and secured with the frame, and holes in the panel correctly positioned. Fixing screw shall enter into holes taped into an adequate thickness of metal or provided with bolts and nuts. Self-threading screws shall not be used in the construction of PCCs / MCCs / PDBs.

1.4.5 A base channel of 75 mm x 75 mm x 5 mm thick shall be provided at the bottom.

1.4.6 PCCs / MCCs /PDBs shall arranged in multi-tier formation. The PCCs / MCCs / PDBs shall be of adequate size with a provision of 20 percent spare space to accommodate possible future additional switch gear. The size of the PCCs / MCCs / PDBs shall be designed in such a way that the internal space is sufficient for hot air movement, and the electrical component dose not attain temperature more than 40 degree Celsius. If necessary openings shall provided for natural ventilation, but the said openings shall be screened with fine weld mesh.

1.4.7 Knockout holes of appropriate size and number shall be provided in the PCCs / MCCs/ PDBs in conformity with number, and size of incoming and outgoing conduits / cables.

1.4.8 Alternatively the PCCs / MCCs / PDBs shall provide with removable sheet plates at top and bottom to drill holes for cable / conduit entry at site.

1.4.9 The PCCs / MCCs / PDBs shall be designed to facilitate easy inspection, maintenance and repair.

1.4.10 The PCCs / MCCs / PDBs shall be sufficiently rugged in design and shall support the equipment without distortion under normal and short circuit condition, they shall be suitable braced for short circuit duty.

1.5 PROTECTION CLASS:

All the indoor PCCs / MCCs / PDBs shall have protection class as IS.

1.6 PAINTING:

All sheet steel work shall undergo a process of decreasing pickling in acid, cold rinsing, phosphating, pesivating and then sprayed with a high corrosion resistant primer. The primer shall be backed in an oven. The finishing treatment shall be by application. Three coats of synthetic enamel paint of approved colour shall be applied by spray and stoves in dust free atmosphere or the panel shall be powder coated.

1.7 CIRCUIT COMPARTMENT:

1.7.1 Each circuit breaker and switch fuse units shall be housed in separate compartments and shall be enclosed an all sides. Sheet steel hinged lockable door shall be duly inter locked with the breaker / switch fuse units in ON and OFF position. Safety interlocks shall be from being drawn out when the breaker is in ON position.

1.7.2 The door shall not form as integral part of the draw out position of the circuit breaker. All instruments and indicating lamp shall be mounted on the compartment door. Sheet steel barriers shall be provided between the tires in a vertical section.

1.8 INSTRUMENT COMPARTMENT:

Separate and adequate compartment shall be provided for accommodating instruments, indicating lamp, control contactors, relays and control fuses etc. These components shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, switch fuse units, busbars and connections.

1.9 BUSBARS

1.9.1 The busbar shall be air insulated and made high quality, high conductivity, high strength copper and as per relevant IS code. The busbar shall of three phases and neutral system with separate neutral and earth bar. The busbar and interconnection between busbar and various components shall be of high conductivity, hard drawn, electrolytic copper. The busbar shall be of rectangular cross section designed to withstand full load current for phase busbar and full rated current for neutral busbar and shall be extensible type on either side. The busbar shall be rated for the frame size of the main incoming breaker but in any case not less than 200 amp capacities. The busbar shall have uniform cross section throughout the length.

1.9.2 The busbar and interconnection shall be insulated with heat shrinkable PVC sleeves and be colour coded in red, Yellow, Blue and Black to identify the three phases and neutral of the

system. The busbar shall be supported on unbreakable, non hygroscopic DMC insulated supports at sufficient close interval to prevent busbar sag and shall effectively withstand electromagnetic stresses in the event of short circuit capacity of 50 KA RMS symmetrical for one second and a peak short circuit withstand of 105 KA minimum.

1.9.3 The busbar shall be housed in a separate compartment. The busbar shall be isolated with 3 mm thick bakalite sheet to avoid any accidental contact. The busbar shall be arranged such that minimum clearance between the busbar are maintained as per below.

Between phase	:	27 mm min.
Between phases and neutral	:	25 mm min.
Between phases and earth	:	25 mm min.
Between neutral and earth	:	23 mm min.

1.9.4 All busbar connection shall be done by drilling holes in busbars and connecting by chromium plated brass bolt and nuts. Additional cross section of busbar shall be provided in all PCCs / MCCs / PDBs to cover-up the holes drilled in the busbars. Spring and flat washers shall be used for tightening the bolts.

1.9.5 All connection between busbar and circuit breaker / switches and between circuit breaker/ switches and cable terminals shall be through solid copper strips of proper size to carry full rated current. These strips shall be insulated with insulating strips.

1.9.6 Busbar shall be of sufficient cross section so that a current density of 160 A/ Sq.cm (1000 A/ sq. inch) is not exceeded at nominal current rating for copper bus bars.

1.10 ELECTRICAL POWER & CONTROL WIRING CONNECTION

a) Terminal for both incoming and outgoing cable shall be suitable for 1100 volts grade, aluminum/copper conductor PVC insulated and sheathed, armoured cable and shall be suitable for connections of solder less sockets for the cable size as indicated on the appended drawing for the PCCs, MCCs, PDBs.

b) Both control and power wiring shall be brought out in cable alley for ease of external connections, operation and maintenance.

c) Both control and power terminals shall properly be shrouded.

d) 10% spare terminal shall be provided on each terminal block. Sufficient terminals shall be provided on each terminal block so that not more than one outgoing wire connected per terminal.

e) Terminal strip for power and control shall preferably be separated from each other by suitable barriers of enclosures.

f) Wiring inside the module for power, control protection and instrument etc. shall be done with use of 660/1100 confirming to IS 694 and IS 8130. Power wiring inside the starter module shall be rated for full current rating of contactor, but not less than 4 sq mm cross section area. **For current transformer circuits, 2.5 sq mm copper conductor wire shall be used.** Other **control wiring shall be done with 2.5 sq mm copper conductor wires**. Wires for connections to the door shall be flexible. All conductors shall be crimped with solder less sockets at the ends before connections are made to the terminals.

i) Control power for the motor starter module shall be taken from the respective module switchgear outgoing from R phase and Neutral. Control wiring shall have control fuse (HRC type).

j) Particular care shall be taken to ensure that the layout of wiring neat and orderly. Identification ferrules shall be filled to all the wire termination for ease of identification and to facilate and testing.

k) "CUPAL" washers shall be used for all copper and aluminum connections.

k) Final wiring diagram of the PCC, MCC, PDB power and control circuit with ferrules number shall be submitted along with the PCC/MCC/PDB as one of the documents.

1.11 TERMINALS

The outgoing terminals and neural link shall be brought out to a cable alley suitably located and accessible from the panel front. The current transformer for instrument metering shall mounted on the disconnecting type terminal blocks. No direct connection of incoming and outgoing cables to internal components connection of the distribution board is permitted, only one conductor may be connected in one terminal.

1.12 WIREWAYS

A horizontal PVC wire way with screwed covers shall be provided at the top to take interconnecting control wiring between different vertical sections.

1.13 CABLE COMPARTMENT

Cable compartment of adequate size shall be provided in the PCCs, MCCs, PDBS for easy termination of all incoming and outgoing cables entering from bottom or top. Adequate support shall be provided in the cable compartment shall be brought out to terminal blocks in the cable compartment.

1.14 EARTHING

a) Copper earth busbar of 25 mm x 3 mm shall be provided in the PCCs, MCCs, PDBS for the entire length of panel. The frame work of the PCCs, MCCs, PDBs shall be connected to this earth busbar. Provisions shall be made for connection from earth busbar to the main earthing bar coming from the earth pit on both side of the PCCs, MCCs, PDBs.

b) The earth continuity conductor of each incoming and outgoing feeder shall be connected to this earth bar. The armour shall be properly connected with earthing clamp and the clamp shall be ultimately bounded with the earth bar.

1.15 LABELS

Engraved PVC labels shall be provided on all incoming and outgoing feeders. Single line circuit diagram showing the arrangements of circuit inside the distribution board shall be pasted on inside of the panel door and covered with transparent laminated plastic sheet.

1.16 NAME PLATE

a) A name plate with panel designation in bold letter shall be fixed at top of the central in panel. A separate name plate giving feeder giving feeder details shall be provided for each feeder module door.

b) Inside the feeder compartment, the electrical component, equipments, accessories like switchgear, contactor, lamp, relays etc. shall suitably be identified by providing stickers.

c) Engraved name plates shall preferably be of 3 ply, (red-white-red or black-white-black) lamicold sheet. However black engraved perplex sheet name plates shall also be applicable. Engraving shall be done with square groove cutters.

d) Name plate shall be fastened by counter sunk screws and not by adhesives.

1.17 DANGER NOTICE PLATE

a) The danger plate shall be affixed in a permanent manner on operating side of the panel.

b) The danger notice plate shall indicate danger notice both in Hindi and English and with a sign of skull and bones.

c) The danger notice plate in general shall meet to requirements of local inspecting authorities.

d) Overall dimension of the danger notice plate shall be 200 mm wide and 150 mm high. The danger notice plate shall be made from minimum 1.6 mm thick mild steel sheet and after due pretreatment to the plate, the same shall be painted white with vitreous enamel paint on both front and rear surface of the plate.

e) The letter, the figure, the conventional skull and bones shall etc. shall be positioned on the plate as per recommendations of IS : 2551-1982.

f) The said letter, the figure and the sign of skull and bones be painted in single red colour as per IS : 5-1978.

g) The danger plate shall have rounded corners. Locations of fixing holes for the plate shall be decided to suit design of the panel.

h) The danger notice plate, if possible, be of ISI certification mark.

1.18 INTERNAL COMPONENTS

a) The PCC / MCC / PDB shall be equipped complete with all type of required number of air circuit breakers, switch fuse unit, contactor, relays, fuses, meters, instruments, indicating lamps, push buttons, equipment, fittings, busbar, cable boxes, cable glands etc. and all the necessary internal connections /wiring as required and as indicated on relevant drawings. Components necessary for proper complete functioning of the PCC / MCC / PDB but not indicated on the drawings shall be supplied and installed on the PCC / MCC / PDB.

b) All part of the PCC / MCC/ PDB carrying current including the components, connections, joints and instruments shall be capable of carrying their specified rated current continuously, without temperature rise exceeding the acceptable values of the relevant specifications at any part of the PCC / MCC / PDB.

c) All units of the same rating and specifications shall be fully interchangeable.

1.19 INSPECTIONS

Each equipment should inspect and witness by client & consultant.

a) The PCC / MCC / PDB shall be inspected and checked as per inspection manual of the PCC / MCC / PDB manufacturer.

b) Various electrical components and accessories of the PCC / MCC / PDB shall be checked as per drawing for the respective PCC / MCC / PDB.

c) The PCC / MCC / PDB shall be checked for rigid mounting, earthing connections, proper rating and size of components, internal wiring, etc.

d) All mechanical fasteners and electrical connections shall be checked and tightened before installation.

e) Type test certificates for all ACB for similar rating shall be submitted.

f) Test :

a) Prior to dispatch of the PCC / MCC / PDB following tests shall be carried out.
b) Mechanical endurance test shall carried out by closing and opening of all the ACB's, MCB's switches etc.
c) Over voltage and Insulation resistance test shall be carried out between phases and between phase to earth bus, keeping the isolating switch in ON position. Similar test shall be carried out keeping the isolating switch in closed position.
d) All the interlocks, controls and tripping mechanism of the switch gears shall be tested for their proper functioning.

1.20 COMPONENTS :

A) GENERAL

a) The type, size, and rating of the components shall be as indicated on the relevant drawings.

b) While selection od the capacity of the components resulting from the prevailing conditions like room temperature shall be allowed for the Thermal and magnetic trip rating shall be compensated for the ambient temperature.

c) The rating indicated on the drawings are rating anticipated at prevailing site condition.

B) MINIATURE CIRCUIT BREAKER:

Miniature circuit breakers shall be quick make and break and break type conform with British standard BS : 3871 (Part-I) 1965 and IS :8825 (1996). The housing of MCBs shall be heat resistant and having a high impact strength. The fault current of MCBs shall not be less than 10000 amps, at 230 volts. The MCBs shall be flush mounted and shall be provided with trip free manual operating mechanism with mechanical "ON" and "OFF" indications.

The circuit breaker dollies shall be of trip free pattern to prevent closing the breaker on a faculty current.

The MCB contact shall be silver nickel and silver graphite alloy and tip coated with silver. Proper arc chutes shall be provided to quench the arc immediately. MCB's shall be provided with magnetic fluid plunger relay 3 as for over current and short circuit protection. The over load or short circuit devices shall have a common trip bar in the case of DP and TPN miniature circuit breakers. All the MCB's shall be tested and certified as per Indian Standard, prior to Installation.

C) **FUSE:**

Fuses shall be of high rupturing capacity (HRC) fuse links and shall be in accordance with IS : 2000-1962 and having rupturing capacity of not less than 35 MVA at 415 Volts. The backup fuse rating for each motor / equipment. HRC fuses shall be of English Electric make or approved equal.

D) MOULDED CASE CIRCUIT BREAKER:

The MCCB shall be air break type and having quick make quick break with trip free operating mechanism.

Housing of the MCCB shall be of heat resistant and flame retardant insulating material.

Operating handle of the MCCB shall be in front and clearly indicate ON / OFF / TRIP positions. The electrical contact of the circuit breaker shall be of high conducting non deteriorating silver alloy contacts.

The MCCB shall be provided with thermal / magnetic type bi-metal over load release and electro-magnetic short circuit protection device. All the releases shall operate on common trip busbar so that in case of operation of any one of the releases in any of the three phases, it will cut off all the three phases and thereby single phasing of the system is avoided.

The MCCB whenever called for in the appendix drawings shall provide an earth fault relay.

The MCCB shall provide two sets of extra auxiliary contacts with connections for additional controls at future date.
The electrical parameters of the MCCB shall be as per the descriptions given in the appended drawings. All MCCB should be with breaking capacity of I_{cs}=100% $I_{cu.}$

E) CONTACTORS :

The contactor shall meet with the requirements of IS: 2959 and BS: 775.

The contactors shall have minimum making and breaking capacity in accordance with utilization category AC 3 and shall be suitable for minimum class II intermittent duty.

If the contactor forms part of a distribution board then a separate enclosure is not required, but the installation of the contactor shall be such that it is not possible to make an accidental contact with live parts.

F) LOAD MANAGER:

The load manager should be 192 x 144 mm size having facility to read voltage current harmonics power parameters. It should contain real time clock. The meter should be field programmable and to generate high / low profile for all power parameters with date & time, also able to store previous period integrated data. The meter should have RS 485 port for networking purpose. All the programming should be pass word protected.

G) CURRENT TRANSFORMER:

Where ammeter are called for, CT's shall provided for current measuring. Each phase shall be provided with separate CT of class I accuracy and suitable VA burden for operation of associated metering and controls. Current transformer shall be in accordance with IS : 2705 - 1964 as amended up to date.

H) PUSH BUTTON:

The push button unit shall comprise of the contact element, a fixing holder, and push button actuator. The push button shall be momentary contact type. The contacts shall be of silver alloy and rated at 10 Amps. continuous current rating. The actuator shall be of stranded type and colour as per its usage for ON, OFF and Trip.

J) INDICATING LAMP:

Indicating Lamp shall be transformer operated low voltage rated and shall supplied complete with translucent covers to diffuse the lamp light.

Colour shade for the indicating lamps shall be as below:

ON indicating lamp	:	Red
OFF indicating lamp	:	Green
TRIP indicating lamp	:	Amber
PHASE indicating lamp	:	Red, Yellow, Blue.

I) Technical Specifications for Single Phase & Three phase Electronic Energy Meter of Class 1.0 Accuracy:

1.0 SCOPE

This specification covers the design, engineering, manufacture, testing and calibration at manufacturer's works before dispatch, packing, supply and delivery of Class 1.0 accuracy, electronic energy meter, suitable for connection to LT
A) Single phase 2 wire 240V system
B) Three phase 3-phase, 4- wire 415V system
The static whole current electronic meter shall offer current range of 5-30 A, 10-60A (first digit indicates the Basic Current & second digit indicates the Maximum Current of the respective meters) for tariff purposes, as per requirement given in this specification.

2.0 STANDARDS APPLICABLE

Unless specified elsewhere in this specification, the performance & testing of the meters shall conform to the following Indian/International standards, to be read with upto-date and latest amendments/revisions thereof.

S. No.	Standard No.	Title
1	IS 13779 read with its latest amendments	Specification of AC Static Watt hour meters class 1.0 & 2.0
2	CBIP Report No.88 (revised July 1996) read with latest amendments	Specification for AC Static Electrical Energy Meters

3.0 CLIMATIC CONDITION

The meters to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions. Meters shall be capable of maintaining required accuracy under hot, tropical and dusty climate.

i) Maximum Ambient Air Temperature in shade : 50oC
ii) Minimum Ambient Air Temperature : -10oC.
iii)Relative Humidity 100% : 95% (non-condensing)
Iv) Minimum Relative Humidity : 100%

4.0 SUPPLY SYSTEM

System	1 Phase 2 Wire	3 Phase 4 Wire
Rated voltage (Vref)	240 V – Phase to Neutral	433 V – Phase to Phase
Rated Basic Current (lb)	Basic current 5/10/10 Amps (lb), Maximum current 30/60/100 Amps (l max)	Basic current 5/10/10 Amps (lb), Maximum current 30/60/100 Amps (l max)
Rated Frequency	50 Hz	50 Hz

5.0 POWER SUPPLY VARIATION

The meter should be suitable for working with following supply system variations.

System	1 Phase 2 Wire	3 Phase 4 Wire
Specified range of operation	70% to 120% of reference Voltage i.e. 240 V	70% to 120% of reference Voltage i.e. 415 V
Frequency	50Hz+/-5%	50Hz+/-5%

6.0 ACCURACY

Class of accuracy of the meter shall be 1.0. The accuracy shall not drift with time.

7.0 POWER CONSUMPTION

7.1 Voltage Circuit: The active and apparent power consumption in each voltage circuit including the power supply of meter at reference voltage, reference temperature and reference frequency shall not exceed 1.5 Watt and 8 VA respectively

7.2 **Current Circuit:** The apparent power taken by each current circuit at basic current, reference frequency and reference temperature shall not exceed 4 VA.

11.0 GENERAL & CONSTRUCTIONAL REQUIREMENTS

11.1 Meters shall be designed and constructed in such a way so as to avoid causing any danger during use and under normal conditions. However, the following should be ensured.

a) Personal safety against electric shock
b) Personal safety against effects of excessive temperature.
c) Protection against spread of fire
d) Protection against penetration of solid objects, dust & water

11.2 The meter shall be designed with application specific integrated circuit and shall be manufactured using SMT (Surface Mount Technology) components. Power supply and voltage divider circuits may be of PTH technology.

11.3 All insulating material used in the construction of meters shall be non-hygroscopic, non-ageing and of tested quality. All parts that are likely to develop corrosion shall be effectively protected against corrosion during operating life by providing suitable protective coating.

11.4 The meter shall conform to the degree of protection IP 51 for protection against ingress of dust, moisture and vermin's.

11.5 The meter shall be capable of providing phase to phase protection upto 450V.

11.6 The meter shall be supplied with a transparent extended terminal block cover (ETBC). The ETBC shall not be easily detachable from the base and preferably be secured to the base using a hinging arrangement.

11.7 The meter-base, meter cover, terminal block and ETBC shall be made of unbreakable, high grade, fire resistant, reinforced, non-flammable, polycarbonate or equivalent high grade engineering plastic.

11.8 The meter cover shall have a fully transparent window. The window shall be of transparent, high grade UV stabilized engineering plastic for easy reading of all the displayed values/parameters, and observation of operation indicator. The window shall preferably be an integral part of meter cover.

11.9 The meter cover shall be sealable to the meter base with at least 2 nos. seals. Also terminal cover shall have provision for sealing with at least one seal.

11.10 The terminal block shall be made of high grade non-hygroscopic, fire retardant, low tracking, fire resistant, reinforced poly-carbonate or equivalent high grade engineering plastic with terminal holes of minimum dia 8.5 mm and shall be suitable to accommodate the insulation of the conductors, meeting the requirement of IS 13779 /CBIP technical report-88.

11.11 The manner of fixing the conductors to the terminal block shall ensure adequate and durable contact such that there is no risk of loosening or undue heating. Meter shall have 2 screws in each terminal for effective clamping of cables. Screw connections transmitting contact force and screw fixing which may be loosened and tightened several times during the life of the meter shall be such that the risk of corrosion resulting from contact with any other metal part is minimized. Electrical connections shall be so designed that contact pressure is not transmitted through insulating material. The clearance and creepage distance shall conform to relevant clause of IS 13779/CBIP technical report No.88.

11.12 The meter shall be compact in design. The entire construction shall be capable of withstanding stresses likely to occur in actual service and rough handling during transportation. The meter shall be convenient to transport and immune to shock and vibration during transportation and handling.

11.13 The meter shall have 3 fixing holes, one at top and two at bottom. The top hole shall be such that the holding screw is not accessible to the consumer after fixing the meters. The lower fixing screws shall be provided under the sealable terminal cover.

12.0 ANTI-TAMPER FEATURES

The meter registration shall be immune to reversal in current direction. The meter shall have anti-tamper features

12.0 DISPLAY

13.1 The measured value(s) shall be displayed on a Liquid Crystal display (LCD) register. The height of the digit shall be minimum 8.5 mm. The KWh energy registration shall take place with 6 complete digits. The display shall have backlit capability for easy reading.

13.2 The data should be stored in non-volatile memory (NVM). The non-volatile memory should retain data for a period of not less than 10 years under un-powered condition. Battery back-up memory will not be considered as NVM.

13.3 The register shall be able to record and display starting from zero, for a minimum of 1500 hours, the energy corresponding to rated maximum current at reference voltage and unity power factor. The register should not roll over in between this duration.

13.4 In addition to providing serial number of the meter on the display plate, the meter serial number shall also be programmed into meter memory for identification through communication port for CMRI/meter reading print out.

14.0 DISPLAY SEQUENCE

The meter shall display the required parameters in two different modes as follows:

A) **Auto Display Mode:**

The following parameters hereinafter referred to as "Billing Parameters" (B.P) shall be displayed in an auto-cycle mode, in the following sequence:-

LCD Test
Real Time
Date
Cumulative Active energy (forwarded) reading (kWh)
Instantaneous Load (KW)
Billing period counts

Each parameter shall be on meter display for 10 seconds and the time between two auto-cycles shall be 120 seconds.

B) **Push Button Mode:-**

In addition to the auto display mode parameters, the following parameters shall be displayed on pressing the push button

C) **LCD Test**
Real Time
Date
Instantaneous voltage, current

The meter shall also be capable of offering a high resolution display which shall enable conducting of dial testing by the user in the shortest possible time and as a minimum, the meter shall be capable of offering a resolution of 4 digits after decimal (and 2 digits before decimal) for the high resolution KWh display.

15.0 COMMUNICATION PORT

The meter should have a galvanically isolated optical communication port for data communication. Adequate sealing provision shall be provided.

16.0 MARKING OF THE METER

The marking on the meter shall be in accordance with relevant clauses of IS 13779.

The basic marking on the meter nameplate shall be as follows:

a) Manufacturer's name & trade mark
b) Type Designation
c) No. of phases & wires
d) Serial number
e) Year of manufacture
f) Reference Voltage
g) Rated Current
h) Principal unit(s) of measurement
i) Meter Constant (imp/kwh)
j) Class index of meter
k) "Property of _____"
l) Purchase Order No. & Date

17.0 CONNECTION DIAGRAM & TERMINAL MARKINGS

The connection diagram of the meter shall be clearly shown on terminal cover.

18.0 OUTPUT DEVICE

The meter shall have a test output accessible from the front and capable of being monitored with suitable testing equipment while in operation at site. The test output device shall be provided in the form of LED output.

E – 2, 3: L T CABLING AND TERMINATION

4.1 Scope:

The scope consists of laying, testing and commissioning of L.T. XLPE Cable and its termination.

4.2 Standards :

AS PER SCHEDULE OF INDIAN STANDARDS; ATTACHED IN THE DOCUMENT

4.3 Cables:

A) LV POWER CABLES will be 1100 Volts grade single / multicore standard aluminum conductor extruded XPLE insulated with extruded PVC inner sheath outer sheath made of FRLS PVC compound conforming to IS-7098 part-1. Single core will be used for DC application. Cables in buried insulation shall be armoured type.

B) Control cables will be 1100 Volts grade multicore minimum 2.5 sqmm cross section standard copper conductor minimum 7 strands PVC insulated inner extruded sheathed and other sheath made of extruded FRLS PVC compound conforming to IS-1554 part-1. . Cables in buried insulation shall be armored type.

C) All cables shall be new without any kind or visible damage. The manufacturers name, insulating material, conductor size and voltage class shall be marked on the surface of the cable at every 600 mm centers.

4.4 Cable joints and termination:

A) Connectors :

Cable terminations shall be made with copper/Aluminium Heavy duty long nack copper crimping lugs only crimped type solderless lugs for all aluminium cables and stud type terminals. For copper cables copper crimped solderless lugs shall be used.

Crimping shall be done with the help of hydraulically operated crimping tool. All cable lugs should be long neck type only.

B) Cable Glands :

Cable glands shall be of heavy duty brass single compression type as specified. Generally single compression type cable glands shall be used for indoor protected locations and double compression type shall be used for outdoor locations. Glands for classified hazardous areas shall be CMRS approved.

C) Ferrules :

Ferrules shall be of self sticking type and shall be employed to designate the various cores of the control cable by the terminal numbers for ease in identification and maintenance.

D) Cable joints :

Kit type joint shall be done and filled with insulating compund. The joint should be for 1.1 KV grade insulation.

E-4 : CABLE TRENCH

3.1 Scope:

Excavation and back filling of underground cable trenches of 300mm width and generally upto 1200mm depth. The scope includes excavation as per the cable routing, backfilling after cable laying, ramming, dressing, watering, compacting of earth etc and making the complete site good and clean, removal of debris etc complete as per instruction and direction of Engineer-in-Charge or his representative.

The cable trench work involves earth excavation for cable trench, back filling and removal of excess earth from site. The work site shall be made clean to the satisfaction of EIC. Excavation will be generally in ordinary alluvial soil. The width of trench shall be sufficient for laying of required no. of cables. The Bidder shall ascertain the soil conditions prevailing at site, before submitting the bid.

All tools and tackles required for the excavation shall be provided by the contractor. Excavation shall be carried out as per the cable route drawings and as instructed & directed by Engineer-in-Charge. The trench shall be excavated using manual and mechanical methods as per field conditions.

The excavated material shall be properly stored to avoid obstruction to public and traffic movement. The bottom of the excavated trench should be levelled flat and free from any object, which would damage the cables. Any gradient encountered shall be gradual.

Cables shall be so laid in the trench that this will not interfere with other underground structure / services. All water pipes, sewage lines or other structures which become exposed by excavation shall be properly supported and protected from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded / diverted as directed by the consultant. The bidder/contractor should take utmost care to avoid any damage to the existing services like water pipes, drainage lines, power cables, telephone cables, network cables etc. Any damage to the above service lines shall be immediately repaired& rectified by the contractor without any cost on the Institute.

The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounded ground and to the entire satisfaction of the consultant/EIC.

3.2 Method of Measurement :

The item of excavation & back-filling of earth for cable trenches shall be measured in per CUM as specified in the BOQ and the rate per CUM shall include all materials and works as required as per the detailed scope of works specified in BOQ / Drawings / Technical Specifications / General Requirements etc, including but not limited to the following:

- Excavation of earth as required as per site conditions, cable route layouts and as instructed & directed by EIC.

- Back-filling the cable trenches with excavated soil (after laying of cable).
- Dressing the earth, Ramming, compacting, watering and cleaning the site completely to the satisfaction of EIC.
- Depth of cable trench shall be measured from average ground level.

The Scope of work includes supplying & spreading fine sand below the cable for a thickness of 100mm and width of 300mm in the cable trenches excavated as per above item no. The scope also includes supplying & laying RCC half round on the cable.

After spreading of fine sand and laying of the cable, Half round shall be provided and laid on the cable. Half round shall be of good quality.

All tools and tackles required for the supplying & spreading the sand and supplying & laying of half round shall be provided by the contractor. More than one cable can be laid in the same trench by providing a brick on edge between two cables. However, the relative location of cables in trench shall be maintained till termination.

D.01 Method of Measurement :

The item of supplying & spreading sand and supplying & laying half round for the first cable shall be measured in per RMT as specified in the BOQ and the rate per unit shall include all materials and works as required as per the detailed scope of works specified in BOQ / Technical Specifications, etc., including but not limited to the following:

- Supplying & spreading sand.
- Supplying & laying half round on the cable.

E – 6 L T DISTRIBUTION BOARDS

1.1 Scope:

It includes Supply, Installation, Testing and Commissioning of Distribution Boards standard company fabricated or to be fabricated by fabricator.

1.2 Standards:

IS: 8623: Distribution Boards

1.3 Distribution Boards:

a) Distribution boards along with the controlling MCB's/Fuse or Isolator as shown shall be fixed in an M.S. Box with hinged door suitable for recessed mounting in wall. Distribution boards shall be made of minimum 18 SWG steel sheet duly rust inhibited through a process of de-greasing, acid pickling, phosphating and powder coated to an approved colour of adequate micron rating duly approved by architect/consultant.

Three phase boards shall have phase barriers and a wire channel on three sides. Neutral bars shall be solid tinned copper bars with tapped holes and chase headed screws. For 3 phase DB's, 3 independent neutral bars shall be provided for per phase isolation in addition to main neutral links.

b) Conduit knockouts shall be provided as required/shown on drawings and the entire board shall be rendered dust and vermin proof with necessary sealing gaskets. The top and bottom side of DB should be detachable.

c) All DB's shall be internally pre-wired using copper insulated Busbars of appropriate rating. Bus bars shall be suitable for the incoming switch rating and sized for a temperature rise of 35° C over the ambient. Each board shall have two separate earthing terminals. Circuit diagram indicating the load distribution shall be pasted on the inside of the DB as instructed. One earthing terminal for single phase and two terminals for 3 phase DB's shall be provided with one earth strip connecting the studs and the other earth link should be provided with base insulator in such a way that link should in contact with body of distribution board.

1.4 RCCB/RCBO:

a) The RCCB should suffices all the requirements of IS as per code IS - 12640 (Part I) - 2000. The RCA should be current operated and not on line voltage.

b) The RCCB/RCCB should ensure mainly the following functions.

1) Measurement of the fault current value.
2) Comparison of the fault current with a reference value.

c) The RCCB/RCBO should have a torroidal transformer which has the main conductors of primary (P - N) which check the sum of the current close to zero. All metal parts should be inherently resistant to corrosion and treated to make them corrosion resistant. It should be truly current operated. It should operate on core balance torroidal transformer. It's accuracy should be ± 5 %.It should operate even in case of neutral failure. It should trip at a present leakage current within 30 M.S. It's enclosure should be as per IP 30.It's mechanical operation life should be more than 20,000 operations. It should provide full protection as envisaged by

IE rules - 61-A, 71 - EE, 73 - EE, 1985 and also rule 50 of IE rule1956.It should conform to all national and international standards like IS, BS 4293 - 1983, CEE 27 (International commission Rules for the approved of electrical equipment).

1.5 MCB/ Isolators:

Miniature circuit breakers shall be quick make and break and break type conform with British standard BS : 3871 (Part-I) 1965, IEC 898-1995 and IS :8828 (1996). The housing of MCBs shall be heat resistant and having a high impact strength. The fault current of MCBs shall not be less than 10000 amps, at 230 volts. The MCBs shall be flush mounted and shall be provided with trip free manual operating mechanism with mechanical "ON" and "OFF" indications.

The circuit breaker dollies shall be of trip free pattern to prevent closing the breaker on a faculty current. Tightening torque at terminals shall be not less than 2.5 Nm.Power losses should not be more than as specified in IEC 898-1995.

The MCB contact shall be silver nickel and silver graphite alloy and tip coated with silver. Proper arc chutes shall be provided to quench the arc immediately. MCB's shall be provided with magnetic fluid plunger relay 3 as for over current and short circuit protection. The over load or short circuit devices shall have a common trip bar in the case of DP and TPN miniature circuit breakers. All the MCB's shall be tested and certified as per Indian Standard, prior to Installation.

For protection of electric circuits with equipment that does not cause surge current (i.e. lighting and socket outlet circuits)'B' curve MCB to be used in which magnetic releases operates between 3 and 5 In.

For protection of electric circuits with equipment that cause surge current (i.e. inductive and motor circuits) 'C' curve MCB to be used in which magnetic releases operates between 5 and 10 In.

For protection of electric circuits with equipment that cause surge current (i.e. transformer, heavy start motors circuits) 'D' curve MCB to be used in which magnetic releases operates between 10 and 15 In.

Isolators shall confirm to IS 13947-3 and IEC 60947-3.

1.6 Voltage Surge Protector Devices (SPDs):

SPDs (Surge Protection Devices) shall be of Type II for DB level internal Protection (Class S, 8/20 microseconds waveform, UP-1.4KV, Imax 15KA) and DIN-rail type (Unless & otherwise specified).

SPDs shall be tested in accordance with the requirements of IEC 61643-1. SPDs shall be suitable for TT, TNC, TNS or TNC-S earthing systems. SPDs shall provide protection between line to earth (common mode), neutral to earth (common mode) and line to neutral (differential mode).

SPDs shall be of the “withdrawable cartridge” type. The base of the SPDs shall be able to accept cartridges of different discharge ratings of Imax: 15kA, 20kA, 40kA & 65kA (8/20 microseconds waveform).

Optional auxillary contacts for remote indication shall be integrated in the base of the SPDs to eliminate possibility of wrong installation. SPDs shall limit the transient let-through voltage of not more than 1.4kV in accordance to IEC 60364.

Protection against SPDs short-circuit (in the event of end-of-life of SPDs or/and short circuit at 50hz like neutral disconnection, inversion of Neutral /line,…) shall be provided by a dedicated miniature circuit breaker that has been tested to co-ordinate with the manufacturer’s SPDs in accordance to IEC 60364.

Type 1 for Increased protection at Panel level (Class I, 8/20 microseconds waveform, UP-1.2KV, Imax 40KA) SPDs shall be installed in the All Floor panel of installation/building fitted with a lightning rod. Type 1 SPDs shall be rated limit of 40kA per phase in accordance to IEC 61643-1 appendix A & IEC 62066 clause 12.3.2.1.

E – 7 INTERNAL WIRING

1.1 Scope:

The scope covers supply, laying, testing and commissioning of wiring in rigid PVC pipes, Switches, Sockets and accessories.

1.2 Standards:

AS PER SCHEDULE OF INDIAN STANDARDS, ATTACHED IN THE DOCUMENT

1.3 Rigid and Flexible conduits:

A) All conduits shall be rigid PVC having minimum wall thickness of medium gauge 1.6 to 1.8 approved by F.I.A. & I.S.I. All rigid pipe and its accessories shall be of suitable material complying with IS: 3419-1989 and IS: 9537 (Part 5) 2000 for flexible conduits.

The conduits shall be circular in cross-section and designated by their nominal outside diameter. Minimum thickness of walls shall be as follows:

a) Upto 38 mm. diameter - minimum 1.8 mm. wall thickness.
b) Above 40 mm. diameter - minimum 2.2 mm. wall thickness.

The maximum number of PVC insulated copper conductor cables of 650/1100V grade confirming to IS: 694-1990 that can be drawn in one conduit of various sizes shall be as specified.

B) Flexible conduits shall be formed from a continuous length of spirally wound interlocked steel strip with a fused zinc coating on both sides. The conduit shall be terminated in brass adapters.

1.4 Accessories:

A) PVC conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs etc. shall be specifically designed and manufactured for their particular application. All conduit fittings shall conform to IS: 2667-1964 and IS: 3857-1966. All fitting associated with galvanized conduit shall also be galvanized.

1.5 Wires:

A) All wires shall be single core multi-strand/ flexible copper or single strand Copper FRLS type PVC insulated as per IS: 694 and shall be 660 V\1100 V grade.

B) All wires shall be colour coded as follows:

Phase	Colour of wire
R	Red
Y	Yellow
B	Blue
N	Black
Earth	Green (insulated)
Control (If any)	Grey
All off wires	same as Phase wire

C) Both end of wires should be terminated with adequate size copper crimping type lugs and ferrules as per instructions of engineer in charge.

1.6 Outlets switches & Sockets:

A) Switches shall be moulded plate type flush piano type with silver-coated contacts. Sockets shall be multipin pin with switch and plate type cover. Combination of multiple switch units and sockets should be used to minimize the switch boxes. All screws shall be brass – chromium plated and shall be counter sunk type with half round head or flat headed.

B) For heavy duty, metal clad sockets with M.C.B/ Isolator mounted in a galvanized steel box shall be provided.

C) The switch boxes shall be made of either rigid PVC moulding or mild steel or cast iron on all sides except at the front. PVC boxes shall comply with the requirements laid down in IS: 14772-2000. These boxes shall be free from internal roughness. Wall thickness of PVC boxes shall not be less than 2 mm. Clear depth of the box shall not be less than 60 mm and this shall be increased suitably as per requirements. An earth terminal with stud and washer shall be provided in each MS boxes for termination of protective conductors.

D) All the fan boxes shall be of cast iron type only with minimum wall thickness of 3 mm.

1.7 Additional requirements

1.7.1 Making Chase

The chase in the wall shall be neatly made and of ample dimensions to permit the conduit to be fixed in the manner desired. Chase shall be done with machine cutter only. In the case of building under construction, the conduits shall be buried in the wall before plastering and shall be finished neatly after erection of conduit. In case of exposed brick/ RCC work, special care shall be taken to fix the conduit and accessories in position along with the building work.

1.7.2 Fixing conduits in chase

The conduit pipe shall be fixed by means of staples, J-hooks, or by means of saddler, not more than 60 cm apart or by any other approved means of fixing. All threaded joints of conduit pipes shall be treated with some approved preservative compound to secure protection against rust.

1.7.3 Fixing conduits in RCC work (slab / wall / floor etc)

The conduit pipes shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and subsequent tamping of the same. Fixing of standard bends or elbows shall be avoided as far as practicable, and all curves shall be maintained by bending the conduit pipe itself with a long radius, which will permit easy drawing in of conductors. Location of inspection/ junction boxes in RCC work should be identified by suitable means to avoid unnecessary chipping of the RCC slab subsequently to locate these boxes.

At either side of the bends, saddles/staples shall be fixed at a distance of 15 cm from the center of the bends.

1.7.4 Fixing of inspection boxes

As far as possible inspection boxes shall be avoided or to be minimized as much as possible. If necessary suitable inspection boxes to the minimum sizes shall be provided to permit inspection and to facilitate replacement of wires with prior approval of engineer in charge. These shall be mounted flush with the wall or ceiling concrete with minimum depth of 65 mm for slab and as per IS: 2667 – 1988 for other places.

1.7.5 Fish Wire

To facilitate subsequent drawing of wires in the conduit, GI fish wire of 1.6mm /1.2mm (16/18 SWG) shall be provided along with the laying of the recessed conduits.

1.7.6 Earthing

A protective earth conductor shall be drawn inside the conduit in all distribution circuits to provide for earthing of noncurrent carrying metallic parts of the entire installation. These shall be terminated on the earth terminal in the switch boxes, and/or earth terminal blocks at the distribution boards. Gas or water pipes shall not be used as protective conductors (earth medium). Every sub main will have earth continuity conductor to run along with sub main wiring. Every circuit will have its earth continuity conductor to run along with circuit wiring. In case of 3 phase sub main wiring two earth continuity conductor shall be provided.

E – 8 LIGHT FIXTURES AND FANS

1.1 Scope:

The scope covers supply, installation, testing and commissioning of different types of light fixtures.

1.2 Standards:

AS PER SCHEDULE OF INDIAN STANDARDS.

1.3 Type of fixtures:

1.3.1 General Requirement:

1.3.1.1 All fixtures shall be complete with accessories necessary for installation whether so detailed under fixture description or not.

1.3.1.2 Fixture housing, frame or canopy shall provide a suitable cover for the fixture outlet box or fixture opening.

1.3.1.3 Fixtures shall be installed at mounting heights as detailed on the drawings or instructed on site by the EIC.

1.3.1.4 Fixtures and/or fixture outlet boxes shall be provided with hangers to adequately 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 EIC for approval.

1.3.1.5 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 instructions.

1.3.1.6 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.

1.3.1.7 Fixture 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.

1.3.1.8 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.

1.3.1.9 Wiring within the fixture and for connection to the branch circuit wiring shall be not less than 1.0/1.5 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.

1.3.1.10 Metal used in lighting fixtures shall be not less than 22 SWG or heavier if so required to comply with the specification or standards. 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.

1.3.1.11 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.

1.3.1.12 Non-reflecting surfaces such as fixture frames and trim shall be finished in baked enamel paint.

1.3.1.13 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.

1.3.1.14 Fixture with visible frames shall have concealed hinged and catches. Pendant fixtures and lamp holders shall be provided with ball type Algiers 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 prevent the diffuser from moving.

1.3.1.15 Detailed catalogue cuts for all fixtures, or, if so required by the EIC sample fixtures shall be submitted for approval before orders for the fixtures are placed.

1.3.1.16 Recessed fixtures shall be constructed so that all components are replaceable without removing housing from the ceiling.

1) Lamps shall be supplied and installed in all lighting fixtures furnished under this contract. All lamps shall be rated for 250 volts.

2) Lamps used for temporary lighting service shall not be used in the final lighting of fixtures units.

3) Lamps shall be of wattage and type as shown on the BoQ. Where not shown, the details shall be ascertained from the EIC before procurement.

1.3.2 Light fittings:

1.3.2.1 Only single and/or two lamp ballast shall be used in any one fixture. Ballast shall be completely enclosed inside sheet steel casing and shall have a corrosion - resistant finish. Ballast 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 ballast shall be of high power factor compensated to above 0.9PF. Ballast temperature and sound rating shall be specified by the manufacturer and guaranteed. Ballast shall be for operation at the voltages and frequencies indicated and under temperature conditions prevailing in the various locations of the premises. Tapped ballast is preferred.

1.3.2.2 All 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 contactors rendered shock and

vibration proof. Condensers shall be low loss paper impregnated hermetically sealed complying with IS 1969-196 . Internal wiring shall be neatly clipped and where by passing the ballast, a suitable heat resistant barrier or sleeve shall be provided.

1.3.2.3 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.

1.3.2.4 Lamps shall have specification mentioned in BoQ.

E – 10 Earthing

1.0 SCOPE OF WORK:

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

1.1 copper/galvanized/aluminium/chemical or Electrode type Earthing station.

1.2 Earthing G.I./Aluminum/copper strips from earthing station to equi-potential bar.

1.3 Earthing G.I./ Aluminum/ copper strips/ wires from equi-potential bar to lay feeder mains and circuit to connect power panels, DBs, switchboards etc.

1.4 Bonding of Non-current carrying parts, and metallic parts of the electrical installation.

1.5 Provide inter connection between all earth pits of same type.

2.0 STANDARDS

2.1 The following standards and rules shall be applicable:

1) IS: 3043 - 1966 Code of practice for Earthing.

2) Indian Electricity Act and Rules

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

3.0 GENERAL

All the non-current carrying metal parts of the electrical installation and mechanical equipments shall be earthed properly. The metal conduits, trucking, cables armoured and sheath, electric panels boards, lighting fixtures, ceiling and exhaust fan and all other parts made of metal shall be bonded together and connected by means of specified earthing system.

An earth continuity conductor shall be installed with all the feeders and circuits and shall be connected from the earth bar of the panel boards, to the conduit system, earth stud of the switch box, lighting fixture, earth pin of the socket outlets and to any metallic wall plates used. All the enclosures of motors shall be also connected to the earthing system.

4.0 TYPE OF EARTHING STATION

4.1 ELECTRODE / CHEMICAL TYPE EARTHING STATIONS:

4.1.1 The earthing shall be done with details given in BOQ.

4.1.2 The earth resistance shall be maintained with suitable soil treatment as per relavent IS.

4.1.3 The resistance of each earth station should not exceed the limit specified in IS : 3043.

4.1.5 The earthing grid and the earthing conductors shall be of copper strip of size as mentioned on the BoQ.

4.1.6 The earthing chamber with Cast Iron cover shall be provided for housing the termination block. The hardware and other consumable for earthing installation shall be of copper/brass.

4.1.7 GROUNDING: The grounding system shall incorporate the following individual components or a combination of the following:

- Deep driven copper bonded steel core ground rod/ Copper Plate / Copper Rod as central injection point for flow of fault current which is securely connected to the lower end of the down conductor.
- The use of ground resistance improvement material shall be applied in order to reduce the resistivity levels of the grounding system and maintain a constant low resistivity. The grounding system shall be maintenance free.

5.0 INSTALLATION AND CONNECTION:

5.1 The plate \ pipe electrode, as far as practicable, shall be buried below permanent moisture level but in no case not less than 2.5 M below finished ground level.

5.2 The plate \pipe electrode shall be kept clear of the building foundation and in no case, it shall be nearer by less than 2 M from outer face of the respective building wall \ column.

5.3 The plate electrode shall be installed vertically and shall be surrounded with 150 mm. thick layers of Charcoal dust and Salt mixture.

5.4 G.I. pipe for watering, shall run from top edge of the plate \ pipe electrode to the mid level of block masonry chamber.

5.5 Top of the pipe shall be provided with G.I. funnel and screen for watering the earth \ ground through the pipe.

5.6 The funnel with screen over the G.I. pipe for watering to the earth shall be housed in a block masonry chamber as shown in the drawing.

5.7 The masonry chamber shall be provided with a Cast Iron hinged cover resting over the Cast Iron frame which shall be embedded in the block masonry.

5.8 Construction of the earthing station shall in general be as shown in the drawing and shall conform to the requirement on earth electrodes mentioned in the latest edition of Indian Standard IS : 3043, Code of Practice for Earthing Installation.

5.9 The earth conductors (Strips / Wires copper/ Hot dip G.I.) inside the building shall properly be clamped / supported on the wall with Galvanized Iron clamps and Mild Steel Zinc Passivated

screws \ bolts. The conductors outside the building shall be laid at least 600 mm. below the finished ground level.

5.10 The earth conductors shall either terminate on earthing socket provided on the equipment or shall be fastened to the foundation bolt and / or on frames of the equipment. The earthing connection to equipment body shall be done after removing paint and other oily substances from the body and then properly be finished.

5.11 Over lapping of earth conductors during straight through in joints, where required, shall be of minimum 75mm. long.

5.12 The earth conductors shall be in one length between the earthing grid and the equipment to be earthed.

6.0 EARTH LEADS AND CONNECTIONS:

6.1 Earth lead shall be bare copper or galvanized steel as specified with sizes shown on drawings. Copper lead shall have a phosphor content of not over 0.15 %. Galvanized steel buried in the ground shall be protected with bitumen and Hessian wrap or polytene faced Hessian and bitumen coating. At road crossing necessary hume pipes shall be laid. Earth lead run on surface of wall or ceiling shall be fixed on saddles so that strip is at least 8 mm away from the wall surface.

6.2 The complete earthing system shall be mechanically and electrically bonded to provide an independent return path to the earth source.

7.0 EQUIPMENT EARTHING:

All apparatus and equipment transmitting or utilizing power shall be earthed in the following manner. Copper/G.I. earth strips/wires shall be used unless otherwise indicated in the Schedule B.

8.0 POWER TRANSMISSION APPARATUS

8.1 Metallic conduit shall not be accepted as an earth continuity conductor. A separate insulated / bare earth continuity conductor of size 50 % of the phase conductor subject to the minimum and maximum shall be provided.

	Copper	**Aluminum**	**G.I.**
Minimum(sqmm)	2.5	4.0	6
Maximum(sqmm)	75	100	200

The earth continuity conductor be drawn inside the conduit shall be insulated.

8.2 Non metallic conduit shall have an insulated earth continuity conductor of the same size as for metallic conduit. All metal junction and switch boxes shall have an inside earth stud to which the earth conductor shall be connected. The earth conduct or shall be distinctly coloured (Green or Green/Yellow) for easy identification.

8.3 Armoured cable shall be earthed by two distinct earth connections to the armouring at both the ends and the size of connection being as for the metallic conduit.

8.4 In the case of Unarmoured cable, an earth continuity conductor shall either be run outside along with the cable or should form a separate insulated core of the cable.

8.5 Three phase power panel and distribution boards shall have two distinct earth connections of the size correlated to the incoming cable size. In case of single phase DB's a single earth connection is adequate.

9.0 UTILIZING EQUIPMENT:

9.1 Three phase motors and other three phase apparatus shall have two distinct earth connections of the size equal to 50% of the connecting cable subject to the following:

	Copper	**Aluminum**	**G.I.**
Minimum(sqmm)	6.5	10	20
Maximum(sqmm)	75	10	200

9.2 For single phase motors and apparatus, the single earth connection shall be provided of the above size. For all light fittings and fans a single earth connection with 1.5 sqmm copper or equivalent size shall be provided.

9.3 All street light poles shall have an earth stud and shall be connected to the cable armouring using 6.5 sqmm copper or equivalent unless shown otherwise. For street lighting poles planted in ground, 2.4 M long 10 SWG bare copper wire shall be coiled and buried with every fourth pole in addition to connection to cable armouring.

9.4 An equipment earthing grid shall be established as shown in the drawing. All earth connections to all panels, DB's and equipment shall be connected to the nearest point of the earthing grid.

10.0 TEST:

10.1 The entire earthing installation shall be tested as per requirements of Indian Standard Specification IS: 3043.

10.2 The following earth resistance values shall be measured with an approved earth meggar and recorded.

1) Each earthing station
2) Earthing system as a whole
3) Earth continuity conductors

10.3 Earth conductor resistance for each earthed equipment shall be measured which shall not exceed 1 Ohm in each case. This is responsibility of contractor to get the final value for resistance.

10.4 Measurements of earth resistance shall be carried out before earth connections are made between the earth and the object to be earthed.

10.5 All tests shall be carried out in presence of the consultant..

11.0 METHOD OF MEASUREMENT:

11.1 Provision of earthing station complete with excavation, plate, earth lead upto chamber, earth link in the chamber, electrode, GI watering pipe, Salt, Charcoal, soil treatment to achieve the earth resistance less than 4 ohm, masonry chamber with cast iron cover etc. shall be treated as one unit of measurement.

11.2 The following items of work shall be measured and paid per unit length covering the cost of the earth wires/strips, clamps, labour etc.

a) Main equipment earthing grid and connection to the earthing stations.
b) Connection to the power panels, DB etc.

11.3 The cost of earthing the following items shall become part of the cost of the item itself and no separate payment for earthing shall be made.

a) Light fittings - form part of installation of the light fitting.
b) Conduit wiring, cabling - should form part of the wiring or cabling.
c) Street lighting - should form part of the street light poles.

APPLICABLE STANDARDS

Sr. No.	IS No.	Description
1	IS: 10118-1982	Installation of Switch gears.
2	IS: 3156-1992	Voltage Transformer
3	IS: 2705-1992	CT for measuring and protection
4	IS: 8623-Part II 1993	Bus-bar arrangement and marking
5	Bus-bar arrangement and	Bushing
6	IS: 5621-1980	Large Hollow Porcelains Insulator
7	IS: 2544-1973	Insulators greater than 1000V
8	IS: 2629-1985 IS: 2633-1986	Hot Dip Galvanizing
9	IS: 1248-2003	Meters (measuring).
10	IS: 11353-1985	Marking and arrangement of switch gear bus bars main connectors and auxiliary wiring
11	IS: 692-1994	HV Cable Paper Insulated Lead Sheathed Cables for Rated Voltage up to and Including 33 kV – Specification
12	IS: 3043-1987	Code of practice for earthing.
13	IS: 13947-Part I-1993	General requirements for switchgear and control gear for voltage not exceeding 1000 Volts.
14	IS:8623-1993	Factory built assemblies of switch gears and control gears for voltage up to and including 1000 Volts A.C. and 1200 Volts D.C
15	IS: 13947 PART-1	Cubical Boards.
16	IS: 2675-1983	Enclosed distribution fuses boards and cutouts for Voltage not exceeding 1000 Volts.
17	IS: 8828-1995	Miniature Circuit Breaker
18	IS: 1554-Part I-1988	PVC insulated electric cables heavy duty.
19	IS: 3961-Part II & IV-1967	Recommended current rating for cables.
20	IS: 8130-1984	Copper conductor in insulated cables and cores
21	IS: 8130-1984	Conductor for insulated electric cables and flexible cords.
22	IS: 3975-1999	Low Carbon Galvanized Steel Wires, Formed Wires and Tapes for Armouring of Cables - Specification
23	IS: 5831-1984	PVC insulation and sheath of electric cables.
24	IS: 8130-1984	Aluminum conductor for insulated cables.
25	IS: 11955-1987	Recommended current rating for Cable.
26	IS: 732-1989	Code of practice for electrical wiring installation system Voltage not exceeding 650 Volts.
27	IS: 1646-1997	Code of practice for fire safety of Buildings (general) electrical installation.
28	IS: 694-1990	PVC insulated cables (wires).
29	IS: 9537-Part III-1983	Installation of Rigid non-metallic conduits for electrical wiring
30	IS: 6946-1973	Flexible (playable) nonmetallic conduits for electrical

		installation.
31	IS: 1293-2005	Plugs and sockets upto 250V.
32	IS: 8130-1984	Conductors for insulated electrical cables and flexible codes.
33	IS: 9537-1980	Specification for conduit for electrical installation.
34	IS: 3419-1988	Accessories for non-metallic conduits for electrical wiring.
35	IS: 3854-1997	Switches.
36	IS: 6538-1971	Plugs.
37	IS: 1913-1978	General and safety requirement for lighting fittings.
38	IS: 1944-1981	Code of practice for lighting public thorough fares.
39	IS: 3528-1966	Waterproof electric lighting fittings
40	IS: 2312-1967	Exhaust Fan
41	IS: 374-1979	Class I Ceiling Fan
42	IS: 7098 (Part I, II, III-1988	XLPE armoured Cables upto 1000V.

NOTE:

All codes and standards means the latest where not specified otherwise the installation shall generally follow the Indian Standard codes of practice or relevant British Standard Codes of Practice in the absence of corresponding Indian Standards.

PLEASE FOLLOW:

a. Indian Electricity Act of 1910 and rules issued there under revised up to date.
b. Regulations for electrical equipment in building issued by The Bombay Regional Council of insurance Association of India.

LIST OF PREFERRED MAKE FOR ELECTRICAL WORK MATERIALS

Sr. No	MATERIAL	LIST OF PREFERRED MAKE AS PER CPWD TENDER
1	MCCB (ICS = 100% ICU)	LEGRAND (DPX3), SCHNEIDER COMPACT NSX, L&T- D SINE, SEIMENS 3VL, ABB
2	TIMER	L&T, LEGRAND, SCHNEIDER, SIEMENS, MINILEC
3	CHANGE OVER SWITCH	LEGRAND, SIEMENS, ABB, SCHNEIDER, L&T,
4	MCB, ELCB, RCBO	LEGRAND, SIEMENS, ABB, SCHNEIDER, L&T,
5	MCB DB	LEGRAND, SIEMENS, ABB, SCHNEIDER, L&T,
6	LT CAPACITOR & APFC RELAY	SEIMENS, L&T, SCHNEIDER, ABB, EPCOS, NEPTUNE, LEGRAND
7	LT XLPE CABLE (AL & CU)	FRLS TYPE : R.R. KABEL, HAVELL'S, FINOLEX, POLYCAB
8	INDICATING LAMP (LED) AND PUSH BUTTONS	LED TYPE : SCHNEIDER, L&T, BCH, C&S
9	ALL TYPE OF METER (DIGITAL)	HAVELLS, L&T, SIEMENS, HPL, AE, SCHNEIDER, SECURE, NEPTUNE, ABB
10	C.T. (LT)	AE, KAPPA, L&T
11	ELECTRICAL WIRE	FRLS TYPE : R.R. KABEL, HAVELL'S, FINOLEX, POLYCAB, KEI
12	PVC CONDUIT & ACCESSORIES (ISI)	ASTRAL, PRECISION (PPI), AKG, BEC.
13	MS CONDUIT & ACCESSORIES (ISI)	AKG, BEC, STEEL CRAFT
14	MODULAR TYPE SWITCHES ACESSORIES & METAL BOX	LEGRAND (MYRIUS), MK (ELEMENT), SCHNIEDER (OPALE), L&T (ENGLAZE), PANASONIC (VISOIN).
15	CABLE GLANDS	DOWELLS, COMET, BRACO, JAINSONS
16	CABLE LUGS & SOCKETS	DOWELLS, COMET, BRACO, JAINSONS
17	CABLE TRAY- PERFORATED/ LADDER TYPE	OBO, MK, BEC, STEELWAYS, SLOTCO, PILCO, ERICO, BRAVO
18	UNDER FLOOR RACEWAY	MK, LEGRAND, RMCON
19	POWER PLUG AND SOCKET IP 66 CLASS PROTECTIO	LEGRAND, SEIMENS, SCHNIEDER, HAGER
20	RACE WAY	OBO, MK , LEGRAND, SCHNIEDER
21	FIRE RETARDANT MATERIAL	
22	SPD	LEGRAND, SIEMENS, ABB, SCHNEIDER, L&T,
23	ALL TYPES OF LIGHT FIXTURES	PHILLIPS, HAVELLS, CROMPTON, WIPRO, OSRAM, BAJAJ
24	LED LAMPS	PHILLIPS, HAVELLS, CROMPTON, WIPRO, OSRAM, BAJAJ
25	CEILING FAN	ATOMBERG, HAVELLS, USHA, ORIENT, CROMPTON, BAJAJ, KHAITAN

26	EXHAUST FAN	ATOMBERG, HAVELLS, USHA, ORIENT, CROMPTON, BAJAJ
27	JUNCTION BOX (WEATHER PROOF)	HENSEL, SINTEX, NATIONAL
28	TELEPHONE WIRE	R.R. KABEL, HAVELL'S, FINOLEX, POLYCAB
29	TELEPHONE ARMOURED CABLE	R.R. KABEL, HAVELL'S, FINOLEX, POLYCAB
30	TELEPHONE PIN- RJ11	AS SAME AS MAKE OF SWITCH

Notes :

- The Above makes are subjected to the compliance of make in India norms.
- The Above list of Preferred make/Manufacturer/ Vendor are only indicative not exhaustive.
- On exigencies of the work the Engineer In Charge may add or delete any makes/fabricator/ vendor as mentioned in the above list.
- Any material which is not in the above list but required to be used in the work shall be used after approval of Engineer In Charge.

MODE OF PAYMENT

The following payment will be made after deducting retention money.
Payment for various items shall be made as follows:

1.	Light, Fan, Plug, Bell, Telephone, TV, Computer point Etc.(Part payment of plug on Board will not be considered)	20 % when conduits are laid in slab & Boxes are fixed
		40 % when wires are drawn in above conduits.
		10 % when switches are fitted and testing is done.
		10 % after completion of the job.
2.	HT Equipment, Transformer, MV switchgear, Distribution Boards Cable Trench,Cables,Bus Duct, Server, EPABX	70 % for erection. . 30 % after testing and commissioning
3.	Earthing	70 % after earthing is complete. 30 % after testing and commissioning.
4.	Light fixture and Fans	70 % for erection. 30 % after testing and commissioning.

ELECTRICAL ITEM SPECIFICATION

SUMMARY PAGE

I. Electrical Works

A. Item Specification

Section - 1	E-1	LT Switchgear & POWER PANEL
Section - 2	E-2	LT Cabling
Section - 3	E-3	Cable Termination
Section - 4	E-4	Cable Trench
Section - 5	E-5	Fabrication
Section - 6	E-6	LT Distribution Board
Section - 7	E-7	Internal Wiring
Section - 8	E-8	Light Fixtures and Fans
Section - 9	E-9	Cable Management
Section - 10	E-10	Earthing

B. Item wise detailed specification

A- **ITEM SPECIFICATIONS**

E-1 LT SWITCH GEAR & POWER PANELS

1.1 Supplying, unloading at site, shifting to site, assembling, leveling, grouting, erecting, Testing, & Commissioning of L.T. panel board, fabricated from CRCA sheet & folded channel totally enclosed cubical type compartmentalized as per drawings. All energy meter are Postpaid- Dual Source type as per specification.

1) Material

MV switch gear & power panel shall confirm item no: 1.1 and 1.2

2) Workmanship:

1) Main busbar should be electrolytic copper type.
2) All internal wiring and all connection shall be with copper wires and strips as required. Use copper flexible wire for below 100 Amps and copper strips for 100 Amps and above ratings.
3) All component, frame etc shall be earthed. A common internal earth bar with two separate earthing leads to be provided.
4) Painting or powder coating to be done on all sheet metal works as required.
5) Panel should have MS base frame for floor mounting unless otherwise specified.
6) The board should be front operated and extensible type.
7) Compression type brass glands and crimping lugs for incomer and outgoing ends.
8) All ammeters to be provided with C.T.'s and selector switch and voltmeter with selector switch and control fuses.
9) Panel components shall be as specified
10) All panels should be dust and vermin proof.
11) All panels should be fabricated out of 14 gauge sheet the door should be made from 14 gauge (2 mm) and the other parts should be made from 14 gauge sheet metal.
12) All the Switches used should be capable of withstanding the AC23 duty for motor operation. The
Switches should have quick make quick break. The contacts should be silver plated double break type.
13) The board should withstand the system prospective fault current
14) Engraved plastic labels shall be provided indicating the feeder details, capacity, cable size and load in KW and danger signs.
15) The entire panel board should be with adequate height width & depth as per relevant prevailing I.S. code and Installation include foundation bolts of suitable size as per requirement.
16) All compartment doors should be concealed hinged type & handles of feeders to be interlocked mechanically with the doors such that door cannot be opened when the switch is in 'ON' position & switch cannot be 'ON' when the door is in open position.
17) Provide suitable size CT shorting terminal for all CT's.
18) All MCCB should be with breaking capacity of I_{cs}=100% I_{cu}

3) Mode of measurement:

The rate shall be for one unit of panel.

E-2 LT CABLING

2.0 Aluminum/copper Conductor, XLPE Insulated, Armoured Cables of following Specifications & sizes:

Laying, Installation, Testing and Commissioning of 1.1 KV grade, 2C/3C/3.5C/4C, XLPE insulated of following sizes. The cable shall be laid in existing hume pipe below ground level or on wall / ceiling with clamps, or through RCC Hume Pipes / Ducts / sleeves / pipes / holes / cable trenches etc complete as required, but excluding the cost of excavation/back-filling and Cable Trays.

The scope also includes making necessary holes in walls / ceilings / floors etc as required.

Cable tag shall be provided and fixed on the cable at bothe the end of cable or as required.

1) Material

Shall be confirm to Item no. 2.1 & 2.2 of BoQ

2) Workmanship

Installation

A) Cables shall be laid in the routes marked in the drawings. Where the route is not marked, the contractor shall mark it out on the drawings and also on the site and obtain the approval of the Architect/Consultant before laying the cable. Procurement of cables shall be on the basis of actual site measurements and the quantities shown in the schedule of work shall be regarded as a guide only.

B) Cables, running indoors shall be laid on walls, ceiling, inside shafts or trenches. Single cables laid shall be laid in GI/PVC pipe and not to fix on wall slab directly or drawn through GI / PVC pipes fixed on wall or ceiling and supported at not more than 500 mm. Where number of cables is run, necessary perforated cable trays shall be provided wherever shown. Perforated trays shall be mild steel or Aluminum as specified in the schedule of work and supported on mild steel frame work as shown on drawings or as approved. Cables laid in built-up trenches shall be on steel supports. Plastic / Aluminum identification tags shall be provided at every 30 m. All cables laid shall be properly dressed and at least 50 mm space shall be kept between the cables.

C) Cables shall be bent to a radius not less than 12 (twelve) times the overall diameter of the cable or in accordance with the manufacturer's recommendations whichever is higher.

D) In the case of cables buried directly in ground, the cable route shall be parallel or perpendicular to roadways, walls etc. Cables shall be laid on an excavated, graded trench, over a sand or soft earth cushion to provide protection against abrasion. Cables shall be protected with brick or cement tiles on all the three sides as shown on drawings. Width of excavated trenches shall be as per drawings. Back fill over buried cables shall be with a minimum earth cover of 750 mm to 1000 mm. The cables shall be provided with cables markers at every 20 meters and at all loop points.

E) The general arrangement of cable laying is shown on drawings. All cables shall be full runs from panel to panel without any joints or splices. Cables shall be identified at end termination indicating the feeder number and the Panel/Distribution board from where it is being laid. cable termination for conductors upto 4 sq.mm. may be insertion type and all higher sizes shall have tinned copper compression lugs. Cable termination shall have necessary brass glands. The end termination shall be insulated with a minimum of six half-lapped layers of PVC tape. Cable armoring shall be earthed at both ends.

F) In case of cables entering the buildings. It would be done duly only through pipes. The pipes shall be laid in slant position. So, that no rain water may enter the building. After the cables are tested. The pipes shall be sealed with M. seal & then tarpaulin, shall be wrapped around the cable for making the entry of water light.

G) cables shall be provided with stainless steel/Aluminum cable identification tags at a maximum distance of 10m.

H) All cables to be laid should be properly dressed and at least 50 mm space should be kept between the cables.

Testing:

A) MV cables shall be tested upon installation with a 500 V Meggar and the following readings established:
1) Continuity on all phases.
2) Insulation Resistance.

(a) Between conductors.
(b) All conductors and ground.

All test readings shall be recorded and shall form part of the completion documentation.

3) Mode of measurement

The cable shall be measured in per mt. Basis and the rates shall include;

- Cables and clamps and Tags
- Installation, Commissioning and testing.
- Cable length shall be certified by engineer in charge from Clients side.

E-3 CABLE TERMINATION

3.1 **Supply, Installation, Testing and Commissioning(SITC) of End Connection and Termination of cable, 2/3/3.5/4 core, 1.1 KV grade, FRLS, PVC / XLPE insulated, armoured / Un-armoured, Copper / Aluminium conductor cables, including supply of whether proof Double compression brass cable glands for outdoor and single comression brass cable glands for indoor, Lugs, neoprene bushes, insulation tapes and other materials of approved make and tools as required complete with terminal connections, earthing of glands as required to camplete the work in all resprct and as directed by Engineer - in - Charge.**

1) Material

Should conform to item no 3.1 and 3.2 of BoQ.

2) Workmanship

Cable joints shall be done as per regular practice and check shall be carried out for loose connections and leakages. Insulation cutting shall be done properly taking care that no area of the conductor remains exposed. Crimping shall be done with the help of hydraulic tool.

3) Mode of measurement

Rate shall be considered for 1 no of joint.

E-4 CABLE TRENCH

4.1 Excavation and back filling of underground cable trenches of required width and depth. The scope includes excavation for cables as instructed by EIC and also as per the cable routing, backfilling after cable laying, ramming, dressing, watering, compacting of earth etc and making the complete site good and clean, removal of debris etc complete as per instruction and direction of Engineer-in-Charge.

The depth shall be app. 0.75 mtr and the width shall be as per requirement.

1) Material:

All the tools and tackles required for the excavation shall be provided by the contractor. Cable marker shall be provided.

2) Workmanship

Excavation shall be done as per the route specified in the plan of the consultant. Also the depth as specified in the item shall be strictly maintained. Cable markers shall be installed at length specified in the item.

3) Mode of measurement:

The item shall be paid in cubic Mtr. And the measurement shall be certified by the engineer in charge. Depth of the excavation shall be measured from average ground level.

4.2 Supplying & spreading fine sand for a thickness of 100mm x width 300mm and providing and laying half round of 100mm width and 1 mtr length to cover the cable.

1) Material:

As per BoQ

2) Workmanship

Half round shall be laid on all the cable as instructed by EIC. Proper thickness for the fine sand as specified in the item shall be strictly maintained. After back filling proper leveling shall be done and lumps of soil should not be visible. The trench should give a leveled look.

3) Mode of measurement:

The item shall be paid in running Mtr. and the measurement shall be certified by the engineer in charge.

E-5 Fabrication

5.1 **Supply and fabrication and installation of Mild steel, in required shapes, sizes and configuration as required for cable/cable tray/panels/DBs etc. support on panel/floor/wall with anchor fastner/nuts and bolts including welding/cutting/grinding etc. as required to complete the job using ISA/ISMC/MS flat/MS plate as required/directed. The job also includes to paint the structure after surface cleaning with two coats of zinc cromate primer and two coat color of enamel paint as per the shade approved/suggested by Enginner-in-Charge.**

1) Material

Should conform to item no 5.1 of BoQ.

2) Workmanship

Should conform to item no 5.1 of BoQ.

3) Mode of measurement

Rate shall be considered per KG.

E-6 LT DISTRIBUTION BOARD

6.0 SITC of following ETPN PPI Double Door, DBs, as per IS 8623, dust and vermin protected, rated for 440V, 3 phase, 50 Hz AC supply operation, with neutral link & Earth Link with required out goings, cable kits, DIN bar, Fully Factory fabricated and Powder coated suitable for incorporating SP/DP/ TP/FP MCB as specified below including necessary adaptor boxes for incoming and out going cables/ wires, but excluding supply of MCBs. The scope also includes all hardware, anchor-fastners, clamps etc as required for installation of the DBs. Frames required for installation shall be measured and paid as per separate item of the tender.

6.0.1 ETPN Distribution Board:

1) Material

Distribution board shall confirm to item no 6.0.1 of BoQ.

2) Workmanship:

1) All the D.B. should have separate neutral link per phase with main neutral link i.e. four neutral link of appropriate nos. of way.
2) The D.B. should be provided with 2 separate insulated earth links.
3) The D.B. should be concealed type having sheet metal enclosure with double door unless or otherwise specified.
4) The D.B. should be Powder coated.
5) The D.B. shall have top and bottom plates open able.
6) The D.B. shall be provided with necessary cable junction box

3) Mode of measurement

The rate shall be for one unit of D.B.

6.1 MCB, RCCB and its Accessories

Supplying, Assembling, leveling, connecting & testing MCBs/ELCBs/ELMCBs/Isolators of various rating in boards as specified in BoQ.

1) Material

M.C.B. shall confirm to item no 6.1.1 to 6.1.4, 6.2.1 and 6.2.2, 6.3.1, 6.3.2 of BoQ.

2) Workmanship

Should mount all the MCBs/ELCBs/ELMCBs/Enclouserss and other accessories and also do the necessary connections. Should check for any faulty connections and reconnect the same. Also check for the loading once complete installation of fixtures and other equipments is completed.

3) Mode of measurement

The rate shall be for one unit.

E-7 INTERNAL WIRING

7.1 Point wiring

1) Material

Shall confirm to item no 7.0 of BoQ.

2) Workmanship

Installation

A) The size of conduit shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be 25 mm. diameters unless otherwise indicated or approved. Size of wires shall not be less than 1.5 sq.mm. Copper.

Nominal Cross sec. Area	**20 mm**		**25 mm**		**32 mm**		**38 mm**	
(mm2)	**S**	**B**	**S**	**B**	**S**	**B**	**S**	**B**
1.50	4	3	10	8	15	9	--	--
2.50	4	2	9	6	10	8	--	--
4.00	2	2	6	4	9	6	--	--
6.00	1	--	5	4	9	6	--	--
10.00	1	--	3	3	7	5	6	5

S - runs of conduits which have distance not exceeding 4.25 m. between draw boxes & which do not deflect from the straight by an angle more than 15 degree.

B - runs of conduits which deflect from the straight by more than 15°.

B) Conduits shall be kept at a minimum distance of 100 mm. from the pipes of other non-electrical services. And maintain minimum 300 mm distance between telephone, TV & Computer piping.

C) Separate conduits/raceways shall be used for :

1. Normal lights and 5 A 3 pin sockets on lighting circuit.
2. Separate conduit shall be laid from D.B. to switch board or point.
3. Power outlets - 15 A 3 pin 20 A/30 A, 2 pin scraping earth metal clad sockets.
4. Emergency lighting.
5. Telephones.
6. Fire alarm system.
7. Public address system & Music system.
8. For all other voltages higher or lower than 230 V.
9. Computer Wiring

D) Call bell wiring layout of conduits shall be generally as indicated on drawings and the layout shall be supplemented and complemented by contractor on site with the approval of the Engineer.

E) Wiring for short extensions to outlets in hung ceiling or to vibrating equipments, motors etc., shall be installed in flexible conduits. Otherwise rigid conduits shall be used. No flexible extension shall exceed 1.25 m.

F) Conduits run on surfaces shall be supported on GI 12 mm. thick pressure saddles which in turn are properly screwed to the wall or ceiling. Saddles shall be at intervals of not more than 500 mm. Fixing screws shall be with round or cheese head and of rust-proof materials. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building. Unseemly conduit bends and offsets shall be avoided by using fabricated mild steel unction/pull through boxes for better appearances. No cross-over of conduits shall be allowed unless it is necessary and entire conduit installation shall be clean and neat in appearance.

G) Conduits embedded into the walls shall be fixed by means of staples at not more than 500 mm. intervals. Chases in the walls shall be neatly made and refilled after laying the conduit and brought to the finish of the wall but final finish will be done by the building contractor.

H) Conduits buried in concrete structure shall be put in position and securely fastened to the reinforcement and got approved by the Engineer, before the concrete is poured. Proper care shall be taken to ensure that the conduits are neither dislocated nor choked at the time of pouring the concrete. Suitable fish wires shall be drawn in all conduits before they are embedded.
Where conduit passes through expansion joints in the building, adequate expansion fittings shall be used to take care of any relative movement.

I) Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. Inspection boxes shall be spaced at not more than 12 meters apart or two 90° solid bends or equal. All junction and switch boxes shall be covered by 6 mm. clear Perspex / Acrylic plate truly cut and fixed with cadmium plated brass screws. These junction boxes with cover plate shall form part of point wiring or conduit wiring as the case may be including the cost of removing the Perspex / Acrylic cover for painting and re-fixing. No separate charges shall be allowed except where specially mentioned.

J) Conduits shall be free from sharp edges and burrs and the threading free from grease or oil. The entire system of conduits must be completely installed and rendered electrically continuous before the conductors are pulled in. Conduits should terminate in junction boxes of not less than 32 mm. deep.

K) An insulated earth wire of copper rated capacity shall be run in each conduit.

2) Lighting & Power Wiring:

A) All final branch circuits for lighting and appliances shall be flexible copper wire of appropriate size run inside conduits. The conduit shall be properly connected or jointed into sockets, bends, junction boxes.
B) Branch circuit conductor sizes shall be as shown in the schedule of quantities and or drawings.
C) All circuits shall preferably be kept in a separate conduit upto the Distribution Board. No other wiring shall be bunched in the same conduit except those belonging to the same phase. Each lighting branch circuit shall not have more than ten outlets or 800 watts

whichever is lower. Each conduit shall not hold more than three branch circuits, of the same phase.

D) Flexible cords for connection to appliances, fans and pendants shall be 650/1100 V grade (three or four cores i.e with insulated neutral wire of same size) with tinned stranded copper wires, insulated, twisted and sheathed with strengthening cord. Colour of sheath shall be subject to the Engineer's approval.

E) Looping system of wiring shall be used. Wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors. No such joints shall be made unless the length of the sub-circuit, sub-main or main is more than the length of the standard coil.

F) Control switches shall be connected in the phase conductors only and shall be `ON' when knob is down. Switches shall be fixed in 3 mm. thick painted or galvanized steel boxes with cover plates as specified. Cadmium plated brass screws shall be used.

G) Power wiring shall be distinctly separate from lighting wiring. Conduits not less than 25 mm. and wires not less than 2.5 sq.mm. Copper shall be used.

H) Every conductor shall be provided with identification ferrules at both ends (At DB & Switch Board end) matching the drawings.

I) Switch board module shall be as per consultant / architect detail. Dummy plate for switch board shall be part of point wiring rate.

J) 3 core flexible wires for point to Light fixture shall be considered in point rate.

3) Testing

The entire installation shall be tested for:
a) Insulation resistance.
b) Earth continuity.
c) Polarity of single pole switches.

General

All the wiring switch board, outlet points shall be done in a concealed manner in wall & slab in PVC conduit of minimum 25 mm dia. (medium guage) when laid in ground / floor the PVC pipe will be Heavy gauge & with 1100v grade PVC insulated flexible copper conductor wire. The switches should be modular with molded cover plates, blank plates for outlet boxes. The accessories, connectors, sockets, should be fixed with brass crome / cadmium plated machine screw. For fan points the rates should be inclusive of 300 W regulators as required to complete the point wiring. The wiring shall be as per IS: 732 and IS: 4648. The wiring shall be done in a looping manner so as to avoid junction boxes at any place. All the looping shall be done only in the switch board and outlet points. The size of the wire shall be as per the specification. Colour code shall be strictly followed. Heavy guage PVC pipe shall be laid for ground / floor.

The size of wires shall as follow:

10 Amps. Metal clad points:

Phase / Neutral2.5 mm2
Earth 1.5 mm2

6 Amps. Out let points:
Phase / Neutral2.5 mm2
Earth 1.5 mm2

Two nos. of 16 Amps. socket out let connected in parallel from DB to first outlet
Phase / Neutral4.0 mm2
Earth 2.5 mm2

Two nos. of 16 Amp. socket out let connected in parallel from first outlet to second outlet.
Phase / Neutral2.5 mm2
Earth 1.5 mm2

Light, fans, exhaust fan, 5 Amp. plug point, two way light point, bell point etc.
Phase / Neutral2.5 mm2
Earth 1.5 mm2

6/16 Amp. Socket outlet for appliances / AC (Single Phase/Three Phase) / Geyser
Phase / Neutral4.0 mm2
Earth 2.5 mm2

Separate pipes shall be laid for off wires and circuit mains.
Circuit mains of same phase shall be drawn in one pipe with prior permission/discussion with the consultant.
Separate phase, neutral and earthing wire of sizes recommended by consultant shall be drawn for each and every circuit mains.

Mode of measurement

The unit rate shall include:
1) Making zari in the wall & semi finishing the surface.
2) Ball and socket joints where ever required
3) Earthing of fittings, Electrical connection to the fixtures from the outlet point/ ceiling rose
4) Supply and Installation and interconnection of electronic regulators for ceiling fan
5) Circuit Mains shall not be paid extra. Rate for the point shall consist of wiring from the out let point to the switch board as required with a connector/ plate/ ceiling rose fan box with hook socket with switch. The point rate shall include in addition to phase and neutral wire a PVC insulated earth continuity wire from switch to outlet. The unit rate for the point shall consist of the circuit wiring form LDB / ELDB to outlet point through switch and/or socket, switch board as required and including the outlet points with connector, fan hook box or sockets. Separate phase, neutral and earth wire from LDB / ELDB to the final termination at outlet points (Primary points) and from primary point to secondary point. No extra rate shall be paid for circuit mains for looping switch board to switch board.
6) There may be few Emergency light points and SB for the same. For Emergency light points no Circuit Mains shall not be paid extra. Rate for the point shall consist of wiring from the out let point to the switch board as required with a connector/ plate/ ceiling rose fan box with hook socket with switch as mentioned above.

E-8: LIGHT FIXTURES

8.1 to 8.3: Supplying, erecting, connecting, testing and commissioning of Light Fixture with all necessary Hardware, Internal Wiring with Lamp, Driver/Ballast etc. all required accessories Complete in all respect. Cost includes replacement of existing light fixtures.

1) Material

Shall confirm to item no 8.1 to 8.3 of BoQ.

2) Workmanship

The fixture shall be installed on wall / ceiling as directed and as per manufacturer's instruction, with necessary accessories for surface, concealed, suspended from ceiling, bracket mounting etc. The job also includes connection of fixture with respective outlet point with heat resistant wires through heat resistance sleeve and PVC connector. Proper earthing shall be provided to the fixtures

3) Mode of measurement

The unit rate shall be considered for Supplying and fixing one fixture. The rate shall include following

a) All fixing accessories, mounting bracket, Driver/ballast condensers and control gear wherever applicable.
b) Supplying and fixing Ball and socket joints wherever required.
c) Earthing of fittings.
d) Electrical connections to fittings/fans from the junction box/ceiling rose.

E-9: RACE WAYS:

9.0.1 Supply and installation of PVC race way with all accessories.

1) Material

As specified in item no 9.0.1 of BoQ

2) Workmanship

As directed by engineer in charge

3) Mode of measurement

The rate shall be for 1 mtr of raceway with cover.

E-10 EARTHING

10.0.1 Providing earthing stations for equipment earthing as shown and specified in drawing for equipment complete with:

1) Material

Shall be as per item no 10.0.1 of BoQ.

2) Workmanship

A) The masonry chamber shall be provided with a Cast Iron hinged cover resting over the Cast Iron frame which shall be embedded in the block masonry.

B) Construction of the earthing station shall in general be as shown in the drawing and shall conform to the requirement on earth electrodes mentioned in the latest edition of Indian Standard IS : 3043, Code of Practice for Earthing Installation.

C) The earth conductors (Strips / Wires copper/ Hot dip G.I.) inside the building shall properly be clamped / supported on the wall with Galvanized Iron clamps and Mild Steel Zinc Passivated screws \ bolts. The conductors outside the building shall be laid at least 600 mm. below the finished ground level.

D) The earth conductors shall either terminate on earthing socket provided on the equipment or shall be fastened to the foundation bolt and / or on frames of the equipment. The earthing connection to equipment body shall be done after removing paint and other oily substances from the body and then properly be finished.

E) Over lapping of earth conductors during straight through in joints, where required, shall be of minimum 75mm. long.

F) The earth conductors shall be in one length between the earthing grid and the equipment to be earthed.

G) The connection between strip and plate shall be through stainless steel bolts and washers. Following tests shall be carried out:

A) The following earth resistance values shall be measured with an approved earth meager and recorded.

1) Each earthing station
2) Earthing system as a whole
3) Earth continuity conductor

B) Earth conductor resistance for each earthed equipment shall be measured which shall not exceed 3 Ohm in each case.

C) Measurements of earth resistance shall be carried out before earth connections are made between the earth and the object to be earthed.

D) All tests shall be carried out in presence of the Site Engineer & the test results shall be submitted in duplicate to the consultants & client with the signatures of the authorities present at the time of testing.

3) **Mode of measurement**

Rate shall be considered for one unit of pit complete.

10.1 Earth Link:

Supply, Installation, Testing and Commissioning of below mentioned Equipotential bar with installed with epoxy support Insulators, to inter connect different earthing conductors. The bar shall be provided with six holes for connecting the equipment to earthing station.

1) Material

Should conform to item no 10.1.1 of BoQ.

2) Workmanship

The links shall be done properly so that after the installation is complete they do not get detached. Proper screwing shall be done so as to avoid gaps and maximum area overlap is available.

3) Mode of measurement

The rate shall be for one unit of earth link complete with required screws / nut-bolts & washers.

10.2 Earth strips:

Supply, Laying, Testing and Commissioning of ETP grade as per IS 191, Copper Strip of following sizes, including supply and fixing using MS / Aluminium spacers, saddles, with all fixing materials as required when laid inside the building, and inclusive of excavation and refilling of earth when laid out side the building, termination/ interconnections in an approved manner as per the IS 3043 (with latest amendments) inclusive of supply of all hardwares complete as required. Item includes supply & Fixing of AMC / FRP spacer / supports used for fixing earthing strip as per requirement as directed by Engineer-in-Charge or his representative:

1) Material

Shall be as per item no 10.2.1 of BoQ. Copper strips of sizes specified in the BOQ.

2) Workmanship

Copper strips shall be laid along with the cables and mains as instructed by the EIC. The strips shall be terminated at both the ends properly via brazing SS nut and bolts with double washer screws and nuts as instructed by the consultant. Strips shall not be bend to and extent that they go brittle.

3) Mode of measurement

The rate shall be considered on per Mtr. basis

10.2 Earth wires:

Supply and laying of ETP grade as per IS:191 copper wire of following sizes including supply and fixing of clamps and accessories when laid inside the building and inclusive of excavation and refilling of earth when laid outside the building, terminations / interconnections in an approved manner as per the IS 3043 (with latest amendment)

inclusive of supply of all hardware complete as required, and as instructed & directed by Engineer-in-Charge:

1) Material

Shall be as per item no 10.3.1 of BoQ.

2) Workmanship

Copper wire shall be laid as instructed by the EIC. The wires shall be terminated at both the ends properly as instructed by the EIC.

3) Mode of measurement

The rate shall be considered on per Mtr. basis