

# TENDER DOCUMENTS FOR COOLING TOWER REPLACEMENT WORK AT STATE LIFE BUILDING NO.1, KARACHI



**DATE OF ISSUANCE:**

\_\_\_\_\_, 2017

**LAST DATE OF TENDER ISSUANCE:**

\_\_\_\_\_, 2017 at 00:00 p.m.

**PRE-BID MEETING:**

\_\_\_\_\_, 2017 at 00:00 a.m.

**SUBMISSION OF TENDER:**

\_\_\_\_\_, 2017 at 00:00 a.m.

**OPENING OF TENDER:**

\_\_\_\_\_, 2017 at 00:00 a.m.

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## LIST OF ABBREVIATIONS AND CODES

BOQ	Bill of Quantities
MEP	Mechanical, Electrical and Plumbing
UPVC	Un-plasticized Poly Chloride
PPR	Polypropylene Random
SWV	Soil, Waste and Vent System
DIN	Deutsches Institute Für Normung
ISO	International Organization for Standardization
NFPA	National Fire Protection Association
CO <sub>2</sub>	Carbon dioxide
UL	Underwriter's Laboratories
FM	Fire Marshall
SPOT	Single pole, double throw
AC	Alternating Current
PRV	Pressure Reducing Valve
BS	British Standard
K-Electric	Karachi Electric Supply Corporation
MDB	Main Distribution Board
HT	High Tension
DB	Distribution Board
SWG	Standard Wire Gauge
ANSI	American National Standards Institute
PSI	Pounds per square inch
TEFC	Totally Enclosed, Fan Cooled
BHP	Brake Horse Power
NPSH	Net Positive Suction Head
ARI	Air-Conditioning and Refrigeration Institute
RPM	Revolution Per Minute
IP	Insulation Protection
IPLV	Integrated Part Load Value
AHRI	American Heating Refrigeration Institute
HFC	Hydro-Floro Carbons
ASTM	American Society of Testing Materials
EER	Energy Efficiency Rating
COP	Coefficient of Performance
NPLV	Net Part Load Value

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## EVALUATION CRITERION

The following documents need to be submitted by the tenderer:

### 1- Organization and Financial Data:

- (a) Type of Business Organization (Corporation, Joint Venture, Partnership etc.)
- (b) Date Business Founded.
- (c) Annual Volume (Turnover) last three years in Pakistani rupees (both parties).
- (d) Attach the latest audited Financial Statements of the last three years of your Company which should include the following documents. In the case of JV provide the above documents for all the partners. The JV shall be evaluated as per standard bidding guidelines of Pakistan Engineering Council.

### Performance Record:

- (a) Please provide a brief resume of works completed by your firm in the last five years including all jobs involving similar nature of works (see Annexure-A Form-1)
- (b) List of projects currently in progress of similar nature of works. (see Annexure-B Form-2)

### 2- Organization:

- (a) Provide organization chart of your firm. Indicate lines of communication and reporting responsibility.
- (b) Detail of key technical staff with their qualification and experience including of those who would be deputed for the proposed project.
- (c) Details of execution equipment, plants, machinery and tools owned by the organization and to be utilized on the project (please see Annexure-C Form-3)
- (d) Provide the list of subcontractors to which you intend to assign work. Indicate their main area of experience, the approximate amount of work to be assigned, their brief experience record and their organization and management staff.

### 3- List of References:

- (a) From clients (attach certificates from Client or Consultant)

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The company documents must show documents proof of the following:

- (a) Financial capability to annually sustain a multi-million Rupees level of work in Pakistan over 3 (three) years period.
- (b) The availability of the execution equipment required to carry out the works.
- (c) Capability to schedule the work, monitor progress against schedules and modify schedules on a current and updated basis utilizing computerized CPM or equivalent techniques.
- (d) Capability to obtain and transport to the site all of the necessary materials required for execution.
- (e) Capabilities to manage, supervise and perform the work in a manner and quality commensurate with the highest level achievable in the industry.

It is made explicitly clear that:

- a) Bids must be submitted confirming to all requirements / terms and conditions stated in this tender and as per PPRA rules.
- b) Conditional bids submitted shall be rejected
- c) Bids submitted without original bid security or for amount less than 2% of the total final corrected bid amount shall be rejected.
- d) Bill of Quantities must be filled out in the original tender. No reproduction / ammendment / changes to the BOQ will be accept and the bid shall be declared as non-responsive and rejected.



## **BID EVALUATION CRITERION**

### **TECHNICAL BID EVALUATION CRITERION:**

The following criterion will be followed for the evaluation of the contractors who participate in the bidding process.

- Firms obtaining overall less than 70% marks and / or less than 50% marks in any section of the evaluation criteria shall not be approved.

### **Mandatory Requirement**

<b>S.No.</b>	<b>Parameters</b>	<b>Required</b>	<b>Obtained</b>
1.1	Is your firm currently black-listed by any Government / Semi-Government organization?	NO	
2.1	Is your firm registered with Pakistan Engineering Council in Category C-6 for specialization ME-01 (HVAC)? If yes, please provide details.	YES	
3.1	Is your firm an authorized dealer / distributor of the offered brand of Cooling Tower? If yes, please provide details along with documentary evidence.	YES	

### Category Based Requirement

TYPE	Sr.	DESCRIPTION	%	MAX	OBTAINED
Status of Firm	4.1	<b>Type of Firm</b> <ul style="list-style-type: none"> <li>➤ Private Ltd</li> <li>➤ Partnership</li> <li>➤ Proprietorship</li> </ul>	100% 90% 70%	12	
	4.2	<b>Head office &amp; Regional Offices:</b> <ul style="list-style-type: none"> <li>➤ Established office (with service staff &amp; maintenance equipment facilities) in project city (Karachi)</li> <li>➤ Established office (with service staff &amp; maintenance equipment facilities) in any other city.</li> </ul>	100% 50%	12	
Past Experience	4.3	<b>Work Experience</b> <ul style="list-style-type: none"> <li>➤ Over 10 Years</li> <li>➤ Between 07 to 10 Years</li> <li>➤ Between 03 to 07 Years</li> <li>➤ Less than 3 year</li> </ul>	100% 90% 70% 40%	20	
	4.4	<b>Experience in the following fields</b> <ul style="list-style-type: none"> <li>➤ Cooling Tower Supply &amp; Installation</li> <li>➤ Central HVAC supply &amp; Install</li> <li>➤ Central HVAC supply only</li> <li>➤ Non-central equipment</li> </ul>	100% 80% 50% 0%	10	
Human Resources	4.5	<b>Highest qualification of Engineers</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Bachelor Level</li> <li><input type="checkbox"/> Less than Bachelor</li> </ul> <i>(Please provide list of mechanical engineers on company letter head duly signed by company official)</i>	100% 50%	10	
	4.6	<b>Average HVAC Experience by Engineer</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> More than 6 years</li> <li><input type="checkbox"/> 4-6</li> <li><input type="checkbox"/> 2-3</li> <li><input type="checkbox"/> Less than 1</li> </ul> <i>(Please provide list of HVAC engineers on company letter head duly signed by company official)</i>	100% 80% 60% 40%	13	
	4.7	<b>Number of Technical staff</b>		12	

TYPE	Sr.	DESCRIPTION	%	MAX	OBTAINED
		<b>(supervisors/D.A.E.) on payroll</b> <input type="checkbox"/> 10 or more <input type="checkbox"/> 7-9 <input type="checkbox"/> 5-8 <input type="checkbox"/> Less than 4  <i>(Please provide list of Technicians on company letter head duly signed by company official)</i>	100% 80% 60% 40%		
	4.8	<b>Average HVAC Installation Experience by Technicians with D.A.E. Diploma</b> <input type="checkbox"/> More than 25 years <input type="checkbox"/> 15-25 <input type="checkbox"/> 9-14 <input type="checkbox"/> Less than 9	100% 80% 60% 40%	11	
		<b>TOTAL</b>		<b>100</b>	

**ANNEXURE-A****QUALIFICATION FORM-1****List of Previous Experience of Similar Nature of Works**

<b>NAME OF PROJECT &amp; LOCATION</b>	<b>FULL NAME &amp; ADDRESS OF CLIENT</b>	<b>TYPE OF CONTRACT PERIOD OF CONTRACT</b>	<b>CONTRACT VALUE (INDICATE CURRENCY IN PAK Rs. ONLY)</b>	<b>TYPE OF WORK</b>	<b>CARRIED OUT ALONG OR IN PARTNERSHIP (IF IN PARTNERSHIP STATE SHARE &amp; NAME OF PARTNER)</b>	<b>START DATE</b>	<b>COMPLETION DATE</b>

**ANNEXURE-B****QUALIFICATION FORM-2**

List all Projects of similar nature, which your firm has under way at this time

NAME OF PROJECT & LOCATION	FULL NAME & ADDRESS OF CLIENT	TYPE OF CONTRACT PERIOD OF CONTRACT	CONTRACT VALUE (INDICATE CURRENCY IN PAK Rs. ONLY)	TYPE OF WORK	CARRIED OUT ALONG OR IN PARTNERSHIP (IF IN PARTNERSHIP STATE SHARE & NAME OF PARTNER)	START DATE	COMPLETION DATE

**ANNEXURE-C****QUALIFICATION FORM-3**

LIST OF PLANT AND EQUIPMENT ITEMS OWNED BY YOUR COMPANY  
AND/OR EQUIPMENT TO BE LEASED OR PURCHASED TO BE USED BY  
YOUR COMPANY FOR THIS PROJECT IF AWARDED THIS CONTRACT

DESCRIPTION OF EQUIPMENT	EQUIPMENT OWNED AND YEARS OF SERVICES	EQUIPMENT TO BE PURCHASED OR LEASED	GIVE SPECIFICATION OF EQUIPMENT

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**FINANCIAL BID EVALUATION CRITERION:**

The criterion for the evaluation of the financial bids shall be as follows:

The Consultant will examine the Bids to determine whether;

- 1) The Bid is complete and does not deviate from the scope,
- 2) Any computational errors have been made,
- 3) The required sureties have been furnished,
- 4) The documents have been properly signed,
- 5) The Bid is valid till required period,
- 6) The Bid prices are firm during currency of contract.
- 7) completion period offered is within specified limits,

The bid shall be declared substantially responsive if it satisfies all these conditions.

The bid will not be considered, if;

- 1) it is not accompanied with Bid Security,
- 2) it is unsigned,
- 3) its validity is less than specified,
- 4) it is submitted for incomplete scope of work,
- 5) it indicates completion period later than specified,
- 6) it indicates that prices quoted are not firm during currency of the contract,
- 7) it indicates that Goods and material to be supplied do not meet eligibility requirements,
- 8) it indicates that Bid prices do not include the amount of all taxes,
- 9) if Bidder refuses to accept arithmetic corrections,
- 10) If it is material and substantially different from the Conditions/Specifications of the Bidding Documents,
- 11) Any conditional bid.

Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the words and figures, the amount in words shall prevail. If there is a discrepancy between the total Bid Price entered in the Form of Bid and the total shown in Schedule of Prices Summary, the amount stated in the Form of Bid will be corrected by the Employer/Engineer in accordance with the Corrected Schedule of Prices.

If the Bidder does not accept the corrected amount, his Bid will be rejected and his Bid Security be forfeited.

The bidder shall only fill in unit prices and calculate the total price by multiplying the unit price and quantity. The bidder is not allowed to modify or change quantity or specification of the BOQ items. If they change the BOQ item/quantity, they shall be disqualified.

Prior to the detailed evaluation, the Consultant will determine the substantial responsiveness of each Bid to the Bidding Documents. For purpose of these Clauses, a substantially responsive Bid is one which conforms to all the terms and conditions of the Bidding Documents without material deviations.

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A material deviation or reservation is one

- (i) which affect in any substantial way the scope, quality or performance of the Works;
- (ii) which limits in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the Contract; or
- (iii) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

The Engineer's determination of a Bid responsiveness will be based on the contents of the Bid itself without recourse to extrinsic evidence.

A Bid determined as substantially non-responsive will be rejected and will not subsequently be made responsive by the Bidder by correction of the non-conformity.

Any minor informality or non-conformity in a Bid which does not constitute a material/substance of bid document deviation may be waived by Employer, provided such waiver does not prejudice to affect the relative ranking of any Bid.

### **Detailed Evaluation of Bid**

The Employer/Engineer will evaluate and compare only the bids determined to be substantially responsive as per requirements given above:

Evaluation and Comparison of Bids procedure

- Bids will be evaluated for each item for complete scope of work

In evaluating the bids, the Employer will determine for each bid in addition to the Bid Price, the following factors (adjustments) in the manner and to the extent indicated below to determine the Evaluated Bid Price.

#### 1. Price Adjustment for Completeness in Scope of Work

In case of omission in the scope of work of a quoted item price, NO adjustment for the omitted item(s) shall be applied provided that the Bidder has mentioned in his bid that the same is covered in any other item(s).

In case of omission in the scope of work of a quoted item price, adjustment for the omitted item(s) shall be applied as the highest price quoted for that item by the other responsive bidders, provided that the Bidder has NOT mentioned in his bid that the same is covered in any other item(s).

#### 2. Price adjustment for completion Schedule

Bids indicating completion in advance of the dates stated in Preamble to Conditions of Contract, no credit will be given in this evaluation.

**The bidder whose adjusted price is the lowest after applying all the above conditions shall be declared as the lowest responsive bidder.**



## 1.1 **INSTRUCTIONS TO TENDERERS**

Bidding shall be done as per PPRA single stage – two envelopes procedure. The Tenderer will submit two bids, in two separate sealed envelopes: one will be technical bid and other will be financial bid. Both envelopes to be clearly marked and placed inside ONE final envelope, detailing the name of the company and the name of tender outside the final envelope.

Bid shall be submitted on original BOQ only. Altered/ edited BOQ shall not be accepted and is liable to be rejected.

Bid Security to be submitted with financial bid in the form of pay order, bank draft or bank guarantee or insurance guarantee from any AA rating insurance company by PACRA/JCR.

The Tender of this project shall be issued on payment of Rs.3000/- (Rupees Three Thousand only). This payment of Rs.3000/- shall be made in cash/pay order/demand draft and the tender documents will be issued from the office of International Consultants, 5<sup>th</sup> Floor, Syeda Chamber, SB-4, Block 13-C, University Road, Gulshan-e-Iqbal, Karachi-75300 (Pakistan). The complete set of tender documents shall consist of the below listed items:

1. Instructions to Tenderers
2. Standard Forms
3. General Conditions of Contract
4. Special Conditions of Contract
5. General Requirements
6. Technical Specifications for Equipment / Material
7. Technical Specifications for Installation, Testing & Commissioning
8. Bill of Quantities
9. Drawings
10. Addendum & Corrigendum, (if any) will be provided on equal opportunity basis.
11. Qualification Criteria
12. Bid Evaluation Criteria

The above listed items of tender documents from integral and essential parts of the contract and no deviation of any kind, no matter how minor or apparently minor, shall be allowed.

If the tenderer wishes to elaborate his bid and or clarify his tender, he may do so stating such elaboration or clarification on separate papers which should be duly signed by the person specifically authorized by the tenderer to do so. Such papers shall be attached to the tender documents and shall become part of the tender submitted by the tenderer.

It is specifically brought to the notice of the tenderers that since the project buildings located in high security zone, it will be the responsibility of the contractor to obtain the necessary permission from relevant authority(ies) and State Life will not bear any additional financial burden other than the quoted bid price by the contractor for any and all approvals.

The tenderers shall visit the site of the works which is situated at STATE LIFE BUILDING NO.1 I.I Chundrigar Road Karachi. and shall collect all the necessary information, such as local conditions, accessibility to the site of the works, the extent and character of operations, etc., and be deemed to have satisfied themselves as to the nature of the site and any conditions which may influence his tender and affect the works. It is specifically brought to the notice of the tenderer that no claim on the grounds of lack of knowledge or incomplete knowledge of such conditions on the part of the tenderers or due to failure of the tenderer visiting the site shall be entertained subsequently in this respect.

The tenderers shall complete the tender documents by giving the whole of the information required to be given by him therein. The tenderer shall fill in the unit prices where so required in the BOQ, multiply the quantities shown therein by the respective unit prices thus giving the tender prices of the items stated therein and add and extend the totals to give the total lump sum tender prices of various sections of works as required in the tender documents.

In addition to the above, the Tenderer shall supply the following information:

- (i) Tenderer's address at which all the correspondence be sent.
- (ii) Preliminary Program of works as proposed by the tenderer.
- (iii) Layout of Temporary Works as proposed by the tenderer.
- (iv) List of major items of plants which will be deployed on the works.
- (v) Forecast of Labor and Staff which will be employed on the works.
- (vi) List and particulars of proposed subcontractors if any.
- (vii) Audited tax statements or bank statements for last 3 years.
- (viii) List of tools, equipment and machinery currently owned by the tenderer as well as a list of tools, equipment and machinery proposed to be rented by the tenderer to ensure completion of the job.

Each and every page of the tender shall be signed by the duly authorized person and shall be submitted to the office.

The original instrument used for Bid Security to be placed in the financial bid envelope shall be 2% of the bid Price in the form of Deposit at call or a Bank Guarantee issued by a scheduled bank in Pakistan or from a foreign bank duly counter guaranteed by a scheduled bank of Pakistan or an Insurance company having at least AA+rating from PACRA/JCR in favor of the client "State Life Insurance Corporation of Pakistan" valid for a period of 28 days beyond the Bid Validity date. This shall be returned to unsuccessful Tenderers.

Tender Bid shall not be accepted without bid security and will be rejected.

In the case of the successful tenderer the bid security shall be released after the submission of the Performance Bond.

All documents accompanied by the tender shall be written in English.

Tenders containing numerical errors of any kind as well as tenders containing any erasures and/or corrections of the prices shown and/or in the extension or addition of these prices are liable for rejection.

If any page of the tender documents has been inadvertently disfigured, the tenderer may request spare copies of such pages or may reproduce in full any such disfigured pages and incorporate such reproduced pages in submitting their tender provided, however, that each and every page shall be reproduced in full and not in part and provided also that each and every such page shall be clearly marked "replacement owing to inadvertent disfigurement of the original". The same rules with respect to errors, erasures and correction shall apply to such reproduced pages to the original pages of the tender documents.

Any comment which the tenderer wishes to make shall not be placed on any of the pages of the tender documents but shall take the form of a separate statement which shall be as brief as possible and referenced to items, clauses and pages of the tender documents. Such statements shall not qualify the acceptance of the tender based upon proposed changes in the tender documents nor shall it be binding upon the Employer in the award of the contract.

The tenderers shall submit with his tender the details of his proposed method of construction along with the time schedule suitably illustrated by means of construction diagrams and charts.

In addition the tenderer shall give a complete list of the plant and machinery he intends to deploy on the works for its successful and satisfactory completion by him within the period indicated in these documents. Should the Contractor fail to achieve the completion of the work by the agreed date as stipulated hereinafter, the Employer shall deduct from the payment to be made to the Contractor the amount of the liquidated damages as stipulated hereinafter. It is specifically brought to the notice of the tenderers that time is the essence of this contract.

The successful tenderer henceforth called the Contractor shall be required to furnish a performance guarantee as per the attached form for proper and due performance of the contract prior to the signing of the contract. The Performance Guarantee submitted, shall be either a bank guarantee or a guarantee from New Jubilee Insurance Company (for details see Salient Features in Chapter-1).

The tender shall be addressed to DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED ROAD, KARACHI-75530 in double sealed envelopes clearly marked "Tender for the HVAC WORK AT STATE LIFE BUILDING NO.1, KARACHI should reach the office of DIVISIONAL HEAD (R.E.), STATE LIFE

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INSURANCE CORPORATION OF PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED ROAD, KARACHI-75530 by hand.

The whole of the work covered by these documents shall be completed in all respects within Four(4) months from the date of the commencement of the work as defined hereinafter. If after the award of the contract, the construction of the whole or part of any section of the work be canceled, the time of completion shall be adjusted in the same proportion as the remaining work shall have to the total work described in these documents.

Under the terms of the contract a certificate of substantial completion will be given by the Employer when the works (or substantial part of them if such part has been taken over by the Employer) have been completed to the satisfaction and approval of the Consultant. From the date of the issue of the certificate of substantial completion the Contractor will be responsible for a period of 2 (Two) years for making good any defects which may appear in the works (or that part of them to which the certificates of substantial completion relate). This period is termed as "The Defects Liability and Maintenance Period".

At the end of defect liability and maintenance period, the works (or that part of them to which the relevant certificate of substantial completion relates) are to be handed over to the Employer in a perfect condition (fair wear and tear accepted) as they were when the certificate of substantial completion was given. Any work necessary to give effect to this requirement must be carried out at the Contractor's expense if the necessity thereof is, in the Employer's opinion, due to the use of materials or workmanship not in accordance with the contract or due to the failure of the Contractor to comply with any of his obligations under the contract. The contract will not be considered as completed until a Final Acceptance Certificate shall have been given by the Employer stating that the whole of the works have been completed and maintained to his satisfaction.

All the materials and equipment for the completion of this contract shall be arranged by the Contractor himself. The Employer is not responsible for any difficulty or delay encountered in the procurement of the materials and equipment by the Contractor.

The Employer shall issue to the contractor, the acceptance of tender letter and inform him to prepare to execute the contract Agreement. Pending the execution of the contract Agreement, this letter of acceptance shall be binding between the parties.

The tenderers are advised to submit a detailed technical proposal, giving complete technical specifications and selection data for all equipment and material proposed to be supplied. The proposal should strictly conform to specifications. Each bidder shall submit only one bid either by himself, or as a partner in a joint venture. A bidder who submits or participates in more than one bid (other than alternatives pursuant to the below paragraph) will be disqualified and bids submitted by him shall not be considered for evaluation and award.

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Should any bidder consider that he can offer any advantage to the Employer by a modification to the designs, specifications or other conditions, he may, **in addition to his bid to be submitted in strict compliance with the Bidding Documents**, submit any Alternate Proposal(s) containing (a) relevant design calculations; (b) technical specifications; (c) proposed construction methodology; and (d) any other relevant details / conditions, provided always that the total sum entered on the Form of Bid shall be that which represents complete compliance with the Bidding Documents.

**Alternate Proposal(s), if any, of the lowest evaluated responsive bidder only** may be considered by the Employer as the basis for the award of Contract to such bidder.

The tender should be accompanied with all technical catalogues-/brochures/- bulletins / drawings / diagrams / illustrations necessary to illustrate significant characteristics, and the specific sections/selection/specifications shall be clearly marked. Any tender not containing the detailed specifications and technical literature on equipment and material proposed to be supplied, shall be reject.

The Contract is intended to be an item rate Contract for all imports required for the works, the Contractor shall make his own arrangements for the importation and the owner shall be absolved of all responsibilities in this connection. All foreign exchange required shall be arranged by the Contractor, and the owner shall only pay to the Contractor as per the Contract. All formalities connected with the importation of equipment and material shall be totally borne by the Contractor.

The tenderers are advised to ensure that the tender submitted by them is in accordance with the law of the land, and all laws, rules and regulations of all bodies having jurisdiction on any aspect of the Contract.

Any inquiry from the contractor will be addressed to the consultant and a copy will be send to the client project manager.

All work shall conform to all state and local codes, rules and regulations and ordinances.

All equipment shall be installed in strict compliance with the manufacturer's written instructions; the contractor shall provide all hangers and supports required for a complete installation.

Contractor shall be responsible for workmen's identifications and safety and fire protection, contractor's liability to ensure barricades, warning sign, trash removal, cutting and patching.

Contractor shall coordinate all work with the owner and all other contractors. Contractor shall plan all work on site according to the schedule of work timeline, which will be provided prior to start of work.

Contractor shall be responsible for all rigging, handling and protection of materials.

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Contractor shall provide labor to receive, unload, store, protect and transfer to point of installation of equipment and material.

Where conduit cables, duct work or piping passes through fire rated floors or walls, the sleeves shall be completely sealed with a fire stop material as being suitable for the service such as Dow Corning Corp, Silicon Elastomer, Dow Corning 3 – 6548 silicon RTV foam, or approved equal. This material shall be installed in accordance with the requirements of the manufacturer to maintain the fire rating of the penetrated wall or floor.

Contractor shall be responsible for all care as it relates to this work.

Contractor shall also ensure that no drugs are used on site as well as no employee or worker of the contractor arrives to work intoxicated. No smoking is permitted on site except in designated areas. Please check with the client STATE LIFE INSURANCE CORPORATION OF PAKISTAN security personal for designated area locations.

Contractor shall be responsible for all beam penetrations as it relates to his work. Contractor shall submit size and location to the structural engineer for review for approval prior to starting any work.

Upon completion of construction contractor shall supply the Engineer with (6) complete set of as built documents and (5) complete copies of operations and maintenance manuals.

All work shall be performed in a clean and workmanlike manner. Care shall be exercised to minimize any inconvenience or disturbance to other areas of the building which are to remain in operation. Isolated work areas by means of temporary partitions and tarps to prevent entrance of dust and Dirt within the construction area.

This contractor shall field verify all dimensions and existing conditions prior to proceeding with any work, where discrepancies occur between these documents and existing conditions, the discrepancy shall be reported to the owner and/or Engineer for expediting and resolve.

Clean the job site daily and remove from the premises any Dirt and Debris caused by the performance of the work included in this contract on a daily basis.

Use of the owner's elevators and building corridors for handling of the owner and removed equipment and materials shall be at the direction of the owner and shall be coordinated with his operations.

The contractor shall be responsible for the safekeeping of his own property on the job site. Owner assumes NO responsibility for protection of properties against fire, theft and environmental conditions.

The contractor shall provide all necessary temporary or permanent caps or plugs for piping, do not leave piping open ended.

The contractor shall coordinate his work with all other trades prior to fabrication, purchase and / or installation of all work.

The drawing indicate diagrammatically the extent, general character and location of the work included, offsets and/ or changes in elevation of piping and ductwork due to structural or other interferences shall be provided without extra cost.

Contractor shall verify and evaluate all existing conditions prior to the commencement of work.

The contractor shall provide all labor materials and equipment necessary for the installation for complete and operating system.

The Contractor is responsible for all work, materials and labor to satisfy a complete working system whether specified or implied.

All work is to be performed in strict compliance with all local codes and all other regulation governing work of this nature.

The contractor shall, before submitting any proposal examine the proposed site and shall determine for himself the conditions that may affect the work, No allowance shall be made if the contractor fails to make such examinations.

All equipment and materials shall be as specified or "approved equal" by the Engineer.

All exterior openings to be properly caulked and sealed with a sealant of high quality and long life, to prevent infiltration of outside air into conditioned space.

Do not scale drawings for exact dimensions verify all figures, conditions and dimension at the job site.

The mechanical plans are intended to be diagrammatic and are based on one manufacturer's equipment. They are not intended to show every item in its exact location, the exact dimension, or all the details of the equipment. The contractor shall verify the actual dimensions of the equipment proposed to ensure that the equipment will fit in the available space.

All equipment shall be guaranteed for a period of Three (2) Years from date of acceptance, defects which appear during that period shall be corrected at this contractor's expense.

For the same period, the mechanical contractor shall be responsible for any damage to premises caused by defects in workmanship or in the work or equipment furnished and / or installed by him.

The list of spare parts shall become the property of the client and shall not be used by the contractor for the duration of the two years warranty period. These parts shall be stored to be used after the expiration of the warranty period. All parts, labour and consumables etc. required during the operation maintenance of the duration of the warranty period shall be provided by and shall be on the cost of the contractor.

The tenderer must visit the site of the works situated STATE LIFE INSURANCE CORPORATION OF PAKISTAN, STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI. The tenderer shall collect all

the necessary information, such as local conditions, accessibility to the site of the works, the extent and character of operations, etc., which may influence his tender. It is specifically brought to the notice of the tenderer that no claim on the grounds of lack of knowledge or incomplete knowledge of such conditions on the part of the tenderers shall be entertained subsequently in this respect.

Submission of proposal directly or indirectly in connection with this work shall imply that the bidder has examined the job site under which he will be obligated to operate should be awarded the work under this contract. No extra charge will be allowed for failure of any tenderer to examine the site prior to bid.

Contractor shall visit the site and verify all dimensions in the field and shall advise the Architect/ Engineer and the owner of any discrepancies before performing the work.

#### 1.1.1 CORRECTION OF ERRORS

Where there is a discrepancy between amount in figures and in words, the amount derived from unit rates in words will govern.

Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit rate and the quantity, the unit rate as quoted will govern.

The amount stated in the form of Tender will be adjusted by the Employer in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount of the Tender, his Tender will be rejected and the Earnest money will be forfeited.



## SALIENT FEATURES OF THE CONTRACT

1. Date of Issue of Tender. : See Relevant Advertisement.
2. Place of Issue of Tender. : M/S International Consultants 5<sup>th</sup> Floor, Syeda Chamber, SB-4, Block 13-C, University Road, Gulshan-e-Iqbal, Karachi-75300 (Pakistan).
3. Place of Submission of Tender. : DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED ROAD, KARACHI-75530
4. Last Date and Time for Submission of Tenders. : See Relevant Advertisement.
5. Pre-bid Meeting : See Relevant Advertisement.
6. Amount of bid security. : 2% (Two percent) of total bid Price in the original document of insurance in favor of STATE LIFE INSURANCE CORPORATION OF PAKISTAN through a bank draft, pay order, bankers cheque or original documents of insurance guarantee having at least AA+ rating by PACRA/JCR.(Original Documents Of Insurance Company )
7. Amount of Performance Bond. : 10% of total tender price in the form of Insurance guarantee from insurance company / Bank Guarantee having at least AA+ rating from PACRA/JCR.
8. Release of Performance Bond. : The Performance Bond should remain valid till expiry of defects liability and maintenance period which is 2 years from completion and successful commissioning and will be released after one month of the end of this period.
9. Validity of Tender. : One Hundred eighty(180) Days from the date of opening of tender.
10. Time for Completion of the Project from the date of issue of Letter of Award. : 16 (Sixteen) weeks
11. Liquidated & Ascertained Damages in case of non-completion of work within the stipulated time. : 0.1 % of contract award price per day subject to a maximum of 10% of contract cost.
12. Defect Liability or Maintenance. : 2 (Two) years from the date of issue of completion with parts and labor included in the bid price for this defect liability period.

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13. Retention Percentage. : 5% (Five percent) will be deducted from each running bill submitted by the contractor.
14. Release of Retention Money. : 50% to be released on issuance of Substantial Completion Certificate. Balance 50% to be released after completion of the defect liability period of 2 years.
15. Period within which formal Agreement and all bonds shall be executed by the Tenderer from the date of issue of work order. : Fifteen (15) Days from date of issue of letter of award.
16. No claim on account of price fluctuation will be entertained. :
17. Tax, L/C and Custom duties See clause 3.74. All duties and taxes shall be deemed to be included in the rates and prices stated in the bill of quantities.
18. Mode of Payment

**FOR CHILLERS, AHUs AND FCUs(TO BE IMPORTED FOR THE PERMANENT WORKS)**

- a) 10% (ten percent) of the quoted rates of imported items in schedule of prices shall be paid as advance against Bank Guarantee from Scheduled bank in Pakistan, after the contractor has obtained necessary approval of equipment and materials from the Engineer and Consultant. The contractor shall submit his request to the Engineer for release of this payment to facilitate opening of letter of credit.
- b) 35% (thirty five percent) of the quoted rates of imported items in schedule of prices shall be paid as advance against Bank Guarantee from a Scheduled bank in Pakistan on submission of negotiated shipping documents and arrival of equipment/ material at Karachi Port.
- c) 20% (twenty percent) of the quoted rates of imported items in schedule of prices shall be paid on delivery of equipment /materials at site and issuance of inspection certificates and approval by the Engineer and Consultant. The Bank Guarantee provided by the contractor at (b) above would also be released.
- d) 20% (twenty percent) of the quoted rates of imported equipment / materials in schedule of prices shall be paid on completion of installation to the satisfaction of the Engineer and Consultant.
- e) 10% (ten percent) of the quoted rates of imported equipment / materials in schedule of prices shall be paid on completion of testing and commissioning of the equipment and system and issuance of taking over certificate by the Engineer and Consultant.
- f) The balance 5% (five percent) of the BOQ rates shall be adjusted towards Retention Money.

**LOCAL ITEMS (OTHER THAN CHILLERS, AHUs AND FCUs):**

- a) 10% (ten percent) of the quoted rates of local items in schedule of prices shall be paid as advance against Bank Guarantee from Scheduled bank in Pakistan, after the contractor has obtained necessary approval of equipment and materials from the Engineer and Consultant.
- b) 35% (thirty five percent) of the quoted rates of local items in schedule of prices shall be paid on delivery of equipment /materials at site and issuance of inspection certificates and approval by the Engineer and Consultant.
- c) 25% (twenty five percent) of the quoted rates of local equipment / materials in schedule of prices shall be paid on completion of installation to the satisfaction of the Engineer and Consultant.
- d) 25% (twenty five percent) of the quoted rates of local equipment / materials in schedule of prices shall be paid on completion of testing and commissioning of the equipment and system and issuance of taking over certificate by the Engineer and Consultant.
- e) The balance 5% (five percent) of the BOQ rates shall be adjusted towards Retention Money.

## **TERMS OF REFERENCE (TOR) / SCOPE OF WORK**

### **INSTRUCTIONS TO THE BIDDERS AND EVALUATION CRITERIA FOR HIRING HVAC CONTRACTOR**

1. Bidders are required to mention in their financial bid the unit cost and total cost of equipment / material and the bid should be inclusive of all applicable taxes.
2. Bid should be valid for a period of 180 days.
3. **Amount of Bid Security:** 2% (Two Percent) of total Bid Price in Pak Rupees.
4. **Deadline / Time and Place for submission of bids** (refer relevant advertise).

Sealed bids as per instructions to bidders of this tender enquiry must be hand delivered to the office detailed therein until 1100 hours Pakistan Standard Times (PST).

Opening of Bids (refer to relevant advertisement)

5. Bids will be opened at 1130 hours (PST) on 2016.
6. Sealing, Marking and Transmission of the bid (refer to instruction to bidders)

Your detailed Technical Proposal and Financial Proposal should be submitted in separate envelopes. The envelopes containing Technical and Financial Proposals shall be properly sealed, stamped and marked as follows:

#### **Envelope # 1**

#### **TECHNICAL PROPOSAL**

#### **HVACWORKSFORSTATELIFE BUILDING NO.1, KARACHI**

DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF  
PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED  
ROAD, KARACHI-75530

#### **Envelope # 2**

#### **FINANCIAL PROPOSAL**

#### **HVACWORKSFORSTATELIFEBUILDING NO.1, KARACHI**

1. DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF  
PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED  
ROAD, KARACHI-75530 If the envelope is not marked as instructed above, SLIC will assume no responsibility for the misplacement or premature opening of the bid.
2. Material Deficiencies which will lead to disqualification.
  - a) Deviation from TOR of this Tender Enquiry is observed in their bid proposal.

## 2.1 FORM OF TENDER

To,  
DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9, DR. ZIAUDDIN AHMED ROAD, KARACHI-75530

Sir,

1. The undersigned Tenderer, having examined the Tender Documents in paragraph 6 below for the HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI and having examined the site of the above noted works, or having caused the site to be examined on our behalf by a competent and reliable agent, and having satisfied ourselves as to all conditions under which the above named works must be performed, hereby propose;

(a) to construct, complete and maintain the whole of the above named works in conformity with the Tender Documents for the TENDER PRICE OF PAKISTANI RUPEES and the rates and prices set forth in the Bill of Quantities comprised in the Tender Documents; and should a Notice of Award accepting this Tender be issued to us,

(b) to sign, within 15 (Fifteen) days following issue of said Notice of Award, an agreement in the form set out at Clause 2.2 of this Tender with such alterations and additions thereto as you may require to adapt such Agreement to the circumstances of this Tender, and for this purpose to attend or to cause one or more representatives duly authorized by us under appropriate power(s) of attorney to attend, your office at Karachi.

(c) to commence the works within 15 (Fifteen) days following the receipt of the Notice of Award and to complete all the works comprised in the Tender Documents on or before the expiry of Ten (10) Months following receipt of the said notice of award to commence the works,

(d) to submit within 15 days following the issue of said Notice of Award a Performance Bond in the form set out in Clause 2.3 of this Tender for the due performance of the Contract in an amount equivalent to 10% (Ten percent) of the Contract Price executed by \_\_\_\_\_ Bank Limited \_\_\_\_\_ Branch \_\_\_\_\_, being a Scheduled Bank or \_\_\_\_\_ Insurance Company, being an insurance company having at least AA+ rating from PACRA/JCR.

(e) if we should desire payment of any mobilization advance available in accordance with the Conditions of Contract, to submit within fifteen (15) days following the issue of said Notice of Award a Mobilization Advance Bond in the form set out hereinafter as Clause 2.5, in an amount equal to the mobilization desired [but not exceeding ten percent (10%) of the Contract Price] executed by \_\_\_\_\_ Bank Limited \_\_\_\_\_ branch \_\_\_\_\_ being a Scheduled Bank/ \_\_\_\_\_ Limited.

2. This Tender shall remain valid for a period of 180(One Hundred eighty) days following \_\_\_\_\_ the date set for opening of tenders, and may be accepted by you at any time before the expiration of such period.

3. Unless and until a formal agreement is prepared and executed, this tender together with the other Tender Documents and your written Notice of Award accepting this Tender, shall constitute a binding contract between us.

4. We understand that you are not bound to accept the lowest or any tender you may receive, and that you will not defray any expenses incurred by us in preparing and submitting this Tender or otherwise in connection with this Tender.

5. As a guarantee for the performance of the undertakings and obligations of this Tender, we submit herewith Bid Security for an amount equal to 2% (Two Percent) of total Bid Price in the form of a Guarantee of \_\_\_\_\_ Bank Ltd., \_\_\_\_\_ Branch \_\_\_\_\_ being a Scheduled Bank/ or Insurance Company having at least AA rating from PACRA/JCR made in your favor and made payable to you, without any reference to us, and valid for 180 (One Hundred Eighty days) from the date established for the opening of tenders.

6. The Tender Documents referred to above constitute a part of this Tender and comprise the following:

- (a) The Said Tender with all Guarantees/Bonds
- (b) Conditions of Contract
- (c) Special Conditions of Contract
- (d) The Specifications
- (e) The Bills of Quantities
- (f) The Drawings
- (g) Addendum and Corrigendum, if any shall be provided to all bidders on equal opportunity basis.
- (h) Qualification Criteria
- (i) Bid Evaluation Criteria
- (j) Contract form
- (k) NAB check list

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

Witness:

1. \_\_\_\_\_

2. \_\_\_\_\_

Tenderer

By: \_\_\_\_\_

Title: \_\_\_\_\_

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

## 2.2 AGREEMENT FORM

THIS AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ 2016 between STATE LIFE INSURANCE CORPORATION OF PAKISTAN, STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI, hereinafter called "The Employer") of the one part and \_\_\_\_\_ of the other part (hereinafter called "the Contractor").

### WITNESSETH THAT

Whereas, Tenders have been received by the Employer for the construction, completion and maintenance of certain works is: at HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI the Tender of the Contractor for the said Works has been accepted by the Employer.

NOW THEREFORE, for and in consideration of the promises, covenants and agreements hereinafter contained and to be performed by the parties hereto, the said parties hereby covenant and agree as follows:

1. In consideration of the covenants and agreements to be kept and performed by the Contractor, and for the faithful performance of this Contract, and the completion of the Works embraced therein according to the Specifications and Conditions herein contained and referred to, the Employer shall pay, and the Contractor shall receive and accept as full compensation for everything furnished and done by the Contractor under this Agreement, the Contract Price of Pak. Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) stipulated in Contractor's tender, at the times and in the manner prescribed by the Conditions of Contract.

2. The Contractor shall commence the said Works within Fifteen (15) days of the Contractor's receipt from the Employer of a written Notice of Award and shall complete fully the Works on or before the date stated in the Tender except for maintenance which shall be completed Two (2) Years after issuance of the Certificate of Substantial Completion.

The maintenance of a rate of progress which will result in completion of the Works within the time specified in the Tender is an essential feature of this Contract. The Contractor agrees to proceed with all due diligence and care and at all times to take all precautions to ensure completion in accordance with the specified dates.

3. The following documents shall be deemed to form, and be read and construed as part of this Agreement.

- (a) The said Tender
- (b) General Conditions of Contract
- (c) Special Conditions of Contract
- (d) General Condition of Contract
- (e) Technical Specifications for Equipment / Material
- (f) Technical Specifications for Installation, Testing and Commissioning
- (g) The Bill of Quantities and its Annexure

- (h) The Drawings
- (i) The Performance Bond
- (j) The Mobilization Advance Bond
- (k) The Tender Guarantee Bond
- (l) The Supplementary Information
- (m) The Notice of Award of Contract & correspondence referred to therein.
- (n) The Addenda Numbers issued by the Employer

4. This Contract shall be executed in Four (4) counterparts, one copies to be filled in the office of the Employer one with the Consultant, one given to the Contractor and one given to the Contractor's Surety.

IN WITNESS WHEREOF the parties hereto have executed this Contract in four (4) counterparts as of the day and year hereinabove set forth.

Witnesses:

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

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

For and on behalf of DIVISIONAL  
HEAD (R.E.), STATE LIFE  
INSURANCE CORPORATION OF  
PAKISTAN, 5TH FLOOR, STATE  
LIFE BUILDING NO.9, DR.  
ZIAUDDIN AHMED ROAD,  
KARACHI-75530

2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

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

For and on behalf of CONTRACTOR



### 2.3 PERFORMANCE BOND FORM

KNOW ALL MEN BY THESE PRESENTS THAT we \_\_\_\_\_

(Hereinafter referred to as the "Contractor") and \_\_\_\_\_

(Hereinafter called the "Surety") are held and firmly bound unto at STATE LIFE INSURANCE CORPORATION OF PAKISTAN hereinafter referred to as the "Employer", in the sum of Rs. \_\_\_\_\_ (in words: \_\_\_\_\_ lawful money of \_\_\_\_\_ for the payment of which well and truly to be made, we bind ourselves our heirs executors administrators and successors jointly and severally firmly by these presents.

The condition of the above obligation is such that:

WHEREAS the above Contractor has as of the \_\_\_\_\_ day of \_\_\_\_\_ 2016, entered into a Contract for carrying out the HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI (hereinafter called the "PROJECT") of which this instrument is a part, with the Employer.

AND WHEREAS it is a condition of the above Contract that a Performance Bond in the amount mentioned above be furnished by the Contractor for the due performance of the Construction work under the above Contract.

NOW, THEREFORE, we the undersigned Surety waiving all objections and defense under the aforesaid Agreement, hereby irrevocably and unconditionally independently guarantee to pay to the Employer without delay, forthwith upon submission of first written demand without any reference to the Contractor, the amount claimed by \_\_\_\_\_ up to the extent of Rs. \_\_\_\_\_ (in words: \_\_\_\_\_) against Employer's written declaration that the Contractor has refused or failed to perform the work under the aforementioned Contract.

The said Surety, hereby stipulates and agrees that no change extension of time alteration or addition to the terms of the Contract or to the work to be performed there under or the specifications accompanying the same shall in any way affect its obligation on this Bond and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

This Bond shall be valid from \_\_\_\_\_ to \_\_\_\_\_ (Period shall include Maintenance Period as required in terms and conditions of Contract).

IN WITNESS WHEREOF the above named Contractor and Surety has signed these presents this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

Signed: \_\_\_\_\_  
(Contractor)

\_\_\_\_\_ (Surety)

Witness:

Witness:

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

## 2.4 MOBILIZATION ADVANCE BOND FORM

BY THIS BOND we \_\_\_\_\_  
 (hereinafter called the "Contractor") and \_\_\_\_\_  
 \_\_\_\_\_  
 (hereinafter called the "Surety") are held and firmly bound STATE LIFE INSURANCE CORPORATION OF PAKISTAN hereinafter referred to as the "Employer" in the sum of Rs. \_\_\_\_\_ (in words Rupees: \_\_\_\_\_)  
 for the payment of which sum the Contractor and the Surety bind themselves their successors and assignees jointly and severally by these presents.

Signed and dated this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

WHEREAS the Contractor by an agreement made between the Employer of the one part and the Contractor of the other part has entered into a contract (hereinafter called the Contract) for the construction, completion and maintenance of certain works, viz:

HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI

for the Contract Price of Pak. Rs. \_\_\_\_\_ (in words Rupees: \_\_\_\_\_  
 \_\_\_\_\_).

AND WHEREAS the Employer has agreed to pay to the Contractor a mobilization advance in the sum of Rupees \_\_\_\_\_  
 (Rs. \_\_\_\_\_) to enable the Contractor to mobilize for the construction of the said Works which advance is recoverable from the Contractor in accordance with the Contract.

NOW THE CONDITION of the above-written bond is such that

- a) If the Employer shall certify in writing that the entire mobilization advance has been recovered from the Contractor, or
- b) if upon the written certificate of the Employer stating that the mobilization advance or any part thereof is due to the Employer under the Contract and has not been paid the Surety shall pay to the Employer without reference to the Contractor such sum not exceeding the amount of the above-written bond as the Employer shall demand in writing, then and in either such event this obligation shall be null and void but otherwise shall be and remain in full force and effect but no alteration in the terms of the Contract or the conditions on which the Mobilization Advance is paid made by agreement between the Employer and the Contractor or in the extent or nature of the Works and no allowance of time by the Employer under the Contract nor any forbearance or forgiveness in or in respect of any matter or thing concerning the Contract or the mobilization advance on the part of the Employer shall in any way release the Surety from any liability under the above-written bond.

This Bond shall be valid from \_\_\_\_\_ to \_\_\_\_\_ (full contract period should be covered) and shall automatically stand reduced by the amounts recovered by the Employer from time to time from running payments.

---

Signed and delivered by the Contractor above-named in the presence of:

1. \_\_\_\_\_

2. \_\_\_\_\_

---

Signed and delivered by the Surety above-named in the presence of:

1. \_\_\_\_\_

2. \_\_\_\_\_

## 2.5 TENDER GUARANTEE BOND (BID SECURITY BOND)

BY THIS BOND We \_\_\_\_\_  
 (hereinafter called the "Tenderer") and \_\_\_\_\_ (hereinafter  
 called the "Surety") are held and firmly bound STATE LIFE INSURANCE  
 CORPORATION OF PAKISTAN hereinafter referred to as "Employer", in the sum of  
 Rs. \_\_\_\_\_ (in words \_\_\_\_\_)  
 for the payment of which sum the Tenderer and the Surety bind themselves their  
 successors and assignees jointly and severally by these presents.

Signed and dated this \_\_\_\_\_ day of \_\_\_\_\_ 2016.

WHEREAS the Employer has invited tenders to be submitted no later than \_\_\_\_\_  
 2013 for the construction completion and maintenance of certain Works, viz

### HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI

Conditioned upon each tenderer depositing with the Employer a sum equal to 2% (Two  
 Percent) of total bid price by way of bid security or a tender guarantee bond (Bank  
 Guarantee or Insurance Guarantee) in lieu thereof.

AND WHEREAS the Tenderer has completed his tender for the said Works for a  
 tender price of Rupees \_\_\_\_\_ (Rs. \_\_\_\_\_) for  
 all equipment's, materials and works and is desirous of submitting the same with a  
 tender guarantee bond in lieu of bid security.

NOW THE CONDITION of the above-written bond is such that

- (a) If the Employer shall certify in writing that the Tender submitted for the said  
 Works by the Tenderer has been rejected, or
- (b) if upon the written certificate of the Employer stating that notwithstanding the  
 acceptance by the Employer of the tender submitted by the Tenderer, with or  
 without modification agreed between the Tenderer and the Employer, the  
 Tenderer has failed to sign an agreement in the form appended to the Tender  
 or to submit a performance bond in the form appended to the Tender the  
 Surety shall pay to the Employer without reference to the Tenderer such sum  
 not exceeding the amount of the above written bond as the Employer shall  
 demand in writing within the time stated in the further condition below,

then and in either such event this obligation shall be null and void but otherwise  
 shall be and remain in full force and effect but no alteration in terms of the  
 tender documents mentioned in the tender or in the contract resulting on the  
 acceptance thereof with or without modification agreed between the Employer  
 and the Tenderer or in the extent or nature of the Works and allowance of time  
 by the Employer under the Tender Documents or such contract nor any  
 forbearance or forgiveness in or in respect of any matter or thing concerning  
 the tender documents or such contract on the part of the Employer shall in any  
 way release the Surety from any liability under the above-written bond.

IT IS A FURTHER CONDITION of the above-written bond that if the Employer shall not demand payments from the Surety under this bond within ninety (90) days from the date hereinabove recited for the submission of tenders then in such event this obligation shall be null and void.

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Signed and delivered by the Contractor  
above-named in the presence of:

1. \_\_\_\_\_

2. \_\_\_\_\_

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Signed and delivered by the Surety  
above-named in the presence of:

1. \_\_\_\_\_

2. \_\_\_\_\_

## 2.6 IRREVOCABLE BANK GUARANTEE

Dear Sir,

Whereas this guarantee is supplemented to the Contract for HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI(hereinafter called the "Contract") dated \_\_\_\_\_ made between yourselves as "The Employer" and \_\_\_\_\_ as "The Contractor" whereby the Contractor agreed and undertook to \_\_\_\_\_ on terms and conditions stated in the Contract, one such condition being the giving of Mobilization Advance in sum of Rs. \_\_\_\_\_ being ten percent (10%) of the total Tender Price, by you to the Contractor against an irrevocable guarantee from a scheduled bank:

And whereas the Contractor has approached and requested us to furnish such guarantee, on a proper and due study of the Contract Agreement Annexure thereto and being duly satisfied in this behalf, we have agreed to furnish guarantee to you.

Now, we \_\_\_\_\_ Bank Limited, \_\_\_\_\_, hereby agree with you as under:

1. If the Contractor, in the sole discretion of the Employer should fail to utilize the amount of mobilization advance for the specific purpose of \_\_\_\_\_ in accordance with the Contract, we shall pay you forthwith on first written demand the mobilization amount of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) or a part thereof payable on the date of demand provided the claim is lodged within the validity period of this guarantee.

2. We shall continue to be liable under this guarantee notwithstanding the liquidation of insolvency of the Contractor or indulgence shown to the Contractors or any alteration made in the terms and Conditions of the Contract with the Contractor provided the claim under this guarantee is made within the validity of the guarantee.

3. We hereby agree and undertake that HVAC WORK AT STATE LIFE BUILDING NO.1 I.I CHUNDRIGAR ROAD KARACHI, KARACHI may treat us as primarily liable for the aforesaid amount or any part thereof which may at any time be due and payable by the Contractor to you together with any interest, dues, charges, loss and expenses payable to STATE LIFE INSURANCE CORPORATION OF PAKISTAN by the Contractor.

4. This guarantee shall automatically stand reduced by the amounts recovered by the Employer from time to time from Running Bills of the Contractor.

This guarantee is valid up to \_\_\_\_\_ (full period of contract) extendable on request from time to time as deemed necessary.

Notice of all claims under this guarantee must be received by \_\_\_\_\_ Bank Limited, \_\_\_\_\_ in writing on or before \_\_\_\_\_ failing which all benefits under this guarantee shall be forfeited and we shall be released and discharged from all liability hereunder.

Yours faithfully,

for \_\_\_\_\_ Bank Ltd.  
(Authorized Signature)



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### 3.0 GENERAL CONDITIONS OF CONTRACT

#### 3.1 DEFINITIONS

In this contract the following words & expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

- (a) "EMPLOYER" or "OWNER" means STATE LIFE INSURANCE CORPORATION OF PAKISTAN located at DIVISIONAL HEAD (R.E.), STATE LIFE INSURANCE CORPORATION OF PAKISTAN, 5TH FLOOR, STATE LIFE BUILDING NO.9 and includes its successors and assignees and its authorized representative.
- (b) "CONSULTANT" means M/s. International Consultants, 5<sup>th</sup> Floor, Syeda Chambers, SB-4, Block-13C, Main University Road, Gulshan-e-Iqbal, and Karachi-75300, who are the Consultants on the Project.
- (c) "CONSULTANT'S REPRESENTATIVE" means the Engineer of M/s International Consultants or the person for the time being or from time to time duly appointed by the Employer or the Consultant to perform duties set forth in Clause 3.2 hereof through the Engineer's Representative.
- (d) "CONTRACTOR" means the tenderer whose tender has been accepted by the Owner, which expression shall include its successors, legal representatives and permitted assignees.
- (e) "CONTRACT" means the agreement contained in the Contract Agreement and the documents set out in the Contract Agreement, as forming part thereof.
- (f) "WORKS" means all supplies and performance which are to be executed by the Contractor in accordance with the Contract. In so far as the context may permit WORKS also means the entirety of all individual parts, sections which are to be constructed / installed / erected / tested & commissioned within the scope of the Contract. Provided that any portion of the work for which a separate time limit is given shall not be deemed as distinct independent or separate work.
- (g) "TEMPORARY WORKS" means all temporary works of every kind required in or about the execution, completion or maintenance of the Works.
- (h) "CONSTRUCTIONAL PLANT" means all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the Works or temporary works (as defined herein) but do not form or forming part of the permanent work.
- (i) "SITE" means the land and other places on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the Owner for the purposes of the Contract together with such other places as may be specifically designated in the Contract as forming part of the Site located at STATE LIFE BUILDING NO.1, KARACHI.

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- (j) "DAY" means a day of 24 hours mid-night to midnight irrespective of the number of hours worked or not worked in that day.
- (k) "MONTH" means a calendar month according to the Gregorian calendar.
- (l) "APPROVED" means approved in writing including subsequent written confirmation of previous verbal approval and 'Approval' means approval in writing including as aforesaid.
- (m) "AGENT" means the person(s) for the time being or from time to time appointed by the Contractor.
- (n) "CERTIFICATE OF SUBSTANTIAL COMPLETION" means the certificate to be issued by the consultant on substantial completion of the works.
- (o) "DEFECTS LIABILITY & MAINTENANCE PERIOD" has the meaning assigned in Clause 3.66 hereof.
- (p) "FINAL ACCEPTANCE CERTIFICATE" means the certificate to be issued by the consultant on final completion.
- (q) "RETENTION MONEY" means the sum retained.
- (r) "SUB-CONTRACTOR" means any person (other than the Contractor) named in the Contract for any part of the Works or any person to whom any part of the Contract has been sub-contract with the consent in writing of the Consultant and the legal personal representatives, successors and assignees of such person.
- (s) "SUBSTANTIAL COMPLETION" means the Works are substantially completed and have passed the Final Test as specified, to the satisfaction of the Consultant and the client. At this stage the Consultant will issue a Certificate of Substantial Completion or Taking-Over Certificate along with a Check List indicating defective/outstanding works which shall be completed by the Contractor within first 90 days of the Maintenance Period.
- (t) "FINAL COMPLETION" means completion of the Maintenance Period, to the satisfaction of the Consultant and the owner, as certified by a Final Acceptance Certificate.
- "Project Manager" means the project manager for the works appointed by the owner for overseeing the work on-site.
- (u) Singular, Plural & Marginal Headings or Notes
- (i) Singular & Plural:

Words importing the singular only also include the plural and vice versa where the context so requires.

(ii) Marginal Headings or Notes:

The marginal headings or notes in these general conditions of contract shall not be deemed to be part thereof or to be taken into consideration in the interpretation or construction thereof or of the Contract.

**3.2 DUTIES AND POWERS OF THE CONSULTANT:**

(i) Duties & Powers of Consultant:

The duties of the Consultant to watch and supervise the Works and to test and examine any materials to be used or workmanship employed in connection with the Works. He shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract nor to make any variation of or in the Works nor except as expressly provided in the Contract order any work involving delay or any extra payment by the Owner.

Subject as aforesaid the Consultant shall have any of the powers and authorities vested in the Owner which the Owner may for the time-being, have delegated in writing to the Consultant. The Owner shall furnish to the Contractor a copy of all such written delegations of powers and authorities and also of any revocation thereof. Any written instruction or written approval given by the Consultant to the Contractor within the terms of such delegation (but no otherwise) shall bind the Contractor and the Owner as though it had been given by the Owner, provided always as follows:

- (a) Failure of the Consultant to disapprove any work or material shall not prejudice the power of the Consultant thereafter to disapprove such work or materials and to order the pulling down removal or breaking up thereof.

(ii) Emergency Powers of Consultant:

Notwithstanding the provisions of sub-clause (a) hereof, if in the opinion of the Consultant an emergency occurs affecting the safety of life or of the Works or of adjoining property he may direct the Contractor to carry out all such things as may be necessary in the opinion of the Consultant to abate or reduce the risk. The Contractor shall forthwith comply without appeal with any such direction of the Consultant. The Consultant, with prior approval of the owner, shall determine the amount (if any) of extra payment to which the Contractor may be entitled in accordance with the Contract in respect of work done pursuant to the provisions of this section sub-clause.

(iii) Duties of the Consultant:

The Consultant shall discharge his responsibilities and powers as delegated by the Owner from time to time and he will be the final authority in all technical matters and decisions such as final approval and disapproval of works and materials, certification of Interim bills and final bill, including certification of quality of work, measurements and quantities of work executed, making variations in the quantity or quality of the work if necessary under such delegation of powers from the Owner.

The duties that shall generally be performed by the Consultant shall be but not limited to, the following:

- (a) To participate in Tender Opening, Scrutinize and evaluate Tenders, obtain clarifications from the Tenderers if necessary and submit their recommendations for award of the Contract to the Employer.
- (b) Check and/or furnish equipment and material specifications, engineering design, drawings and necessary engineering approval of the equipment and material supplied by the Contractor.
- (c) To witness special tests on plant and equipment at the site or the works of the Manufacturer, when so desired by the Owner.
- (d) To monitor co-ordination of the work of the Contractor with other Contractors working on the site for the project.
- (e) Approve and send a copy to client of detailed shop and working drawings and provide other necessary information to the Contractor so that all the installations are done in accordance with the Contract. All completed submittals to be approved within 2 weeks of submission to the consultants.
- (f) Provide necessary scrutiny and verification of bills of submitted by the Contractor, for payment by the Employer or his authorized representative.
- (g) Inspect and supervise all installations and determine compliance with the specification, drawings and schedules. The Consultant shall also be responsible for supervision of all on site tests including Performance and Efficiency Tests and furnish evaluation reports.
- (h) To recommend list of spares.

### 3.3 SCOPE OF THE CONTRACT:

The Contractor shall carry out and complete the works in accordance with the Contract in every respect and in accordance with the instructions of and to the satisfaction of the Consultant. If the Contractor shall find any discrepancy in or divergence between Contract, drawings and schedule of quantities, he shall immediately refer the same in writing to the Consultant and shall specifically apply in writing for any instructions from the Consultant in relation thereto. The Consultant may from time to time issue further drawings, details and written instructions for dispelling, removing discrepancies so accruing in the Contract, drawings and schedule of quantities and making the same more elaborate and workable as deemed necessary for completion of the works.

The instructions further drawings and details so issued by the Consultant will be binding on the Contractor.

If compliance with such instructions involves any variations/deviations, the same will be dealt with amicably to the satisfaction of both the parties and the value there of shall be added to or deducted from the Contract sum.

The Contract shall include all labor, materials, tools, plants, equipment's and transport etc., which may be required in preparation for and in the full and entire execution and completion of the works. Schedule of quantity (the list of work to be executed) shall be deemed to have been prepared in accordance with good practice and recognized principles and the descriptions given therein shall be held to include waste on materials, carriage and cartage, carrying in return of empties, hoisting, setting, fitting and fixing in position and all other labor and labors, necessary in and for the full entire execution and completion aforesaid. Any error in description or in quantity in schedule of quantities or any omission there-from shall not vitiate the Contract or release the Contractor from execution or whole or any part of the works comprised therein according to the drawings and specifications, or from any of his Contract sum by more than five percent, then the error shall be rectified and the Contract sum shall be increased or diminished according as the case may require, the Contract sum as so altered shall for all purposes of this Contract be substituted for the sum originally accepted as if the Contract, had been accepted at the altered price instead of the original price and such alteration shall not be considered as a deviation.

In case of discrepancy between schedule of Quantities the specifications and/or the drawings, the Consultant shall be the sole deciding authority as to which shall prevail and decision of the Corporation's Consultant shall be the final and conclusive. The Contractor will be deemed to have satisfied himself as to the nature of the site and local facilities of access and the matters affecting the execution and completion of the works. No extra charges consequent on misunderstanding of otherwise will be allowed.

**3.4****GOVERNING STANDARDS:**

- i) The installation and carrying out of the works by the contractor shall comply with all relevant statutory instruments and regulations and in particular with the following:
  - a) The IEEE regulations for electrical equipment in buildings.
  - b) Any Regulations under Electricity.
  - c) Local Health and safety at work regulations.
  - d) Local Control of Pollution Regulations.
  - e) ASHRAE standards.
  - f) SMACNA standards for duct work installation.
  - g) Euro / British Standards.
  - h) Standards mentioned elsewhere in these documents.
  - i) ASME (American Society of Mechanical Engineers)
  - j) ASTM (American Society of Testing Materials).
  - k) ANSI (American National Standards Institute)
  - l) ARI (American Refrigeration Institute)
  - m) AHRI (American Heating Refrigeration Institute)
- ii) The Tender shall be based on regulations and standards current on the date of return of tenders. If these regulations are amended or new regulations are enacted after that date, the Engineer shall be notified immediately.
- iii) The materials, equipment and installations detailed in these specifications are based on the standards and codes of practice indicated in the Contract Documents. In the event of contradiction between these specifications and any applicable standard or Code of Practice, this specification shall govern and the Engineer shall be notified immediately.
- iv) Where material and equipment are specified under a particular standard and supplied under an equivalent standard, a certificate of compliance shall be provided to the Engineer at his request.

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**3.5**      **DEFECTS AFTER COMPLETION:**

Any defects, shrinkage or other faults which shall appear within the Defects Liability Period and shall be due to material or workmanship not in accordance with this Contract or to frost, rain or storm occurring before completion of the works, shall within a reasonable time after receipt of notice from the Corporation in this behalf, be made good by the Contractor at his own cost.

**3.6**      **CANCELLATION OF THE CONTRACT FOR DEFAULT:**

The Employer shall without prejudice to any other right or remedy have the right to terminate the contract with immediate effect in any of the following cases:

- (a) If the contractor fails to comply with any of terms and conditions of the Contract or after reasonable notice in writing with orders properly issued there under, OR
- (b) Fails to complete the works and clear site on or before the date for completion, OR
- (c) Assigns, transfers sub-lets or attempts to assign, transfer or sub-let any portion of the works without prior written approval of the Employer and Consultant.

Whenever the Employer exercises his authority to cancel the Contract under this condition he may complete the works by any means at the Contractor's risk and expense. The Contractor shall be entitled to receive payment or work performed, in the Contract value thereof less the cost of completing the works in his default as certified by the Consultant and if the cost so certified exceeds the sum of money held by the Employer as otherwise due to the Contractor, the Employer may recover the deficit from the Contractor in due course of law.

- (d) The extent of quantities or items described as "PROVISIONAL" shall not be held to gauge or limit the amount and description of the work to be executed by the Contractor either in respect of the items concerned or the work as a whole.

**3.7**      **ASSIGNMENT:**

The Contractor shall not assign the Contract for or any part thereof or any benefit or interest therein or there under (otherwise than by a charge in favor of the Contractor's Bankers of any moneys due or to become due under this Contract) without the prior written consent of the Owner.

**3.8**      **SUB-CONTRACTING**

The Contractor shall not sub the whole of the works. Except where otherwise provided for in the Contract the Contractor shall not sub-contract any part of the Works without the prior written consent of the Consultants and such consent if given shall not relieve the Contractor from any liability or obligation under the Contract and he shall be

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responsible for the acts, defaults and neglects of any sub-contractor, his agents, servants or workmen. Provided always that the provision of labor on a piece of work basis shall not be deemed to be sub-contract under this clause.

**3.9 CONTRACT DRAWINGS:**

- The location of various items indicated on the drawings are presumed to be approximately correct, but is to be understood, however, that the small scale drawings are necessarily diagrammatic and that such locations, as shown, are subject to slight revision, as the work is installed, which may be necessary to accommodate local construction conditions. No major change shall be made, however, without the approval in writing of the Consultant. The Contractor shall examine and study the architectural scale drawings, large scale and full size details, the approved shop drawings of other trades and he shall frequently consult with the Engineer to ascertain any changes that may have been made, and he shall be guided accordingly before establishing the precise location of pipes, ducts runs, panels, and outlets for subject system.
- Protection – Contractor shall effectually protect his own work from damage during and, as may be necessary, after installation, and he shall likewise protect adjoining work of other trades from damage resulting from installation of subject Works.

**3.10 RECORD DRAWINGS:**

The Contractor shall, during the progress of the work, keep a careful record of all changes where the actual installation differs from that shown on the Contract Drawings, Upon completion, the Contractor will furnish, a complete set of litho – prints on cloth, on which he shall, in neat and accurate manner, make a complete record of all changes and revisions to the original design, as installed in the completed work and also on CD. These drawings shall be submitted to the Consultant for approval. After approval they shall be the property of the Consultant / Owner. Final payment will be withheld until receipt of the approved record drawings.

**3.11 SHOP DRAWINGS AND SAMPLES:**

- The contractor shall prepare and submit for approval shop drawings within 4 weeks of award of contract and cuts of all equipment, appliances and fixtures furnished. After final approval by the Consultant, a sufficient number of copies as directed shall be furnished for distribution. Fixture and device cuts and / or catalogues shall be clearly marked to indicate the items furnished.
- The contractor shall submit to the Consultant for approval, samples of pipes, sheets, air devices, installation plates and of any other items as may be ordered by the Consultant. All completed submittals to be approved within 2 weeks of submission to the consultants.



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**3.12 CO-ORDINATION OF WORK DONE BY OTHERS:**

Due to the type of the installation, a fixed sequence of operations is required to properly install the complete system. It shall be the responsibility of the Contractor to closely schedule his work so that his work will be installed at the proper time and without delaying the completion of the entire project, and the work of other Contractors. He shall participate in the preparation of a master schedule which shall be approved by the Engineer.

**3.13 EXTENT OF CONTRACT**

The Contract comprises the construction, completion and maintenance of the works and except in so far as the Contract otherwise provides the provision of all labor, materials, constructional plant, temporary works and everything whether of a temporary or permanent nature required in and for such construction, completion and maintenance so far as the necessity for providing the same is specified in or reasonably be inferred from the Contract.

**3.14 DOCUMENTS MUTUALLY EXPLANATORY**

The several documents forming the Contract are to be taken as mutually explanatory of one another but in case of ambiguities or discrepancies the same shall be explained and adjusted by the Consultant who shall there upon issue the Contractor instructions directing in what manner the work is to be carried out. The decision of the Consultant shall be considered final and binding on Contractor.

**3.15 DRAWINGS**

(i) One set of the tender drawings shall be furnished to the Contractor with the tender. The Contractor shall be supplied with additional copies of drawings at cost on demand. At completion of the Contract the Contractor shall return to the Owner all drawings provided under the contract.

(ii) One Copy of Drawings to be kept on Site

One copy of the Drawings furnished to the Contractor shall be kept by the Contractor on the site and the same shall at all times be available for inspection and the use by the Consultant and the Consultant/ Engineer and by any other person authorized by the Owner in writing.

**3.16 FURTHER DRAWINGS & INSTRUCTIONS**

(i) The Consultant shall have full power and authority to supply to the Contractor from time to time during the progress of the Works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.

(ii) Contractor to provide everything necessary

The Contractor shall provide everything necessary for the proper execution of the works according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from and if the Contractor finds any discrepancy in the drawings, schedule of quantities and specifications he shall immediately in writing refer the same to the Consultant who shall decide which is to be followed.

**3.17**      **INTERPRETATION**

- (a) Decision by the Consultant shall be conclusive as to the true intent and meaning of Consultant's specifications. Any discrepancy which may exist shall be referred to the Consultant whose decision as to the true meaning shall be final.
- (b) The Contractor shall study and compare the specifications and other information given to him by the Engineer. He shall also examine the figures and dimensions and shall report in writing to the Engineer any discrepancies, inconsistencies or omission of statement regarding material and methods of construction, which he notes.
- (c) The specifications being instruments of service, are the property of the Engineer and shall be returned to him when the work is completed.
- (d) Verbal instructions or information purported to have come from the Consultant office will not be recognized by the Contractor unless confirmed in writing.
- (e) The Drawing and Technical Specifications are intended to cooperate, so that any items set forth in either shall be recognized the same as if duly set forth in both.

**3.18**      **DESCRIPTION OF WORK ITEMS**

The description of items in the Bill of Quantities shall be deemed to be short description and for convenience only any shall be read with the detailed description in the relevant parts of the Specifications (Chapter 5 & 6). If there is no definite provision in the Specifications then the relevant provision in the more stringent specifications of the Societies or Standard Institutions detailed in Clause 4.6 shall be applicable.

**3.19**      **CONTRACT AGREEMENT**

The Contractor shall, after the award of work, enter into and execute a formal Agreement (to be prepared at the costs of the Contractor) in the form annexed with such modification as may be necessary.

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**3.20**      **PERFORMANCE BOND**

The successful Contractor shall provide the Owner with a Performance Bond in an amount equivalent to 10% (Ten percent) of the Contract Price. The Performance Bond will be a Bank Guarantee PACRA/JCR or an insurance guarantee from any AA approved insurance company to be jointly and severally bound with the Contractor to the Owner and shall be valid till end of the defects liability period. The performance bond shall be in the form in substance of the specimen form of the Performance Bond attached herewith. The cost of the Bond to be entered into shall be at the expenses in all respects of the Contractor.

**3.21**      **INSPECTION OF SITE**

(a) The Contractor shall inspect and examine the Site and its surroundings and shall satisfy himself before submitting his Tender as to the nature of the ground, the hydrological and climatic conditions, the form and nature of the Site, the quantities and nature of the work and material necessary for the completion of the Works and the means of access to the Site, the full extent and nature of the operation, the conditions affecting the supply of labor, carriage, carting, unloading, storage and safe custody of materials the scaffolding, tackle and tools necessary the supply of light, power and water, accommodation he may require and in general shall himself obtain all necessary information as to risks, contingencies, and other circumstances which may influence or affect his Tender.

(b)      **CONTRACTOR TO INFORM HIMSELF FULLY**

The Contractor by tendering shall be deemed to have satisfied himself as to all the conditions and circumstances affecting the Contract Price, as to the possibility of execution the Works as shown and described, as to the general circumstances at the site of the Works and as to the general labor position at the site, and to have fixed his prices according to his own view for these as no additional allowances, as otherwise expressly provided, will afterwards be made beyond the Contract Price. The Contractor shall be responsible for any misunderstanding or incorrect information however obtained except information given in writing by the Consultant, provided also that any information obtained from or given by the Consultant in regard to the foregoing shall neither bind the Employer nor absolve the tenderer of his liability/obligation or requirement to make his own enquiries and investigations.

**3.22**      **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 stated in the priced Bill of Quantities which rates and prices shall except in so far as it is otherwise expressly provided in the Contract cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Works.

**3.23****WORKS TO BE TO THE SATISFACTION OF THE CONSULTANT/  
ENGINEER:**

- (a) The Contractor shall execute, complete & maintain the Works in strict accordance with the Contract to the satisfaction of the Engineer and the whole of the materials, plant, labor & other things to be provided by the Contractor pursuant to the Contract and shall comply with and adhere strictly to the instructions and directions on any matter given by the Engineer or the Consultant from time to time provided that if anywhere or any time the instructions & directions, given by the Engineer are contradictory to those given by the Consultant the instructions of the Engineer shall hold precedence.
- (b) The materials may be tested and the cost of such testing shall be borne by the Contractor. No payment shall be made to the Contractor on this account.

**3.24****MEETINGS:**

- (a) Within 3 (three) days from the Notice of Award (or such other date as directed by the Project Manager) the Contractor shall have a meeting with the Consultant and Employer to discuss and resolve certain administrative procedures and responsibilities, including the following matters:
  - (i) appointment of official representatives of the parties;
  - (ii) schedule of work and progress scheduling;
  - (iii) schedule of submission of shop drawings, samples etc.;
  - (iv) requirements for temporary facilities, offices, storage areas, utilities and their on Site locations;
  - (v) delivery schedule for specified equipment;
  - (vi) site security, boarding and signboard;
  - (vii) monthly progress payment claims and administrative procedures;
  - (viii) periodic site meetings; and
- (b) All future site meetings for the purpose of programming and coordinating the Works will be held in accordance with the Owners procedures manual and the Contractor agrees to abide by the same. The Contractor further agrees to attend all site meetings and / or ensure attendance by its sub-contractors as directed by the Project Manager.

**3.25****PROGRAMME IN OTHER DOCUMENTS TO BE FURNISHED**

- (a) Within a week, after the acceptance of his tender, the Contractor shall have a meeting with the Consultant and ascertain the available data to enable himself to prepare a program of work. The Contractor shall submit the said program in writing to the Engineer and the Program Manager within 14 days of the Notice of Award, showing the order of procedure, the method and arrangements for carrying out the works and of the constructional plant and temporary works which the Contractor intends to supply, use or construct as the case may be, in addition to shop

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drawings and full particulars of the organization and the staff by which he proposes to direct and administer his performance of the contract. The Contractor shall not delay the submission of the program.

- (b) The construction program can be changed or modified from time to time with the mutual consent of the Consultant and the Contractor and subject to the approval of the Owner. The submission to or approval by the Consultant of such program or the furnishing of such particulars or information shall not relieve the Contractor of any of his duties or responsibilities under the Contract.
- (c) The program shall be comprehensive and shall show a break-down of principal elements and types of construction in the Works, the date upon which each type of construction or operation is scheduled to begin and when it should be complete. The program shall also indicate the period when double shift or night work is likely to be requested.
- (d) The Contractor within twenty-one days of the issuance of the Notice of Award shall submit in writing for the approval of the Consultant a program of the design, manufacture and delivery of the Plant and Equipment.
- (e) Additionally, the Contractor shall submit the following documents to the Project Manager within 14 (fourteen) days from award of the Notice of Award:
  - (i) Submittals and method statements together with diagrams, charts or other illustrations in respect of any complicated works;
  - (ii) Forecast of the number of workers (both skilled and unskilled) for various trades to be employed during the Works, along with a site organization chart of the Contractor's site management personnel together with their respective resume of qualification and experience;
  - (iii) Schedule of Construction Plant and Equipment such as piling rigs, excavators, dirt trucks, etc. together with a deployment plan thereof;
  - (iv) Schematic of shop drawings before any activity undertaken;
  - (v) Layout plan of any temporary building or structures to be erected on the Site;
  - (vi) Procurement schedule for long lead items specifying the item and quality, date required on site, date to be ordered, shop drawings time (including approvals), production time and delivery time; and
  - (vii) Safety program as approved by the Project Manager

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**3.26            LANGUAGE**

The language or languages in which the Contract documents shall be drawn up shall be English and if the said documents or any other documents, drawings or correspondence affecting the Contract, are written in more than one language the language according to which the Contract is to be construed & interpreted shall also be English being therein designated the 'Ruling Language'. All correspondence, drawings and Operating & Maintenance Instructions shall conform to the 'Ruling Language'.

**3.27            CONTRACTOR'S SUPERINTENDENCE**

- (a) The Contractor shall give or provide all necessary superintendence during the execution of the Works and as long thereafter as the Consultant may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor or a competent and authorized Agent or representative of the Contractor approved by the Consultant (which approval may at any time be withdrawn) and who shall have full authority to act for and bind the Contractor shall be constantly at the Site and shall give his whole time to the superintendence of the Works. Such authorized agent or representative of the Contractor shall receive on behalf of the Contractor and comply with the directions of Consultant or subject to the limitations of Clause 3.15(a) hereof the Consultant and with the drawings and Specifications, and shall supervise the work of the workmen or others responsible to the Contractor. He shall also work in harmony with the personnel of the Employer, the Engineer and other Contractors at the site.
- (b) The representative shall not be transferred from his operation without consent of the Employer and the Engineer.
- (c) The Contractor shall appoint the Agent of the Works within one month of the Acceptance of the Tender and notify the Engineer of the same.
- (d) The site Agent shall be an Engineer with an experience of at least 7 (Seven) years in the respective trade.
- (e) The Agent shall carefully examine the drawings and the specifications and acquaint the Engineer with any inconsistency or discrepancy which may appear.

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**3.28**      **CONTRACTOR'S EMPLOYEES**

- (a) The Contractor shall provide and employ on the Site for the purpose of or in connection with execution and maintenance of the Works.
  - (i) Only such technical assistants as are skilled and experienced in their respective callings and such sub-agents, foremen and leading hands as are competent to give proper supervision to the work, they are required to supervise; and
  - (ii) Such skilled and semi-skilled labor as is necessary for the proper and timely execution and maintenance of the works.
- (b) **Removal of Contractor's Employees**

The Consultant shall be at liberty to object and to require the Contractor to remove forthwith from the Site the Agent or any other person employed by the Contractor or any sub-Contractor who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Consultant to be undesirable and such person shall not be again employed for the purposes of or in connection with the Contract without the written permission of the Consultant. Any person so removed shall be replaced as soon as possible by a competent substitute approved by the Consultant.

**3.29**      **CONTRACTOR'S EQUIPMENT**

Unless specific arrangements are made to the contrary, the Contractor shall at his own expense, provide all Contractors' equipment, labor, haulage and power, if necessary to complete the works.

The contractor shall also provide a list of tools and equipment currently owned by them as well as a list of tools and equipment required to complete the job.

**3.30**      **SETTING OUT**

The Contractor shall be responsible for the true and proper setting out of the Works in relation to the original points, lines and levels of reference given by the Engineer/Consultant in writing and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labor in connection therewith. If at any time during the progress of the Works any error shall appear or arise in the position, levels, dimensions or alignment of any part of the works the Contractor on being required to do so by the Consultant shall at his own expense rectify such error. In case incorrect data is supplied in writing by the Consultant, the expense of rectifying the same shall be borne by the Owner. The checking of any setting out or of any line or level by the Consultant shall not in any way relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall protect and preserve all benchmarks, sight rails, pegs, slope-stakes and other things used in setting out the works.

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**3.31 WATCHING, LIGHTING AND SECURITY**

The Contractor shall make all arrangements for the security and protection of persons and property and shall, where for the protection of the property or for the safety or convenience of persons it is necessary or required by the Engineer or the Consultant or by any duly constituted authority, provide and maintain at his own cost all lights, guards, fencing and watching.

**3.32 CARE OF WORKS**

(i) From the commencement to the completion of the Works the Contractor shall take full responsibility of all temporary works, materials, constructional plant and other things brought on the site by the Contractor for the purpose of the Contract and in case any damage, loss or injury shall happen to the Works or to any part thereof or to any temporary works or any such materials or constructional plant or other things from any cause whatsoever (save and except the Excepted Risks as defined in sub-clause (ii) of this clause) shall at his own cost repair and make good the same so that at completion the Works shall be in good order and condition and in conformity in every respect with the requirements of the Contract and the Consultant's instructions. In the event of any such damage, loss or injury happening from any of the Excepted Risks the Contractor shall if and to the extent required by the Consultant make good the same as aforesaid at the cost of the Owner. The Contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 54 and 55 hereof.

(ii) Expected Risks:

The "Expected Risks" are war, hostilities (whether war be declared or not), invasion, act of foreign enemies, rebellion, revolution, insurrection, civil war or riots (other than among the Contractor's own employees) or commotion or disorder or use or occupation by the Owner of any portion of the Works in respect of which a Certificate of Completion has been issued or a cause solely due to the Consultant's design of the Works or any such operation of the forces of nature beyond the control of the Contractor (all of which are herein collectively referred to "The Expected Risks").



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**3.33 GIVING OF NOTICES AND PAYMENT OF FEES:**

- (a) The Contractor shall give all notices and pay all fees required to be given or paid by any National or State Statute Ordinance or other Law or any Regulations or Bye-laws of any local or other duly constituted authority in relation to the execution of the Works or of any Temporary Works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works or any Temporary Works.
- (b) The Contractor shall conform in all respects with the provisions of any such Statute Ordinance or Law as aforesaid and the Regulations or Bye-Laws of any Local or other duly constituted authority which may be applicable to the Works or to any Temporary Works and with such rules and regulations of Public Bodies and Companies as aforesaid and shall keep the Owner indemnified against all penalties and liability of every kind for breach of any such Statute Ordinance or Law, Regulation or Bye-laws.

**3.34 PATENTS, RIGHTS AND ROYALTIES**

- (a) The Contractor shall save harmless and indemnify the Owner from and against all claims and proceedings for or on account of infringement of any patents, rights, design, trademark or name or other protected rights in respect of any Constructional Plant, machine, work or material used for or in connection with the Works or Temporary Works or any of them and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Except where otherwise specified the Contractor shall pay all royalties, rent and other payments or compensations (if any) for getting stone, sand, gravel, clay or other materials required for the Works or Temporary Works or any of them.
- (b) The Employer on his part warrants that any design or instructions furnished or given by him shall not be such as will cause the Contractor to infringe any letters, patents, registered designs, trade mark or copyright in the performance of the Contract.
- (c) The Contractor shall provide for and pay all royalties and license fees, and shall save the Employer harmless from loss or annoyance on accounts of suits or claims of any kind for violation or infringement of any letters, patents or rights, by the Contractor or anyone directly or indirectly employed by him, or by reason of the use by him or them of any art, machine, manufacture or composition of matter in connection with the work furnished, in violation or infringement of such letters or rights.

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**3.35 INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES**

All operations necessary for the execution of the Works and for the construction of any Temporary Work shall be carried on so as not to interfere unnecessarily or improperly with the public convenience or the access to use and occupation of public or private roads and footpaths or to or of properties whether in possession of the Owner or of any other person and the Contractor shall save harmless and indemnify the Owner in respect of all claims, demands proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters in so far as the Contractor is responsible thereof any permission, NOC from relevant authority in regards of work, execution at any heights / level will be responsibility of contractor.

**3.36 OPPORTUNITIES FOR OTHER CONTRACTORS**

The Contractor shall in accordance with the requirements of the Engineer/Consultant, afford all opportunities for carrying out their work to any other Contractors employed by the Owner and their Workmen and to the workmen of the Owner and of any other duly constituted authority who may be employed in the execution on or near the Site of any work not included in the Contract or of any Contract which the Owner may enter into in connection with or ancillary to the Works. When the work of two or more Contracts is being executed at one time in such a manner that work on one Contract interferes with that of another, the Engineer/ Consultant shall decide which Contractor shall cease work and which shall continue or whether the work on both Contracts shall progress at the same time and in whatever manner. In all matters relating to cooperation with other Contractors, the decision of the Engineer/Consultant shall be final.

**3.37 SUPPLY OF PLANT, MATERIALS AND LABOUR**

Except where otherwise specified the Contractor shall at his own expense and risk supply and provide all the Constructional Plant, Temporary Works, materials, both for temporary and for permanent works, labour (including the supervision thereof) transport to or from the Site and in and about the works and other things of every kind required for the construction, completion and maintenance of the Works.

**3.38 CLEARANCE OF SITE ON COMPLETION**

On the completion of the Works the Contractor shall clear away and remove from the Site all constructional Plant, surplus materials, wreckage, rubbish and temporary works of every kind and leave the whole of the site and the Works clean and in a workmanlike condition to the satisfaction of the Consultant.

**3.39 REGISTER OF PROGRESS AND INSTRUCTIONS**

- (a) The Consultant shall maintain at the Site of works a register of progress and instructions by the Employer or on his behalf from his authorized Representative, and the Consultant.
- (b) The Contractor shall see all such orders and instructions and sign such entries as an acknowledgment of having received the orders.

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**3.40**      **EMPLOYMENT OF LABOUR**

(a) The Contractor shall make all arrangements in connection with the requirement, supervision, transport and all other matters whatsoever in connection with the employment of labour and supervisory staff.

(b) Liability of Contractor

The Contractor or his Sub-Contractor or assignees shall follow strictly all relevant labour laws including the Workman's Compensation Act and the Owner shall be fully indemnified for all claims, damages, etc. arising out of any dispute in between Contractor(s), his Sub-Contractor or assignees and the labour employed by them.

(c) Return of Labour Employed

The Contractor shall if required by the Consultant deliver to the Engineer returns in such form and at such intervals as the Engineer may prescribe showing in detail the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site.

(d) Hours of Employment and Payment of Wages

The hours of employment, regulations and payment of wages, so far as these are applicable to the Contractor's labour shall be in accordance with the Labour Act and shall be adhered to by the Contractor.

(e) Age of Labour

No laborer below the age of 18 years shall be employed on the work. All relevant labour laws in force shall be observed by the Contractor.

(f) Festival and Religious Customs

The Contractor shall in all dealings with persons in his employment have due regard to all recognised festivals, days of rest and religious or other customs and shall make special arrangements whenever the exigencies of the construction programme demand that work shall proceed during such festivals and days of rest.

(g) Contractor to Preserve Peace

The Contractor shall at all times take all requisite precautions and use his best endeavor to prevent any riotous or unlawful behavior by or amongst the laborers and other persons employed by him or his sub-contractors for the preservation of peace and protection of the inhabitants and security of property on or in the neighborhood of the Site.

(h) Contractor's Responsibility

The Contractor shall be responsible for the observance by his Sub-Contractors of the foregoing provisions of this Clause which shall apply to all persons employed by the Contractor and his sub-Contractors for the purpose of or in connection with the Contract.

(i) Epidemics

In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the Local Medical or Sanitary Authorities for the purpose of dealing with and overcoming the same.

(j) First Aid

The Contractor shall provide and maintain in an easily accessible position on the Site an adequate first aid outfit.

(k) Only such technical assistance as are skilled and experienced in their respective callings and such sub agents, foremen and leading hands as are competent to give proper supervision to the work they are required to supervise. All such technical assistants (supervisors, wiremen etc.) shall have valid licenses from the concerned authorities/ agencies of the government to perform their respective job assigned to them. The Contractor should submit the copy of their valid licenses for the approval of the Engineer.

(l) Such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution and maintenance of the Works.

(m) Income Tax:

The Contractor is responsible for ensuring that all of the employees pay income tax or any other levies under the laws of the Government. He will also be liable for payment of his own corporate, company or the profit taxes and other levies as required under the local law.

(n) Removal of Contractor's Employees:

The Engineer shall be at liberty to object to and the Contractor to remove forthwith from the Work any person employed by the Contractor in or about the execution or maintenance of the Works who, in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the Works without the written permission of the Engineer. Any person so removed from the Works shall be replaced as soon as possible by a competent substitute approved by the Engineer. Any employee having minimal record and having any disease will be removed from Site.

- (o) The labour employed by the contractor should not have any criminal record. If any such person found will be removed immediately from site.

**3.41****QUALITY OF MATERIALS, WORKMANSHIP AND TESTS**

- (a) All materials and workmanship shall be of the respective kinds described in the Contract and according to the Consultant's instructions and shall be subjected from time to time to such tests at such places & at such times as the Consultant may direct. The Contractor shall provide such assistance, instruments, machines, labour and material as are required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporating in the Works for testing as may be selected and required by the Consultant. Any laboratory tests required by the Consultant shall be got done by the Contractor at his own cost.

Local items manufacturing to be checked at the premises of local manufacturer by client's representative or consultant

- (b) Samples

When requested or automatically when required by the Specifications, the Contractor shall furnish to the Consultant for approval adequate samples of all devices, hardware, materials, finishes etc., to be used in the work. Such samples shall be submitted before the work is commenced and in ample time to permit tests and examination thereof. All items and materials installed and finishes applied shall be identical to the approved samples of devices, hardware and material. All samples shall be supplied by the Contractor at his own cost and shall become the property of the Owner.

- (c) Cost of Tests

The cost of making any test shall be borne by the Contractor.

- (d) Where in any certificate (of which the Contractor has received payment) the Consultant has included the value of any unfixed materials intended for and/or placed on or adjacent to the works such materials shall become the property of the Owner and they shall not be removed except for use upon the works without the written authority of the Consultant. The Contractor shall be liable for any loss or damage to such materials.

**3.42****ACCESS TO SITE**

The Owner, the Consultant or any person authorized by any of them shall at all times and for all purposes have access to the Works and Temporary Works and to the Site and to all Workshops and places where work is being prepared or whence materials, manufactured articles, or machinery are being obtained for the works and the Contractor shall afford every facility for such access.

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**3.43            EXAMINATION OF WORKS BEFORE COVER UP**

- (a) No work shall be covered up or put out of view without the approval of the Consultant and the Contractor shall afford full opportunity for the Consultant to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to Engineer whenever any such work or foundations is or are ready or about to be ready for examination.
- (b) The Contractor shall uncover any part or parts of the Works or make openings in or through the Works or search for the cause of any defect, imperfection or fault in the Works, as the Consultant/ Engineer may from time to time direct, and shall reinstate and make good after such uncovering, opening or searching to the satisfaction of the Consultant.

**3.44            REMOVAL OF IMPROPER WORK AND MATERIAL**

- (a) The Consultant shall during the progress of the Works have power to order in writing from time to time for:
  - (i) The removal from the Site, within such time or times as may be specified in the order of any materials which in the opinion of the Engineer are not in accordance with the Contract.
  - (ii) The substitution of proper and suitable materials; and
  - (iii) The removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Consultant is in accordance with the Contract.
  - (iv) If any such defect shall occur the Consultant shall inform the Contractor thereof stating in writing the nature of the defect. If the Contractor replaces or renews any portion of the Works the provisions of this clause shall apply to the portion of the Works so replaced or renewed as if that portion had been taken over on the date of replacement or renewal.
  - (v) These General Conditions shall apply to all inspections, adjustments, replacements and renewals and to all tests occasioned thereby carried out by the Contractor pursuant to this clause.

(b) Default of Contractor in Compliance

In case of default on the part of the Contractor in carrying out such orders the Owner shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Owner or may be deducted by the Owner from any moneys due or which may become due to the Contractor.

**3.45 STORES AND MATERIALS SUPPLIED BY THE OWNER**

If the specifications of the Works provide for the use of any special description of materials to be supplied from the Owner's store, or it is required that the Contractor shall use certain stores to be provided by the Owner, the Contractor shall be supplied with such materials and stores as may be required from time to time to be used by him for the purposes of the Contract only, and the Contracted value of the full quantity of materials and stores so supplied at the rates shall be set off or deducted from any sums then due, or thereafter to become due to the Contractor under the Contract or otherwise, or the security deposit.

All materials, supplied to the Contractor shall remain the absolute property of the Owner and shall not on any account be removed from the Site of the Works and shall at all times be open to inspection by him or his authorized representative. Any such materials unused and in perfectly good conditions at the time of completion or determination of the contract shall be returned to the Owner's store, if the Owner so requires by a notice in writing, but the Contractor shall not be entitled to return any such materials unless with such consent of the Owner or his authorized representative and shall have no claim for compensation on account of any such materials supplied to him as aforesaid being unused by him the return of which is not consented to by the Owner, or for any wastage or damage to any such materials.

There may be delay in obtaining the materials by the Owner and the Contractor is, then required to keep himself in touch with the day to day position regarding the supply of materials from the Owner or his authorized representative and so adjust the progress of the work that the labour may not remain idle. It should be clearly understood that no claim whatsoever shall be entertained by the Owner on account of the delay in supply of materials.

For any material or store which are not included in the schedule referred to above, but which are issued to Contractor with written permission of the Owner recovery will be made at stock issue rates plus 10% (ten percent) storage and overload charges. The Contractor shall be responsible for safe custody of the materials and stores until the finalization of Contract, and shall use the same only for bonafide requirements. The Contractor shall maintain a material at site account of the stores and material and shall submit duplicate copies of the account to Consultant for his verification every month. In case the Contractor fails to satisfy the Consultant about the consumption of the materials or stores, he shall be liable to pay for the material so found

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short at actual procurement cost plus 33% (thirty three percent) of such cost as penalty. Consumption of the materials supplied by the Owner shall be calculated as per Schedules given in last Chapter of Drafting Standards "General" Vol:I published by K-Electric or any other generally accepted standard duly approved by the Consultant.

### **3.46 SUSPENSION OF WORK**

The Contractor shall on the written order of the Consultant (herein referred to as "Suspension Order") suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Consultant. The extra cost including all wages to be paid on the Site salaries, depreciation and maintenance of the plant, Site and general overheads costs of the Contract incurred by the Contractor in giving effect to any Suspension Order shall be borne by the Owner unless such suspension is:

- (a) Otherwise provided for in the Contract or
- (b) Necessary for the proper execution of the work or
- (c) By reason of weather conditions (or conditions due to weather conditions) affecting the quality of the Works or
- (d) Necessary for the safety of the Works or any part thereof
- (e) By reason of delays in delivery, shipment or any other cause relating to the supplying by the Owner of any imported material or equipment.

Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to the Owner within 30 days of the Suspension Order. The Consultant shall settle and determine such extra payment to be made to the Contractor in respect of such claim as shall in the opinion of the Consultant be fair and reasonable and any such decision on the part of the Consultant shall be final and binding on the Contractor.



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**3.47**            **COMMENCEMENT OF WORKS**

- a)        The Contractor shall commence the Works on Site within the period specified in "Form of Tender" after the receipt of an order in writing to this effect from the Owner and shall proceed with the same with due expedition and without delay.

**3.48**            **POSSESSION OF SITE**

- (a)        Save in so far as the Contract may prescribe the extent of portions of the Site of which the Contractor is to be given possession from time to time and the order to which such portions shall be made available to him and subject to any requirement in the Contract as to the order in which the Work shall be executed the Owner shall, with the written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the programme referred to in Clause 3.16 hereof and otherwise in accordance with such reasonable proposals of the Contractor as he shall note in writing to the Owner who will from time to time as Works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with due dispatch in accordance with the said program or proposals (as the case may be). The provisions of this sub-clause and of sub-clause (b) "Way leaves" below shall be subject to and without prejudice to Clause 3.36 "Opportunities for Other Contractors".

The Contractor shall bear all expenses and charges for special or temporary way leaves in connection with access to Site.

- (b)        If a building structure foundation or approach is by the Contract to be provided by the Employer such building structure foundation or approach shall be in a condition suitable for the efficient transport reception installation and maintenance of the Works.
- (c)        In the execution of the Works no persons other than the Contractor, Sub-Contractors and his and their employees shall be allowed on site except by the written permission of the Consultant but facilities to inspect the Works at all times shall be afforded to the Consultant and his representatives and other authorized officials or representatives of the Owner.
- (d)        The access to and possession of the Site referred to in this Clause shall not be exclusive to the Contractor but only such as shall enable him to execute the Works. The Contractor shall afford to the Owner and to other Contractors whose names shall have been previously communicated in writing to the Contractor by the Consultant, every reasonable facility for the execution of work concurrently with his own.

## 3.49

**INSTALLATION**

- It is the intention of the specifications and drawings to call for finished work, tested and ready for operation. Wherever the words "furnish" or "provide" are used, it shall mean provide and install complete and ready for use. Any apparatus, appliance, material or work not shown on drawings but mentioned in the specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished, delivered and installed by the Contractor without additional expense to the owner. Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work and in the Contractor's price the same as if herein specified or shown.
- All work shall be executed and inspected in accord with all laws, ordinances, rules and regulations of local authorities having jurisdiction over such work. The Contractor shall obtain all permits should any change in the drawings or specifications be required to conform to these ordinances, the Contractor shall notify the Consultant at the time of submitting his bid. After entering into the contract, Contractor will be held to complete all necessary work to meet local requirements without extra expected to the Owner.
- Contractor shall require full cooperation between trades and shall furnish (in writing, with copies to Architect) any information necessary to permit the work of all trades to be installed satisfactorily with least possible interference or delay. Where the work of one contractor will be installed in close proximity to work of other trades, or where there is evidence that the work of the one will interfere with work of others. He shall assist in working out space conditions to make a satisfactory adjustment. If so directed by the Consultant, the Contractor shall prepare composite working drawings and sections at a suitable scale not less than  $\frac{1}{4}'' = 1'0''$  clearly showing how is work to be installed in relation to the work of other trades. If the Contractor installed his work before coordinating with other trades or so as to cause any interference with work of other trades, he shall make necessary changes in his work to correct the condition without extra charge.
- Contractor shall protect the work and material from damage by his work or workmen, and shall make good all damage thus caused. Contractor shall be responsible for work and equipment until finally inspected, tested and accepted; perfect work against theft, injury, or damage; and carefully store materials and equipment received in sites which are not immediately installed. Contractor shall close open ends of work with temporary covers or plugs during construction to prevent entry of obstructive material.
- Contractor shall furnish all scaffolding, rigging, hoisting, and services necessary for erection and delivery onto the premises of any equipment and apparatus furnished, and shall remove same from premises when no longer required that any extra cost. All expenses are deemed to be included in the quoted price.

- Should any cutting of walls, floors, ceilings, partitions, etc., be required for proper installation of the work or apparatus, such cutting and restoring of the work to its original condition shall be done in a manner acceptable to the Engineer. All expenses are deemed to be included in the quoted price.

**3.50****DRAWINGS, CHANGES AND INSTALLATION:**

- (i) The drawings shall be considered to show the general character and scope of the work and not the exact details of the installation. The installation shall be complete with all accessories required for a complete and operative installation.
- (ii) The location, arrangement and connection of equipment and material as shown on the drawings represents a close approximation to the intent and requirements of the Contract. The right is reserved by the Engineer to make reasonable changes required to accommodate conditions arising during the progress of the work, at no extra cost to the Contract.
- (iii) The location and size of existing services shown on the drawings are based on the best available information. The actual location of existing services shall be verified in the field before work is commenced.
- (iv) Changes and modifications necessary to ensure coordination and to avoid interference and conflicts with other trades, or to accommodate existing conditions shall be made at no extra cost to the Contract.
- (v) The contractor shall ensure that all plant to be supplied by him can be installed in the available space and that there is adequate access to admit all plant to its position and enable maintenance to be carried out on the plant without difficulty.
- (vi) Special care shall be taken in areas where pour-gaps take place. Coordinate the work schedule with the Contractor.

**RECORD DRAWINGS:**

The contractor shall clearly mark as the job progresses, all changes and deviations from that shown on contract drawings on two sets of prints. After inspection and acceptance of service lines in trenches, the contractor shall take 'as-built' measurements. Definite measurements shall be taken for each service line. Drawings shall be kept up-to-date during construction. On completion of the building, the contractor shall forward to the Engineer drawings (quantities as specified elsewhere) indicating all such changes and deviations. This contractor shall include all existing information on the final record drawings.

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## **SHOP DRAWINGS**

Shop drawings shall indicate clearly all services and the materials and/or equipment actually being supplied, all details of construction, accurate dimensions, capacity operating characteristics and performance.

Each shop drawing for non-catalogue items shall be prepared specifically for this project. Material submission and brochures for catalogue items shall be marked clearly to show the items being supplied.

This contractor shall prepare all shop drawings related to the particular material submittal and shall submit within 4 weeks of issue of purchase order from the client both the shop drawings and material submittal simultaneously.

Ensure that electrical coordination is complete before submitting drawings for review.

Installation of any equipment shall not be commenced until after the shop drawings has been reviewed by the Engineer.

When requested, shop drawings shall be supplemented by data explaining the theory of operation. The Engineer may also request that this information be added to the maintenance and operating manual.

## **DRAWING SUBMISSIONS:**

Builder's work drawings shall show fully dimensioned all foundation bases plinths, sumps, holes and sleeves details required and the overall size and weights of the plant concerned.

With the agreement of the Engineer, smaller holes, built-in fixings etc. other than in plant rooms, may be marked out on site instead of on drawings.

Fully dimensioned plant room drawings shall detail for each plant room the location of each unit, pipe routes and connections with valves and fittings, duct routes and connection with accessories, drain connections electrical connections and controls. All drawings shall include explanatory notes and shall show the required sizes of pipes and ducts with and without insulation as applicable.

If abbreviations are employed for the designation of components, an integral schedule shall be provided on the drawings to explain the meanings of the abbreviations.

Individual equipment drawings from the various manufacturers will not be accepted in lieu of these composite plant room drawings.

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**COORDINATION, INSTALLATION, INTERFERENCE AND SETTING DRAWINGS:**

Coordination, installation, interference and setting drawings dimensioned and to scale, shall be submitted for the Engineer's review to make clear the work intended and to show its relation to adjacent work and to the work of other trades. Three copies of such drawings shall be submitted for review of which one will be retained by the Engineer.

The drawings must be comprehensive showing all details, dimensions, equipment, supports for services and sections through critical areas to properly coordinate all services and work of other trades. Unless accepted by the Engineer, all drawings must be to 1:4 scale.

Site services drawing shall be prepared to show all existing services, modification to existing services and all new services within the entire construction area. Location of all existing services shall be carefully detailed and dimensioned on the drawings showing all sizes and invert elevations.

Drawings shall be prepared with due regard to the construction schedule and shall be submitted to the Engineer, allowing reasonable time for examination and review.

Work shall not proceed in areas involved until after final approval of all such drawings has been obtained.

These drawings shall include all existing information.

**CONTRACTOR'S TECHNICAL RESPONSIBILITIES:**

This contractor shall provide detailed calculations for flow and head requirements for all AHU's, fans, and pumps. These calculations shall be done prior to ordering the equipment and shall be submitted to the Consultant for approval prior to ordering such equipment.

The contractor shall submit for approval detailed shop drawings of all equipment and all material required to complete the project, and no material or equipment may be delivered to the job site or installed until the Contractor has in his possession the approved shop drawings for the particular material or equipment. The shop drawings shall be complete as described herein. The Contractor shall furnish the number of copies required by the conditions of the contract.

Prior to delivery of any material to job site, and sufficiently in advance of requirements to allow Architect ample time for checking, submit for approval detailed, dimensioned drawings or cuts, showing construction, size, arrangement, operating clearances, performance characteristics and capacity. Each item of equipment proposed shall be a standard catalog product of an established manufacturer and of equal quality, finish, and durability to that specified.

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Samples, drawings, specifications and catalogues, submitted for approval, shall be properly labeled indicating specific service for which material or equipment is to be used, section and article number of specifications governing, Contractor's name, and name of job.

Catalogues, pamphlets, or other documents submitted to describe items on which approval is being requested, shall be specific and identification in catalog, pamphlets, etc., of item submitted shall be clearly made in ink. Data of a general nature will not be accepted. Approval rendered on shop drawings or for submittals shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.

Failure of the Contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

Shop Drawings:

The Contractor shall prepare and submit for approval detailed shop drawings for all items, manufacture, fabrication and assembly undertaken and are required for the proper execution of any items of work connected with the satisfactory completion of the Contract. These drawings should be based on and referred to with drawings, instructions and specifications given in the Contract Documents and Supplier's manuals. The detailed procedure of submission, approval and recording of these shop drawings shall be indicated by the Consultant.

i. Equipment Deviations

Where the Contractor proposed to use an item of equipment other than that specified or detailed on the drawings, which requires any redesign of the structure, partitions, foundations, piping, wiring or any other part or the mechanical, electrical or architectural layout, all such redesign, and all new drawings and detailing required therefore, shall be prepared by the Contractor at his own expense as approved by the owner's representative.

Where such approved deviation requires a different quantity and arrangement of duct work, piping, wiring, conduit and equipment from that specified or indicated on the drawings, the Contractor shall furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring, and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.

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ii. Warranty

All equipment supplied for these specifications shall be free from defects in material, workmanship, and title, and shall be of the kind and quality described herein. If it appears within warranty period from date of shipment by the contractor that the equipment does not meet the warranties specified above, the contractor shall correct any defect, including non-conformance with these specifications, at his option, either by repairing any defective part or parts or by making available at his plant a repaired or replacement part.

The foregoing warranty is exclusive and in lieu of other warranties, whether written, oral, implied or statutory. No warranty of Merchantability or of fitness for purpose shall apply.

**3.51**      **INSURANCE OF WORKS ETC.**

The contractor shall be responsible for obtaining and maintaining insurance policies against all loss or damage from whatever cause arising (other than the Excepted Risks) for which he is responsible under the terms of the Contract and in such manner that the Owner and Contractor are covered during the period of construction of the Works and are also covered during the period of maintenance for any loss or damage arising from a cause occurring prior to the commencement of the Period of Maintenance and for any loss or damage occasioned by the Contractor in the course of any operation carried out by him for the purpose or complying with his obligations under Clause 3.54 & 3.55 hereof. The owner shall be named as co loss payee in terms of the Insurance policies. Insurance shall conform to the following requirements:

- (a) The Works and Temporary Works to the full value of such work executed from time to time.
- (b) The materials, constructional plant and other things brought on to the site by the Contractor for the purpose of the Contract to the full value of such materials, constructional plant and other things.
- (c) Insurance to cover any liability arising under the Workmen's Compensation Acts, Employer's Liability Acts, or any other laws or regulations relating to payment to be made to or for the benefit of employees of Contractor.
- (d) Insurance to cover all damages to the foreign personnel connected with the project, Owner's officials and persons working on other trades on the Site of Work.
- (e) Insurance to cover all of the owner's property arising out of damage caused by the contractor or any of its sub-contractors, workers or employees. Owner to stipulate the minimum value of the insurance policies to be maintained in terms hereof.
- (f) Third Party Insurance
  - (i) The Contractor shall, subject to the relevant Clause indemnify the Employer in respect of all damage or injury

occurring before the Works shall have been taken over to any person or to any property (other than property forming part of the Works) and against all actions, suits, claims, demands, costs, charges & expenses arising in connection therewith which shall be occasioned by the negligence of the Contractor or any sub-contractor, or by defective design (other than a design made, furnished or specified by the Employer and for which the Contractor has disclaimed responsibility in writing within a reasonable time after the receipt of the Employer's instructions), materials or workmanship but not otherwise.

- (ii) If while the Contractor is on the Site for the purpose of making good a defect pursuant to Clause of "Defects" there shall occur any losses of or damage or injury to the Works or to any other property or to any person, the Contractor's liability in respect thereof shall be the same as if the said losses, damage or injury had occurred before any part of the Works had been taken over.

The Contractor shall deposit the policy and receipt for the premium with Owner within 21 days from the date of signing of the Contract unless otherwise instructed by the Owner. It shall be the responsibility of the Contractor to require all sub-contractors or other parties performing any portion of the Contractor's work to carry out the same insurance as above required by the Contractor.

The Insurance Company will be as approved by the Owner. All money under any policy or policies of Insurance shall be payable to the Owner who shall pay as much thereof as may be required for the purpose of replacing, repairing or re-building the materials, plant or building which have been damaged or destroyed as certified by the Consultant and the balance, if any, shall be handed over to the Contractor.

- (g) Proof of insurance must be provided to the consultant and owner prior to receiving mobilization advance from the owner.

### **3.52 DAMAGE TO PERSONS AND PROPERTY**

The Contractor shall (except in and so far as the specifications provide otherwise) indemnify and keep indemnified the Owner against all losses and claims for injuries or damages to any person or any property whatsoever (other than surface or other damages suffered by tenants or occupants to land, crops in the area defined as Site) which may arise out of or in consequence of the construction and maintenance of the Works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

### **3.53 COMPENSATION PAYABLE UNDER THE WORKMAN COMPENSATION ACT:**

The Contractor shall indemnify the Owner as prescribed in relevant clause in respect of all claims, damage, compensation or expense payable in consequence of any accident or injury sustained by any workman or other persons, whether in the employment of the Contractor or not, while in or upon the said works or the site of the



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same and the Owner shall not be bound to defend any claim brought under the Workman's Compensation Act unless the Contractor first deposits with the Owner a sum sufficient to cover any liability which the Owner might incur by reason of defending any such claim.

**3.54 ACCIDENT OR INJURY TO WORKMEN & FIRE INSURANCE**

(a) The Owner shall not be liable for or in any respect of any damages or compensation in respect or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or any sub-contractor and the Contractor shall indemnify and keep indemnified the Owner against all such damages and compensation and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

(b) Fire Insurance

The Contractor shall at the time of signing the Contract insure the works and keep them insured until the virtual completion of the Contract against loss or damage by fire.

In addition, the contractor will carry insurance policy for damage to the owner's machinery or any belonging from any of the contractor or contractor's personnel.

**3.55 REMEDY ON CONTRACTOR'S FAILURE TO INSURE**

If the Contractor shall fail to effect and keep in force the insurance referred to in the relevant Clause hereof or any other insurance which he may be required to effect under the terms of the Contract then and in such case the Owner may effect and keep in force any such insurance and pay such premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the Owner as aforesaid from any moneys due or which may become due to the Contractor or recover the same as a debt due from the Contractor. However, it is clarified that the ultimate responsibility of keeping all such insurances policies in force will rest with the Contractor and shall be the sole cost of the contractor.

**3.56 GIVING OF NOTICES AND PAYMENT OF FEES:**

(a) The Contractor shall give all notices and pay all fees required to be given or paid by any National or State Statute Ordinance or other Law or any Regulations or Bye-laws of any local or other duly constituted authority in relation to the execution of the Works or of any Temporary Works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works or any Temporary Works.

(b) The Contractor shall conform in all respects with the provisions of any such Statute Ordinance or Law as aforesaid and the Regulations or Bye-Laws of any Local or other duly constituted

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authority which may be applicable to the Works or to any Temporary Works and with such rules and regulations of Public Bodies and Companies as aforesaid and shall keep the Owner indemnified against all penalties and liability of every kind for breach of any such Statute Ordinance or Law, Regulation or Bye-laws.

**3.57**            **FOSSILS ETC.**

All fossils, coins, articles or value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall as between the owner and contractor be deemed to be the absolute property of the owner and the contractor shall take precautions to prevent the workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out at the expense of the owner, the Engineer orders as to the disposal of the same.

**3.58**            **TIME FOR COMPLETION**

- (a) Subject to any requirement in the Specifications as to completion of any portion of the Works, before completion of the whole of the Works, the same shall be completed within the time stated in the Tender or such extended time as may be allowed under Clause 3.38 hereof.
- (b) Time shall be the essence of the Contract. The Contractor shall execute and complete the entire work in all its details, within the time stated in the Tender or such extended time as may be allowed under Clause 3.38 hereof.

**3.59**            **EXTENSION OF TIME FOR COMPLETION**

If by reason of any extra or additional work or any cause beyond the control of the Contractor, the Contract shall have been delayed or impeded or prevented whether by the Owner or otherwise whatsoever in the completion of the Works or any part thereof whether such delay or impediment or prevention occurs before or after the time or extended time fixed for completion (provided the Contractor shall without delay have given to the Consultant a notice in writing containing full and detailed particulars of his claim for an extension of time) the Consultant with the concurrence of the Owner shall on receipt of such notice but not otherwise may grant to the Contractor from time to time in writing either prospectively or retrospectively such extension of the time fixed by the Contract for the completion of the Works or any part thereof as may be reasonable. The Contractor shall apply for extension of time for reasons aforesaid not more than 15 days after such prevention or impediment in the execution of the Contract has been experienced by the Contractor.

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**3.60**            **WORK ON SUNDAYS/HOLIDAYS ETC.**

Subject to any provision to the contrary contained in the Contract work shall be carried out on Sundays, holidays and at night hours with the written permission of the Consultant and the owner.

**3.61**            **LIGHTING WORKS AT NIGHT**

In the event of work being carried out at night hours, the Contractor shall at his own cost provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without dangers; similarly the approaches to the Site and Works when the night work is being carried out shall be efficiently lighted. All arrangements adopted for such lighting shall be to the satisfaction of the Consultant.

**3.62**            **RATE OF PROGRESS**

- (a)    The whole of the materials, plant and labor to be provided by the Contractor and the mode, manner and speed of execution and maintenance of the Works are to be of a kind and conducted in a manner to the satisfaction of Consultant.
- (b)    Should the rate of progress of Works or any part thereof at any time in the opinion of the Consultant be too slow to ensure the completion of the Works by the prescribed time or extended time for completion the Consultant may so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Consultant may approve to expedite progress so as to complete the Works by the prescribed time or extended time for completion. In case of the Contractor is not able to complete any part or component of the Works by the completion date of such part or component of the work as set out in the construction program submitted by Contractor under the Contract, the Contractor shall pay the Owner liquidated damages commensurate with the loss of time which in the opinion of the Consultant shall have been caused. The decision of the Consultant as to the extent of time lost shall be final and binding on the Contractor.
- (c)    If the work is being carried on by night as well as by day or on holidays then if the Consultant shall grant such permission the Contractor shall not be entitled to any additional payment for so doing but if such permission shall be refused and there shall be no equivalent practicable method of expediting the progress of the work, the time for completion shall be extended by such period as is solely attributable to such refusal.

**3.63**            **TAXATION**

- (a)    The Contractor or his employees shall pay all personal income or other taxes due in Pakistan for personnel employed by the Contractor for supervising the erection work included in the Contract. The Contractor shall obtain, at his own cost, work permits from competent authorities to enable any foreign

personnel to work in Pakistan. The Contractor shall be responsible for all formalities in connection with passports, obtaining visas, police permits and expenses for customs duties related to personal goods of foreign personnel employed on the project.

- (b) The Contractor shall be responsible for all Contractor's corporate or company income tax payable in Pakistan.

**3.64****COMPENSATIONS, PENALTY AND LIQUIDATED DAMAGES**

- (a) Time shall be deemed to be the essence of the Contract.
- (b) It is agreed that the amounts specified hereinafter shall be considered as reasonable compensation to be applied to the use of the Owner without reference to the actual loss or damage sustained and whether or not any damage has or has not been sustained.
- (c) The Contractor shall ensure good progress during the execution of the Works and shall be bound in all cases to strictly comply with the programme submitted by him and approved by the Owner under this Contract. In case the execution of work falls so much in arrears behind the programme so as to necessitate a fresh programme the approval by the Owner of the revised programme shall not be deemed to prejudice the power of the Owner to levy penalty under this sub-clause, and the Contractor shall remain liable to pay the sums aforementioned as if the revised programme had not been approved.
- (d) If the Contractor shall fail to complete the works within the time prescribed in the tender or extended time, then the Contractor shall be liable to pay to the Owner a sum equal to 0.1% of the contract price per day as Liquidated Damages until the completion of the Works, subject to a maximum of 10% (Ten percent) of the total tendered cost of the Works less any portion of the tendered amount directly payable by the Owner to parties abroad or the government.
- (e) If the Contractor fails to complete the Works in all respects or abandons in an incomplete state, or where his Contract is rescinded due to breach of Contract, the Contractor shall be liable to pay to the Owner a sum equal to 10% (Ten percent) of the total tendered cost of the Works, less any portion of the tendered amount payable by the Owner to parties abroad or the government.
- (f) If the whole work is completed within the period stipulated in the tender or any approved extended period of completion the penalties under clause shall be waived off.
- (g) The Contractor shall not claim exemption from the penalties as aforesaid without obtaining a written approval of the Owner. Merely the fact that the Contractor has applied for such

exemption shall not be deemed to imply that such exemption would be granted. No such application for exemption shall be considered unless it is submitted within 15 days of the occurrence of an event resulting in the levy of penalty.

- (h) The above clauses shall apply for different periods of completion for different parts of the work as submitted by the Contractor under the Contract as if these were for the parts of the work and the corresponding parts of the total cost of the work.
- (i) The Owner may without prejudice to any other method or recovery, deduct the amount of the penalties as aforesaid from any moneys in their hand due or which may become due to the Contractor, whether pertaining to this Contract or any other Contract.
- (j) The payment or deduction of such penalties shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.
- (k) The expression "Total Tendered Cost of the Works" shall, for the purpose of this clause, mean:
  - (i) Where the Contract for Works or part of Works is at lump sum cost; the lump sum Contract price entered into the Agreement.
  - (ii) Where the Contract is at unit cost basis (item rate Contract) the estimated cost on the basis of quantities and rates given in the tender and connected documents; and
  - (iii) Where the total cost of the Works cannot be determined as above, the matter would be referred to the Owner whose decision would be final and binding.

### 3.65

#### **CERTIFICATE OF SUBSTANTIAL COMPLETION OF WORKS**

- (a) As soon as in the opinion of the Consultant the Works shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed by the Contract, the Consultant shall on receiving a written undertaking by the Contractor to finish any outstanding work during the first 28 days of the period of maintenance issue to the Contractor a Certificate of Substantial Completion, (also called "Taking Over Certificate") in concurrence with the Owner in respect of the Works, and the period of maintenance of the Works shall commence from the date of such certificate. Provided that the Consultant may give such a certificate with respect to any part of the Works before the completion of the whole of the Works and shall upon the written application of the Contractor give such certificate with respect to any substantial part of the Works and occupied or used by the Owner and when any such certificate is given in respect of a part of the Works such part shall commence from the date of such certificate. Provided also that a certificate of completion given in accordance with the foregoing provision of any part of the Works shall not be deemed to certify completion of any operational requirement of the Works unless such certificates shall expressly so state.

- (b) The issue of a taking-over certificate shall not operate as an admission that the works have been completed in every respect. In the event of the Works being divided by the Contract into two or more sections the Employer shall be entitled to take over any section or sections before the other or others, and thereupon the Consultant shall issue a taking-over certificate in respect thereof. Provided that completion/taking-over of any section or sections for which any separate time limit, maintenance period is given shall not be deemed to be distinct, independent or separate work for the purposes of reference to arbitration. If by agreement between the Owner, the Consultant and the Contractor any portion of the Works (other than a section or sections) shall be taken over before the remainder of the Works the Consultant shall issue a taking-over certificate in respect of that portion.
- (c) If, by reason of any default on the part of the Contractor, a taking-over certificate has not been issued in respect of every portion of the Works within one month after the Time for Completion or extended time as the case may be, the Owner shall be at liberty to use the works or any portion thereof in respect of which a taking over certificate has not been issued, provided that the Works or the portion so used as aforesaid shall be reasonably capable of being used and that the Contractor shall be afforded the earliest possible opportunity of taking such steps as may be necessary to permit the issue of the taking over certificate.

**3.66****DEFINITION OF "DEFECTS LIABILITY AND MAINTENANCE PERIOD":**

- (a) The expression "Defects Liability and Maintenance Period" shall mean the period of maintenance named in the form of Tender calculated from the date of completion of the Works certified by the Consultant in accordance with Clause 3.65 hereof or in the event of more than one certificate having been issued by the Consultant under the Clause from the respective dates so certified.
- (b) Repair Works: To the intent that the works shall at or as soon as practicable after the expiration of the Period of Maintenance be delivered up to the Owner in as good and perfect condition (fair wear and tear excepted) to the satisfaction of the Owner as that in which they were at the commencement of the Defects Liability and Maintenance Period the Contractor shall execute all such work of repair, amendment, reconstruction, rectification and making good of defects, imperfections, leakages or other faults as may be required of the Contractor in writing by the Consultant during the Period of Maintenance or within twenty-eight days after its expiration as a result of an inspection made by or on behalf of the Owner prior to its expiration.
- (c) Cost of Repair Works:

All such works shall be carried out by the Contractor at his own expense if the necessity thereof shall in the opinion of the Consultant be due to the use of materials or workmanship not in accordance with the Contract or to neglect or failure on the part

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of the Contractor to comply with any obligation expressed or implied on the Contractor's part under the Contract. If in the opinion of the Consultant such necessity shall be due to any other cause the value of such work shall be ascertained and paid for as if it were additional work.

(d) Remedy on Contractor's Failure to Carry out the Repair Work:

If the Contractor shall fail to do any such work as aforesaid required by the Engineer/Consultant the Owner shall be entitled to carry out such work by its own workmen or by other Contractors and if such work is work which should have been carried out by the Contractor at his own cost, the Owner shall be entitled to recover from the Contractor the cost thereof or may deduct the same from any moneys due or that may become due to the Contractor.

**3.67**      **CONTRACTOR TO SEARCH:**

During the Defects Liability and Maintenance Period the Contractor shall if required by the Consultant in writing search for the cause or existence of any defect, imperfection or fault under the direction of the Consultant, unless such defect, imperfection or fault shall be one for which the Contractor is not liable as aforesaid the cost of the work carried out in searching as aforesaid shall be borne by the Contractor and he shall in such case repair, rectify and make good such defect, imperfection or fault at his own expense in accordance with the provision of Clause hereof.

## 3.68

**FINAL ACCEPTANCE CERTIFICATE:**(a) Approval by Final Acceptance Certificate:

No certificate other than the Final Acceptance Certificate referred to in sub-clause (b) of this clause shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the Contract or any part thereof or of additional or varied work having been ordered by the Consultant nor shall any other certificate conclude or prejudice any of the powers of the Consultant.

(b) Final Acceptance Certificate

The Contract shall not be considered as completed until a Final Acceptance Certificate shall have been signed by the Consultant and delivered to the Owner stating that the Works have been completed and maintained to his satisfaction. The Final Acceptance Certificate shall be given by the Consultant twenty-eight days after the expiration of the Defects Liability and Maintenance Period (or if different Defects Liability and Maintenance Period shall become applicable to different parts of the Works the expiration of such period) or as soon thereafter as any works ordered during such period pursuant to Clause 3.54 & 3.55 hereof shall have been completed to the satisfaction of the Consultant and full effect shall be given to this Clause notwithstanding any previous entry on the Works or taking possession, working or using thereof or any part thereof by the Owner.

(c) Cessation of Owner's Liability

The Owner shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract unless the Contractor shall have made a claim in writing in respect thereof before the giving of the Final Acceptance Certificate under this Clause.

(d) Unfulfilled Obligations

Notwithstanding the issue of the Final Acceptance Certificate the Contractor and {subject to sub clause (c) of this clause} the Owner shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issue of Final Acceptance Certificate which remains unperformed at the time such certificate is issued and for the purposes of determining the nature and extent of any such obligation the Contract shall be deemed to remain in force.



(e) Performance Guarantee/Penalty

The Contractor shall have to meet the performance requirements, as given in the Specifications, at the time of acceptance test. In case the Contractor is not able to meet this guarantee, the Contractor shall take all necessary measures within a period of three (3) months to improve the performance. In case the performance guarantee is not met even after corrective measures have been taken by the Contractor, the Contractor shall be liable to pay compensation to the Owner commensurate with the extent of cost incurred to improve the performance to the specified level.

**3.69**

**ALTERATIONS, ADDITIONS AND OMISSIONS**

- (a) All change control request shall be approved by the client and consultant in writing prior to execution by contractor. Change control request documents from the contractor shall have complete description with justification & its impact on Time, Cost & quality of the project. No Extra payment shall be entertained by the client without Consultant's written approval before the execution of the work.

The Consultant shall make any variation of the form, quality or quantity of the Works or any part thereof that may in his opinion be necessary and for that purpose or if for any other reason it shall in his opinion be desirable shall have power to order the Contractor to do and the Contractor shall do any of the following:

- (i) Increase or decrease the quantity of any work included in the Contract;
  - (ii) Omit any such work;
  - (iii) Change the character or quality or kind of any such work;
  - (iv) Change the levels, lines, position and dimensions of any part of the Works; and
  - (v) Execute additional work of any kind necessary for the completion of the Works.
- (b) No such variation shall in any way vitiate or invalidate the Contract but the value (if any) of all such variations shall be taken into account in ascertaining the amount of money to be added or deducted from the lump sum Contract Price, with prior approval of the client.
- (c) Orders for Variations to be in Writing:

No such variation shall be made by the Contractor without an order in writing of the Consultant. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause but is the result of the quantities exceeding or being less than those stated in the Bill of

Quantities. Provided also that if for any reason the Consultant shall consider it desirable to give any such order verbally the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Consultant which shall be issued not later than seven days from the date of such verbal orders whether before or after the carrying out of the verbal order shall be deemed to be an order in writing within the meaning of this Clause.

### **3.70 VALUATION OF VARIATIONS**

(a) The Consultant shall determine the amount (if any) which in his opinion should be added to or deducted from the sum named in the Tender in respect of any extra or additional work done or work omitted by his order. All such work shall be valued at the rates set out in the Contract if in the opinion of the Consultant the same shall be applicable.

#### **(b) Claims**

The Contractor shall send to the Consultant once in every month an account giving particulars (as full and detailed as possible) of all claims for any additional expense to which the Contractor may consider himself entitled and of all extra or additional work ordered by the Consultant which he has executed during the preceding month and no claim for payment for any such work will be considered which has not been included in such particulars. Provided always that the Consultant shall be entitled to authorize payment to be made for any such work notwithstanding the Contractor's failure to comply with this condition if the Contractor has at the earliest practicable opportunity notified the Consultant he intends to make a claim for such work.

(c) The Contractor shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full, but which he did not so derive in consequence of the full amount of the work not having been carried out, by reason of any alterations having been made in the original specifications, drawings, designs and instructions which may involve any curtailment of the work as originally completed.

### **3.71 PLANT ETC. EXCLUSIVE USE FOR THE WORKS**

(a) All Constructional Plant, Temporary Works and materials provided by the Contractor shall when brought on the site be deemed to be exclusively intended for the construction and completion of the Works and the Contractor shall not remove the same or any part thereof (save for the purpose of moving it from one part of the site to another) without the consent in writing of the Consultant.

(b) Removal of Plant etc.

Upon completion of the Works the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused material provided by the Contractor.

(c) Owner Not Liable for Damage to Plant, etc.

The Owner shall not at any time be liable for the loss or injury to any of the said Constructional Plant, Temporary Works or materials.

**3.72 OWNERSHIP OF PLANT SUPPLIED PURSUANT TO CONTRACT**

Plant supplied pursuant to the Contract shall become the property of the Owner at which is the earlier of the following times namely:

- (i) When the plant is delivered pursuant to the Contract;
- and
- (ii) When the Contractor has been paid any sum to which he may become entitled in respect thereof.

**3.73 APPROVAL OF MATERIALSETC. NOT IMPLIED**

The operation of Clause 3.50 hereof shall not be deemed to imply any approval by the Consultant of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Consultant.

**3.74 DUTIES AND TAXES**

(a) Payment of Income Tax

The Contractor shall be responsible for payment of all Pakistani Income Tax, Super Tax and other taxes on income arising out of the Contract. The rates and prices stated in the priced Bill of Quantities shall be deemed to cover all such taxes.

(b) Payment of Royalties, Rent, etc.

The Contractor shall provide for and pay all royalties and license fees and shall save the Employer harmless from loss and annoyance on account of suits or claims of any kind for violation or infringement of any letters, patent or rights by the Contractor or anyone directly or indirectly employed by him or by reason of the use by him or them of any art, machine, manufacture or composition of matter in connection with the work furnished in violation or infringement of such letters or right.

- (c) Payment of Duties & Taxes including sales tax, income tax, all duties etc.

All elements of duty or taxes inherent in the price of procured goods, plant etc. shall be deemed to be included in the rates and prices stated in the price bill of quantities unless otherwise expressly provided for in the conditions of Contract. No extra claim in this respect will be entertained.

### **3.75**      **QUANTITIES**

- (a) The quantities set out in the Bill of Quantities are the estimated quantities for the purposes of a lump sum Contract and they shall not be taken as the actual and correct quantities of work to be executed by the Contractor. Under the lump sum Contract the Contractor shall be required to supply and install everything necessary to construct fully operational Works as shown on the drawings and as specified, including the supply and installation of all additional material, equipment, fittings, accessories, etc. required to construct the Works and obtain the functional requirements, even though the same may not be shown on the drawings or specified, without claims to any extra or additional cost, other than the lump sum contract agreed to, except that alterations, additions and omissions ordered by the Consultant as per Clause 3.48 shall be considered as variations and accounted for as per Clause 3.49.
- (b) Payment to the Contractor under the lump sum Contract shall be based on the percentage of actual work done to the whole of the work for each item. The decision of the Consultant as to the percentage of the work done shall be considered final by the Contractor for interim payments.

### **3.76**      **WORKS TO BE MEASURED IN CASE OF VARIATION**

The Consultant shall, except as otherwise stated, ascertain and determine by actual measurement the value of the work added, altered or omitted by way of variation on the directions of the Consultant. He shall when he requires any work to be measured give notice to the Contractor's agent who shall forthwith attend or send qualified agent to assist the Consultant/ Engineer in making such measurement and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agent then the measurement made by the Engineer/ Consultant and approved by the Consultant shall be taken to be correct measurement of the work.

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**3.77**      **MEASUREMENT**

In case of variation the measurement shall be recorded in the Measurement Book. No other documents will be considered valid for payment.

**3.78**      **DAY WORK**

(a) The Consultant may if in his opinion be necessary or desirable order in writing that any additional or substituted work shall be executed on a Day work basis then in respect of Day work the Contractor shall:

(i) furnish to the Consultant such receipts or other vouchers as may be necessary to prove the amounts paid and before ordering materials required specially for Day work shall submit to the Consultant quotations for the same for his approval; and

(ii) during the continuance of such work deliver each day to the Consultant an exact list in duplicate of the names, occupation and time of all workmen employed on Day work and a statement in duplicate showing the description and quantity of all materials and plant used thereon or therefore. One copy of each list and statement will if correct or when agreed be signed by the Consultant and returned to the Contractor and the Consultant; and

(iii) at the end of each month deliver to the Consultant a priced statement of the labor, material used plus 30 percent of this cost or as determined and approved by the Consultant to cover the cost of supervision, plant depreciation, plant operation, overhead and profit.

(b) Written Order for Day work

Work shall not be executed as Day work except by written order of the Consultant.

**3.79**      **MONTHLY STATEMENT**

When the Consultant has granted a Certificate or Certificates of Substantial Completion for the whole of the works under Clause 3.65 hereof and when the Owner has ascertained the estimated final sum due to the Contractor, the Owner shall after allowing for the amount of all previous bills and certificates and after allowing for all other payments due from the Contractor to the Owner pay to the Contractor, such a sum of the balance so calculated as remaining due to the Contractor as will leave to be retained by the Owner a sum equal to the Retention Money with 30 days from the submission of the Final Bill.

(a) Payment of Retention Money

- (i) The amount of retention money deposit shall at any time during continuance of the Contract be 5% (Five percent) the gross amount of intermediate certificates, subject to the maximum prescribed in the tender otherwise.
- (ii) In making payments on intermediate certificate it shall be lawful for the Owner to make up the aforesaid amount of security by deducting a sufficient sum from every such payment as aforesaid. No interest shall accrue on money converted into security deposit or the security deposit itself.
- (iii) All sums payable by the Contractor to the Owner under the terms of this Contract may be deducted from the security deposits, and in the event of security deposit being reduced due to such deductions, the Contractor shall within ten days thereafter make good in cash the deficiency so caused.

(b) Refund of Retention Money

The retention money will be refunded to the Contractor based of the following criteria:

- 50% on substantial completion.
- 50% after completion of the defect liability period of 2 years.

It shall be lawful for the Owner to make deductions from the sums payable under this Contract or from the amount of security deposit any sum or sums recoverable under any other Contract between the same parties.

The Consultant may make any correction or modification in any previous bill and shall have power to withhold payment against any bill if the work or any part thereof are not being carried out to his satisfaction.

(c) Running Payments

The net amount payable to the Contractor for all running bills shall be paid by the Owner to the Contractor within 20 days of the date of receipt of such bills by the Owner duly certified by the Engineer/Consultant. Consultant's certificate to be forwarded to the Employer within 10 days of receipt of the bill.

Payment of all intermediate running payments shall be treated as advance.

(d) Final Bill

Final bill shall also be submitted in quadruplicate with endorsement that the Contractor has no other claim except those in the Final Bill. The final bill shall not be entertained without this endorsement.

(e) Withholding of Payments

The Employer may withhold the whole or part of any payment claimed by the Contractor, which in the opinion of the Employer is necessary to protect himself for loss on account of:

- (i) Defective work not remedied.
- (ii) Guarantee not met.
- (iii) Claims filed against Contractor.
- (iv) Failure of Contractor to make payments due for materials or labour employed by him.
- (v) Damage to another Contractor.
- (vi) Contractor's non-compliance with the Contract.
- (vii) Failure of the Contractor to pay the amount due as liquidated damages.

**3.80** CURRENCY OF PAYMENT

The payment shall be made to the Contractor in Pak. Rupees for local equipment, materials/works and for all imported equipment.

**3.81** FORFEITURE

If the Contractor shall become bankrupt or have a receiving order made against him or shall present his petition in bankruptcy or shall make an arrangement with or assignment in favour of his creditors or shall agree to carry out the Contract under a committee of inspection of his condition or (being a corporation) shall go into liquidated (other than a voluntary liquidation) for the purpose of amalgamation or assign the Contract without the consent in writing of the Owner first obtained or shall have execution levied on his goods or if the Owner shall certify in writing that in his opinion the Contractor:

- (a) has abandoned the Contract or
- (b) without reasonable excuse has failed to commence the works or has suspended the progress of the works for 15 days after receiving from the Owner his authorized representative written notice to proceed; or
- (c) has failed to remove materials from the site or to pull down and replace work for 15 days after receiving from the Owner or his authorized representative under these conditions, or
- (d) is not executing the works in accordance with the conditions of contract or is persistently or flagrantly neglecting to carry out his obligations under the Contract, or

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- (e) has to the detriment of good workmanship or in defiance of the Owner or his authorized representative instructions to the contrary, sub-contract any part of the contract.

Then the Owner may adopt any of the following courses on above mentioned sub-clause (a), (b), (c), (d) and (e) of this clause as it may deem best suited to the interest of the Owner.

- I. To rescind the Contract after giving the Contractor 15 days' notice in writing under the hand of the Owner or his authorized representative in which case:
- (i) The security deposit of the Contractor shall stand forfeited and be absolutely at the disposal of the Owner
  - (ii) The Owner shall not be liable to pay to the Contractor any money on account of the contract until the losses, liquidated damages, penalties and the amounts are certified by the authorized representative of the Owner.
- II. (i) To complete the Works at the cost of the Contractor after giving 15 days' notice in writing to the Contractor, enter upon the site and the work and expel the Contractor therefrom without thereby avoiding the Contractor or releasing the Contractor from any of his obligations or liabilities under the Contract affecting the rights and powers conferred on the Owner or the authorized representative of the Owner by the Contract and may himself complete the Works or may employ any other Contractor to complete the Works and or such other Contractor may use for such completion so much of the constructional plant, temporary works and materials which have been deemed to be reserved exclusively for the construction and completion of the works under the provision of the contract as he or they may think proper and the Owner may at any time sell any of the said constructional plant, temporary works and unused materials and apply the proceeds of sale in or towards the satisfaction of any sums due or which may become due to the Owner from the Contractor under the Contract.
- (ii) The valuation of the works, temporary works and constructional plant forfeited shall be as per the relevant Clause.
  - (iii) If the Owner shall enter and expel the Contractor under this sub-clause, he shall not be liable to pay to the Contractor until the expiration of the period of maintenance and thereafter until the costs of completion and maintenance, damages for delay in completion (if any) and all expenses incurred by the Owner has been ascertained and the amount thereof certified by the authorized representative of the Owner. The Contractor shall then be entitled to receive only such sum or sums (if any) as



would have been due to him upon completion of the Works by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor of the Works on due completion by him then the Contractor shall upon demand pay to the Owner the amount of such excess or it shall be deemed a debt due by the Contractor to the Owner and shall be recovered accordingly.

- III. To complete the Works or part of Works by the Owner at the cost of Contractor, viz; to supply labour paid by the Owner and to supply materials to carry out the Works or any part of the Works debiting the Contractor with the cost (as hereinafter specified) of labour and material and crediting with the value of the work done in all respects under same manner and at the same rates as if it had been carried out by the Contractor under the terms of his Contract. For the purpose of this Clause cost of labour shall be actual expenditure plus 25% to cover overhead charges (at penal rates), if the material have been supplied from stores of the Owner, the cost of material will be based on the market rate or stock issue rate whichever is greater plus 10% overhead charges. The certificates of the authorized representative of the Owner as to the value of the work done and as to the cost shall be final and conclusive against the Contractor.

**3.82 CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN UNDER CLAUSES:**

In any case in which any of the powers conferred upon the authorized representative of the Owner by clauses hereof, shall have become exercisable the same have not been exercised that time, the no exercise, thereof, shall not constitute a waiver of any of the conditions hereof and such powers shall be exercisable in the event of any future case of default by the Contractor for which, by any clause or clauses hereof, he is declared liable to pay compensation amounting to the whole of his security deposit, and the liability of the Contractor for past and future compensation shall remain unaffected.

**3.83 POWER TO TAKE POSSESSION OF OR REQUIRE REMOVAL OF OR SELL CONTRACTOR'S PLANT:**

In the event of the Owner or his authorized representative taking action under the relevant Clause, he may if he so desires, take possession of all or any tools, plant, materials and stores in or upon the Works or the site thereof or belonging to the Contractor or procured by him and intended to be used for the execution of the Works or any part thereof, paying or allowing for the same in account at the contract rates, or, in case contract rates not being applicable at its current market rates (on where and which position basis) to be certified by the authorized representative of the Owner whose certificate thereof shall be final. In the alternative, the authorized representative of the Owner who may by notice in writing to the Contractor or his authorized agent require him to remove such tools, plants, materials or stores from the premises (within a time to be specified in such notice), and in the event of the Contractor failing to comply with any such requisition, the Owner or his authorized representative may remove them at the Contractor's expense of sell them by auction or private sale on account of the Contractor and at his

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risk in all respects and the certificate of the Owner or his authorized representative as to the expense of any removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the Contractor.

**3.84 VALUATION AT THE DATE OF FORFEITURE**

The authorized representative of the Owner shall as soon as may be practicable after entry and expulsion by the Owner fix and determine expert or by or after reference to the parties or after such investigation or enquiries as he may think fit to make or institute and shall certify what amount (if any) had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract and what was the value of any of the said unused or partially used materials, any constructional plant and any temporary works.

**3.85 URGENT REPAIRS**

If by reason of any accident or failure or other event occurring to in or in connection with the Works or any part thereof either during the execution of the Works or during the Period of Maintenance any remedial or other work or repair shall in the opinion of the Consultant be urgently necessary for security and the Contractor is unable or unwilling at once to do such work or repair, the Consultant may by his own or other workmen do such work or repair as the Owner or the Consultant may consider necessary. If the work or repair so done by the Contractor is the work which in the opinion of the Consultant, the Contractor was liable to do at his own expense under the Contract all costs and charges properly incurred by the Owner in so doing shall on demand be paid by the Contractor to the Owner or may be deducted by the Owner from any sum due or which may become due to the Contractor. Provided always that the Consultant shall soon after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

**3.86 REMEDY ON DEFAULT OF THE CONTRACTOR**

If the Contractor shall fail in his duty to observe or perform any requirement, instruction, direction or order of the Consultant duly made given in accordance with the Contract or shall otherwise fail to fulfill any obligation imposed upon him by the Contract the Owner may, have by itself or by its servant or agents remedy such default and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him or may be deducted by the Owner from any moneys due to the Contractor.

**3.87 SETTLEMENT OF DISPUTES**

In the event of any disagreement between the Contractor and the authorized representative of the Owner as to any question of fact, the matter shall be referred to the Owner for his decision. The Owner shall after making such enquiries as he may deem fit, amend, or reinstate the decision of the authorized representative of the Owner. The decision of the Owner shall be final and binding. In the event of the disagreement being of question of Law or mixed question of law and fact where facts are inseparable from law, the dispute shall in the first place be referred

to the Owner for his provisional decision. The Owner shall after making such enquiries as he may deem fit give his decision in writing. The Contractor shall forthwith give effect to the decision of the Owner, and shall proceed with the Works with due diligence whether Arbitration is intended or not.

**3.88****ARBITRATION**

- (a) This clause shall be deemed to be as ARBITRATION AGREEMENT under the Pakistan Arbitration Act, 1940 and all amendments and statutory modifications thereto in force.
- (b) Disputes which may be referred to Arbitration shall be limited:
- (i) Any question, difference or objection, whatsoever which shall arise in any way connected with or arising out of the contract or/and
  - (ii) the meaning or operation of any part of the Contract or/and
  - (iii) the rights, duties or liabilities of either part or/and
  - (iv) a question whether provision has been made in the contract for final decision in any matter by the authorized representative of the Owner or/and
  - (v) whether such matter has been finally decided accordingly or/and
  - (vi) whether the Contract should be rightly terminated and/or
  - (vii) whether the Contract has been rightly terminated and/or
  - (viii) as regards the rights and obligations of the parties as the result of such termination or/and
  - (ix) whether the claims are barred by Statute, waiver or forfeiture.
- (c) The venue of Arbitration shall be in Karachi, Pakistan.
- (d) The award of Arbitrator shall be final and binding and where the matter involves a claim for or the payment or recovery or deduction of money, only the amount, if any, awarded in the Arbitration shall be recoverable in respect of the matter so referred.

The Arbitrator shall have full powers to open up, review, and revise the provisional decision of the Owner under the preceding clause, and neither party shall be limited in the proceedings before the Arbitrator to the evidence, argument or set off, put before the Owner for the purpose of obtaining his said decision. No decision given by the Owner in accordance with the

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foregoing provisions shall disqualify him from being called as a witness and giving evidence before the Arbitrator on any matter whatsoever relevant to the dispute or difference referred to the Arbitrator.

**3.89 ENTERING UPON REFERENCE**

The arbitrator shall not enter upon reference and/or commence arbitration proceedings unless the entire works are completed.

**3.90 LEGAL NOTICES**

(a) Service of Notice on Contractor

Any notice to be given to the Contractor under the terms of the Contract shall be served by sending the same to the Contractor's head office or his local site office by registered mail or by leaving it at his head office or local site office against a duly executed receipt.

(b) Service of Notice on Employer

Any notice to be given to the Employer by the Contractor under the terms of the Contract is to be sent to employer's head office by registered mail or left at the head office against duly signed receipt.

(c) Notices from the Employer or the Contractor to the Consultant are to be sent by registered mail or left at his head office against duly executed receipt.

**3.91 FOREIGN EXPERTS, SUB-CONSULTANTS OR WORK SPECIALISTS**

The foreign experts, sub-consultants or work specialists engaged for the work shall have access to the work at any time, after fulfillment of legal formalities by the contractors, allowable by the owner. Whenever they give any instructions regarding the Works, the Contractor shall pay full attention and get these confirmed from the Consultant for compliance.

**3.92            GOVERNING LAW**

The contract shall be governed and construed in accordance with the laws of Pakistan and the courts of Karachi shall have non-exclusive jurisdiction in relation to any dispute arising in terms hereof.

**3.93            BLACK LISTING OF COMPANY AND ITS PROCEDURE:****1. Blacklisting**

Blacklisting means; temporarily or permanently, barring an entity or a person against whom proceedings have been initiated including but not limited to bidder, contractor, supplier, agent, consultant, company, partnership or firm; hereinafter referred to as, Respondent from participating in any future procurement of goods and services. The Respondent(s) individually or collectively as a consortium may be blacklisted by State Life Insurance Corporation of Pakistan if found to have been involved in any or all of the following acts:

- A) Undermines or adversely affects the operations of the company through any of the following:
  - a) Withdrawing a bid during the bid validity period;
  - b) Failure or refusal to:
    - i. sign the contract;
    - ii. accept Purchase Order / Service Order Terms;
    - iii. execute work;
    - iv. submit Bank Guarantee as per tender terms;
    - v. make supplies as per specification agreed;
    - vi. fulfill contractual obligations as per contract;
    - vii. meet purchase order / service order terms and conditions; and/or,
    - viii. to remedy underperformance as per contractual obligations.
    - ix. Or any other non-compliance of obligations vital for the execution / compliance of the contract.
  - c) Repeated non-performance.
- B) Indulgences in corrupt or fraudulent practices while obtaining or attempting to obtain contracts in the company.
- C) Convicted of fraud, corruption, tax evasion or criminal misappropriation by a court of competent forum.
- D) Notified blacklisted/debarred/cross debarred by any public sector organization or international agency. In this regards the contractor has to submit a certificate that he or his principal is not declared blacklisted / debarred / cross debarred by any public sector organization or international agency
- E) Furnished information that was false and materially inaccurate or submitted forged or fake documents.

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## 2. Debarment of Natural Terms.

- a) The following shall stand disqualified and debarred from participating in State Life tenders or contracts pursuant to black listing proceedings:
  - i. in case of a company; all directors including its Chairman, Chief Executive and Chief Financial Officer.
  - ii. In case of partnership; all partners

## 3. Debarment of Associated Companies or Entities

Where a company or an entity has been blacklisted, all its associated or subsidiary undertaking whether by way of common directorship, common management and control, shareholding or direct or indirect control through directors of blacklisted entity etc shall also stand disqualified from participating in State Life tenders or contracts

## 4. Grievance Redressed Committee on Procurement Rules Enforcement.

- a) Complaint if any regarding Procurement Rules can be made to General Manager (RED), who will refer the matter to Grievance Redressed Committee for its findings & decision.

## 5. Proceedings for blacklisting

- a) General Manager / Divisional Head (RED) on receipt of information / complaint shall refer the matter to the Grievance Redressed Committee.
- b) The Committee after examining the material placed before it shall determine whether it is necessary and appropriate to initiate formal black listing proceedings.
- c) In case the Committee decides to initiate blacklisting proceedings Respondent shall be formally intimated in writing about the nature of complaint / matter and initiation of blacklisting proceedings.
- d) The Respondent shall be intimated by giving a seven day notice through courier services and, shall be provided an opportunity of furnishing response either through written representation or personal hearing or both.
- e) In case the Respondent fails to furnish his defense or representation the committee may proceed ex-parte on the basis of information, record and material available before it provided that two subsequent notices at three working days intervals have been given.
- f) The Respondent against whom blacklisting proceedings have been initiated may be represented through:
  - 1) In case of an individual or sole proprietorship; in person.
  - 2) In case of a firm or partnership; by the Chief executive or the Managing Partner, duly authorized.
  - 3) In case of a company; by the Chief Executive or a Director or any officer duly authorized by the Company.

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## 6. Findings & Decisions

- a) The Committee after finalizing its proceedings shall record its findings in writing and decide one of the following measures for implementation:
  - i) Temporarily debarred, specifying the time period;
  - ii) Blacklisted if the Respondent fails to take remedial action within the specified time; or,
  - iii) Permanently Blacklisted.
- b) The order of the Committee shall be communicated in writing to the respondent.

## 7. Appeal

- a. The Respondent may appeal within seven working days of intimation of decision of the Committee to the Chairman, State Life in writing of any irregularity in the decision of the Committee.
- b. If there exists any substance in the appeal the Chairman, State Life after recorded reasons may direct that Committee may review the case by providing opportunity of hearing to the Respondent provided that the review shall be completed within 15 days.

The Committee shall record its findings in writing and refer the same to the Chairman for appropriate orders.

- a. If the decision at 6(ii) or (iii) materializes then the decision is fit to be publicized and communicated to PPRA, and any other department if deemed necessary, and also hoist on State Life website.

## **Appendix**

Mandatory for participation in Bidding Process.

### **AFFIDAVIT**

I \_\_\_\_\_ S/o \_\_\_\_\_ aged \_\_\_\_\_ years, working as Proprietor/Managing Partner Director of M/s \_\_\_\_\_ having its registered office at \_\_\_\_\_ do hereby solemnly affirm and declare on oath as under:

1. That I am competent to swear this affidavit being proprietor/one of the partners/ Director of M/s \_\_\_\_\_.
2. That M/s \_\_\_\_\_ is a proprietorship/ partnership firm/company is participating in tender process conducted by State Life Insurance Corporation of Pakistan.
3. That I hereby confirm and declare that my/our firm/company M/s \_\_\_\_\_ and my/our firm/group/company/sister concern/ associate company have not been black listed by any Institutional agencies/ Govt. Dept./ Public Sector Undertaking.
4. That there is no change in the Name & Style, Constitution and Status of the firm.
5. That I further undertake that in case any of the facts contained above and in our application is found other-wise or incorrect or false at any stage, my/our firm company/group/sister concerns/associate companies shall stand debarred from the present and future tenders of State Life.

(Signature of the Proprietor/Managing Partner/Director with Seal)

### **DEPONENT**

Verified at \_\_\_\_\_ on \_\_\_\_\_ that the contents of pares 1 to 6 of this affidavit are true and correct to best of my knowledge and no part of this is false and nothing material has been concealed or falsely stated therein.

(Signature or the Proprietor/Managing Partner/ Director with Seal)

DEPONENT

(Signature & Seal of Notary)



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## **4.0 SPECIAL CONDITIONS OF CONTRACT**

### **4.1 INTENT OF SPECIAL CONDITIONS OF THE CONTRACT AND THE SPECIFICATIONS:**

- (a) It is intended that all special provisions in relation to the General Conditions in Chapter-3 shall be given in Chapter-4 "Special Conditions of Contract".
- (b) The provisions of Chapter-4 "Special Conditions" will have precedence over the provision of Chapter-3 "General Conditions".
- (c) It is intended that the tender documents including General Conditions, Special Conditions, the Specifications and the Tender form shall form the part of each equipment, material and work Contract between the Employer and successful tenderer.
- (d) In the event of any conflicts and contradictions in different sections of the Tender Documents the decisions of the Consultant in respect of interpretation will be final.

### **4.2 PRIORITIES**

The priorities for completion of different works or part of works shall be assigned by the Consultant if necessary and the Contractor shall abide by all such directions without any claim for compensation in any shape and due to any reason whatsoever.

### **4.3 SHOP DRAWINGS**

The Contractor shall prepare and submit for approval detailed shop drawings for all items, manufacture, fabrication and assembly undertaken and required for the proper execution of any items of work connected with the satisfactory completion of the Contract. These drawings should be based on and referred to with drawings, instructions and specifications given in the Contract Documents and Supplier's manuals. The detailed procedure of submission, approval and recording of these shop drawings shall be indicated by the Consultant.

### **4.4 ACCESS TO STORES**

The Consultant or the Engineer or any person authorized by them shall at all times have access to the stores and places where manufacturing or assembling is being made and the Contractor shall afford every facility and every assistance in stock taking and inspection of such materials and manufactured product.

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**4.5 SECURED ADVANCE AGAINST NON-PERISHABLE MATERIAL BROUGHT AT SITE:**

The payment terms stated in the Salient Features in Chapter 1 of these tender documents shall be the mode of payment for this contract.

**4.6 STANDARDS AND TYPICAL DESIGN**

The specification either cites or implies Standards and typical designs for equipment and material. Other comparable United States, European or Japanese standards and typical designs are equally acceptable providing that they in no way detract from the quality, safety, operability or durability of the equipment and material furnished. However, when other standards or typical designs than those cited or implied are offered by a tenderer, he shall set forth in his proposal the alternate standards and/or designs he proposes so that a direct comparison can be made by the Consultant before the issue of a notice of award. Each specific difference from the specifications shall be clearly spelled out by the tenderer. If no alternates are set forth by the Tenderer in his proposal, it will be assumed that the equipment and material will be in accordance with the standards and typical designs as cited or implied in the Specifications.

**4.7 DRAWINGS BY THE CONTRACTOR:**

- (a) The Contractor shall submit As built drawings in triplicate for approval to the Consultant. The Consultant shall review the drawings & (i) approve the drawing or, (ii) disapprove the drawings with comments or, (iii) disapprove the drawings with comments for rectification/revision. In the event of (iii), the Contractor shall correct/revise the drawing & resubmit 3 copies to the Consultant for Approval. On a drawing being approved, the Contractor shall submit 6 copies for formal approval and distribution to relevant offices.
- (b) All drawings shall show plans and sections with sufficient details to clearly reflect the installation of the plant. All material specifications shall be provided on the drawings. All information required for preparing suitable foundation, for providing suitable access to the plant, for making openings in building structure, for co-ordination with electrical, plumbing and other designs etc., shall clearly be provided.
- (c) Each As built drawing submitted by the Contractor shall include a certificate by the Contractor that all related conditions on site relevant to the particular installation have been checked and that no conflict exists.
- (d) Any expenses resulting from an error mistake or omission in or delay in delivery of the drawings and information mentioned in sub-clause (b) of this clause shall be borne by the Contractor.
- (e) Drawings approved shall not be departed from except on the instructions of the Consultant.

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- (f) The approval by the Consultant for any submitted data, working drawings, performance curves, test certificates for any items, arrangements and/or layout shall not relieve the Contractor from any responsibility regarding the performance of the Contract. Such approval shall not also relieve the Contractor from responsibility of any error in the submitted data and workings, brought to light at any time subsequent to any approvals.

**4.8 OPERATING AND MAINTENANCE INSTRUCTIONS AND FUNCTIONAL DESCRIPTIONS:**

The Contractor shall furnish to the Employer before the works are taken over. Operating and Maintenance instructions together with drawings (other than As built drawings) of the Works as completed, in sufficient detail to enable the employer to maintain, dismantle, re-assemble and adjust all parts of the Works. The Works shall not be considered to be completed for purposes of taking over under the terms of Clause "Taking Over", "Use Before Taking Over" and "Interference With Tests" until such Instructions and Drawings have been supplied to the Employer.

**4.9 RESPONSIBILITY FOR ACCURACY OF INFORMATION**

- (a) The Contractor shall be fully responsible for accuracy of all information necessary for successful and timely completion of the works.
- (b) The Contractor shall be responsible to make all measurements and set out all the necessary dimensions for their correctness.
- (c) The Contractor shall be fully responsible for ascertaining the accuracy of the dimensions and other information given in the tender documents before carrying out the work. The Contractor shall provide the complementary dimensions and communicate the same to the Consultant.
- (d) The Contractor shall consult the drawings and documents which have been prepared for the Civil Contract by other Consultants, which can affect his work and which are either kept on site or are available with the other Consultants.
- (e) It shall be the responsibility of the Contractor to acquire all necessary information and ascertain its accuracy for co-ordination of the works with the works of other Contractors.

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**4.10 COORDINATION BETWEEN THE CONTRACTOR, THE EMPLOYER, CONSULTANT AND OTHER CONTRACTORS:**

- (a) The Contractor shall himself be solely responsible for the complete co-ordination of his work with the Employer, Consultants and other Contractors.
- (b) It is recognized that certain works necessary for the completion of the Contractor's obligation under this Contract shall be carried out by the other Contractors. For such purposes necessary instructions have already been or shall be issued to the other Contractors. It shall, however, be the Contractor's sole responsibility to bring to the notice of the Consultant prior to the commencement of such work or in part thereof, if the same has been Committed to be mentioned in the instructions issued to the other Contractors or if the instructions issued to the other Contractors have not been complied with. For the purpose of this clause, one copy of all drawings issued to the other Contractors shall be made available to the Contractor.
- (c) In case of default on the part of the Contractor to co-ordinate such requirements from other Contractors, any additional cost incurred in providing the same shall be borne by the Contractor.
- (d) The Contractor shall submit to the Consultant 3 sets of drawings showing all major holes, cavities, embedded frames and other parts of the plant to be embedded in the floor, ceiling and walls, channels in the floors, cable trenches, cement pipes or other major conduits, which are needed for the successful and timely completion of the works. The Consultant after ascertaining the accuracy of these drawings, shall return 1 (one) set of the drawings to the Contractor, within 14 days of the receipt of these drawings.
- (e) The Contractor shall also show on the set of drawings mentioned in sub-clause (d) of this clause, the parts of the plant which have to be coordinated with other works (specially the electrical and sanitation layouts).

**4.11 FINAL INSTALLATION DRAWINGS**

The Contractor shall deliver to the Employer complete installation drawings of the works before or at the most one month after the issue of the Final Acceptance Certificate. The obligations of the Contractor in respect of the scope and requirements for preparation of the final drawings shall be as set out in this section and/or the Specifications.

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**4.12 DOCUMENTS DISTRIBUTION**

- (a) The number, type and distribution of documents shall be as directed by the Consultant.
- (b) Whenever applicable all documents shall be posted via Air Mail. Cables shall be confirmed immediately by a mail counterpart, (Air Mail counterpart, wherever applicable). All letters shall be numbered using a numbering system as approved and/or instructed by the Consultant.

**4.13 TIME FOR SUBMISSION OF DRAWINGS:**

The obligations of the Employer and the Contractor in respect of times for submission of drawings shall be as set out in a separate appendix to the Contract Agreement, or as directed by the Consultant.

**4.14 ELECTRICITY AND WATER FOR CONSTRUCTION:**

It will be the responsibility of the contractor to make the requisite arrangements necessary to utilize the electricity and water at the site on payment of these utilities to the client (State Life Insurance Corporation of Pakistan). In case of power shut down by the Electric Authority including routine load shedding, no power will be supplied by the owner for the construction work and the contractor should make alternate arrangements for electricity required for construction. Similarly, water will not be supplied by the owner during Electricity Authority shut down and the contractor is required to arrange water for construction.

Any delay due to non-availability of electricity or water shall not be entertained and the delay clause of 0.1% of contract price penalty per day shall apply for delay beyond the agreed completion date.

**4.15 USE OF CANTEEN FACILITIES ON SITE**

No canteen facility will be available for the contractor and its workers none of the workers or contractor is allowed to cook any kind of food, make fires or eat meals on site. No littering or spitting is allowed.

**4.16 LIABILITY FOR ACCIDENTS AND DAMAGE**

The Contractor shall properly cover up and protect until taken over any section or portion of the Works liable to injury by exposure to weather, and shall take every reasonable precaution to protect any section on or portion of the Works not taken over against loss or damage because of any cause.

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**4.17 PURCHASE OF EQUIPMENT / MATERIAL**

All the equipment and material e.g. switchgear, fuse gear, cables, conduits and light fixtures will be purchased direct from the Manufacturer or authorize representative of the manufacturer to ensure the use of genuine material. Manufacturer's certificate and copies of delivery challans for all such material will be produced as and when desired.

**4.18 WARRANTY FOR EQUIPMENT**

- a) All equipment must be supplied with Manufacturer's Warranty for a period of **2 YEARS** from the date of commissioning of equipment.
- b) The Contractor shall guarantee that the material and workmanship incorporated into the work are new and the best of their respective kinds for the service intended and that all items will be free from inherent defect in design, workmanship and materials, and that all equipment in its several parts will operate successfully at all capacities up to and including the maximum specified load without undue noise, heating, straining of parts, wear and vibration.

**4.19 MAINTENANCE OF EQUIPMENT:**

The contractor shall be responsible for maintaining the equipment for a period of 2 years from the date of commissioning of equipment.

**4.20 PUMPING AND DRAINAGE**

The contractor shall Remove all water resulting from any source which may accumulate on the site from time to time by providing sufficient drainage and/or pumping systems to the Consultant's approval. The site shall be maintained in a dry condition by Contractor at all times at the Contractor's expense.

**4.21 TEMPORARY BARRICADE, RAIL ETC.**

The Contractor shall provide, erect and maintain adequate temporary barricades, hoardings, planked footways, warning signs and lights for the protection of the public all closures and detours as well as maintain them in a safe manner at all times.

**4.22 FENCING**

The contractor shall maintain existing fencing of neighboring properties in a safe and secure manner at all times. Any damage to the existing fences shall be repaired immediately

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**4.23      CLEARING OF SITE:**

Clear up and remove all rubbish and debris from the site before commencement and at regular intervals or as directed by the consultant / client's Project Manager.

At all stages of the works the Contractor shall be responsible for maintaining the site in a clean and orderly fashion at all times. The Contractor shall be responsible for the daily removal and off haul of all rubbish and debris resulting from the above and he shall maintain a safe and clean site for all workman at all times.

Rubbish accumulating from work strewn over existing properties, public paths and roads and other areas shall be removed continuously at the Contractor's expense.

Any fines resulting from the Contractor's failure to remove rubbish away from these places will be borne by him.

Should the Contractor fail to maintain the work in a timely and orderly manner to the detriment of the works or to standards acceptable, the Employer may employ such persons considered necessary to clean up the works, and the cost of such persons together with the costs of all necessary plant shall be deducted from contractor bill.

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**4.24 CONTRACTOR SUBMISSION PRIOR TO COMMENCEMENT OF WORK:**

Before advance payment, the Contractor shall submit to the client STATE LIFE INSURANCE CORPORATION OF PAKISTAN or Project Manager the following documents:

1. The Performance Bonds
2. The requisite Insurance Policies together with receipts of premium paid.

Before commencement of the Works, the Contractor shall submit to the client STATE LIFE INSURANCE CORPORATION OF PAKISTAN, or Project Manager the following documents:

1. The Works Programme as specified herein and in accordance with the Contract
2. Submittals and Method statements together with diagrams, charts or other illustrations in respect of any complicated works
3. Forecast of the number of workers (both skilled and unskilled) for various trades to be employed during the Works. A Site Organization Chart of the Contractor's Site Management personnel together with their respective resume of qualification and experience (see detailed requirements of Site Management provided herein).
4. Schedule of Construction Plant and Equipment such as piling rigs, excavators, dirt trucks, etc. together with a deployment plan thereof.
5. Schematic of shop drawings before any activity undertaken.
6. Layout plan of any temporary building or structures to be erected within the site boundary.
7. Procurement schedule for long lead items showing :
  - item and quantity
  - date required on site
  - date to be ordered
  - shop drawings time (including approvals)
  - production time
  - delivery time
8. Safety program (minimum to be the client Project Managers in house safety procedures)

The submission of the above documents shall in no way relieve the Contractor of his responsibilities under the Contract.



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**4.25**      **PROJECT MEETING:****Preconstruction Meetings**

1. Within three (3) days of the award of the Contract or such date as directed by Project Manager, request a meeting to discuss and resolve administrative procedures and responsibilities and scheduling.
2. Senior representatives of the Employer, Contractor and Consultants, as determined by the Employer, will be in attendance.
3. Agenda to include the following:
  - Appointment of official representative of participants in the Works.
  - Schedule of work, progress scheduling
  - Schedule of submission of shop drawings, samples, etc.
  - Requirements for temporary facilities, offices, storage areas, utilities and their locations on site.
  - Delivery schedule of specified equipment
  - Site security, boarding, signboard
  - Monthly progress payment claims and administrative procedures
  - Others as directed by the client Project Manager

**Periodic Site Meeting:**

A site meeting for the purpose of programming and coordinating the works will be held. Attend all site meetings and ensure attendance by all Sub-contractors as directed by Project Manager.

**4.26**      **DUST PREVENTION:**

Make adequate provision by spraying, erecting screens or other suitable methods including regularly cleaning out all rubbish and debris at daily intervals against any nuisance or damage by dust and debris to all the work under this Contract or to persons and property in the vicinity and take responsibility for any complaints for damage or claim in connection herewith.

**4.27**      **RESPONSIBILITY OF CONTRACTOR**

- a) The Contractor shall be responsible for all equipment and material until they are erected or installed in satisfactory condition and accepted by the Employer in writing, including the period of maintenance, providing the said "Taking Over" is not necessitated by the Contractor's negligence or non-performance.
- b) The Contractor shall be responsible for correctness of positions, levels and dimensions of the work according to the drawings notwithstanding in setting out the same.
- c) It is the intent of the specification to provide for the furnishing, delivery, erection and testing of the equipment and material specifically noted, shown, or called for. The omission of specific reference to any item of work that is reasonably necessary for

the proper functioning of the equipment, will not relieve the Contractor of the responsibility to furnish all equipment, materials, transportation, and/or labour required for a completed installation.

- d) The Contract documents are assumed to be correct, but complete accuracy is not guaranteed. Any error or ambiguity must be reported to the Consultant before starting the work affected. In the event of any dispute arising as to the true intended meaning of the Specification, the Consultant shall interpret the same and his interpretation shall be accepted as final and binding upon all parties concerned.
- e) The contractor shall submit to the client Project Manager a weekly report on the progress of the works. These reports should also include daily records of activities on site and must include information on the following:
  - 1. Weekly schedule status report.
  - 2. Submittal log.
  - 3. Request for information log.
  - 4. Daily Reports.
  - 5. Site Instruction Log.
  - 6. Equipment removed from site.
  - 7. Visitors Log.
  - 8. Other relevant information as requested by the client Project Manager.

These records must be entered daily and counter sign by the client or his authorized representative on site. Progress reports shall be in a format approved by the client Project Manager.

#### **4.28 CLEANING AND CLEARANCE:**

The Contractor shall provide, erect and maintain adequate temporary barricades, hoardings, planked footways, warning signs and lights for the protection of the public, providing for all closures and detours as well as maintain them in a safe manner at all times.

The Contractor shall ensure that the existing fencing of neighboring properties is maintained in a safe and secure manner at all times and shall undertake to repair any damage to the existing fences, immediately at its own cost.

The Contractor shall visit the Site and identify any obstructions existing on areas designated for the project Works as well as the temporary site establishment, which are not specifically indicated on the drawings and shall arrange for all removal of such structures and materials prior to commencement of the Works. The Contractor shall make arrangement for demolition and removal of all such obstructions, which can be reasonably foreseen from a thorough site inspection at time of tender. All costs of demolition shall be borne by the Contractor and the same shall be deemed to have included for such works in his Contract amount for the Works.

The Contractor shall ensure that the Site is kept in a clean, safe and orderly fashion at all times, for the duration of the Contract. The

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Contractor shall be responsible for cleaning and clearing of all debris and rubbish from the Site prior to commencement of the Works and for the regular cleaning and clearing of all debris produced by the installations of the works. He shall also be responsible for general clearing and cleaning of the plant room and AHU room. The contractor shall be responsible to make sure the site cleaned on a daily basis. Additionally, the Contractor shall be responsible for keeping clean neighboring properties, public paths and roads and other areas from any debris or dust resulting from the works, at its own cost.

Any fines, penalties or costs arising as a result of the Contractor's failure to keep the Site or neighboring areas clean and free of rubbish, dust and debris in terms of this Clause shall be borne solely by the Contractor.

In the event that the Contractor fails to keep the Site clean to the satisfaction to the Owner, the Owner may hire such persons as it deems necessary to clean up the Site and all costs incurred by the Owner in doing the same shall be charged to the Contractor and the same may be adjusted against any amounts owing by the Owner to the Contractor.

**4.29 WATER REMOVAL**

The Contractor shall ensure that the Site is kept dry and free of any water at all times and for this purpose shall provide sufficient drainage and / or pumping systems as approved by the Project Manager. The cost of water removal in the case of water collection and/or inundation caused for any reason whatsoever will be borne by the Contractor.

**4.30 USE OF CAMERA STRICTLY PROHIBITED**

No camera or mobile phone having camera is allowed on STATE LIFE INSURANCE CORPORATION OF PAKISTAN premises.

**4.31 PHOTOGRAPHS FOR PROGRESS REPORTS**

Photographs for progress reports, written request must be submitted to the STATE LIFE INSURANCE CORPORATION, KARACHI for official cameraman support. The authorized representation of owner will take pictures according to the rules and regulations STATE LIFE INSURANCE CORPORATION OF PAKISTAN, and local authorities. Hard copies of such photographs will be provided by owner to the contractor.

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**4.32**      **USE OF SITE**

The Site is to be kept as clear as possible to facilitate rapid progress of the work and no employees of the Contractor, unless authorized by the Employer, will be permitted to live on the site.

**4.33**      **COLOR CODING OF PIPES**

All pipes, air hoses and cables must be color coded every 2-3 meters and at every entry points to rooms and close to the machines according to color code scheme to be provided before start of work.

**4.34**      **FLAMMABLE ZONE**

Special care must be taken to ensure no sparks or open flames are produced during the execution of works by the contractor.

**4.35**      **UNLOADING AND STORAGE AT SITE**

- a) The Contractor shall unload all imported equipment and material at the site from delivery vehicles as the case may be. Items for permanent installation shall be properly stored in areas designated by the Consultant and shall be protected as required to prevent damage or deterioration of any type. Storage methods shall be such as to cause minimum inconvenience to others and shall be arranged to facilitate inspection.
- b) All equipment and material storage shall be subject to the approval of the Consultant.
  - i) Items stored shall be blocked up at least six (6) inches off the ground.
  - ii) The ends of all nozzles, pipes, tubes and conduits while in storage at the site shall be covered with a tube cap to save against entrance of rain water, blowing dirt, and other foreign matter. Tubing shall be shipped and stored in neat bundles.
  - iii) Miscellaneous steel, plate work, pipes, etc. shall be protected by a prime coat of paint and kept painted throughout the storage and erection period to prohibit rusting unless such items are galvanized or have other corrosion proof finish.
- c) All packing boxes, shipping containers, planking, covering, etc., shall become the property of the Employer as soon as the equipment and material which is contained therein arrives at the site. The Employer, on application from the Contractor, may permit the Contractor to use some of the boxes, containers, etc., without charge for equipment and material storage purposes.

**4.36**      **STARTUP, TRIAL OPERATION AND PERFORMANCE**

The Contractor shall be responsible for startup, trial operation and all performance tests as laid down in the specifications.

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**4.37            LOCATION OF ISOLATION VALVES:**

All shut off valves must be located at ground level, for ease of access without need for any step-stools or ladders. This is to ensure all equipment can easily be turned on or off by operators.

**4.38            VERIFICATION OF ACTUAL DIMENSIONS ON SITE:**

The Contractor shall be solely responsible for verification of actual site dimensions and building layout. Building layouts shown on tender drawings shall not be considered to be final with regard to dimensions and layout but shall be subject to actual verification by the Contractor. All working drawings prepared by the Contractor shall incorporate actual measurements taken on site. The Contractor shall ensure that all equipment can be conveniently fitted into the space allocated for this purpose.

If any space allocated for a certain equipment or combination of equipment's is insufficient or deficient in terms of clearances required for maintenance etc., the Contractor shall forthwith inform the Consultant of the discrepancy. He shall provide all reasonable assistance to the Consultant for verification of the same and for taking remedial measures.

It is understood that all tenderers during tendering shall have checked that the equipment proposed to be supplied by them fits conveniently into the space allocated for this purpose. In case any such space is insufficient, the tenderer shall so indicate the deficiency in his tender documents and specify the space requirements. Failure on the part of the tenderer to point out any discrepancies existing in this regard shall make him liable, if his tender has been accepted, to bear the full consequences existing out of a certain equipment not fitting into a certain space allocated for the purpose.

If any time during the progress of the Works any error shall appear or arise in the position, levels, dimensions or alignment of any part of the works, the Contractor on being required to do so by the Consultant shall at his own expense rectify such error to the satisfaction of the Consultant unless such error is based on incorrect data supplied in writing by the Consultant, in which case the expense of rectifying the same shall be borne by the Owner. The checking of any setting out or of any line or level by the Consultant or Engineer shall not in any way relieve the Contractor of his responsibility for correctness thereof and the Contractor shall carefully protect and preserve all bench marks, site rails, pegs and other things used in setting out the Works.

**4.39**      **ESCALATION**

The item rate Contract price agreed to by the Contractor for the performance of this agreement shall remain firm and final and no escalation in the Contract Price shall be allowed because any change in the rates of customs duties, sales tax, excise, income tax, increase in POL or currency fluctuation etc.

**4.40**      **OPERATING AND MAINTENANCE INSTRUCTIONS/  
TROUBLESHOOTING**

4.40.1      Bound Instructions: Five complete sets of operating and maintenance manuals, duly approved by the Consultant, shall be supplied by the Contractor, prior to hand over of the project to the Owner. Each set shall be permanently bound and shall have a hard cover. Each manual shall be inscribed with suitable legend for proper identification and use of the manual. The matter shall be legibly typed and/or shall be clear Photostat copies of the original documents, catalogues etc.

Flysheets shall be placed before instructions covering each subject. The instruction sheet shall be approximately 8.5" by 11", with large sheets of drawings folded in. The manual shall be arranged in two parts and shall generally conform to the arrangement shown below:

**Part I - Systems**

1.      The systems volumes shall be organized into divisions wherein each division represents a generic function. System shall then be classified under appropriate divisions.
2.      The material for each system shall be organized into sections descriptive of the following basic areas of information:
  - (a)      Descriptive Information
  - (b)      Operating Instructions
  - (c)      Inspection and Maintenance Instructions
3.      Sections shall be organized to include the following categories of information:
  - (a)      Descriptive Information
    - (1)      Function or Service
    - (2)      Classification
    - (3)      Design Capability
    - (4)      Performance Characteristics
    - (5)      Principal Components
    - (6)      Distribution Components
    - (7)      Schematic diagram
    - (8)      Control diagram
    - (9)      Equipment data:

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- (i) Inventory Designation
    - (ii) Manufacturer and Model
    - (iii) Size and Rating
  - (b) Operating Instructions
    - (1) Starting and Stopping Procedures
    - (2) Adjustment and Regulation
    - (3) Seasonal Change-over
    - (4) Seasonal Start-up
    - (5) Seasonal Shutdown
    - (6) Logs and Records
  - (c) Inspection and Maintenance
    - (1) Inspection Schedule and Checklist
    - (2) Schedule and Procedures for lubrication, adjustment, cleaning, painting protection and testing
    - (3) Inspection and Maintenance Records
4. Reference Documents
- (a) Construction Drawings list
  - (b) Construction Specifications
  - (c) As-built drawings for record
  - (d) Test and balance records

## **Part II - Equipment**

1. This part of the Manual shall be composed of manufacturer's and fabricator's data on equipment and materials organized into divisions wherein each division represents a generic classification of equipment.

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## 5.0 TECHNICAL SPECIFICATIONS FOR EQUIPMENT/ MATERIAL

### 5.1 COOLING TOWER

#### 5.2 SPECIFICATIONS AND REQUIREMENTS

- A. The cooling tower shall be a factory-fabricated, cross flow, vertical air discharge, mechanical induced draft type as indicated on the drawings, deck filled, complete with casing, basin, hot water distribution, frame, air inlet, float valve assembly, fans, drain, over-flow and bleed connections. Rated capacity shall be based on 25% extra heat dissipation per ton of refrigeration. Tower shall be structurally designed to withstand a 30 Lbs/ft<sup>2</sup> (147 Kg/m<sup>2</sup>) wind load. All joints shall be watertight and arranged to shed water inward. Means of access shall be provided to all parts of the cooling tower for servicing and maintenance.
- B. Casing shall be of Fiber Glass Reinforced Plastic (FRP). Construction shall be bolted with stainless steel, hot dip galvanized steel bolts, or cadmium plated bolts. Legs shall be of aluminum.
- C. Air Inlet shall be designed to prevent backsplash at any rate of water flow up to the specified capacity.
- D. Fill shall be polyvinyl chloride sheets having a minimum thickness of 0.0051 inch (0.13mm). Fill shall be free to expand or contract without warping, and shall be adequately supported so that no sagging or warping will occur. Fill shall be of the interlocking type.
- E. Fans shall be fixed pitch, heavy duty cast or formed aluminum with a minimum of 4 blades. It shall discharge through an FRP fan cylinder designed for streamlined air entry and minimum loss for maximum fan efficiency. Fan and shaft shall be supported by heavy duty, relubricatable ball bearings, with special moisture seals, slingers and housing to prevent moisture accumulation. Fan shall be directly coupled to the motor. Fan motor shall be totally enclosed, two speed, reversible squirrel cage, ball bearing type, designed specifically for cooling tower service. Motor shall be furnished with special moisture protection on winding, shafts and bearings. Fan cover of galvanized wire shall be provided.
- F. Cold Water Basin shall be watertight, constructed of FRP. The basin shall be adequately supported to prevent sagging or buckling. Cold water basin shall be provided with accessible float valve assembly, overflow, capped drain, and screen non-cavitating pump suction or sump with strainer.
- G. Distribution System: Hot water distribution shall be through rotary water distribution made of PVC.



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**5.3            THERMOMETERS:**

5.3.1            Pipe Thermometers: These shall be adjustable angle type, with 7 inches scale case, 5 inches insertion length; 6 inches stem length, 3/4 inch NPT, with brass separable socket. Case shall be smooth die cast aluminum with metallic blue-black finish. Window shall be clear acrylic plastic or double strength glass, held in place with removable stainless steel caps. Tube shall have lens front with red appearing mercury tubing. Scale shall be on white background with jet black embossed figures and markings, of specified or suitable scale, in combination of °F-°C.

**5.4            PRESSURE GAUGES:**

Pressure gauges shall be of dial size and scale range as required, indicated on drawings or in the bill of quantities.

Case shall be of cast aluminum, black finished. Ring shall be close type, chrome plated. Window shall be clear glass. Dial shall be white with jet black embossed figures and graduations. Pointer shall be micrometer type, black finished and red tipped. Movement shall be stainless steel, rotary type. Bourdon tube shall be phosphor bronze, silver brazed to socket and tip. Socket shall be forged brass. Accuracy shall be 1/2% of the scale range. Gage shall be similar to Model 500X as manufactured by H.D. Trerice & Company, U.S.A. All gages shall be supplied with Pressure Snubbers.

5.4.1            RANGE: shall be minimum as required to suit application. Dial size for equipment in Plant Room shall be 4 1/2" Ø and for air handling units shall be 3 1/2 "Ø.

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## 5.5 **FOUNDATIONS:**

### General:

All equipment, piping, and ductwork where used shall be mounted on or suspended from foundations and supports, all as specified, or as required.

Shop drawings and templates for all concrete foundations where used, shall be provided by contractor as per recommendations of the manufacturer of the equipment.

Foundations and vibration isolation mountings for various equipment, piping, and ductwork where used shall be per requirements specified. Vibration isolators where used shall be of approved make.

Springs used for vibration isolation shall be single, open coil type and laterally stable, having a ratio of loaded height to mean coil diameter not greater than 1.25, to preclude possibility of spring coils "shortening" when motor starts or slows down. The springs shall be selected so that there remains when the spring is design loaded a reserve deflection of between 25 and 30 % of maximum deflection of free spring. When fully compressed, maximum stress in steel should not exceed yield stress of spring material. Springs shall be un-housed and held well clear of any part of suspended mass. Isolated system if supported on a flat slab; type base, shall be held clear of supporting structure, slab or pad by minimum distance of 1" (25mm) for efficient housekeeping. Lower end of each spring shall be supported on a rigid, square, steel base plate sufficiently thick to withstand a bearing pressure of 420 kPa. This plate should be complete with 3 thicknesses of type W neoprene waffle pad of Mason Industries, (U.S.A) or equal, between underside of plate and supporting structure. A 16 gauge steel shim plate bonded to pad surfaces shall separate adjacent thicknesses. Spring base plate shall also be bonded to top layer of pad. Pad area should be chosen to suit hardness of neoprene. For 40 durometer neoprene, bearing pressure on supporting structure shall be 275-350 KPa when spring is design loaded.

All reinforced concrete inertia pads shall have a minimum 8" thickness. On all corners of inertia concrete pads and integral rigid structural steel bases supporting mechanical equipment, install M.S angles with snubbers. These shall be built up from 3 thickness of neoprene waffle pad bonded with suitable adhesive and fixed to angles.

### Mounting Of Equipment:

All floor or roof mounted equipment not requiring special foundations shall be placed on 4-6" thick concrete housekeeping pads cast over 1" thick cork sheet.

All equipment installed through wall shall have 20 gauge galvanized sheet metal sleeves which shall remain in place permanently. Sleeve shall be packed with non-combustible glass fiber insulation, minimum 1.5 lb/ft<sup>3</sup> density and sealed with sealant. Equipment installed through walls shall have supporting wall brackets.

Special attention shall be given to the equipment on roof and intermediate floors and manufacturer's recommendations for prevention of vibration and noise travel to the structure shall be adopted. The foundation details shall be subject to the approval of the Engineer.

All ceiling diffusers/wall grilles shall be screwed to wooden frames and not to the ceiling and wall material or wall masonry. Exact sizes of these frames and their locations shall be provided by the HVAC contractor to the civil contractor after approved of Engineer, for fixing in the false ceiling and wall at appropriate locations. Sizes of framed shall be such that margin of diffuser. Grille shall overlap at least 1/8" over frame-ceiling or frame wall joint.

Vibration Isolation:

Vibration isolation bases shall be provided and installed under all pumps to prevent the transmission of vibration to the building structure.

In case of Air Handling Units and Return Air Fan where the fans and motors are not spring isolated from the Air Handling Unit, the entire unit shall be mounted on vibration eliminator bases, Fans with belt drives shall be mounted on continuous rails with sliding bases for motor adjustment, and fan rails shall be mounted on vibration eliminator bases.

Flexible pipe connections, as specified elsewhere, shall be fitted wherever pipes cross building expansion joints at suction and discharge of each pump and at connections to chillers, and/ or wherever shown on the drawings.

Flexible duct connections, as specified elsewhere, shall be fitted wherever ducts cross building expansion joints, at suction and discharge end of Air Handling Units, and Fans where ducts are connected to such unit, and or wherever shown on the drawings.

Details of all vibration isolated, flexible connections and bases shall be submitted to the Engineer for approval.

## 5.6 TOOLS & INSTRUMENTS:

The Contractor shall furnish tools & instruments required for the testing, servicing & maintenance of plant, as per the list given below. The tools shall be supplied in properly constructed metal tool boxes. All tools should be of Imported origin.

S.NO	ITEM DESCRIPTION	QTY
1	Digital Thermometer	1 No.
2	Sling Psychrometer	1 No.
3	Amprobe	1 No.
4	Volt-Ohm- Multimeter	1 No.
5	Set of adjustable spanners	3 Nos.
6	Set of Fixed Spanners	12 Nos.
7	Set of Screw Drivers	12 Nos.
8	Set of Philips Screw Drivers	6 Nos.
9	Flat Pliers	2 Nos.
10	Nose Pliers	2.Nos.
11	Set of files	4 Nos.
12	Set of Hammers	4 Nos.
13	Hack Saw Set	2 Nos.
14	Flaring and Cutting Tool	1 No.
15	Allen Key Set	1 Set.
16	Pipe Wrench	1 Set.
17	Box Spanner	1 Set.
18	Open end Spanner	1 Set.
19	Ring Spanner	1 Set.
20	Vacuum pump	1 No.
21	Gauge Mani Fold Imperial USA	1 No.

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**5.7 CHARTS AND TAGS:****TAGS:**

The 20 g brass tags shall be at least 1-1/2" dia, the numbering shall be stamped and tags fastened to the controls and valves with brass chains and hooks.

**CHARTS:**

- 1) The contractor shall submit to the Engineer for approval the list of charts, diagrams etc. which he proposes to supply.
- 2) All tracings are to be on linen base and four copies each of charts shall be provided indicating schedule of:
  - i. Daily start-up and shut down.
  - ii. Emergency shutdown.
  - iii. Scheduled of servicing and maintenance.
  - iv. Lubrication points and schedule.
  - v. Chart listing equipment model and serial nos.
  - vi. Condition of operations.
  - vii. Normal settings of automatic and safety controls,
  - viii. Data of accessories
  - ix. Equipment manufacturer's name and address
  - x. Reference no of technical and spare part catalog supplied to the Project Engineer.
  - xi. Outline plans of the structure and system.
  - xii. Description of essential features of all the component of the installed system for the purpose of identifying the location of all control points valves etc for easy operation maintenance and servicing
  - xiii. The Engineer may accept reproducible sepia transparencies instead of linen base tracings.

**INSTALLATION:**

1. In the plant room a glass frames large scale system flow diagram shall be installed duly colored to show the various piping system and with all valves etc. clearly identified by their tags numbers.
2. Identifying brass tags for all valves controls etc. with numbers corresponding to those given in the charts or diagram specified to be installed.
3. One set of charts and diagram to be mounted in glass frame and permanently fixed accordingly to the Engineer's direction.
4. A glass framed instruction for startup procedure sequences of operation and maintenance/servicing procedure will be installed in the plant room.

## 5.8 LIST OF SPARE PARTS:

Tenderers are required to quote a total lump sum cost for the spares given below. Any deviation from these spares must be clearly indicated by the tenderer in his tender.

### 5.8.1 Spares for Cooling Tower:

1.	Fan bearing set	-	2 Nos.
2.	Float valve set	-	1 No.
3.	Spares for fill	-	5% of total fill
4.	Spray Nozzles	-	36 Nos.
5.	Gear drive set	-	1 No.

## 5.9 DIRECTIONAL ARROWS

Directional arrows shall be painted on all visible sides of ducting on 6'-0" centers and at equipment.

Directional arrows shall be stenciled on to two (2) visible sides of all piping as follows:

At all valves.

On 6'-0" centers for piping painted in a solid colour. Adjacent to the colour bands on piping which is color banded. Arrow size shall be aesthetically proportioned to the size of the pipe. Arrows shall be black on all piping where the background colour is other than Black and White on Black background.

## 5.10 LABELING

The contractor shall label all plants and equipment provided under the contract. This includes (but not by way of limitation) all valves, motor starter, fans distribution boards etc. labels shall be attached to valves (or pipe adjacent thereto) with a brass bond. Distribution boards, starters etc. shall be labeled to indicate the circuit number, phase and item controlled corresponding to schedules, diagrams etc. Coded sleeves shall be used on all cables and wire ends.

The labels shall be black plastic engraved with white letters or character in English language. The size of the label is to match the object it indicates such that the label can be clearly seen.

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**6.0 TECHNICAL SPECIFICATIONS FOR INSTALLATION, TESTING AND COMMISSIONING:****6.1 GENERAL:**

- (a) The Conditions of Contract and Special Conditions of Contract as given in Chapter-4 govern work specified herein.

The contract drawings indicate the extent and general arrangement of the air-conditioning system. Equipment, duct work and piping shall fit into the space allotted and shall allow adequate and acceptable clearance for entry, servicing and maintenance. Where component parts of equipment or system cannot be serviced without disturbing adjacent work resulting from original installation of other work, corrective action satisfactory to the Consultant shall be taken, without any additional cost to the Owner.

- (b) Capacities of equipment and materials shall not be less than those indicated.

- (c) Conformance with Agency requirements: Where materials or equipment are specified to conform to requirements of the Boiler Code of Pakistan, Under-writer's Laboratory, Inc., Air-conditioning and Refrigeration Institute of Heating, Refrigeration and Air-conditioning Engineers, etc., the Contractor shall submit proof of conformance. The label or listing of the specified agency will be acceptable evidence. Where equipment is specified to conform to requirements of the ASMC Boiler and Pressure Vessel Code, the design, lubrication, and installation shall conform to the code in every respect.

- (d) Nameplates: Each major item of equipment shall have the manufacturer's name, address serial and model numbers on a plate securely attached to the item.

- (e) Protective and Access requirements: Belts, pulleys, chains, gears, coupling, projecting setscrews, keys and other rotating parts are so located that any person in close proximity shall be fully enclosed or properly guarded. High temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of a type specified in Clause - THERMAL INSULATION. Items such as catwalks ladders and quadrails shall be provided where indicated for safe operation and maintenance of equipment.

- (f) Verification of dimensions: The Contractor shall visit the premises to thoroughly familiarize himself with all details of the work and working conditions and verify all dimensions in the field, and shall advise the Consultant of any discrepancy before performing any work. The Contractor shall be specifically responsible for the coordination and proper relation of his work to the building structure and to the work of all trades.

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## 6.2 **EQUIPMENT AND MATERIAL:**

### 6.2.1 General:

These shall conform to the respective publications and other requirements specified herein, and as shown on the drawings and shall be the products of the manufacturers regularly engaged in the manufacture of such products. Items of equipment shall essentially be duplicate of equipment that has been in satisfactory use at least 2 years prior to bid opening and shall be supported by a service organization that is, in the opinion of the Consultant, reasonably convenient to the site. It shall be solely the Contractor's responsibility to ensure that the equipment supplied by him shall fit into the space allotted for the purpose. If at any stage it is detected that the equipment supplied by him cannot fit into the space provided for the equipment, then the Contractor shall be responsible for supplying other equipment of suitable size, without incurring any additional cost to the Owner.

### 6.2.2 Approval of Equipment and Material:

Before starting installation of any material or equipment, the Contractor shall submit to the Consultant for approval working drawings of all areas and lists of materials and equipment to be incorporated in the work. The layout drawings shall include a plan and elevations of the proposed piping, ductwork and equipment to establish that the equipment will fit the allotted space with clearances for installation and maintenance. The drawings shall show proposed details for attachment anchoring, and hanging to structural framing of the building; vibration isolation units; foundation and support; location and size of sleeves and prepared openings for passage of pipes and ducts. If departures from the contract drawings are deemed necessary by the Contractor, details of such departures including changes in related portions of the project and the reasons thereof shall be submitted with the drawings. Approved departures shall be made at no additional cost to the Owner.

A complete electrical connection diagram, for each electrically controlled component having more than one automatic or manual control device, shall be submitted to the Consultant for approval in addition to the automatic temperature control diagram required herein-after. Wiring diagrams shall identify each component and one diagram shall show all interconnected or interlocked components. The lists of materials and equipment shall be supported by sufficient descriptive material, such as catalogs, diagrams, performance curves, charts, layout drawings and other data published by the manufacturer, to demonstrate conformance to the specification requirements; model numbers alone will not be acceptable. The data shall also include the name and address of the nearest service and maintenance organization that regularly stock repair parts. Listings of items that function as parts of an integrated system shall be furnished at one time. One copy of the layout drawings, wiring diagrams and lists will be returned, marked to indicate approval.

All material shall be submitted to the Consultants for approval and only approved material shall be supplied to the site.



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**6.3            ELECTRICAL WORKS:**

6.3.1            General: The Contractor shall be responsible for the complete power and control electric wiring of the air-conditioning system. Wiring on-wards from the available supply point to all motors, controls, etc., shall be the responsibility of the air-conditioning contractor. Power point shall be provided near exhaust fans.

6.3.2            Electric Wiring & Earthing: The electrification work shall be carried out by a Licensed Electrician, authorized to undertake such work under the provision of Pakistan Electricity Act & Rules. The installation shall be carried out in conformity with Pakistan Electricity Act & Rules and the latest edition of I.E.E. Wiring Regulations. Any special requirements of the local Electricity Supply Company shall be complied with.

All power and control wiring in the Plant Room shall be run in approval rigid and flexible steel conduits from the MCC to the motors, on the surface of walls, roofs & columns. Galvanized steel saddle and clamps of minimum 16 SWG, approved by the Consultants, shall be fixed to the surface using nylon plugs and galvanized steel screws, with a maximum distance of 3ft. between clamps. Pull boxes, having sized of 4"x4" & 2" deep and constructed of 18 SWG sheet steel shall be installed wherever required to limit the pulling length and for inspection. Final connection to motor or MCC shall be in a flexible steel conduit, provided with suitable bras glands and check nuts.

Cables to the Chiller from the MCC shall be armored, and shall be directly buried in the ground in a trench of 3.25ft. deep and 1.5ft. wide. The bottom of the trench shall be filled with sand of 4" deep and on top cables shall be laid in the sand. Another layer of sand 6" thick shall be laid over the cables, and topped with a layer of brick all along the trench length. Backfilling shall be with natural earth. The underground cables shall be laid with the recommended gap between them and completely tested before the backfilling.

Earthing continuity conductors shall be hard drawn base electrolytic copper wires of the recommended size for the motor being served and shall be run along the cables. Earthing to each motor of 1 HP and above shall be with 2 conductors. The minimum size for the earthing shall be 10 SWG.

**6.3.3            CONDUIT AND FITTINGS:****6.3.3.1        Installation:**

- i. Make bends and offsets with a hickey or power bender, without flattening or denting conduits. Surface conduits shall be supported by distance spacing saddles fixed at intervals not exceeding that specified in the IEE wiring regulations. Attached clamps to masonry walls by means of expansion shields, Use beam clamps or Erico 'Caddy Fasteners' to attached conduits of exposed steel work. Provide expansion couplings with bonding jumpers and clamps for conduits crossing building expansion joints. Refer to structural drawings for details.
- ii. Running couplers with lock nuts shall no be permitted. Only three piece conduit unions shall be accepted. Do not run conduit through structural floor slabs. Do not run any embedded conduit, in floors

slabs less than 100mm thick. Run conduits in floor slab only where no topping screed occurs.

- iii. Product conduit stub-ups from damage during construction, and seal the ends with plastic plugs or other approved devices to prevent the entrance of foreign material. Taping or similar protection is not acceptable. Where conduits pass through other floor slabs or fire wall, place seal in to the concrete or pass through a sleeve.
- iv. Install a nylon fish cord in each empty conduit. Each conduit shall have a cap and bushing at each end. Where conduits are connected to trunking, steel boxes, panels, switch gear ,or any item not having a tapped entry of 6mm or less, the connections shall be made by long threaded male brass bushings with a coupling and serrated spring washer after removing paint with a purpose made tool.
- v. Bushings shall be tightened with a tool specifically designed for that purpose plier or serrated wrenches shall not be allowed.
- vi. Sufficient draw in boxes shall be provided to permit easy wiring as followings

No of right angled bends	Max. Distance between draw boxes
Nil	10m
1	10m
2	6m
3	

- a. For clarification: a double offset in a conduit run constitutes the equivalent of one right angled bend.
- b. Not more than two right angled bends or 10m length of conduit shall be permitted between draw boxes. Vertical conduit runs more than 3.0m shall provide cable support using draw-in- box.
- vii. Each bend, offset adapter box, conduit box and the like, shall be supported 15Ømm (approx) from each side.
- viii. Saddles and boxes shall be secured by sherardized class 1 or stainless steel screws 30mm x No.8 minimum or equal.
- ix. Conduit capacity shall be in accordance with BS 7631/IEE wiring regulations
- x. Provide conduit fittings with suitable covers on runs of exposed conduit. Conduit fitting shall be of a type suitable for its particular environment. Cover shall be located so they will not be blocked by the future installation of additional conduit.
  - i) Install conduits in block walls as the walls are being erected, not by cutting after erection of the walls.
  - ii) All areas shall be considered finished unless indicated otherwise. Electrical rooms, mechanical rooms, stores, lift motor room and the like shall be classed as unfinished areas.
  - iii) Run exposed conduits in groups, parallel to building lines, accurately in line and level.
  - iv) Run conduit in fished areas concealed In building fabric and above suspended ceilings.

- v) Install conduits so there is no interference with access opening in ceilings, removal of ceiling tiles, or access to equipment in the ceiling space.
- vi) Do not install conduit within 150mm of water or heating pipes. Where crossing are unavoidable, maintain a minimum distance of 150mm from the pipe covering.
- vii) Do not run conduit through structural steel members, concrete beam or columns except as permitted in writing by the Engineer.
- viii) Requirement governing the installation of conduit apply equally to surface or exposed cable installations.
- ix) Do not run conduits larger than 25mm in structural floor slabs. Do not run any embedded conduit, in floor slabs less than 100mm thick.
- x) Run conduit in floor slab only where no topping screed occurs.
- xi) Protect conduit stub-ups from damage during construction, and seal the ends with plastic plug or other approved devices to prevent the entrance of foreign material. Taping or similar protection is not acceptable.
- xii) Where conduits pass through a water proof membrane, install sleeves with a 50 mm wide collar continuously welded all around, at membrane level. Ensure that the membrane is dressed over the collar. Sleeves shall be sized large enough to allow free passage of the conduits. Make the sleeves watertight with sealer after the conduits are installed.

#### 6.3.4 CABLE TRAY/ LADDER

##### 6.3.4.1 Installation:

- i. Accessories including bends intersections, tees, risers and reducing sections shall be purpose made by the tray manufacturer. Only one manufacturer's. Only one manufacturer's tray and accessories shall be used.  
Sizing of cable trays shall allow 30% spare capacity for future cables.
- ii. Care shall be taken to avoid any electrolytic action between dissimilar metals. Under no circumstances shall any copper sheathed cable or fitting be in direct contact with the galvanizing.
- iii. Off-sets and bands shall be sized to allow for the minimum permissible radius of the largest cable on the tray.
- iv. Earth continuity shall be maintained at all joints with suitable earthing links.
- v. Cable trays shall be out along a line of plain metal and not through perforations. Burrs or sharp edges shall be removed prior to the installation of tray section or accessories.
- vi. Bushing shall be provided through all holes out in the body of the tray.

- vii. Cable tray shall be made good at all joints or holes by first treating the surface with a suitable rust proofing agent, then applying finishes comparable to the remainder of the surface.
- viii. A minimum space of 75mm shall be allowed between trays and structures to provide for securing cable and for general maintenance.
- ix. Cable tray shall be secured to galvanized steel or stainless steel supports, fixed to the structure at not more than 3.0m intervals, depending on cable tray thickness.
- x. Mid span joints shall be avoided joints shall be positioned as close to the support as practical. Fixing of supports shall utilize "Rawlbolts" or equal.
- xi. Proprietary clamps fixing bolt and the like shall be suitable primed and painted with two coats of zinc-enriched paint.
- xii. Cables shall be installed on trays in a single layer with spacing between cables of 1 times the largest cable diameter in accordance with the IEE wiring, Regulations, using plastic coated, metal reinforced clips or saddles and by proprietary cleats of a pattern recommended by the cable manufacturer.
- xiii. Not more than four cables shall be secured by a single clip or saddle. Binding tap fixing must not be used. On vertical tray installations load bearing cleats or saddles shall be used and securely fixed to the tray.
- xiv. Provide cable tray expansion joints at all locations where the tray crosses a building expansion joint and at other locations recommended by the manufacturer.
- xv. Where cables in tray pass through a floor or fire barrier interrupt the tray and provide an Electro tray cable transit with openings sized for the cables.
- xvi. Protect cables against mechanical damage for a minimum distance of 1800mm. above finished floor level.
- xvii. Provide ventilated galvanized sun shield cover plates on all cable trays exposed to the sun.

#### 6.3.4.2 TESTING:

- (a) General: Upon completion of installation and carrying out physical inspection of works, the Contractor shall perform field tests on all equipment and material before commissioning. All tests shall be performed in the presence of the Consultant's representative for the purpose of demonstrating the equipment or system compliance with specifications, and that each component shall electrically and mechanically function properly as intended. In general the tests shall be carried out in accordance with Section 'E' of Regulations for the Electrical Equipment of Buildings. The Contractor shall however insure that the requirements of the Local Electrical Inspector are met with, and the installation is duly approved by the Electrical

Inspector. Proper regards to manufacturer's instructions for testing procedures shall be given for equipment.

The Contractor shall furnish, install and maintain all tools, instruments, test equipment, material, etc., including all personnel required for carrying out the setting, adjustment and recording associated with the testing procedures. All tests shall be made with due consideration to the protection of installation and personnel carrying out the tests. Adequately qualified and trained staff shall supervise the tests. The procedure and sequence of testing shall be furnished to the Consultant at least 48 hours before starting of tests. The Contractor shall systematically keep a record of results of all tests carried out. Two copies of all test data and compiled results duly initialed by Engineer Incharge/Authorised Representative present during the tests shall be supplied to the Consultant for record purposes and approval obtained.

- (b) Insulation Resistance Test: Insulation Resistance tests shall be carried out on all electrical equipment and wiring, using a self-contained instrument such as direct indicating Ohmmeter of generator type. Only direct current potential shall be used for such testing; voltage range for the same are as under:

Circuits upto 250 volts : 500 volts D.C.

Circuits above 250 volts  
and upto 500 volts : 1000 volts D.C.

All cables before connection at switchgear of equipment shall be tested for insulation resistance. The test shall be carried out individually between each cable in circuit and also between cable and earth. The minimum acceptable value of insulation resistance shall be 1 Megohm.

Before making any connection all switchgear shall be tested for insulation resistance between live parts and earth. Insulation test on circuit breakers shall be carried out between the open contacts and between each phase and earth. The minimum acceptable value of insulation shall be 5 Megohms. If the Insulation resistance of any circuit or equipment under test is less than the specified values, the cause of low reading shall be determined and necessary corrective measures carried out. Tests shall be repeated after rectification of defective section for ensuring correct value of insulation resistance before commissioning.

- (c) Operational Tests:

All equipment power feeders shall be tested for operation under load conditions.

Each switch shall be checked to ensure that the operating mechanisms are working. Nameplates are also to be checked for proper designation with respect to the equipment connected. The Contractor shall identify the phases of incoming supply and all equipment, to ascertain that each circuit is connected in

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proper phase sequence. Wherever required phase identification markings or labeling shall be provided on switchgear and cables. Motors must be tested for proper rotation and stroboscopic effect.

#### 6.3.4.3 INSTALLATION OF ELECTRICAL EQUIPMENT

- i) All work shall be executed in a professional manner and shall conform to the highest standards applicable.
- ii) Install equipment in accordance with the general arrangement drawings. Unless actual dimensions are indicated, take such dimensions from final reviewed shop drawings and at the site.
- iii) Line up exposed conduit, trunking and cable trays parallel or at right angles to building lines. Set equipment level accurately. Install hanger rods without offsets and install rows of fixtures accurately in line and in level.
- iv) Flush-mount boxes, panels, cabinets and electrical devices in finished areas and provide suitable flush trims and doors or covers, unless specifically noted otherwise.
- v) All areas shall be considered finished unless indicated otherwise.
- vi) The locations of thermostats, outlets and control devices are as shown in the single line diagrams. Submit co-ordination drawings, which should indicate in elevation the location of wiring devices. Mount switches, thermostats and other controls as close to door Jambes and other openings as possible, maintaining a minimum of 100mm from trims of doors except where installed in door frames of metal partitions. Ensure that these locations meet with the approval of the Engineer. Check all doors swings and install switches on strike side of door.
- vii) The location of any outlet may be changed without a change to the Contract Sum provided the relocation does not exceed 1500mm for lighting, power sockets or telephone outlets and 300mm for motor outlets, switches or other electrical power loads.
- viii) Where the location of any item is shown on the architectural details or elevations, this location shall govern. No change to the Contract Sum shall be allowed for the relocation of any equipment improperly installed because of the failure to check all such details prior to the installation of the equipment. Notify the Engineer where details differ.

**6.4            THERMOMETERS, PRESSURE GAUGES:**

6.4.1            Thermometers: As specified in Chapter-6, shall be installed wherever shown on the drawings. Installation on both ducts and piping shall conform to the manufacturer's recommendations. On thermally insulated ducts, casing, equipment or piping standoff mounting brackets, bases, adopters or extended tubes shall be provided. These items shall provide clearance not less than the thickness of the insulation. Thermometers shall have ranges suitable for the fluid being served.

6.4.2            Pressure Gauges: As specified in Chapter-5, shall be installed where shown on drawings. These shall be installed with ball valves to serve as gauge cocks. For pressure gauges installed on steam line, a coil siphon shall be installed. Gauges shall be screwed in so that no leakage exists, and shall be installed in a neat and workmanlike manner and the dials aligned for convenient reading.

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## 6.5 CLEANING, TESTING, BALANCING AND TEST DATA

### 6.5.1 General

- a) The entire testing balancing and adjusting process to be thoroughly organized & planned. All activities, including the organization, procurement of required test instrumentation and the actual system should be scheduled as soon as practical after the installation has been completed.
- b) The contractor shall appoint an independent agency specialized in the testing & balancing of HVAC systems and their appointment must be subjected to consultant's approval.
- c) Testing and balancing shall be performed in accordance with NEBB (National Environmental Balancing Bureau) USA, code of practices and all final reports shall be signed and certified by the agency appointed to perform such works.
- d) The TBA agency must carry out the preparatory works which shall include the planning and scheduling of all TBA procedures, collecting the necessary data, reviewing the data collected, studying the system to be balanced, recording the published data on the test report forms, and finally, making preliminary field checks of the HVAC equipment and systems.

6.5.2 Cleaning and Adjusting: Pipe shall be cleaned free of scale and thoroughly flushed of all foreign matter. Temporary bypass shall be provided for all water coils to prevent flushing water from passing through coils. Strainers and valves shall be thoroughly cleaned of all debris and blown free of all small particles of rubbish and dust before installation of outer faces. Equipment shall be wiped clean, with all traces of oil, dust or paint spots removed. Temporary filters shall be provided for all fans that are operated during construction, and after all construction dirt has been removed from the building, new filters will be installed.

Bearings shall be properly lubricated with oil or grease as per recommendations of the manufacturer. Belts shall be tightened to proper tension. All control valves and other miscellaneous equipment requiring adjustment shall be adjusted for setting indicated or directed. Fans shall be adjusted to speed indicated by the manufacturer to meet the specified conditions.

### 6.5.3 Testing:

- (a) Piping: After cleaning, water and steam piping shall be hydrostatically tested at a pressure equal to 150% of the maximum operating pressure for a period of time sufficient to inspect every joint in the system and in no case less than two hours. No loss of pressure will be allowed. Leaks found during tests shall be repaired by rewelding or replacing pipe or fittings. Caulking of joints will not be permitted. Concealed piping shall be tested in place before concealing. Tests shall be conducted



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in the presence of the Consultant or the Consultant's representative who shall be given 10 days' notice before any test is to be conducted. Water and electricity required for the test shall be furnished by the Owner. Any material, equipment or instruments required for tests shall be provided by the Contractor.

6.5.4 Balancing:

- (a) Water piping system shall be balanced to produce water quantities as indicated with all automatic control valves open. This shall apply to steam piping also.
- (b) Duct system shall be balanced to produce air quantities within 5% of that indicated.

6.5.5 Performance Tests: After cleaning, balancing, and testing operations have been completed, as hereinbefore specified, the system shall be tested as a whole to see that all items perform as an integral part of the system, and that temperature and conditions are evenly controlled throughout the building. Corrections and adjustments shall be made as necessary to produce the conditions indicated, at no additional cost to the Owner.

6.5.6 Test Data:

General: The Contractor shall provide the Consultant with typewritten schedules of readings taken during the balancing and testing operation for the following items:

6.5.7 Water Balance:

- (a) Pumps:GPM, suction head, discharge head, rpm, motor load in amperes and voltage.
- (b) Chillers: Evaporator gpm, evaporator pressure drop, evaporator entering water temperature, evaporator leaving water temperature and power consumption.
- (c) Air Handling Unit:gpm through each Air Handling Unit.

6.5.8 Control Setting: The actual on site setting of all automatic controls including thermostats, safety controls, minimum damper settings, fan safety thermostats, pressure controls, temperature and humidity controls and other similar items shall be provided in the form of a tabulated list indicating type of control, location, setting and function.

6.5.9 Other Equipment: The contractor shall also provide written data on the performance of any other equipment; in the form and manner and giving all information required by the Consultant/Engineer. The Contractor shall also submit a certificate along with all test reports submitted, certifying that all test have been carried out by competent engineers, and that all data submitted has been verified and found to be correct.

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## 6.6 PAINING AND FINISHING:

6.6.1 General: Painting shall include furnishing labour, materials, equipment, ladders, scaffolding, protective covers, other items required to prepare and finish surfaces of work specified herein or in any other sections.

Paint shall be applied as per manufacturer's printed application directions. Paint color schemes shall be specified at the time of painting or earlier.

Paint shall be applied to the following:

- (a) Materials and Equipment: All materials and equipment factory fabricated, imported or otherwise shall be provided with a fresh coat of paint, of same color as the original factory-paint. Unless otherwise directed by the Consultant. The items covered under this head shall include chillers, air handling units, pumps, fans, etc.
- (b) Piping and Pipe fittings and valves etc., shall be provided with two coats of red lead from an approved manufacturer. Chilled water piping shall be further provided with two finish coats. All valves etc. shall be painted in a colour, different from the colour on the adjacent pipe.
- (c) Hangers and Supports shall be provided with two coats of red iron from an approved manufacturer. All hangers and supports exposed to view shall be further provided with two coats of finish paint of an approved colour.

All new surfaces to be painted be prepared properly to receive prime coat of paint. Surfaces shall be scraped or wire-brushed to remove mill scale, rust and clean with solvent or remove grease, oil and dirt. All surfaces shall be thoroughly dried before application of paint. Prime coat shall be suitable for subsequently applied finish coats. For prime coat red lead paint of an approved manufacturer shall be used, such as 'KROMIC' Synthetic Red Lead by Johnson & Nicholson shall be used.

Before finish coat is applied to all prime coated surfaces shall be properly touched up. The equipment and piping shall not be finished painted until they have been tested and approved. All succeeding coats shall be applied only when the undercoats are thoroughly dried.

For piping system identification a colour scheme based on American Standard "Scheme for identification of Piping System", "ASA A-13.1-1975" shall be specified and get approved by the Consultant and then this color scheme shall be used to finish painting.

6.6.2        Stenciling: The Contractor shall stencil near each valve on the pipe, the name of the fluid. Also an arrow should be painted next to the legend indicating the direction of flow in pipe. The stencil legend shall be placed in a location so that it can easily be read from the floor.

6.6.3        Identification Tags shall be installed on valves, controls and other parts of the system where directed to do so. Tags shall be polished or lacquered brass or aluminum, 40mm round, or octagonal with stamped letters or numbers, 12mm high, filled with black paint and fastened securely with brass "S" hooks or chains.

The Contractor shall further provide charts, diagrams, of size and type as approved designating number, service or function and location of each tagged item.

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## 6.7 OPERATING AND MAINTENANCE INSTRUCTIONS

6.7.1 Bound Instructions: Five (5) complete sets of operating and maintenance manuals, duly approved by the Consultant, shall be supplied by the Contractor, prior to hand over of the project to the Owner. Each set shall be permanently bound and shall have a hard cover. Each manual shall be inscribed with suitable legend for proper identification and use of the manual. The matter shall be legibly typed and/or shall be clear Photostat copies of the original documents, catalogues, etc.

Flysheets shall be placed before instructions covering each subject. The instruction sheets shall be approximately 8½" by 11", with large sheets of drawings folded in. The manual shall be arranged in two parts, and shall generally conform to the arrangement shown below.

### Part I - Systems

1. The system volumes shall be organized into divisions wherein each division represents a generic function. System shall then be classified under appropriate divisions.
2. The material for each system shall then be organized in sections descriptive of the following basic areas of information:
  - (a) Descriptive Information
  - (b) Operating Instructions
  - (c) Inspection and maintenance instructions.
3. Sections shall be organized to include the following categories of information:
  - (a) Descriptive Information:
    - (1) Function of service.
    - (2) Classification.
    - (3) Design capability.
    - (4) Performance characteristics.
    - (5) Principal components.
    - (6) Distribution arrangement.
    - (7) Schematic diagram.
    - (8) Control diagram.
    - (9) Equipment data:
      - (i) Inventory designation.
      - (ii) Manufacturer and Model.
      - (iii) Size and rating.

(b) Operating Instructions:

- (1) Starting and stopping procedures.
- (2) Adjustment and regulation.
- (3) Seasonal change-over.
- (4) Seasonal start-up.
- (5) Seasonal shutdown.
- (6) Logs and records.

(c) Inspection and Maintenance:

- (1) Inspection schedule & checklist.
- (2) Schedules and procedures for lubrication, adjustment, cleaning, painting, protection and testing.
- (3) Inspection and maintenance record.

## 4. Reference Documents.

- (a) Construction drawing list.
- (b) Construction Specifications.
- (c) As-built record drawings.
- (d) Test and balance records.

**6.8 MAINTENANCE OF THE PLANT FOR TWO YEARS**

6.8.1 Test Run: After completion of the installation of the System the Contractor shall carry out a two months test run in summer. The completion certificate shall be provided on completion of the test run to the satisfaction of the Consultant and in keeping with the stipulations of relevant clauses of the General & Special Conditions of Contract. This test run shall be construed to form a part of the "Performance Tests" specified hereinbefore.

6.8.2 Maintenance of the Plant: The Contractor shall be required to maintain the plant for a period of two years after issuance of the Certificate of Completion, in compliance with the stipulations of the relevant clauses in the General and Special Conditions of Contract.

**6.9 OPERATION OF THE PLANT FOR TWO YEAR**

6.9.1 General: In addition to the contractual obligations of the Contractor to provide defects liability for a period of two (2) years as defined in the Special Conditions of Contract, the Contractor shall be required to undertake the complete Operation and Maintenance of the plant for a period of two (2) years. The period of contractual operation and maintenance shall be deemed to have commenced when the Client instructs the Contractor in writing to undertake the same.

Separate / independent staff has to be deputed for maintenance work and also for installation work.

Under the contractual operation and maintenance Program, the Contractor shall be required to operate and maintain the complete air-conditioning system on a 12 hours and 365 days a year basis for a period of two (2) years. The Contractor is required to note that the project is commercial in nature and the Contractor is understood to have taken this into cognizance in the submission of his bid for this item of the Bill of Quantities.

The Employer's Representative shall be at liberty to object to and require the Contractor to remove forthwith from the site the Agents or any other person employed by the Contractor or any sub-contractor who in the opinion of the Employer's Representative mis-conducts himself or is incompetent or otherwise considered by the Employer's Representative to be undesirable and such person shall not be again employed for the purpose of or in connection with the contract without the written permission of the Employer's Representative. Any person so removed shall be replaced immediately by a competent substitute approved by the Employer's or the Employer's Representative shall relieve the contractor of any of his liabilities under the contract or give rise to any right to compensation or to any other claim.

The Contractor shall be required to have at least the following staff present on site during the defects liability period which is two (2) years in fulfillment of his contractual obligations under this clause.

- |     |   |          |
|-----|---|----------|
| (a) | Supervisor having an experience of at least seven (7) years and possessing at least DAE Diploma and/or BTECH Mechanical /Refrigeration.   | - 1 No.  |
| (b) | Industrial Electrician of at least 5 years experience in the requisite field with Electrical Experience and possessing at least DAE Electrical Diploma.                             | - 1 No.  |
| (c) | AC Mechanic having experience of at least five (5) years in Air Cooled type chillers & matriculation certificate and one year certificate course in refrigeration air conditioning. | -2 No.   |
| (d) | General Fitter having experience of at least Five (5) years in Chiller & Matriculation certificate.   | -1 Nos.  |
| (e) | AC Technician having experience of at least Seven (7) years in Air Cooled type chillers & matriculation certificate.  | -2 Nos.  |
| (f) | Helpers at least literate.  | - 2 Nos. |

In addition to the above the Contractor shall ensure that Senior Engineers shall be on call to rectify defects and faults occurring in the system, if the same are beyond the capacity of the operation and maintenance staff. This service shall be provided within the cost quoted for this item. Also any additional skilled/unskilled manpower required for rectification of fault/defects, shall be provided by the Contractor within the cost quoted.

#### 6.9.2 Scope of Work

- (a) The Contractor will be responsible for plants operation, complete servicing and maintenance of all plants, equipment and accessories including minor repairs, annual overhauling and servicing. Major repairs when required are not included in the scope of work, unless covered by the Clause "Guarantee for Plant".
- (b) The Employer would be responsible for the following
- (i) Electricity, fuel and water supply.
  - (ii) Water treatment chemicals and any special lubricants or oils.

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- (iii) A suitable office with intercom facility to allow the Contractor's Supervisor for contact.
- (c) The Contractor would be responsible for the following:
- (i) All labour, tools and instruments required for operation, regular and annual servicing, overhauling & maintenance and minor repairs.
  - (ii) To keep the plant rooms, Air-cooled Chiller, AHU rooms, Store and adjoining staircases and passages clean and neat. Cleaning to be done every day.
  - (ii) All material/spare parts shall be provided by contractor during defect liability period of 2 years. SLIC will only provide lubricant, water, electricity, chemical and waste cotton. No spare parts supplied as part of contract will be provided to the contractor during defect liability period.
- (d) The Contractor shall ensure that the plants are operated, maintained and serviced efficiently to avoid any breakdown during normal operation. The Contractor shall also ensure economical consumption of the materials and spare parts supplied by the Employer.
- (e) The temperature of different rooms shall be recorded twice daily, and the equipment operational observations shall be recorded at suitable intervals. All observation shall be recorded in approved log sheets prepared in duplicate. One set shall be supplied to the Employer's Representative every day.
- (f) The Contractor will detail the staff listed above for the operation and maintenance of the plant who will work exclusively in the Building and shall not be delivered to the contractor's other installation while operation and maintenance of the Employer's plant is carried out. The staff must remain at site of work during their working hours and should have sufficient qualifications and experience in their respective trades.
- (g) The Contractor shall arrange periodic visits of his Senior Engineer from Head Office to check the operation of the plant and for general servicing work. The Contractor will submit an Inspection Report to the Employer in first week of every quarter.
- (h) The Contractor must ensure good behavior by his staff and contractor's Supervisor should liaison with and follow the instruction of the Employer's Representative particularly regarding the entry of contractor's staff to the Building occupied areas.

### 6.9.3 Payment

- (a) Payment shall be made on a monthly basis for the operation and maintenance as quoted by the contractor. The total contract amount shall be the total quoted price less the amount quoted for operation maintenance for two (2) years on monthly basis.

- (b) In case the Employer requires the plant to be operated on Sundays and other listed holidays or beyond regular working hours, on any week day, the contractor will be given 24 hours' notice, and in such a case the contractor shall be paid at the rate of Rs.500/= per hour or as agreed by the owner and the consultant.
- (c) The Contractor must ensure the proper functioning of the plants. In case of unsatisfactory functioning or failure of the plants on account of negligence of the Contractor, his agent or employees, of which the Employer shall be the sole judge, the Employer will have the right to terminate this Agreement by giving a written notice of three months. In case the Employer requires immediate termination, he shall pay the charges for two months in lieu of the notice requirements.
- (d) The Employer reserves the right to make deduction for the periods of interrupted operation of the air-conditioning plant on prorata basis.



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**6.10**      **INSTALLATION****6.11**      **FOUNDATION**

- A. Chiller shall be installed on 6" high concrete foundations, constructed of 1:2:4 cement concrete with nominal reinforcement. Foundation shall be finished with 5mm cement plaster & all edges shall be provided with 25x25x3mm angle iron.

**6.12**      **COMMISSIONING & TESTING:**

- A. The Contractor shall provide a factory-trained Commissioning Engineer, employed by the chiller manufacturer, to place unit into operation, and calibrate all controls in accordance with the manufacturer's written start-up, operating, and maintenance instructions.
- B. The Commissioning Engineer shall furnish a start-up log indicating that proper operating sequences and operating and safety control functions are obtained.
- C. The Commissioning Engineer shall subject the chiller(s) to tests recommended by the manufacturer.

**6.13**      **TEST RUN**

- A. The Contractor shall test run all chillers simultaneously.
- B. The Contractor shall maintain a log of all operating parameters, and provide the same to the Owner/ Consultant.
- C. The Contractor shall monitor the operation of the chillers closely and monitor that proper operation of the chiller, operating sequences and operating and safety control functions are being obtained.
- D. During the Test Run period, the Commissioning Engineer shall instruct the owner's personnel in the proper start-up, operating, and maintenance procedures of the chillers.

**6.14**      **SERVICE CONTRACT**

- A. The Contractor shall provide Service Contract services for a period indicated in the BOQ and in accordance with the Service Contract entered with the Owner.

## **7.0 MEASUREMENT AND PAYMENT**

### **7.1 GENERAL**

The cost of all materials, labour, equipment and works required by Special Provision and technical Provisions of Specification shall be considered to be included in the prices quoted against each item in the Bill of Quantities acceptably furnished, installed, tested, and commissioned as per Drawings, Specifications and Engineer's Instructions, unless expressly excluded.

Price adjustments will be made for items with specific quantities as given in BOQ, in case the finally measured quantities differ with those given in the BOQ. These adjustments will be made at the basic rates quoted in the BOQ. No such adjustments will be made for "LOT" and "JOB" items.

### **7.2 WORKS**

Measurement:

Measurement of acceptably completed works of these items and associated accessories will be made on the basis of actual number provided and work acceptably furnished, installed, tested and commissioned. No measurement will be made for fixing accessories, nuts, bolts, gaskets, etc.

Payment:

Payment will be made for acceptable measured number of respective items on the basis of rate per number quoted in the Bill of Quantities. The unit rate shall include cost of all fixing accessories and shall constitute full compensation for all the works related to these items.

**BILL OF QUANTITIES FOR COOLING TOWER REPLACEMENT**  
**STATELIFEBUILDING # 01 KARACHI**

Item No.	Description	Qty	Unit	Rates	Amount
	Supply, delivery & installation of Cooling Tower system and material as per schedule, specifications and drawings complete in all respects and ready for use required for completion of job and successful operation of system. This work also includes cutting, chipping and making concrete base with the prior permission of engineer in-charge and making good all the damages.				
	<b><u>Sub-Head "A" Mechanical</u></b>				
1	<b>Cooling Tower</b>				
a	Cooling towerFRP, Induced draft, Cross flow net capacity 400 TR as per schedule	1	Nos.		
b	Spares for cooling towers as per list given in tender or as per standards.	1	Lot		
2	<b>Piping Details MS Schedule(with corrosion proof paint)</b>				
a	6 " dia	30	Rft.		
b	8 " dia	28	Rft.		
9	<b>Instruments, Valves &amp; Fittings</b>				
a	Gate Valve for Cooling Tower	2	Nos.		
	6" dia				
b	Strainer	1	Nos.		
	8" dia				
c	Pressure Gauge	2	Nos.		
d	Thermometer	2	Nos.		
	<b>Total of Sub Head "A"</b>				
	<b><u>Sub Head "B" Civil Works</u></b>				
1	Supply, delivery & installation of following material as per specifications and drawings complete in all respects required for completion of job and successful operation of system.				
	<b>CONCRETE (PLATFORM/BASE/SUPPORT)</b>				
1	Concrete Base(As per the equipment dimensions)	1	job		
	<b>Total of Sub Head "B"</b>				
	<b><u>Sub Head "C" Electrical Work</u></b>				
1	Installation, Testing & Commissioning of following SMDBs as per drawings and specification complete in all respect. The enclosure, Bus arrangement etc. shall comply with specifications & IEE regulations. work include fixing, termination of incoming & outgoing cables using all necessary cable lugs & nut bolts etc.				
1.1	<b>MCC-01</b>	1	Nos		
2	Providing and fixing of PVC/PVC Copper Conductor unarmored cable 600/1000V grade in PVC/RCC conduit complete in all respect as per drawings and specifications.				

Item No.	Description	Qty	Unit	Rates	Amount
2.1	6X1C-6 Sq.mm. CU.PVC + 2X1C-4 Sq.mm. CU.PVC+2X1C-4 Sq.mm. CU/PVC/YG/ECC fed from Existing Lt Panel to MCC-01	50	Rft.		
2.2	6X1C-6 Sq.mm. CU.PVC + 2X1C-4 Sq.mm. CU.PVC+2X1C-4 Sq.mm. CU/PVC/YG/ECC fed from MCC-01 to CTM-01 & 02.	50	Rft.		
<b>3</b>	<b>Cable Tray</b>				
3.1	Providing and fixing of 18 SWG sheet steel perforated hot dip galvanized cable tray with cover complete in all respect as per drawings and specifications.				
(a)	4" x 4"	50	Rft		
<b>Total of Sub Head "C"</b>					
<b><u>Sub Head "D" Miscellaneous Work</u></b>					
1	Any Other item or quantity not mentioned above but required for the competition of job and satisfactory operation of system.	1	Job		
<b>Total of Sub Head "D"</b>					
<b><u>Sub Head "F" Dismantling and Purchase of Existing Equipment by Bidder</u></b>					
1	Dismantling, Removal including transportation and Purchase by bidder of existing Cooling Tower System currently installed on site	1	Job		
<b>Total of Sub Head "E"</b>					
<b>Grand Total A+B+C+D (A Plus B Plus C Plus DMinus E)</b>					

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## SUMMARY OF COST

Total Of Sub Head "A"                      Rs. \_\_\_\_\_

Total Of Sub Head "B"                      Rs. \_\_\_\_\_

Total Of Sub Head "C"                      Rs. \_\_\_\_\_

Total Of Sub Head "D"                      Rs. \_\_\_\_\_

Total Of Sub Head "E"                      Rs. \_\_\_\_\_

Grand Total of A+B+C+D-E=              Rs. \_\_\_\_\_

Total Rupees In Words:                    ( \_\_\_\_\_ )

## INTEGRITY PACT

MUST BE SIGNED AND STAMPED BY BIDDER AND INCLUDED IN THE  
FINANCIAL BID ENVELOPE

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.  
PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN  
CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: \_\_\_\_\_ Dated: \_\_\_\_\_  
Contract Value: \_\_\_\_\_  
Contract Title: \_\_\_\_\_

[name of supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

Without limiting the generality of the foregoing, [name of supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[name of supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

\_\_\_\_\_  
[Client]

\_\_\_\_\_  
[Bidder]

**MANUFACTURERS OF HVAC WORKS. THIS LIST IS TO BE USED  
AS GUIDELINES ONLY FOR THE LEVEL OF KNOWLEDGE, SKILLS  
AND QUALITY DESIRED FOR THE PROJECT**

**AS PER PPRA RULE 10, THIS LIST IS BEING PROVIDED FOR  
REFERENCE ONLY AND SHALL NOT IN ANY WAY CONSTITUTE  
ANY BRAND OR ORIGIN PREFERENCE BY THE CLIENT  
OR THE CONSULTANT**

<b>S.#</b>	<b>Name of Equipment / Material</b>	<b>Brand Name / Origin of Make</b>
1	Cooling Tower	a. Marley - USA b. Baltimore - USA c. Kukun - Japan d. Shinwa - Japan
2	Valves, Pressure Reducing Valves accessories /fittings and automatic air vents	a. KITZ b. Hattersly c. Gala d. Watts e. Singer f. NIBCO g. Econosto h. or equivalent
3	Thermometers / Pressure Gauges	a. Terice b. Weiss c. Weskler d. or equivalent
4	LV cubicle ,switch board, Motor Control center, Desk control' Panel, DBs, ACPs	a. KarimiElectromech b. Libra Engineering c. Taj Engineering d. Baber Brothers e. Prem Engineering f. or equivalent
5	Electrical Motors	a. Siemens b. or equivalent
6	M.C.C.B / M.C.B./ACB	a. Schneider b. Terasaki c. Legrand d. General Electric e. or equivalent

<b>S.#</b>	<b>Name of Equipment / Material</b>	<b>Brand Name / Origin of Make</b>
7	Magnetic Contactor	a. National Green Power b. Schneider c. General Electric d. or equivalent
8	L.T Cable and Wires	a. Pakistan Cable b. A.G.ECable c. or equivalent
9	Steel Conduit	a. Hilal b. Premier c. or equivalent
10	PVC Conduit / Pipes	a. Galco b. Beta c. Dadex d. or equivalent
11	Cable Tray, Cable Ladders	a. EZZI Engineering b. Karimi Electromech c. Taj Engineering d. or equivalent
12	Pressurized Expansion Tank	a. Elbi b. or equivalent
13	Hanger/ Supports for Piping and Ducting	a. Sikla b. Hilti c. Fischer d. or equivalent
14	Voltmeter / Ammeter	a. Hager b. Revalco c. Kraus & Naimer d. or equivalent
15	Indicating Light	a. Hager b. Maruyasu c. or equivalent
16	Load Break Switch	a. Socomec b. General Electric c. or equivalent
17	Selector Switch	a. Revalco b. Merz c. or equivalent



<b>S.#</b>	<b>Name of Equipment / Material</b>	<b>Brand Name / Origin of Make</b>
18	Push Button & Indicating Light	a. Maruyasu b. or equivalent
19	Protection Relay	a. Emirel b. General Electric c. or equivalent
20	G.I Pipe	a. Steelex b. IIL c. or equivalent e. or equivalent